1. **Project Title.** Integrating CERA-Planning Software to develop Hazus Modeling and Planning Tool for ADCIRC Prediction System™

2. **Principal Investigator**. Robert R. Twilley, Louisiana Sea Grant/Oceanography & Coastal Science, LSU

3. **Other Research Participants/Partners**.
   Carola Kaiser, Center for Computation and Technology, LSU
   Katie Jones, Graduate Student
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4. **Short Project Description**.
   We propose to continue developing tools that integrate CERA-Planning with HAZUS and HURREVAC with the ADCIRC Prediction System™ (APS™) to improve the spatial resolution for flood exposure and damage modeling techniques that will improve planning. The approach is to test whether higher resolution prediction of flood risks in APS™ provide an exceptional service to emergency managers and planners by interpreting higher resolution estimates of damages at the census track level of mapping.

5. **Abstract**.

We have demonstrated that CERA-Planning tool is an innovation to APS™ by providing additional skills to existing community resilience tools by improving resolution of flood damage predictions in HURREVAC and HAZUS FLOOD. The high scale resolution of flood exposure presented in an innovative communication platform can be a valuable tool to innovate design/planning approaches. Communities need clear guidance on exactly which vulnerable infrastructure and populations may be threatened and/or protected (pre-disaster planning and rapid response), and accurate post-event impact in order to make crucial land use and redevelopment decisions during initial stages of recovery. The ability to leverage this type of community-specific data along with fine-scale modeling of flood exposure (in a universal communication platform) provides the opportunity to avoid loss and rebuild for maximum future risk reduction. The proposed LSU partnership with DHS sectors using CERA-Planning builds on the strengths of existing flood hazard and community planning approaches with the innovation of flood modeling developed with CRC. The transformational products proposed will allow vulnerable communities to actively address improved flood prediction, protection, and response. We will refine progress made in previous efforts to provide a service tool in the APS™ tool box that can simulate

consequence models (HAZUS FLOOD) showing how flood risk (both from floods and wind) will impact people, industry, and infrastructure. This much needed information will be used to enhance pre- and post-disaster planning efforts. The products will be tested at annual FEMA-lead hazard preparation workshops (i.e. Res/Con and LEPA) to engage end users directly in the development process and will be leveraged to develop integrated approaches for university-based design studio projects and design/outreach activities (such as those within Sea Grant Community Resilience focus area).This program focuses on significant reduction in risk with the use of high-fidelity storm surge data and impact scenario viewers useful to post-disaster recovery planning. We will complete testing and migrating modeling and visualization tools to communicate flood risks during a tropical cyclone event to HAZUS FLOOD and HURREVAC to assist in identifying vulnerable populations and structures that are susceptible to storm surge. We will continue to run comparative tests of CERA-PLANNING with HAZUS FLOOD over test beds.