In March 2010, an unprecedented eighteen inches of rain fell in the Boston metropolitan area within seventeen days. This amount of rain—in addition to snowmelt from winter storms—caused flooding that affected thousands of homes and the closure of roads and public transportation. A state of emergency was declared, and the Federal Emergency Management Agency (FEMA) later provided tens of millions of dollars in disaster assistance. The majority of homes that received the assistance were not within FEMA flood zones.

The Metropolitan Area Planning Council (MAPC) and Norman B. Leventhal Map & Education Center teamed up with graduate students from the Tufts University Urban and Environmental Policy and Planning Department to investigate if loss of historical wetlands is correlated to present day stormwater flooding patterns. To do so, the research analyzed maps of the study areas and compared historical wetland locations with flood claims from the March 2010 storms.

The historical maps ranged in date from 1893 to 1987, which was compared to the most recent present day wetlands map, provided by the Massachusetts Department of Environmental Protection. Through comparisons of the maps across time, the research revealed an astounding decrease in wetlands between 40% and 72%, depending on the town. The maps also showed clear signs of wetlands shrinkage–an important finding, demonstrating that wetlands tend to be encroached on, rather than completely filled in.

The promising visual results were backed up by statistical analysis. Across the study area, the research found that, proportionally, buildings located within historical wetlands were 50% more likely to have submitted a successful flood claim from the March 2010 storms than buildings outside of historical wetlands. These promising results show that a relationship between present day stormwater flooding patterns and historical wetland loss may be important. Ultimately, the researchers believe that this information is an important piece of the puzzle to help local policy makers assess flood risk and make accurate and equitable planning decisions.