

## Virginia Coastal Resilience Master Plan

<b>Subject</b>	Virginia Coastal Resilience Master Plan Total Flood Hazard Modeling Working Meeting for Information Only	<b>Date</b>	December 1, 2021
<b>Facilitator</b>	Rear Admiral Ann Phillips, US Navy (Ret.)	<b>Time</b>	10:00pm – 12:00pm
<b>Location</b>	WebEx - <a href="https://governor.virginia.gov/j/g4q4r">https://governor.virginia.gov/j/g4q4r</a> WebEx Manager – Ms. Katie Sallee	<b>Scribe</b>	Mr. Connor Winstead

Invitees/Attendees			
#	Name	Organization/Role	Attended?
<b>Scheduled Speakers</b>			
1.	Mr. Matt Dalon	Department of Conservation and Recreation	Y
2.	Mr. Seth Lawler	Dewberry	Y
3.	Mr. Mat Mampara	Dewberry	Y
4.	Dr. Shubhra Misra	The Water Institute of the Gulf	Y
5.	Dr. Brian Batten	Dewberry	Y
6.	Dr. Ioannis Georgiou	The Water Institute of the Gulf	Y
7.	Dr. Chris Esposito	The Water Institute of the Gulf	Y

Agenda/Minutes		
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1.	Welcome and Convening Language	<p>Adm. Ann Phillips convened the meeting at 10:00am and provided an introduction on how the meeting would proceed. As this meeting was for information only, attendance was not taken and no quorum was required.</p> <p>Participants were advised to please contact Ms. Katie Sallee at phone: 804-316-4478 with any connectivity issues.</p>
2.	Total Flood Hazard Overview	<p>Mr. Matt Dalon gave a presentation on the need for a total flood hazard study and provided an overview of specific flood hazards.</p> <p>Ms. Sallee read a question in the chat from Mr. Kevin Du Bois who asked whether military installations are included in the communities mentioned in Mr. Dalon's presentation. Mr. Dalon responded that yes, federal installations were included in coastal flood hazard modelling, and the intention is to include federal installations going forward. There may, however, be challenges presenting fluvial hazard modelling for certain installations if the data is not available.</p> <p>Mr. James Sherlock asked for what this work will be used and by whom. Adm. Phillips responded that the current intent is to provide information for localities and other entities that do not currently have it and help them consider future impacts.</p> <p>Mr. Chris Stone asked for rainfall, how the commonwealth is accounting for the current work pertaining to Atlas 14 precipitation and the IDF curves in modeling. Dr. Brian Batten suggested that answers to that question would be provided during the Dewberry presentation.</p>
3.	Pluvial/Rainfall-Driven Flood Hazard	<p>Mr. Seth Lawler gave a presentation on the need for a pluvial flood hazard study and a proposed approach.</p> <p>Mr. Dalon read a question in the chat from Mr. Norm Goulet who asked what land use/cover information is planned to be utilized. Mr. Lawler answered that they propose to use the National Land Cover Database.</p>

## Virginia Coastal Resilience Master Plan

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		<p>Adm. Phillips read another question in the chat from Mr. Goulet who asked why Atlas 14, as it will always be a product based on historical rainfall and is of limited use in a changing precipitation environment. Mr. Lawler answered that Atlas 14 allows data to be applied consistently.</p> <p>Adm. Phillips read a comment in the chat from Ms. Whitney Katchmark who noted that HRPDC has done some of this work like burning in pathways and there is no need to redo the work, as HRPDC is happy to share.</p> <p>Ms. Katchmark asked if the approach would include stormwater pipes and/or ditches. Mr. Lawler said pipes would not be included; ditches where present would be included, and that this would be a surface water flood hazard analysis.</p> <p>Mr. Mat Mampara responded to comments in the chat regarding higher resolution data available from the Chesapeake Bay Program for land use by saying that one of the first tasks would be a data collection effort and that data would be welcome and leveraged to the maximum extent possible.</p>
4.	Fluvial/Riverine Flood Hazard	<p>Mr. Mampara gave a presentation on the need for a fluvial flood hazard study and a proposed approach.</p> <p>Mr. Mampara read a question in the chat from Ms. Katchmark who asked if there could be a partnership with USGS. Mr. Mampara responded that there could be.</p> <p>Adm. Phillips responded to Mr. Goulet's chat comment about moving beyond Atlas 14 because it reinforces historic as opposed to the future, stating the Commonwealth is working towards and using the new IDF modeling.</p>
5.	Compound Flood Hazard	<p>Dr. Shubhra Misra with The Water Institute of the Gulf gave a presentation on the need for a compound flooding hazard study and a proposed approach. Dr. Batten discussed examples of existing data and methods in Virginia.</p> <p>Dr. Batten read a question in the chat from Mr. Zachary Krisnow who asked if breakdowns are done across each seasonal change in the analysis. Dr. Misra responded that it is, and it is important to characterize the right hazard.</p> <p>Adm. Phillips acknowledged Ms. Katchmark's chat comment about the PDC scale not being ideal, using Hampton Roads as an example, because some of the region is tidal and some is not.</p>
6.	Coastal Erosion	<p>Dr. Batten gave a presentation on the need for a coastal retreat study and a proposed approach.</p> <p>Dr. Batten acknowledged Mr. Matthew Simons's comment regarding reviewing NFIP's CRS manual.</p> <p>Dr. Chris Esposito and Dr. Ioannis Georgiou gave a presentation on the need for a future coastal landscape study and a proposed approach.</p> <p>Ms. Sallee read a question in the chat from Mr. Du Bois asked how the dune erosion models take into consideration both the plant density and cover type. Dr. Esposito responded that there are a lot of different options that can be included in the barrier</p>

