

**THE DRAFT SUMMARY OF THE MEETING OF THE
HRPDC COASTAL RESILIENCY COMMITTEE
June 28, 2019**

1. Summary of the March 22, 2019 Meeting of the Hampton Roads Coastal Resiliency Committee

The summary and attendance record for the March 22, 2019 meeting of the Hampton Roads Coastal Resiliency Committee were approved as distributed.

2. Public Comments

There were no public comments.

3. Resilient Hampton

Mr. David Imburgia, Resiliency Officer, and Ms. Lucy Stoll, Senior City Planner, with the City of Hampton briefed the Committee on the current progress and next steps of the Resilient Hampton initiative. In 2015, the City engaged in the Dutch Dialogues design charrettes, which prompted a commitment to resilience planning and a “living with water” approach. In January 2018, Hampton City Council endorsed the Phase I Resilient Hampton report, which identifies goals, guiding principles, and eight community defined values to frame solutions.

Ms. Stoll stated the City is now in Phase II of the Resilient Hampton initiative, which focuses on a pilot project in the Newmarket Creek watershed. Project ideas resulted from a multi-day stakeholder design workshop held in January with consultants Waggonner & Ball and Dutch colleagues from BoschSlabbers. Residents also had an opportunity to provide feedback through a community meeting with Dutch colleagues. Mr. Imburgia highlighted projects for the Newmarket Creek area focus on slowing, storing, and redirecting water, as well as adaptation. Through a parcel grant program, the City will incentivize individual actions to manage water on personal property, such as installing a rain garden. Other focal areas include retrofitting an existing ditch to create the Big Bethel Blueway, combining stormwater management and public access along Lake Hampton, restoring wetlands and floodplain function, and developing a harbor area near LaSalle Avenue. The City will also be using the regional sea level rise planning scenarios, adopted by Hampton City Council in March 2019.

Mr. Ben McFarlane, HRPDC, asked if any projects identified thus far will be included in the Capital Improvement Program (CIP). Mr. Imburgia responded that there is a placeholder in the CIP while these projects are designed. Waggonner & Ball will release the water plan for Newmarket Creek towards the end of summer, which will include an implementation plan. Ms. Stoll added that whether a project is funded through CIP or grant money will also depend on the estimated costs. Mr. Greg Johnson, Virginia Beach, asked if property acquisitions will be necessary for project implementation, and if specific evaluation criteria have been developed. Mr. Imburgia responded many projects will be on easements, but some will require acquisition. Ms. Stoll noted that an evaluation tool based on the Phase I values is under development to score projects. The City is also exploring Environmental Impact Bonds as a funding mechanism.

Mr. McFarlane noted the evaluation tool and environmental impact bonds would be of interest for future presentations to the Committee.

Mr. Imburgia noted that the City is also coordinating with NASA through their DEVELOP program on a study comparing the City's tree canopy and impervious surfaces. Mr. Scott Smith, City of Norfolk, expressed interest in the results of this study, and Mr. Kyle Spencer, City of Norfolk, offered to share more information about a University of Virginia study focused on quantifying the monetary value of green infrastructure.

4. USGS Benchmarking Study Update

Mr. Kurt McCoy, Supervisory Hydrologist with the U.S. Geological Survey (USGS), briefed the Committee on the progress to date regarding the Hampton Roads benchmarking study to measure land subsidence trends. USGS has completed the 2018 and 2019 survey measurements, which include 146 observations from 30 benchmarks. The data processing is nearly complete and the results will likely be published in fall 2019. All surface heights are reported relative to the ellipsoid height to compare rates of vertical land movement. Mr. McCoy reviewed changes in ellipsoid height observed from surface monuments on concrete pads, as well as more reliable deep rods rooted 30-60 feet underground. Given only two years of measurements have occurred, more data points are needed to better understand potential outliers. Three extensometers that record aquifer compaction are also surveyed quarterly over 48 hours, illustrating seasonal changes with periods of uplift and subsidence.

