

DHS Coastal Resilience Center
Education Project Work Plan
Year 5
July 1, 2019 – June 30, 2020

1. **Project Title.** Expanding and Institutionalizing Disaster Resilient Policy and Design Education through National Hazard Mitigation Policy Counsel and Course Development
2. **Principal Investigator.** Gavin Smith, Professor, Department of Landscape Architecture, North Carolina State University
3. **Other Research Participants/Partners.** Additional Research Participants:
 - Andy Fox, Associate Professor, Department of Landscape Architecture, North Carolina State University.
 - Travis Klondike, Research Associate with the Coastal Dynamics Design Lab and Assistant Professor of Practice, Department of Landscape Architecture, North Carolina State University.
 - Joshua Schneitzlein, PhD student in Design, North Carolina State University.
 - NCSU faculty and students as identified through an emerging university-wide focus on coastal resilience and the new Graduate Certificate in Disaster Resilient Policy, Engineering and Design.

Additional Partners:

- Eric Letvin, Deputy Associate Administrator, Mitigation Directorate, Federal Insurance & Mitigation Administration FEMA
- Adam Stein, NOAA Coastal Hazards Specialist
- State Hazard Mitigation Officers (charged with leading state hazard mitigation activities across the US)
- Local government officials tasked with developing and implementing hazard mitigation plans and projects (if additional funding becomes available)
- Dr. Jae Park, AECOM
- Ashton Rohmer, AECOM and former student/recipient of Natural Hazards Resilience Certificate from UNC-CH
- Olivia Vila, AECOM summer intern and current PhD student at NC State University pursuing the emerging certificate in Disaster Resilient Policy, Engineering and Design
- Margaret Keener, AECOM and former student/recipient of Natural Hazards Resilience Certificate from UNC-CH
- Practitioners and academics whose work emphasizes disaster resilient design that are invited to speak in the certificate classes.
- Members of the emerging NCSU student group, the Haznerds.

4. Short Project Description.

This project will undertake four activities: 1) Develop a new 3-hour course titled Disaster Resilient Policy, Engineering, and Design that will serve as one of three core courses in a new 13-credit Graduate Certificate Program of the same name titled: Disaster Resilient Policy, Engineering and Design at North Carolina State University. 2) Host a number of nationally-recognized speakers as part of the Disaster Resilient Policy, Engineering and Design Course at North Carolina State University (to include FEMA officials and private sector contractors involved in this work). Former students and Graduate Certificate recipients working on this project and others may be asked to speak in classes to discuss their job and unique insights they may have gained that are relevant for current students who want to pursue this type of career. In addition, faculty from the Departments of Public Administration and Civil and Environmental Engineering (sponsors of the policy and engineering tracks in the new NCSU Graduate Certificate respectively) as well as some of the more than 230 faculty identified on the NC State University campus doing work in the field of disaster resilience will provide lectures subject to their availability. The NC State faculty referenced were identified by the PI and others on campus as part of a new university-wide effort focused on coastal resilience that has been initiated by the Chancellor (enhancing community resilience is one of four university-wide goals put in place by the Chancellor). 3) Work with FEMA and AECOM (FEMA contractor) to develop policy recommendations (policy briefs) tied to the development and implementation of the new Disaster Recovery Reform Act (DRRA), drawing from personal experience and research findings in the academic and practice-based literature; 4) Conduct research on the role of state government in the development of local government's capacity and commitment to achieve the goals of the DRRA (an assessment of the capacity and commitment of local governments to implement pre- and post-disaster hazard mitigation plans and grants will be undertaken in the future if additional funds are available). The findings will be incorporated into courses associated with the new graduate certificate program and the research to be conducted will be done by students pursuing the new graduate certificate. One option being explored by the NCSU team is to use the results of the research to create interdisciplinary student teams tasked with coming up with new policies and initiatives needed to build and sustain the capacity of states and local governments to better implement pre- and post-disaster hazard mitigation projects, policies and plans. Explicitly linking the findings tied to the study of state and local capacity into the certificate curriculum is critically important as students often graduate without an adequate understanding of these issues in other programs.

5. Abstract.

Educational objectives and research efforts will be addressed through the: 1) development of a new 3-credit hour course titled Disaster Resilient Policy, Engineering, and Design that serves as one of the courses in the new 13-credit Graduate Certificate in Disaster Resilient Policy, Engineering and Design (scheduled to be approved by NCSU in the Fall of 2019); and 2) assisting FEMA operationalize the intent of the DRRA and its associated program called Building Resilient Infrastructure and Communities (BRIC) through research into the capacity and commitment of states and local units of government to implement the intent of the act and through the review of policy recommendations developed by AECOM and FEMA staff. The NCSU research team will work closely with AECOM and FEMA to

include regular conference calls and site visits to Washington DC as well creating four written responses to policy recommendations written by AECOM personnel. Expert feedback and input into the policymaking process will draw on personal experience and the existing academic literature surrounding hazard mitigation planning and grants management.