## Virginia Coastal Resilience Master Plan

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		<p>island vegetation coverage model. Dr. Georgiou said that there are also dune vegetation models.</p> <p>Adm. Phillips read a request from Ms. Jill Bieri who asked that Dewberry and TWIG stay in contact with The Nature Conservancy as TNC has information they would be willing to share.</p>
7.	Comments and Discussion	<p>Adm. Phillips opened the floor for questions.</p> <p>Adm. Phillips read a question in the chat from Mr. Keith Cannady who asked if this effort as currently scoped will be limited to the state's coastal zone. Adm. Phillips responded that this initial effort will be focused on the 8 coastal planning district and regional commissions, consistent with the Master Plan.</p> <p>Adm. Phillips read a question in the chat from Mr. Stone who asked if the work will be eventually made public and available for any additional modeling by an engineering firm for specific localities. Adm. Phillips said that the information would certainly be made public. Mr. Mampara responded that the modeling work would be made accessible and available.</p> <p>Adm. Phillips read a comment in the chat from Mr. Simons who stated that Norfolk is most concerned with the Compound Flooding portion and requested continued involvement.</p> <p>Dr. Batten responded to a comment in the chat from Ms. Surani Olsen regarding exclusion of stormwater drainage systems and pipes from the model, saying that the scale of what is proposed, the time needed, and the availability of data to include it would be challenging. Mr. Lawler said that the data collection for stormwater systems is difficult and that this is a surface water analysis for current and future extreme events. Mr. Mampara said that ponding and pooling is a significant hazard that we know has been largely neglected in efforts to characterize the hazard. The incorporation of infrastructure and stormwater solutions would be an extension to this initial effort.</p> <p>Mr. Mampara acknowledged a question in the chat from Dr. Sabu Paul who asked if the structures (bridges and culverts) are included in the model for the pluvial studies. Mr. Lawler responded that they will be included inasmuch as they are present in the topography, but will not be coded in.</p> <p>Adm. Phillips read questions in the chat from Ms. Georgie Marquez who asked who will be in charge of updating the models once they are turned over and if there will be training of agency staff to maintain and update models, and what the timeline for delivery of the model is and if it will be available to those making decisions on new infrastructure funding. Adm. Phillips responded that all of this work is intended to be overseen by DCR going forward, so the responsibility for updates and maintenance would fall to DCR.</p> <p>Adm. Phillips read a comment in the chat from Ms. Olsen: "Thank you for the responses. For sure all storm drainage systems won't be able to accommodate storms larger than 10 year storms, so it probably won't be significant if you are predicting the effects of 100 year, 500 year or larger storms. If you are going to include the storm drainage system, recommend to assess the best model before you decide what model to use between including the storm drainage system or not, you can use a pilot/test area to model the</p>

## Virginia Coastal Resilience Master Plan

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		<p>flooding with and without the piping system to see the differences between the floodplain results of the two scenarios using HECRAS 2D and other model that can include piping system.” Mr. Lawler responded that he agrees and that they will be trying to assess what tools and resources they have to improve the models and in what areas.</p> <p>Adm. Phillips read a question in the chat from Ms. Katchmark who asked if Dewberry has considered analysis for roadway flooding, and that a first step would be a detailed look at VDOT/VIMS/ODU/HRPDC efforts. Mr. Lawler said that they would look at the resources she mentioned and include them where appropriate.</p> <p>Ms. Katchmark said that roadway flooding is a gap and there should be a discussion on the pros and cons of including it in the modeling. Dr. Batten responded that Dewberry could have a conversation with HRPDC prior to beginning the effort. Mr. Lawler responded that once initial analysis is completed they can see what it says regarding transportation assets and how future efforts might be informed.</p>
8.	Adjourn	<p>Mr. Dalon informed attendees that the presentation slides, chat questions, and meeting minutes would be made available on the Commonwealth Calendar and through the Coastal Resilience Master Plan website.</p> <p>Secretary of Natural and Historic Resources Ann Jennings thanked participants for their time and attendance and thanked Adm. Phillips for her leadership.</p> <p>Adm. Phillips asked for any final comments from the attendees. There being none, the meeting adjourned at 11:53AM.</p>

Action Items			
#	Action Item	Owner (Organization)	Due Date
1.	Work with Stakeholders to develop Future Condition modeling strategy and specifications for approval by January 3 <sup>rd</sup> (target date)	DCR	1/3/2022