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November 9, 2021

Shawn M. LaTourette  
Acting Commissioner of Environmental Protection  
New Jersey Department of Environmental Protection  
401 East State Street  
Trenton, NJ 08625-0420

RE: State of New Jersey Climate Change Resilience Strategy

Mr. LaTourette:

The Pew Charitable Trusts (Pew) appreciates the opportunity to comment on the New Jersey Department of Environmental Protection’s (DEP) Climate Change Resilience Strategy (“Strategy”). Pew broadly supports New Jersey’s leadership in developing its first statewide Climate Change Resilience Strategy as a vital mechanism for understanding and preparing for current and future climate impacts and is grateful to Governor Phil Murphy’s leadership in mandating the creation and development of this iterative plan through Executive Order No. 89 (Oct. 29, 2019). While Pew applauds the state in reaching this crucial milestone, we urge DEP to consider several factors pertaining to Strategy implementation, as well as development of future versions of this Strategy.

## **I. Accounting for Increased Future Risk**

New Jerseyans have experienced devastating impacts of flooding in recent years and know far too well that risks are increasing in their communities over time. The 2020 New Jersey Scientific Report on Climate Change (“Scientific Report”) demonstrates that frequency and intensity of precipitation and relative sea level rise are expected to increase in the state throughout the 21<sup>st</sup> century, adversely impacting coastal and inland communities alike. While high-impact events like Superstorm Sandy in 2012 remain top of mind for many in New Jersey, myriad communities throughout the state are subject to recurrent flooding.<sup>1</sup> For example, the Scientific Report found that Atlantic City is likely to experience high-tide flooding 355 days per year by 2100<sup>2</sup> – compared with an average of less than 1 day per year in the 1950s and 8 days per year between 2007 and 2016.<sup>3</sup>

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<sup>1</sup> See, e.g., <https://www.hobokennj.gov/news/statement-from-mayor-bhalla-on-yesterdays-flooding-in-hoboken>; <https://www.nj.com/hudson/2020/07/second-50-year-flood-puts-hoboken-under-water-again-but-3-billion-fix-is-unlikely.html>

<sup>2</sup> 50% likelihood <https://www.nj.gov/dep/climatechange/data.html>

<sup>3</sup> Id.

Traditionally, local land use decisions across the country have relied on historical data to determine where and how to invest in new development. However, taking a historical approach underestimates likely impacts associated with future and increasing risk. This underestimation of risk has contributed to unexpected damage to infrastructure networks, and disastrous cycles of building in vulnerable places followed by post-disaster rebuilding in place. The projections outlined in the Scientific Report should inform both the state's long-term planning as well as state agency investments development activities. To this end, Pew supports the state in adopting the Scientific Report's climate projections through 2100 and using those projections to inform the Strategy. In concert with this Strategy's finalization, New Jersey should tangibly integrate the Scientific Report's climate data, including long-term projected risks, into agency plans, regulations, and capital funding decisions. Pew is eager to assist the state in developing agency regulations and guidelines in concert with implementation of the Strategy.

Further, it is imperative state agencies provide guidance and assistance to local decision-makers to ensure that new investments in local development aligns with both the Scientific Report and recommendations outlined in the Strategy. With state support, these communities will have the chance to take proactive steps to adapt to future sea level rise and flood impacts through the end of the century. In this role, New Jersey state government and its non-governmental partners can bridge the Scientific Report and the state's Strategy with local comprehensive planning and policy development. Leveraging sea level rise, precipitation, and other hazard projections, the state has a unique opportunity to develop vital tools to help localities assess their own climate vulnerabilities and incorporate projections into local land use decisions.

As an example, New Jersey may consider Climate Resiliency Guidelines developed under the New York City Mayor's Office of Resiliency. The Guidelines provide a step-by-step approach to reduce risk exposure to the City's infrastructure and City-owned assets, while providing a model for neighborhood and borough-level decision-making. Similarly, New Jersey could provide direct technical assistance to local governments as they incorporate projected risks into siting and design decisions.

The Strategy wisely highlights the need to protect the state's existing critical infrastructure and ensure that future investments in infrastructure are built to withstand projected risk through an asset's intended lifecycle. In preparing for future risk, New Jersey must also account for socially-vulnerable populations and communities, especially those that are projected to experience more frequent and severe flooding. To do this, we believe the state should apply this 'lifecycle' standard to multi-sectoral long-term planning, accounting for impacts to affordable housing stock, economic activity, transportation and supply chain networks, and healthcare and social service needs. Moreover, Pew encourages DEP to consider the consequences of potential climate-driven population movements, working hand-in-hand with localities to prepare for both positive and negative growth conditions.

## **II. Building Local Capacity through Technical Assistance**

The Strategy's long-term success depends on local action to integrate climate projections into planning and land use decisions, as well as awareness and empowerment of local residents and

stakeholders in the state's efforts to combat climate impacts. Therefore, the Strategy rightfully emphasizes the importance of both providing resources and offering direct technical assistance to inform local comprehensive planning efforts. As the state moves forward, New Jersey should commit and develop tangible steps to ensure long-term, durable engagement and capacity-building with local governments and the public. To advance these goals, we recommend that the state pursue a targeted public education campaign to develop local leadership and empower communities to be proactive in adapting to climate projections. As local priorities are further informed and developed through effective public engagement, these processes can in turn inform future state investments, regulations, and iterations of the Climate Change Resilience Strategy.

Finally, the Strategy addresses the critical need to address historic inequities in allocating resources before and after a flood event. As documented after many previous disasters across the country, flooding and other natural hazards exacerbate social injustices and vulnerabilities, placing a disproportionate burden on communities that are least equipped to prepare and respond. As the state develops pathways forward in building local capacity, developing local grassroots leadership, and providing direct technical assistance to localities, it should specifically focus on these communities at the nexus of social and climate vulnerability.

### **III. Prioritizing Nature's Role in Risk Reduction**

The Strategy highlights the multiple co-benefits associated with nature and nature-based resilience solutions, including water quality improvements, recreational opportunities, carbon sequestration, and flood attenuation. Pew supports continued focus on the value of natural flood defenses, including landscape restoration and preservation initiatives, suites of local stormwater initiatives in urban and residential areas, and agricultural best management practices.

Research has shown that in many cases natural approaches to adaptation can be more cost effective than more traditional hard infrastructure alternatives. For example, a 2018 study found that nature-based solutions compared favorably with traditional flood mitigation options and significantly reduced flood damages in coastal environments, with average benefit-to-cost ratios over 3.5.<sup>4</sup> Another study also demonstrated the value of coastal wetlands, which reduced estimated flood damages in twelve states affected by Superstorm Sandy, including New Jersey.<sup>5</sup> Overall, according to the study, avoided losses totaled roughly \$625 million. While potential cost savings vary across different mitigation approaches and geographies, these studies underscore the significant monetary value associated with conservation and restoration of natural features to blunt storm surge impacts while maximizing stormwater detention and retention capacity.

Conversely, hardened shorelines can be detrimental to beach habitats and natural functions in reducing wave energy and water absorption, leading to exacerbated structural damages. One study evaluated storm impacts in North Carolina following Hurricanes Irene in 2011 and Arthur in 2014. The study found that waterfront property owners protected by bulkheads experienced,

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<sup>4</sup> Reguero, Borja G., et al, "Comparing the cost effectiveness of nature-based and coastal adaptation: A case study from the Gulf Coast of the United States," PLoS ONE 13(4): e0192132, 2018, <https://doi.org/10.1371/journal.pone.0192132>.

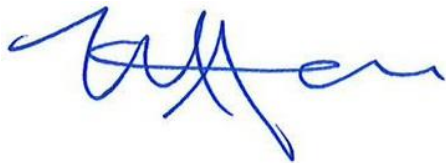
<sup>5</sup> Narayan, Siddarth, et al, "The Value of Coastal Wetlands for Flood Damage Reduction in the Northeastern USA," Scientific Reports 7, 9463, 2017, <https://www.nature.com/articles/s41598-017-09269-z>.

on average, twice the property damage costs compared to those who had implemented natural features to safeguard their shorelines.<sup>6</sup> From a cost-savings standpoint, living shorelines can be less expensive for property owners to install, can cost two times less in annual maintenance, and often recover from storms on their own and become naturally stronger over time.<sup>7</sup>

In addition to cost savings, natural features can offer multiple co-benefits to residents and businesses across the state, including recreation and tourism industries, increased property values, reduced stormwater runoff, and positive health impacts. For example, Hoboken's resiliency parks provide storage capacity for excess water, while serving as a neighborhood recreational amenity. Similarly, investments in living shorelines and vegetated marshlands can support eco-tourism, while attenuating waves, combating erosion, and improving water quality.

Again, we appreciate the opportunity to provide these comments and look forward to future opportunities to collaborate as DEP works to implement its first Climate Change Resilience Strategy, while looking forward to future plan iterations. We are available and eager to answer any questions and engage in continued dialogue as New Jersey progresses forward as a national leader in climate adaptation.

Sincerely,



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cc: Governor Phil Murphy  
Dave Rosenblatt, Chief Resilience Officer, Vice-Chair of the Interagency Council on  
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<sup>6</sup> 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>.

<sup>7</sup> Ibid.