Recent hurricane events such as Hurricanes Matthew, Irma, and Florence have had tremendous impacts on infrastructure and more importantly, lives. The disproportionate effects of hurricanes on the aging population and low-income neighborhoods in terms of both infrastructure damage and recovery are reported\(^1\).

Identifying and spatially representing infrastructure, i.e. roads and bridges at risk of closure due to flooding or overtopping. Identifying which infrastructures are spatially connected to elderly-dense areas.

This study investigated areas most impacted by hurricanes, and how elderly population groups are affected. Using ArcGIS spatial analysis techniques for representing census data, and the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model\(^2\) are leveraged for evaluating areas of increased storm surge heights.

Distribution of elderly in selected areas

Identified critical elderly areas and bridges

Results indicate that 402 out of 501 selected bridges are of interest to elderly commute within the Bay Area.

Based on high SSH (>12 ft), 393 out of 466 selected census block groups within elderly dense areas are identified as important in the event of an NNE Category 3 Hurricane with 15mph High Tides.

Further analysis indicated the mean age among those 65 years and above was 74 years and about 20% of the total population are 65 and above.

Sample References