



TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr.
Boulevard
Chapel Hill, NC 27514

Booker Creek Working Group Meeting Notes

Chair John Morris
Chair Pamela Schultz
Vice-Chair Jeanette Bench
Doug Frederick
Antonia Sebastian
Shugong Wang (absent)

Noel Myers (absent)
Chad Pickens
Miguel Rojas Sotelo
Michael Dupree
Louie Rivers (absent)

Monday, January 31, 2022

6:00 PM

Virtual Meeting

1 Welcome and Review of the Agenda

The chairs welcomed the group, took roll call, and reviewed the agenda.

2 Announcements

John Morris reminded everyone of the three guiding questions to solicit ideas and feedback from the group and announced that Doug Frederick would be organizing the next meeting on February 21st at 6pm. Sammy Bauer asked that any thoughts in response to the meetings be submitted within a week of the meeting to enable her to compile and post in a reasonable time frame. Maggie Choatas asked attendees to reflect on how the meeting could be more engaged using tools like surveys, jamboard, or break out groups.

3 Presentation on Flood Hydrology and Assessing Structures in the Floodplain by Antonia Sebastian

Antonia Sebastian provides an explanation for how engineers assess hydrology and hydraulics. The presentation reviewed hydrographs, flood hazard maps, and explained terminology for risk, vulnerability, and hazards. The presentation reviewed limitations to modeling. Floodplain mapping commonly relies on a 1D model which doesn't account for pluvial (urban flooding) and all fluvial (river) sources. The model can be based on stage gages, precipitation, or a combination thereof.

Risk can be expressed as the hazard exposure multiplied by the vulnerability. Mitigation of flood risk can be focused on the hazard by building levees or detention, the exposure by buying out property or the vulnerability by floodproofing properties. The objective for mitigating the hazard is altering the flood depth while mitigating the exposure and vulnerability is about

learning to live with water. Antonia pointed out that FEMA analysis only identifies structure in the flood hazard area. Looking up claims, 30% of the claims in Orange County were outside of the flood hazard area. In addition to structure risk, consideration should be given to infrastructure, disruption, and loss of life. The decision to be made as a community is establishing a risk tolerance and prioritizing what to mitigate. Additionally, she mentioned designing for future climate and taking a multi-layered approach

The working group asked follow-up questions regarding model assumptions, commercial/residential breakdown within the floodplain, and what was included in the risk score used by Charlotte.

5 Presentation of Structures At-Risk in the Floodplain by Pamela Schultz

Pamela Schultz transposed the tabular information in Tables B-14 and B-15 in the Appendix of the Lower Booker subwatershed study into a visual graphic. These tables identified the structures in the floodplain and the water surface elevations relative to the lowest adjacent grade for the existing conditions, future built-out scenario, and the future built-out scenario with alternatives for the 25-year and 100-year storm events. Pamela binned the information into groups to display on a bar graph to identify how many structures could flood. The categories had intervals of 1 foot of elevation. The bar graphs indicated that even though some structures would be moved out of the floodplain by implementing the project, properties would remain in the floodplain. Please see attached slides for the exact numbers of structures identified.

The working group asked follow-up questions about the future built-out scenario and questions about the types of properties in the floodplain. The future built-out scenario reflects the development that would be permissible in the future land use maps and allowed by the Town's Land Use Management Ordinance.

6 Presentation on North Carolina Flood Risk Information System ([FRIS](#)) by Antonia Sebastian

Antonia presented on NC FRIS which is a tool created and maintained the State of North Carolina. She pointed out several features that enable the public to geospatially view properties and structure in the floodplain, run risk assessments regarding loss of structure and quantify risk reduction options and flood insurance. The information informing FRIS are based on hydrologic and hydraulic models that determine the depth of water level for specific storm events. The data, maps, and assessments can be downloaded for use.

Additionally, Antonia also presented on the Flood Inundation Mapping and Alert Network ([FIMAN](#)). This is a real-time alert network based on stream gages to predict flooding.

7 Open Discussion

A summary of the comments made during the discussion include

- Desire to generate a damage curve so the working group can assess structural damage to evaluate most feasible and cost-effective approach to address structures in the floodplain. The actions mentioned included moving, elevating, and floodproofing structures
- Inquiry about the Town's action plan to warn people about flooding

- Discussion of the floodgates at Eastgate with respect to how they function and their inclusion or not within FRIS. Chad Pickens who is a commercial business owner in Eastgate related that business owners do think about flood risk. It is hard to put up the metal flood gate and not all businesses do it due to time and cost. Sue Burke from the Town confirmed that floodproofing is required when renovations occur. A working group member suggested that Town staff should provide training sessions for Eastgate business and help them install the gates along with installing a warning system. Sue Burke informed the group that Realty Management has held annual practices at the beginning of the storm season which staff have attending for assistance. The Town is working on calibrating the stream gage in order to provide a more accurate warning system. The fire department tracks and receives alerts from the gages in order to activate the flood warning response.
- Sue Burke from the Town noted that the Appendix II tables regarding structures lowest adjacent grade does not account for finished basements which are usually below the base flood elevation. She demonstrated and provided links to two FEMA Resources within their [Cost of Flooding](#) and [Estimated Flood Lost Potential](#) approximate the cost of flooding based on interior water depth, the size of a house, and value of possessions in a house.
- A question was asked about the accuracy of the models and what additional information may be needed to inform the models. Additionally, a suggestion was made to evaluate not only structures in the floodplain but roads, telecommunication, and other infrastructure. Antonia again stated the limitations of the model which does not take into account urban flooding or a probabilistic approach to storms. Statewide results indicate the climate is changing and practitioners in the stormwater/resiliency community across the US are trying to assess how to address the changing climate.
- A question was raised about whether Town staff could restrict the future build-out scenario. Alisha Goldstein from the Town responded that the staff follows ordinances that establishes allowable build-out and council decisions regarding rezoning. She recommended that attendees become involved in the upcoming LUMO rewrite and talk to their council members. She also mentioned a council petition from spring 2021 which directed staff to assess the storm requirements in LUMO with respect to the changing climate. Staff is working on a RFQ in order to obtain consultant assistance with this task. Amy Ryan also suggested engaging in the LUMO process and her desire for it to have a more granular approach for site requirement depending on property location.
- One member reflected on implementing existing strategies to make structure less vulnerable and a desire to use the least costly and minimal time-consuming approach.
- Alisha Goldstein from the Town reminded the group to consider equity and how to consider who is burdened with the costs.

8 Public Input

There was one public comment made by Julie McClintock drawing attention to the Town's Land Use Management Ordinance and opportunities to improve on the design guidance. She referenced projects in Seattle which implements project along linear roadways and parking lots.

9 Adjourn