Public Road Vulnerability in Massachusetts: Structural Condition and Flood Risk
Isabel Mezzina, Geography M.Sc. Student
University of Massachusetts, Amherst
Contact: imezzina@umass.edu

BACKGROUND
Infrastructural vulnerability is a growing concern in the state of Massachusetts. The American Society of Civil Engineers reported in 2017 that at least 30% of all publicly maintained roads in the state are deemed to be in poor structural condition (ASCE 2017). Poor structural conditions which pose major safety threats on public roads include cracks and potholes, inadequate guardrails and medians, and other obstructions to roadways (Pajcic 2017). Concurrently, flooding rates have been regularly rising, the coastline and near-coast interior of the state becoming increasingly vulnerable. Coastal Massachusetts is particularly at a heightened risk of flooding, which is predicted to grow as sea levels rise and storm severity enhances; the coast’s 100-year flooding event – which has in recent years condensed into an approximate 60-year flooding interval – is projected to have been recurring every 1 to 2 years by the year 2100 (Massachusetts Climate Adaptation Partnership 2015).

OBJECTIVES
The purpose of this project is: determine the vulnerable segments of Massachusetts roads based upon flood risk and structural deficiency. This study analyzes the juncture at which flooding risk and structural condition overlap and pose both public safety and environmental risks. Structural vulnerability is already proving to be an inconvenience in many parts of the state, yet it will turn disastrous as flooding rates heighten, creating severe transportation issues through susceptible regions of the state. Determining where roads are both structurally deficient and highly vulnerable to flooding is necessary for maintaining safety standards and for mitigating climate change effects.

REFERENCES
Data Sources: MA Roads Layer - MassDOT, FEMA Flood Risk Layer - FEMA

References: