

**THE DRAFT SUMMARY OF THE MEETING OF THE  
HRPDC COASTAL RESILIENCY COMMITTEE  
June 26, 2020**

Pursuant to Governor Northam's Executive Order 53 issued on March 23, 2020 and Executive Order 61 issued on May 8, 2020, the Coastal Resiliency Committee meeting was held electronically via WebEx. The meeting was held on June 26, 2020 at 10:00 AM.

**1. Attendance**

The following members attended electronically:

**Coastal Resiliency Committee Voting Members:**

Doug Beaver, NO

Kent Henkel (Substituting for Mark Bellamy), YK

Brian Lewis (Substituting for Steve Bond), HA

David Bradley, VB

Darryl Cook, JC

Donald E. Goodwin, FR

Beth Lewis, SH

Sam Sawan (Substituting for Eric Martin), CH

**2. Summary of the December 13, 2019 Meeting of the Hampton Roads Coastal Resiliency Committee**

The summary and attendance record for the December 13, 2019 meeting of the Hampton Roads Coastal Resiliency Committee were approved as distributed.

**3. Public Comments**

There were no public comments.

**4. Virginia Beach Public Works Design Standards Manual**

**Mr. C.J. Bodnar, Public Works Stormwater Engineer with the City of Virginia Beach,** provided an overview of the recent update to the Public Works Design Standards Manual. The initial Public Works Specifications and Standards manual was first adopted by City Council in 1994 and amended in 2015. The new Public Works Design Standards Manual was adopted by City Council on June 16, 2020, following public review and comment. Technical changes to the Design Standards manual addressed as-built drawings for all stormwater management facilities and conveyance systems, stormwater conveyance piping material and testing, roadway lighting design, stormwater utility fee adjustment, which provides up to a 50% reduction on the stormwater fee for non-residential properties, and stormwater design requirements.

The City of Virginia Beach has completed extensive stormwater modeling and will require the City models to be used for every project in the City that has a total disturbed area great than

20,000 square feet. All City drainage basins were modeled using PCSWMM Software, with the exception of the Lower Southern Rivers Watershed, which was modeled in the MIKE suite of programs to account for the effects of wind. The models currently include pipes 24 inches in diameter and larger, stormwater management facilities, and natural conveyance systems. The City will be adding 15in and 18in pipes in the model over the next 5 to 6 years. The Design Standards Manual also requires the use of new rainfall depths that represent a 20% increase over NOAA Atlas 14, values last published in 2004. All stormwater designs will also be required to account for sea level rise, with 1.5ft considered for non-critical infrastructure and 3ft considered for critical infrastructure. The models were prepared for the 1-, 2-, 10-, 25-, 50-, 100-, and 500- year storm events; however, no projects will be required to address 500-year storm. The required design storm frequency is based on the project's contributing drainage area. To determine the controlling tailwater elevations, design storm/tide joint probability pairs are specified, and Appendix J of the Design Standards Manual provides detailed tidal elevation reference tables. Stormwater designs must also account for groundwater seasonal high baseflow based on the drainage area of each outfall.

Kimley Horn completed an independent analysis, including a comparison of current versus proposed design standards for the stormwater designs of four previously approved site plans. The analysis concluded impacts are site dependent. While stormwater management design costs will increase, the new standards will prevent increases in upstream and downstream flooding up to the 100-year event. The City of Virginia Beach will have to modify their stormwater ordinance, which codifies the standards. While municipalities are permitted to have more stringent requirements than the state code, the revisions must be submitted to the Virginia Department of Environmental Quality (DEQ) for review and a 30-day public comment period. Beginning July 16, 2020, any new projects submitted will be required to meet the new Public Works design standards.

Mr. Rob Martz, HRSD, asked if the design storms are provided to designers to ensure the correct events are modeled. Mr. Bodnar responded that the models are provided for the required rainfall, boundary, and sea level rise conditions. HRPDC staff will provide the presentation slides and links to the public Virginia Beach documents available online. Mr. Darryl Cook, James City County, asked if the new standards had to be reviewed by City Council and if it was supported. Mr. Bodnar responded that the standards did have to be approved by City Council because they will require a change in the City's stormwater management ordinance and passed on unanimously on June 16, 2020.

Mr. Ben McFarlane, HRPDC, asked which of the new standards received the most push back. Mr. Bodnar responded that the increased precipitation, which would require larger pipes, and tailwater elevations had the most push back from the design community. Mr. McFarlane also asked which standards would most benefit the City's resilience. Mr. Bodnar responded that having scientifically determined tailwater elevations is critical, and increased precipitation will help prevent stormwater projects from being undersized. The City's new stormwater master plan and Capital Improvement Projects will also be applying these standards.

Mr. McFarlane noted that design standards, including tailwater elevations, joint probabilities, and increased rainfall, were discussed at the Coastal Resiliency Working Group meeting last month. Following the Virginia Beach standard methodology, HRPDC staff will develop draft regional stormwater design standard guidance for review by the Committee in September.

## **5. Get Flood Fluent – Flood Risk Calculator**

Mr. McFarlane updated the Committee on the regional flood insurance outreach effort and GetFloodFluent.org. The outreach effort was funded by a grant from the Virginia Department of Conservation and Recreation (DCR) grant and locality contributions. The flood insurance outreach campaign, originally launched in May 2019, consists of paid media, public relations, and the GetFloodFluent.org website, which hosts a campaign toolkit. The 2020 paid media campaign includes three weeks (June 15-28 and July 6-12) of TV, radio, and digital ads. Public relations efforts are being coordinated with the local Public Information Officers. Mr. McFarlane has participated in a Coast Live interview and WNIS radio interview and is also scheduled for the Hampton Roads Show. The Hampton Roads Sanitation District (HRSD) is also including complimentary local floodplain management messages and contact information in the bill messages for the July/August billing cycle. Six localities submitted custom messages that will be eligible for outreach credit in the Community Rating System.

