

**EXHIBIT E: SOUNDNESS OF APPROACH**

**COMMONWEALTH OF VIRGINIA**

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**CONSULTATION.** This proposal reflects the input of a wide range of stakeholders including multiple levels of government, human service providers and other nonprofit organizations, private businesses, neighborhood organizations, philanthropic organizations, and concerned individuals. Input mechanisms included 100 Resilient City workshops, work groups and committee meetings, academia-led interactive community discussions, neighborhood-based community meetings, surveys, and one-on-one conversations.

Led by the Office of the Governor of Virginia, Virginia's Chief Resilience Officer, and Virginia's Secretary of Commerce and Trade, and the Commonwealth's designated applicant, DHCD, the strategic development process involved staff from the cities of Chesapeake and Norfolk, including Norfolk's Chief Resilience Officer, all of whom consulted with local stakeholders. Support for this process was provided by ODU and the final vision was vetted by partner organizations. The draft proposal was published on DHCD's website providing opportunities for public comment. In addition, a public hearing was held in the Hampton Roads region during which participants were invited to provide feedback on the proposal draft (see Attachment D, p. 119).

The Commonwealth's threats, vulnerabilities and hazards have been identified by engaging stakeholders around research-based information via individual and group consultations, as well as in working group sessions and regional hazard mitigation planning processes. Input also has been garnered through regional planning, education, and outreach events such as: a FEMA National Exercise Division tabletop exercise with over 200 participants; regular Hampton Roads *Sea Level Rise and Flooding Adaptation Forums* organized by ODU and HRPDC; an Urban Land Institute *Resilience Panel*, which conducted interviews with nearly 100 stakeholders; a *100 Resilient Cities* workshop with over 100 stakeholders; the HRCF's *Reinvent Hampton Roads* initiative; and, a new regional conference, "*TechSurge - Technical Support for Coastal Resiliency*," with over 250 planners from all levels of

government and industry; and many additional community outreach and education activities. As

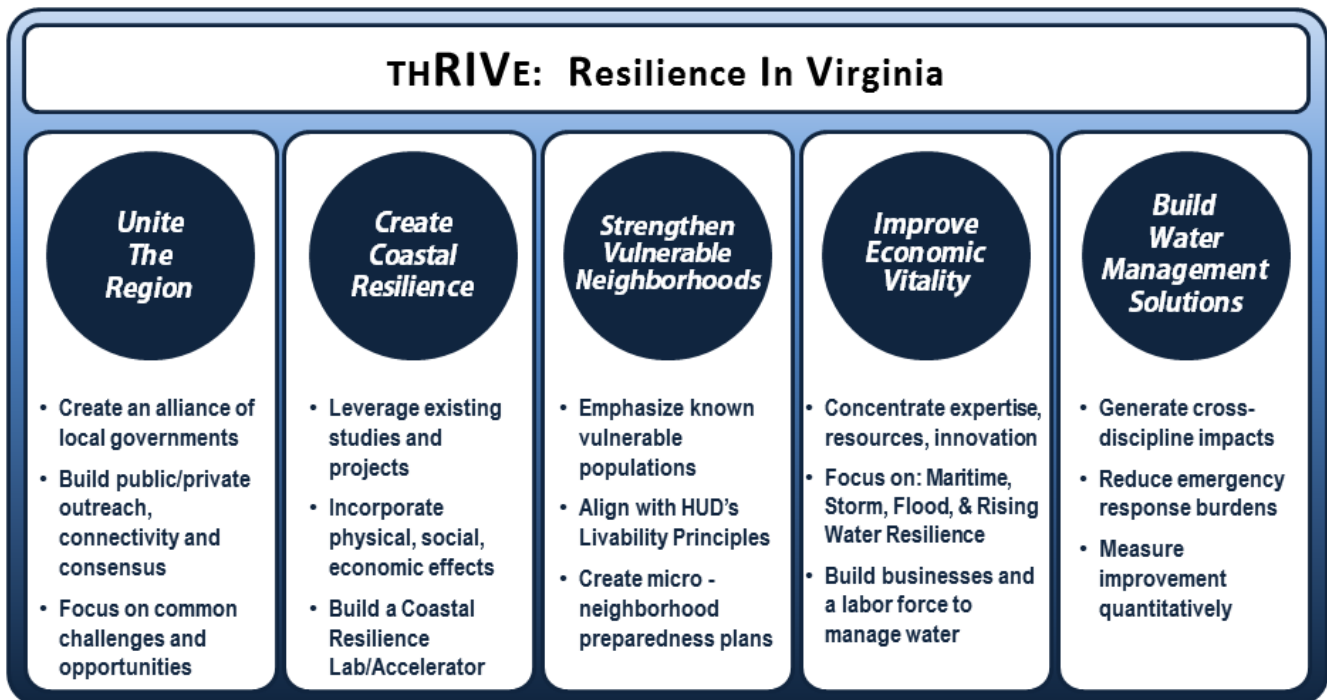
**THRIVE: Resilience In Virginia** moves to Phase II, DHCD will coordinate a wide network of engagement capacity to bring together work groups and to distribute information, ensuring that all stakeholders, most importantly vulnerable populations, are represented and informed about the process.

