



## CROWD-SOURCING & MACHINE LEARNING PLANNING FOR FLOODING RESILIENCY

Transportation plays a critical role in building community resilience to disasters. The latest federal transportation legislation requires transportation agencies to incorporate resiliency into their transportation planning process. However, agencies like MPOs and emergency management authorities are short of effective tools to assess real-time disaster conditions and affected areas in order to make quick responses.

This project aims at developing a decision support system (DSS) that combines non-traditional, crowd-sourced big-data with traditional data (e.g. remotely sensed data, GIS, and statistical data) to improve flood risk assessment and enhance transportation readiness for quick response decisions on disaster management. The project focuses on urban flooding. While not all urban flooding is severe enough to threaten lives and property loss, it is the small scale flooding events that reveal the vulnerable sites, segments, and sectors where major damages likely occur when severe storms and hurricanes hit.

The pilot study of the project will select Harris County, TX as a study area. Considering the reality that flooding events often ignore jurisdictional boundaries, the DSS to be developed will also offer scalable flexibility so that it can be applied to different spatial scales of geography, for instance, cities, counties, metropolitan areas, megaregions of multiple regions and states. Phase 2 of the project next year will develop mobile apps to enable individuals to share flood information with each other for flood monitoring, real time reporting, and evacuation.

Utilize Crowd-Sourced Data and Machine Learning Technology to Enhance Planning for Transportation Resilience to Flooding (#CM2-39)

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Project Information Form:  
<http://sites.utexas.edu/cm2/files/2018/06/Year-3-Multi-Ming-Zhang-Qisheng-Pan-Crowd-Sourced-Data-and-Machine-Learning-Technology.pdf>



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Hints for deriving flood information

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