The USGS Chesapeake Bay Program and NOAA National Geodetic Survey (NGS) will be funding a five-year subsidence study across the Chesapeake Bay region, scheduled to begin in fall 2019. Partners include Maryland Geologic Survey, Virginia Institute of Marine Science, and Virginia Tech. The land motion measurements collected through the study will also help inform how marshes are adapting to sea level rise. A portion of the Hampton Roads network will be incorporated with the Chesapeake Bay regional network.

Mr. Smith asked if monthly groundwater withdrawal data from companies, such as paper mills, is shared with USGS. Mr. McCoy stated that the Virginia Department of Environmental Quality collects this information, which USGS can access upon request. Mr. Smith also asked if development has occurred around the Suffolk extensometer site. Mr. McCoy responded the contribution of land use change to the observed land subsidence is not clearly defined. Mr. Smith asked if the Chesapeake Bay regional study will change the Hampton Roads' project cost, and Mr. McCoy answered the Hampton Roads financial contribution will remain the same given the larger study is an addition to the existing effort.

Mr. Spencer noted the lack of high density benchmarks, particularly in Norfolk and Virginia Beach. Ms. Whitney Katchmark, HRPDC, responded that there were a limited number of benchmarks funded for regional distribution. Mr. Spencer offered to connect Mr. McCoy with the City of Norfolk surveyor if USGS would be interested in their local benchmark data.

5. Flood Insurance Outreach

Mr. McFarlane provided an update on the media component of the regional flood insurance outreach campaign. The initial media launch of the campaign ran from May 6-June 30, 2019 and included two weeks of radio, two weeks of television, eight weeks of digital ads, and a print publication in the Virginian-Pilot and Daily Press. Overall the campaign has thus far resulted in 3 million impressions, which are opportunities to view or listen to an advertisement. There have also been 2,900 visitors to the getfloodfluent.org website.

Mr. McFarlane and local government, staff including Ms. Meg Pittenger, City of Portsmouth, Ms. Whitney McNamara, City of Virginia Beach, and Mr. Robb Braidwood, City of Chesapeake, promoted the campaign on several television and radio shows. Locality staff should contact HRPDC staff if interested in scheduling a municipal channel flood insurance feature. A bill insert with information from the campaign rack card is also being distributed by the Hampton Roads Sanitation District (HRSD) to all customers who receive a paper bill. Another round of advertisements will occur later this summer, and additional local funding is available for continuation of the campaign next year. Ms. Katie Cullipher, HPPDC, noted that under “Where can I find campaign resources?” at getfloodfluent.org, there is a Campaign Toolkit, including a rack card, fact sheet, testimonial style videos, and social media posts.

Mr. McFarlane stated that the flood insurance premium calculator is under development with Dr. Daniel Richards at Old Dominion University. Mr. McFarlane also noted that FEMA is currently running a separate campaign promoting flood insurance, and HRPDC staff will continue working to identify opportunities for coordination with Federal outreach efforts.

6. Virginia Beach Draft Public Works Design Standards Manual

Mr. C.J. Bodnar, Professional Engineer with the City of Virginia Beach Department of Public Works, Stormwater Engineering Center, presented on the City’s sea level rise adaption and precipitation analyses, and the incorporation of these findings into adaptation strategies. Current ongoing projects include the citywide Comprehensive Sea Level Rise and Recurrent Flooding Study, Master Drainage Study, and Stormwater Master Plan. To help inform stormwater design, the precipitation analysis conducted by Dewberry assessed historical non-stationarity in regional precipitation trends and future rainfall projections. Key findings of the analysis include a historical increase in the precipitation Annual Maximum Series of 3-7% per decade and future predicted increase up to 27% by 2060 under high emission climate change scenarios (RCP 8.5). Given the report observations, the City has recommended an increase of 20% over existing rainfall guidance for projects that have a typical lifecycle of 40 years.