The uniting issue for Hampton Roads is how to thrive as a model maritime community among rising seas, while facing uncertainty about the future of federal spending in the region, and combating the effects of concentrations of poverty. Stakeholders, especially vulnerable stakeholders, agree that these are interconnected challenges and conditions and have a cumulative negative impact on our communities. Therefore, viable solutions must include strategies to mitigate all three simultaneously.

**IDEAS AND APPROACH.** Input from stakeholders and partners has helped create a comprehensive approach that builds on strengths and converts risks and vulnerabilities into opportunities: *Hampton Roads will thrive with water by developing a model maritime region that derives its economic vitality from its position on the water.* Specifically, Virginia's strategy is to create long-lasting resilience in Hampton Roads at all scales, by uniting the region around shared water challenges, by improving economic vitality and strengthening vulnerable neighborhoods, and by building social cohesion around water management solutions. Proven strategies from this regional pilot will be replicated across Virginia to build resilient communities over a range of environments, including communities with riverine flooding, periodic drought impacting agricultural production, and concentrations of poverty and communities with low social cohesion.

This proposal is key to jump-starting the Hampton Roads regional transformation to a model maritime region equipped to handle rising waters. In turn, Virginia will use the region's experiences to surface, test and refine the best strategies; however, DHCD and Virginia's qualifying localities will continue to seek additional funding opportunities to strengthen the approach.

As one of the first coastal regions to experience daily impacts of rising water, Hampton Roads has a head start on planning for mitigation and adaptation. The region's strategy leverages key knowledge, aligning it to a resilience framework to inform planning, investment and implementation strategies for thriving with water. Guided by the National Preparedness System, **THRIVE** features an approach with five lines of effort, each designed to achieve a major critical objective, address unmet need, and provide replicable and scalable solutions to identified vulnerabilities (see Figure 1, below).



**Figure 1. Virginia's approach**

**Unite the Region:** This approach helps unite efforts among the region's cities, businesses and residents; all bound by a shared deep-water harbor, and common environmental challenges and economic opportunities. Virginia is already working to unite the region around economic development and entrepreneurship opportunities. Creating an alliance of local governments will focus these efforts on water-based opportunities will support a regional solution to Hampton Roads' challenges of sea level rise and flooding. HUD NRDC grant funding will help the cities of Hampton Roads to focus on their common challenges and pilot strategies that can be applied elsewhere in the Commonwealth.

**Create Coastal Resilience:** Virginia will leverage water management projects to create a model for resilience, and a methodology and planning tool to increase the region's physical, social, and economic resilience. **THRIVE: Resilience In Virginia** builds on three sets of standards/ value systems: the National Preparedness System, Six Livability Principles and the 100 Resilient Cities resilience framework.

The National Preparedness System's six-part structure addresses preparedness: *Identifying and assessing risk; Estimating capability requirements; Building and sustaining capabilities; Planning to deliver capabilities; Validating capabilities; and Reviewing and updating.* The **THRIVE** model will contribute to resilience with guidance from the Six Livability Principles adopted by HUD to facilitate interagency coordination: *Provide more transportation choices, Promote equitable, affordable housing; Enhance economic competitiveness; Support existing communities; Coordinate policies and leverage investment; and Value communities and neighborhoods.* Finally, the model will also be driven by the 100 Resilient Cities resilience framework, which ensures investments produce co-benefits that increase the region's ability to survive, adapt and thrive in the face of hazards (see Outcomes in Exhibit F, p. 41).

