

## Sea Level Rise Subcommittee – Notes for May 10, 2017

Members attending: John Leffler, Jim Chitwood, Diana Mezzanotte, Will Conner, Jack Kotz, Jane Ellis, Lyn Schroeder, David Pumphrey

Guests: Dr. Norman Levine and graduate student Lucas Hernandez, College of Charleston

- An aid to an easy reference point: MHHW is the datum to which Dr. Levine references his maps. Remembering that MHHW is an average of higher high tides, under normal conditions tides are higher about half the time. Especially high tides are called King Tides and cause nuisance flooding in many areas. Levine's maps have been developed for water levels at MHHW and one-foot increments of SLR or storm surge up to eight feet.

- The accuracy of Levine's models was reinforced by Kiawah survey data collected by Bruce Spicer of resident observations during Irma flooding. Irma peaked at 4.1 feet above MHHW in Charleston Harbor (6.9 feet above MSL). Most of the residents' observations of flood water around their homes confirmed the predictions of Levine's models.

- Mapping of flooding with SLR shows streets acting as our primary drainage vehicle. Nuisance street flooding starts between 3' & 4' of sea levels above MHHW, without any rain event contribution. This water level above MHHW could be caused by storm surge or eventually by SLR. We may need to continue to use roads as primary drainage vehicle and focus on good drainage and rapid recovery & some higher emergency vehicle.

- Levine's models show golf course pond overflow and a few areas of KICA pond overflow at 4' as well as some owner property flooding.

- The map models currently incorporate no inter-pond pipe maps or flow-through data. This information would improve the models. Will Conner said that he could provide those data.

- Not sure how knowledgeable Dr. Levine is about fresh water lens and tide level effects on lens. Better to rely on Dr. Callahan's insights here since he is the groundwater hydrology specialist.

- Kiawah needs access to the mapping models to help identify problems, set priorities, and examine "fixes" for any related problems that a "fix" causes.

- We need a mechanism to access maps and models for routine use by KICA & TOKI. Ideas floated included temporarily "hiring" Lucas Hernandez through a research assistantship at the college to work with Kiawah personnel in answering immediate important questions, or to temporarily hire Lucas directly through the Town and/or KICA to work on these questions. During that time a Kiawah employee could learn the modeling system and be trained to take over after Lucas departs. A designated computer for this work may require increased storage and RAM capabilities.

- How well can these models and their access be integrated with Will Connor's consultant?  
What are the consultant's qualifications/experience overall for KICA work and to take on this model work?

- On road flooding improvement, we need a multi-front exploration/analysis of the causes of the issues and the fix options plus how to minimize any adverse consequences from the fix. Levine's mapping & modeling should be a part of this. Using smaller depth intervals and time lapse modeling correlated with tides, Levine's models should be able to identify first points of water entry onto the island from the marshes and river. This would perhaps allow some engineering fixes to reduce neighborhood flooding.

- As we seek optimum solutions, we should acknowledge the necessity to sometimes accept rapid recovery as a reasonable alternative to elimination of the problem.

Questions & Actions Needed:

What is a good way to access Levine's maps & models and be able to use them by KICA & TOKI to identify & address problems? What is the role of KICA's consultant? Action: Work with Dr. Levine, Will Connor, Mayor Weaver, and Jimmy Bailey to develop a plan including likely cost.