Data collected by the AECOM team, including: 1) a series of national public webinars; 2) Federal Register comments on draft DRRA guidance; 3) the BRIC public comment website and; 4) the 2018 Pre-Disaster Mitigation funding allocation results will be used to inform the creation of interview and survey questions developed by the NCSU team and posed to State Hazard Mitigation Officers and local government officials. The data provided by AECOM and FEMA will also be used to help select a sample of states and local governments to interview (State Hazard Mitigation Officers) and survey (local government officials) respectively. Surveying local officials will be conducted in the following year should funds become available. Selection criteria used to choose phone interview candidates (SHMO's) among states will include: 1) geographic distribution; 2) hazard types prevalent in their jurisdiction (state or local); 3) type and severity of hazard risk; 4) measures of capacity including financial, technical, and administrative; 5) disaster experience; and 6) the commitment to act. The data provided by AECOM and FEMA will be used to triangulate the information gleaned from state phone interviews in order to further validate the research findings.

In addition to informing national hazard mitigation policy, the results of the DRRA / BRIC research will be incorporated into classes taught at North Carolina State University as part of a new graduate certificate program led by the PI of this CRC project. The new course proposed for development in Year 5 will serve as one of three required core courses in the 13-credit hour interdisciplinary certificate program. The remaining core courses (one 1-hour and one 3-hour) have been developed with the 1-hour class having been taught in the Spring of 2019 and the 3-hour class to be taught in the Fall of 2019.

The certificate program will include three tracks: 1) policy, 2) engineering, and 3) design. Elective courses have been identified across the three tracks and participating faculty are exploring the creation of additional elective courses over time, to include those that may emerge in the immediate aftermath of a disaster, those that may be taught as part of an overseas program at NCSU (in the European Center in Prague, Czech Republic) and others that are focused on track-specific interests of participating faculty members.

The certificate is intended to foster interdisciplinary learning through case studies, studio-based coursework, interaction with experts from multiple fields of scholarship and practice, and deep community engagement. This approach draws on the findings of a Department of Homeland Security-supported study assessing the quality of Resilient Design Curricula at United States Colleges and Universities led by the PI of this project in Year 4. The certificate also draws on lessons derived from the Year 4 work associated with the Hurricane Matthew Disaster Recovery and Resilience Initiative (HMDRRI), which provided unique educational, research, and engagement opportunities for students and participating faculty. For more information on HMDRRI see <https://coastalresiliencecenter.unc.edu/crc-projects/hurricane-matthew-recovery/>. The new course will be taught by the PI, Andy Fox and Travis Klondike for the first time in the Spring of 2020 (all of whom participated in HMDRRI).

In addition, this project will address educational needs through the hiring of a PhD student (the student begins his program in the Fall of 2019) to assist in conducting research and translating the findings into the development of policy recommendations (policy briefs) and strategies to implement the new Disaster Recovery Reform Act. More specifically, we will conduct research on the role of states in developing the local capacity and commitment needed to implement the provisions of the DRRR/BRIC. The research assessing the role of states in hazard mitigation and local capacity building will build upon previous interview-based work led by the PI of this project which focused on the role of states in hazard mitigation planning as part of a six-year study funded by the Department of Homeland Security's Office of Science and Technology (note: the initial study of state roles in hazard mitigation was completed more than 6 years ago and merits further attention given the passage of the DRRR and an additional review of progress made to date on the intent of the Disaster Mitigation Act of 2000). Important new research will include an assessment of state capabilities and commitment to include questions surrounding the ability of states to achieve the broader intent of the recently passed Disaster Recovery Reform Act as well questions assessing the progress made since the passage of the Disaster Mitigation Act of 2000 almost 20 years ago. If funds become available in the future, the research team will conduct a survey of local government capacity and commitment to develop and implement hazard mitigation grants received. This will include assessing the degree to which existing hazard mitigation plans informed the development and implementation of hazard mitigation grants, which was one of the primary intents of the Disaster Mitigation Act of 2000 and yet this question remains unstudied.

The results of the research into state and local hazard mitigation capacity and commitment may inform the dissertation topics of the NCSU PhD student hired to assist the PI (Josh Schneitzlein) as well as Olivia Vila at NCSU, who is serving as a summer intern at AECOM. Olivia has expressed an interest in using the data compiled by the NCSU team as well as that which is being collected by AECOM in her dissertation, to include a focus on the capacity of small and impoverished communities to enact meaningful hazard mitigation efforts. The PI of the NCSU project will reach out to other NCSU faculty and students about the opportunity to use the data collected, to include those participating in a new NCSU student group called the Haznerds, currently led by Olivia Vila. Given the breadth of the data to be collected, the datasets could be used by multiple students and faculty over time and should help to foster collaborations across some of the 230 faculty members identified on the NCSU campus doing work tied to disaster resilience. The faculty were identified through the review of existing funded projects already underway, personal contacts and a series of campus meetings as part of the emerging university-wide focus on resilience.