**Strengthen Vulnerable Neighborhoods:** Research conducted in the aftermath of Hurricane Sandy reveals that cohesive communities bounce back from disruptive events more quickly. In Hampton Roads, the increased frequency and intensity of storms, along with flooding, increases the risk to vulnerable populations. Many of these individuals live independently in their own homes, but rely on daily support services, as revealed in a regional survey in the aftermath of the Qualified Disaster, hurricane Irene: over 13% of the 7,027 surveyed households have at least one adult (18+ years age) dependent on others for help with normal daily activities. When extreme events disrupt transportation, energy and other basic service networks, this vulnerable population's survival is at risk.

In addition to increasing job opportunities and providing safer housing, this initiative will strengthen vulnerable residents' resilience by fostering neighborhood cohesion. The region has begun to pilot hyper-local networks designed to increase the ability of vulnerable residents to survive in place for short periods

when essential support services are disrupted. Developing small networks of neighbors and connecting them through technology that provides hyper-local information on conditions, transportation routes, shelter, food, water, and power availability, will provide needed care for populations at risk for survival during disruptive events.

Research also suggests that financially vulnerable residents are less likely to evacuate in the face of a severe storm because they lack the financial resources to leave their homes for overnight stays. Using neighborhood networks to identify those residents who are at risk for survival due to disruptions but financially unable to relocate, even for short periods of time, the initiative will explore ways to provide short-term assistance, enabling residents to leave prior to the arrival of severe weather. In piloting this funding to vulnerable residents, the Commonwealth can test this strategy for helping vulnerable people to temporarily leave their neighborhoods when evacuation is advised.

To further strengthen neighborhood resilience, **THRIVE** will expand existing efforts to educate residents and business owners about current threats and adaptive strategies to reduce risks. Regional efforts are already underway to find innovative approaches to distributing critical information in ways that drive behavior adaptation. A committee of business, government, and resident representatives is developing public information campaigns around reducing resident and business vulnerabilities to flooding. Recommendations include color-coding frequent flooding areas, finding new ways to calculate the benefits of flood insurance, and integrating flood risk reduction strategies into K-12 education as a way of informing parents about the importance of taking action.

***Build Water Management Solutions:*** Under the leadership of DHCD, the **THRIVE** initiative will imagine, create, and build water management solutions that address current gaps in the region's capabilities, showcasing innovative multi-scale solutions, systems, and technologies useful to other communities. Hampton Roads is already a natural lab for state-of-the-art water management practices.

The Rockefeller Foundation-supported Structures of Coastal Resilience (SCR) design study and RE.invest Initiative ideas, the US Army Corps of Engineers' North Atlantic Coast Comprehensive study, the Urban Land Institute's Resilience Technical Panel recommendations and the Dutch Dialogue recommendations for the region all offer innovative approaches for living with water and building resilience that can be tested in Hampton Roads. For example, Re.invest recommends the use of innovative structures to both hold and filter rain water. These structures provide enhanced, natural environments that soften the urban hardscape. The cross-disciplinary approach to planning will help generate ideas that provide a basis for viable project designs in Phase II.

***Improve Economic Vitality:*** In the coming decades, the Hampton Roads region will invest heavily in water management and water mitigation systems. The need to operate the Port of Virginia, Naval Station Norfolk and other businesses that rely on proximity to the water presents the region with the opportunity to create solutions that ensure ongoing operation of these globally important assets. Using this grant, **THRIVE: Resilience In Virginia** will employ an innovation laboratory/business accelerator model to convert innovative research into marketable products building local businesses and capturing the economic benefit of our own spending. This business cluster, focused on solving the problems associated with living and working on the coast in a rising sea environment, will spur innovation and entrepreneurship, providing workforce opportunities across the region. The resulting job opportunities, created through business growth, will decrease the vulnerability of low-to-middle income residents by increasing both financial security and greater choices for housing. . Regional workforce development programs will create pathways for low- and moderate-income residents to develop requisite skills to fill jobs created in the new cluster. Building upon the successful and funded efforts already underway in the region, green energy training programs will prepare veterans, unemployed persons and small businesses for the green jobs of the future.