The GetFloodFluent.org website has a new flood insurance calculator feature. HRPDC staff partnered with Old Dominion University and Red Chalk Studios to develop the calculator, with funding from a DCR grant. The calculator asks the user several questions about their property based on the flood insurance manual, including their flood zone, occupancy type, and foundation type, in order to estimate their flood insurance premium. The calculator also features a tool to help estimate the height of the first floor above the base flood elevation where required. The calculator will continue to be revised to address user feedback.

Mr. Donald Goodwin, City of Franklin, asked if the City could post a link to the Get Flood Fluent site on their local floodplain management page. Mr. McFarlane confirmed that local websites can link to this information and that the campaign toolkit includes graphics for social media and print materials that can be downloaded.

## **6. First Floor Elevations Project**

Ms. Ashley Gordon, HRPDC, updated the Committee on the effort to develop a regional dataset of first floor elevations. The multi-year project, funded in part by the Virginia Coastal Zone Management Program, is currently in the third and final phase. The first phase, completed in February 2019, included developing a regional GIS layer of elevation certificate data, available at HRGEO.org, and applying the elevation certificate data to develop predictive models for estimating first floor height (FFH), the difference between a structure's first floor elevation and lowest adjacent grade.

The second phase was completed in February 2020, and the associated report is available on the HRPDC website. In addition to the predictive modeling approach, FFH estimation methods based on Google Street View Imagery were also evaluated in the second phase. First floor elevation datasets for residential structures were developed and applied in flooding vulnerability assessments for three pilot communities, Chesapeake, Hampton, and York County. Multiple flooding vulnerability assessment methods were evaluated, including analysis at the Census Block scale and individual structure scale using estimated FFH values, and a probability-based approach that applies a range of FFH values for each structure. Given that the Census Block analysis appeared to overestimate flooding damage estimates in all three pilot communities, individual structure-level analysis is recommended for residential structures. The damage estimates were also highly sensitive to changes in the FFH input at the individual structure level, emphasizing the importance of accurate FFH data.

The third phase of the regional FFH initiative currently underway will expand the methodologies evaluated in the previous phases to develop a regional FFH layer for residential structures in the Special Flood Hazard Area. The FFH data will be applied in a regional flooding vulnerability analysis for the 100-year flood and a scenario with additional sea level rise. HRPDC staff will continue to coordinate with other entities in the region developing first floor elevation data to develop recommended practices, and the final report and data products are anticipated in late fall 2020.

Ms. Judy Hinch, Chesapeake resident, asked why the flooding damage estimates for the 100-year flood were higher in Hampton than in Chesapeake. Ms. Gordon noted that Hampton has a larger number of residential structures in the Special Flood Hazard Area and also a greater abundance of structures built before adoption of the Flood Insurance Rate Map (Pre-FIRM).

## **7. Update on Federal and State Efforts Related to Sea Level Rise and Recurrent Flooding**

Mr. John Jastram, USGS, noted that USGS is developing a regional coastal resiliency initiative, spanning from Virginia to Maine. USGS will be looking for stakeholder input on science needs.

Mr. McFarlane noted that the Chesapeake Bay Program Urban Stormwater Working Group has a project underway to develop precipitation IDF curves and was asking for stakeholder input. Mr. McFarlane asked if it is standard to use a representative point for the locality, or multiple points, to select rainfall amounts. Speaker Pollard, Williams Mullen, noted that based on a previous study looking at sanitary overflows, the rainfall values can vary within a locality. Mr. Bodnar noted that for Virginia Beach, the centroids of each individual drainage basin were compared, and given little variation (0.25 in) the average was used.

Ms. Gordon shared that the regional resilience project dashboard and inventory was recently updated on HRGEO.org. The resilience program and policies story map was also launched in March 2018 on HRGEO, and includes local summary fact sheets.

Ms. Whitney Katchmark, HRPDC, noted there have been proposals to include more resiliency measures in the state building code, and acknowledged local participants involved in the working group, including Steve Shapiro (Hampton), Mike Redifer (Newport News), and George Homewood (Norfolk).

Ms. Katchmark shared that six responses have been received for the Request for Proposals for the regional flood sensor network. A working group led by Ms. Katchmark is reviewing the proposals and includes Derek Loftis (VIMS), Kyle Spencer (Norfolk,) Russ Lotspeich (USGS), and George McLeod (ODU).

Ms. Katchmark noted that the Coastal Resiliency Subcommittee of elected officials will meet Monday, July 29, to discuss C-PACE, an effort to improve energy efficacy and flooding resiliency,

Mr. McFarlane also responded to Speaker Pollard's previous question regarding the application of FFE data at the time of site plan approval for commercial and residential construction or when issuing a building permit for additions or renovations. Mr. McFarlane noted the data collected varies by community, and HRPDC staff are working to document best practices regarding that in the final first floor elevations report.

#### **8. Updates on PDC and Local Efforts Related to Sea Level Rise and Recurrent Flooding**

Mr. Russ Lotspeich, USGS, noted that USGS has sensors that can be deployed through the storm tide monitoring program. Committee members are encouraged to contact Russ if interested in having a sensor installed.

Mr. Rob Martz, HRSD, stated the HRSD climate change planning study is underway, including a couple pump stations with detailed analysis. Treatment plants will also be included in the analysis. Vulnerability along the James River is also being analyzed, with flooding, storms, and sea level rise impacts included. The study will likely wrap up in the summer of next year.

#### **9. Other Matters**

The next meeting of the Coastal Resiliency Committee will be held September 25, 2020. The meeting will be held virtually via WebEx.