CENTER FOR CIVIC LEADERSHIP
RICE UNIVERSITY

HOUSTON ACTION RESEARCH TEAM

OEM
Office of Emergency Management
City of Houston

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Mapping Houston's Flooding Problems, Fall 2017

This HART, comprised of undergraduate students from applied mathematics, civil engineering, and statistics, collaborated with the Houston Office of Emergency Management, as well as the Research and Education for Able Communities under Hazards (REACH) group and the Severe Storm Prediction, Education, and Evacuation from Disasters (SSPEED) Center as part of a National Science Foundation (NSF) funded project. The team re-defined flooding based on disruption rather than water amount and used 311 reports as a measurement of flooding. Through geospatial modeling they created a multi-level GIS map that examines the correlations between flooding reports during the 2015 Memorial Day and the 2016 Tax Day floods, and potential predictors of street level flooding. The team's findings provide an increased understanding of the causes of municipal flooding. In general, areas with higher levels of rainfall, lower elevations, higher elevation variations, and more impermeable surface area experience increased likelihood of flooding.