In the Virginia Beach Sea Level Rise Policy Response Report, a high priority action item is to formally adopt sea level rise and increased rainfall estimates into the stormwater design requirements. The draft design standards manual for Virginia Beach Public Works was released in May 2019, and includes proposed changes to address recurrent flooding and sea level rise. Specific actions include requirements to use the EPA SWMM software modeling tool for designs with a drainage area greater than 20 acres, adopt the 20% increase in design rainfall depth, use

City models for all 31 drainage basins, and address sea level rise and groundwater base flow in wet ponds. The public comment period for the design standards manual is open through July 31st, and the draft documents are available on the Virginia Beach public works website.

Mr. McFarlane proposed drafting a regional stormwater management policy that could be formally adopted by the Commission, as the regional sea level rise policy was previously adopted. Mr. Tom Leahy, City of Virginia Beach, noted that basing current designs and decisions on data that is outdated creates problems for the future, and he supported presenting a policy to the Commission. Mr. Leahy stated Virginia Beach is working towards an adoption by City Council of their proposed standards in early fall. Mr. Bodnar also noted the precipitation analysis is being independently verified by researchers at the University of Virginia. Mr. Smith agreed with the recommendation to move forward with a draft policy, but advised waiting until the public comment period for the design standards manual is over to develop specific language. Mr. McFarlane concluded that the HRPDC staff will work to draft a policy document that will be shared with the Committee.

7. Regional Flood Sensors

Ms. Whitney Katchmark, HRPDC, reviewed the draft Request for Information (RFI) regarding the development of a regional sensor network to monitor roadway flooding. The concept of a regional sensor network has received support from the Coastal Resiliency Subcommittee of the Commission, and Ms. Katchmark has also discussed the concept with the Virginia Department of Transportation (VDOT), Virginia Department of Emergency Management (VDEM), and HRSD. If the Committee endorses releasing the RFI, the responses received would assist in the development of a Request for Proposals.

Mr. Darryl Cook, James City County, asked why the RFI references only sensors durable for moderate, rather than extreme, weather events. Ms. Katchmark responded that cost is the primary limiting factor. Mr. Spencer suggested including language in the RFI regarding integrating existing sensors and system features. The City of Norfolk is currently updating their network for integration across platforms and with the OSisoft PI System, which is the same software program used by HRSD. The City of Norfolk is also working to purchase and install antennae with a spectrum that reaches beyond Norfolk's boundaries that could support sensor data transfer and other smart city initiatives. Mr. Spencer stated Norfolk has explored various sensors and noted the importance of a communication system that is compatible with multiple sensor types, such as those monitoring water directly on roadways and tide gauges that monitor water levels on water bodies nearby roads. Mr. Spencer stated connecting sensors to flashing roadway signs that alert drivers of flooding are also valuable communication tools for those who do not use navigation apps.

Mr. Imburgia asked about the possibility of using 5G networks installed in the right of way for communicating sensor data. Mr. Spencer noted that high speed networks are costly and not critical for a flooding sensor network because measurements are spaced by several minutes.

Mr. McFarlane requested a vote from the Committee to approve the RFI distribution. The RFI release was approved unanimously. Mrs. Katchmark stated she will incorporate the suggested revisions into the RFI and likely release the RFI within two weeks.

8. Resiliency Project Dashboard

Ms. Ashley Gordon, HRPDC, updated the Committee on the initiative to track resilience projects across Hampton Roads. The Resilience Projects Dashboard is now available on the regional GIS portal, HRGEO (www.hrgeo.org), under Featured Web Apps. Ms. Gordon provided a demonstration of the Dashboard that displays the resilience project inventory. Over 300 projects have been submitted by 12 localities. The Dashboard allows the user to filter the inventory by locality, project type, and project status. Currently the inventory contains \$1.3 billion in projects under design and \$1.4 billion in proposed projects. The Dashboard data is current as of May 15, 2019, and the next data call will likely be this upcoming fall.

Mr. McFarlane stated there is interest in making the underlying data layer available on HRGEO, and asked if there were any concerns from the Committee. Given none, HRPDC staff will plan to publish the data as a downloadable GIS layer.

9. Coastal Resiliency Program Update

Mr. McFarlane stated that the Committee will vote on the Fiscal Year 2020-2021 budget at the September meeting, and a draft budget will be emailed to the Committee prior to the meeting.

10. Update on Federal and State Efforts Related to Sea Level Rise and Recurrent Flooding

Mr. McFarlane reported that the next Joint Subcommittee on Coastal Flooding meeting will be held August 19, 2019 at 1:30pm in Richmond.

Ms. Katchmark stated that the next meeting of the Resiliency Subworkgroup of the Virginia Board of Housing and Community Development will be held July 17, 2019. Rear Admiral Ann C. Phillips (Ret.), Special Assistant to the Governor for Coastal Adaptation and Protection, noted that the Virginia Department of Housing and Community Development is working to update the statewide building code.

Ms. Phillips stated that legislative asks for the coming year are starting to be discussed, and may include a request to update NOAA Atlas 14 and provide full disclosure of flood risk when purchasing a property in high-risk flood zones. Ms. Phillips noted the need for updated precipitation data and analysis is a statewide issue, and the Virginia Department of Emergency Management (VDEM) would like to update their IFLOWS system for riverine monitoring. Ms. Phillips offered to present ideas to the Secretary of Natural Resources at an upcoming meeting if suggestions with specific language are provided. Two Virginia Sea Grant project interns will be assisting Ms. Phillips this summer with the development of the Virginia Coastal Master Plan,

as well as a recently hired full time employee. Ms. Phillips will seek input from HPRDC staff about portraying resilience project data for the region.

Ms. Phillips asked if any localities have begun discussions about implementing the partial property tax exemption for flood mitigation efforts. As of July 1, 2019, local governments have the authority to establish an ordinance granting this partial property tax exemption. Ms. Meg Pittenger, City of Portsmouth, stated that her locality has begun discussions, but does not yet have a clear plan for implementation. Mr. Leahy noted the Virginia Beach Sea Level Rise Policy Adaptation Report references tax incentives as a method for encouraging resiliency actions.

11. Updates on PDC and Local Efforts Related to Sea Level Rise and Recurrent Flooding

Mr. Leahy announced that the City of Virginia Beach has joined the Community Rating System as a class 7, which provides a 15% discount on flood insurance premiums for policy holders in the Special Flood Hazard Area. The City's planning department staff is working to integrate recommendations from the sea level rise policy report over the upcoming 2-5 years. The City released the draft City-Wide Structural Alternatives for Coastal Flood Protection report, with project costs estimated between \$2-4 billion over the next 50-70 years. The Virginia Beach City Council passed a budget enacting an increased stormwater management fee.

Ms. Toni Alger, City of Virginia Beach, announced the sea level rise policy public outreach meetings have been rescheduled for the end of July. Mr. Bodnar stated that the City has released reports on an individual parcels level strategy for sea level rise resilience planning and nature-based coastal flood mitigation strategies.

Mr. Spencer stated the City of Norfolk will be signing a Preconstruction Engineering and Design agreement today with the U.S. Army Corps of Engineers to begin the next phase of the Coastal Storm Risk Management Study for the Harbor Park barrier system. Mr. McFarlane asked if there are plans for implementing the recently adopted policy to allow for the creation of Special Service Districts in support of local flood risk reduction projects. Mr. Spencer replied there are currently no specific plans, but the area surrounding the Hague has been previously discussed.

Ms. Pamela Braff, Climate Extension Specialist for MARISA at the Virginia Institute of Marine Science, announced that she is working on the development of an online Climate Resilience Toolbox for the Chesapeake Bay region. The toolbox will include resources related to flooding, increasing temperature, and air quality impacts. Ms. Braff is collecting feedback on resources currently being used by stakeholders and suggestions for the design of the toolbox. Ms. Braff shared her email (phbraff@vims.edu) for those interested in providing input.

Mr. McFarlane stated the summer Hampton Roads Adaptation Forum will be held July 12, 2019 at Clark Nexsen in Virginia Beach. A listening session for ConserveVirginia will also be held in the HRPDC board room at 1:00pm today.

12. Other Matters

The next meeting of the Coastal Resiliency Committee will be held September 27, 2019.