

RANKING HAZARDOUS WASTE GENERATORS IN THE BAY AREA OF CALIFORNIA BY VULNERABILITY TO EARTHQUAKE INDUCED HAZARDS

GEOGRAPHY 375: INTRO PYTHON FOR GIS

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EXECUTIVE SUMMARY

According to the California Geological Survey website, “California is the most geologically diverse and the second most seismically active state in the USA”. The Bay Area is a densely populated and ecologically valuable region of the state that is vulnerable to natural disasters such as liquefaction and landslides triggered by earthquakes. Numerous hazardous waste generator sites are located in the Bay Area and present an elevated risk to human health and the environment should they be impacted by a natural disaster. By ranking each hazardous waste generator site by their potential to be affected by one or more natural disaster, emergency services can streamline their mitigation efforts.

One way to determine the potential hazard ranking for each site is to perform geospatial analysis using a standalone python script. I used datasets for the hazardous waste generators as well as for the potential risk of landslides and liquefaction to perform the analysis. The processes I used in the script include clipping feature classes, creating layers, selecting features by location, creating new feature classes, joining feature classes, performing update cursors, and populating fields using if statements with for loops. The script included modules, variable definitions, try and except blocks, and notes describing the analysis process. The output waste generator site feature class includes a field ranking the potential hazard level to each site during an earthquake induced natural disaster with values of Low, Medium, or High risk.