SURVIVING CLIMATIC DISASTER IN SAN FRANCISCO
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Problem
In a time of changing climate, natural disasters have become an increasingly pressing problem. In large urban areas like San Francisco, thousands of lives are at the mercy of the elements.

We have been hired by the Federal Emergency Management Agency (FEMA) and tasked with locating the most suitable spot for a disaster shelter in the instance of severe flooding in San Francisco.

Using Suitability Analysis, Network Analysis and a 3-D TIN we have incorporated factors such as emergency response times, high elevations and proximity to major roads and high density populations to locate the ideal location for a flood safe house.

Objectives
1) Use Suitability Analysis to establish the best location in San Francisco for a disaster shelter in the event of massive flooding.
2) Use Network Analysis to determine most serviceable areas by transport times during emergency situations.
3) To create a 3D TIN, visually depicting where flooding is likely to be the worst in the city.
4) Combine Suitability Map and Network Map into an easy-to-understand visualization for the best and worst areas for the construction of a disaster facility.

Data Sources
SF Elevation Data:
USGS National Elevation Dataset

SF Emergency Services, Block Group & Water Treatment Data:
Pacific Institute
http://www2.pacinst.org/reports/sea_level_rise/data/index.htm

SF Network Analysis Data:
Lab 10 Network Analysis zip file
http://ratt.ced.berkeley.edu/classes/c188/data/lab10/analysis_net_db.zip

Suitability Analysis
The Suitability Analysis was created to find a location that was secluded from hazards in the instance of flooding; such as levees, inland water and landslides. After completing the analysis, the most ideal locations were selected and are shown in the neon blue. These areas comprise the maximum amount of opportunities in addition to the least constraints.

The Network Analysis shows 6 minute serviceable areas from different emergency providers (fire, police, ambulance). The findings indicate areas with greatest access for all providers and are shown in dark blue.

Network Analysis

3D TIN

Results
Through the analysis of our findings, it became clear that very few areas in San Francisco were ideal for a disaster shelter. However, the few areas outlined in light blue are the locations with the highest number of benefits and lowest number of constraints. We have decided that the area near the north-middle of the map, near the Haight-Ashbury district, is the most opportune place to construct a disaster shelter, as it has the highest elevation, high emergency service opportunity, and the least constraints of constructive failure.