



October 23, 2019

Chairman Tom Mullikin
South Carolina Floodwater Commission
Office of the Governor
South Carolina Statehouse
1100 Gervais Street
Columbia, SC 29201

Dear Chairman Mullikin,

These comments are submitted on behalf of The Pew Charitable Trusts' flood-prepared communities initiative regarding the South Carolina Floodwater Commission's Initial Task Force Report Finding released August 26, 2019. We applaud the Commission for thoughtful evaluation of the economic, public safety, infrastructure, and environmental considerations related to flood mitigation and resiliency in the state.

Pew's flood-prepared communities initiative works to reduce the impact of flood-related disasters by improving federal and state policy and programs. We greatly appreciate this opportunity to share our comments regarding the findings.

Prioritize Nature-Based Solutions

The Commission highlights the multiple benefits of nature-based solutions and recognizes that these mitigation actions should be a priority strategy for the state to reduce the effects of flooding. Pew supports continued focus on the value of natural flood defenses and recommends the same emphasis be made throughout implementation and in determining funding priorities.

Protecting wetlands and floodplains will ensure that the natural hydrology of these landscapes can continue to provide valuable flood mitigation by absorbing and slowly releasing excess water downstream. Pew supports the Commission's call for restricting development within floodplains to preserve floodwater management capacity. In addition to the preservation of undisturbed natural spaces, the Commission should also encourage policies that incentivize the restoration of wetlands, saltmarsh, forests, and bottomlands to increase floodwater retention. These projects merit focused attention from the Commission because of the additional environmental service benefits and recreational uses that green spaces provide. As the Commission states, wetlands can reduce flooding peaks by 60 percent.

The Commission appropriately identified the hazard of development in floodplains and should further direct agency action to specify standards that will avoid risky investments in flood-prone

areas. This could include expansion of risk-intervals for siting state projects, applying a no-adverse impact approach or low-impact development standards for all state investments.

Low-impact development standards ensure that state-funded and private construction will maintain or improve natural hydrologic conditions of the property. These practices reduce risk both onsite and within the watershed by preserving natural groundwater infiltration and allowing excess water to gradually flow downstream. The Commission should encourage development that works with natural processes to remove stormwater and avoid increased vulnerability to flood damage.

The Commission has also highlighted the acquisition of repeatedly flooded properties and restoring lots to open green space as another viable mitigation strategy. Removing at-risk structures, people, and assets from harms' way can help to reduce future losses, and provide storage space for excess water, thus providing benefit to surrounding communities.

Jurisdictions, including Greenville, South Carolina, have utilized newly acquired property as recreational areas, which have helped revitalize downtown districts and to store water during heavy rainfalls. The State should encourage other communities to take similar protective actions by prioritizing buyout projects with incoming disaster funds and other state resources.

Additionally, Pew recommends that funding priority be given to those localities which, on their own or in cooperation with neighboring communities, have identified problem areas or those with the greatest potential for restoring the flood-mitigation function of natural floodplains. This strategy would be preferable to a piecemeal-style approach that could result in individual, unplanned acquisitions.

a. Natural defenses to storm surge and erosion

A part of its efforts to encourage the use of living shorelines to address erosion and flooding, the Commission should recommend permit standards that require applicants to first consider non-structural alternatives to proposed projects. States including Maryland and Alabama have recognized the importance of living shorelines for reducing erosion and protecting natural defenses. These states authorize permits for hard structures only when the applicant has shown that nature-based mechanisms are not feasible. Maryland advanced this policy change based on findings that hardened shorelines were detrimental to beach habitats and shorelines' natural functions in reducing wave energy and water absorption, further worsening shore conditions around the structure and for nearby properties. By contrast, natural defenses can often be less costly and more effective than structural armoring. One study conducted after Hurricanes Irene in 2011 and Arthur in 2014 found that surveyed waterfront property owners in North Carolina protected by bulkheads experienced, on average, twice the property damage costs compared to those who had natural features safeguarding their shoreline.¹ From a cost-savings standpoint, living shorelines can be less expensive for property owners to install, can cost two times less in annual maintenance expenses, and often recover from storms on their own and become stronger over time.²

¹ Carter Smith, et al., "Hurricane Damage Along Natural and Hardened Estuarine Shorelines: Using Homeowner Experiences to Promote Nature-Based Coastal Protection" *Marine Policy* Vol 81 (July 2017) <https://www.sciencedirect.com/science/article/pii/S0308597X17300477?via%3Dihub>.

² Ibid.

b. Data-driven solutions

The Commission should ensure that all nature-based components are supported as cost-effective measures by the scientific community. Pew supports the Commission's efforts to thoroughly study strategies, including artificial reefs, river channelization, and constructed reservoirs, before investing resources and modifying natural topography. Although key finding #9 identifies potential economic benefits to manipulation of water flow patterns, the Commission should exercise caution for unintended consequences of the disruptions. The Commission should strongly recommend a review of existing studies on these methods, as well as site specific analysis of any proposed location.

Maximize benefits of investment through planning and coordination

a. Watershed level approach

As the State considers a long-term flood management plan, the Commission should identify strategies to facilitate cross-jurisdictional efforts. Communities within a watershed should be encouraged, if not required, to coordinate plan development and flood mitigation strategies with consideration for the entire river basin. Floods are not constrained by jurisdictional lines; mitigation efforts should not be either. Investments in protection projects are most effective when communities within a watershed work together to address underlying vulnerabilities. Similarly, failure to consider downstream or cross-watershed impacts of land use decisions can worsen flood risk for neighboring or downstream communities and ultimately prove ineffective in reducing overall damage costs.

Louisiana utilizes a watershed approach to coordinate local efforts through a multi-agency Council for Watershed Management focused on “empowering local jurisdictions and communities to implement regional, long-term solutions that follow watershed boundaries and can cross local political boundaries.”³ The Council supports watershed coordination by providing technical assistance for monitoring efforts, identifying information gaps, and providing capacity-building grants. Louisiana's approach can serve as a model for South Carolina's investments in flood management.

b. Coordinated efforts

The Commission wisely identified the need for centralization of resources within the State. The State's investments should be guided by a focused coordination across agencies and among levels of government. The centralized unit – an interagency working group, or a new entity altogether – should establish a statewide understanding of flood risks and vulnerabilities with a culmination of existing studies and identification of information gaps, as well as best practices for agencies and localities to incorporate flood concerns in their decision-making processes. Continuing the work conducted by The Commission, the new centralized unit should continually work with agencies and lawmakers at the state level to improve policy and regulations to better protect the state from flooding.

³ Louisiana Watershed Initiative, A Long-Term Vision for Statewide Sustainability and Resilience,” (August 2018) [http://gov.louisiana.gov/assets/docs/Watershed-Initiative-Vision-White-Paper-8-15-18-\(2\)-.pdf](http://gov.louisiana.gov/assets/docs/Watershed-Initiative-Vision-White-Paper-8-15-18-(2)-.pdf).

The State's centralized unit should also guide localities to ensure that local land use decision work in tandem with larger strategies to reduce flood vulnerability. The centralized unit should empower local resilience planning with model land use standards, technical assistance, and facilitated cooperation between neighboring localities and sectors of government.

c. Understanding the risk

To inform the State's coordinated efforts, the Commission should call for increased investment in flood risk assessment and analysis. The Task Force's key recommendations call for shared river model data, but this should extend to all flood-risk data, including coastal inundation patterns, stormwater back-ups, and rainfall data. A comprehensive baseline understanding of flood risk – the various types of flooding, areas of highest vulnerability, and practices that exacerbate the risk – should directly inform the State's priorities and long-term strategy. The process of assessing existing data will highlight potential areas for combined data and shared resources, as well as identify the gaps in the data that the state will need to address. It is also imperative to understand how flood risk can alter with population density, increased development, and changes in sea level. Incorporation of future projections will insure that investments made today will remain resilient through the design lifetime while minimizing expensive repairs and retrofits.

d. Engaging stakeholders

The Report identifies the need for stakeholder engagement in the context of emergency management, but the Commission should go further to outline the need for diverse perspectives in the project development stages of pre-disaster mitigation. Prior to investing resources in resiliency efforts, planners should engage stakeholders ranging from local businesses, community leaders, flood scientists, and policy experts. To maximize effectiveness of pre-disaster mitigation, the Commission should outline stakeholder engagement practices that bring affected groups into the conversation during the planning stages. This process will also allow planners to identify opportunities to maximize co-benefits of watershed projects. For example, installation of living shorelines can assist water quality concerns or create recreational and economic opportunities.

Pew thanks the Commission for its dedicated effort to reduce impact and better prepare communities in the face of increasing flood threats across the state. We thank you for this opportunity to provide feedback and appreciate your consideration of these recommendations. We look forward to working with the Commission and the State once the Report is finalized, and we welcome the opportunity to discuss these comments or provide additional information.

Sincerely,



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The Pew Charitable Trusts