Mapping Air Quality Related Complaints on Maui
By William Wong

Introduction
One of the biggest issues on Maui today is the cane burning done by Hawaiian Commercial and Sugar (HC&S). As an employee of HC&S, I knew that everything is being done to minimize any negative impact that our operations may have on the public. HC&S works closely with the Department of Health (DOH) to make sure that they are in compliance with all rules and regulations. The practice of cane burning is strictly regulated by the state which issues HC&S a burn permit with extensive guidelines and protocols. Unfortunately there are times when weather conditions change and the residents of Maui become negatively affected.

Problem Statement
The goal of my project was to map out the location of air quality related complaints on Maui. HC&S and the DOH can then use this information to monitor areas with high complaints to make sure no violations are being made.

Methodology
The source of all my data was (https://community.citysourced.com/default.aspx) which is a website that allows users to report civic issues from their mobile devices or computers. After downloading the data for Maui County, I decided to map only the complaints listed from January 1, 2015 to October 31, 2015. I then sorted thru the complaints and chose only the ones that were related to air quality (Smoke at ground level, Excessive Ash, Excessive Dust, and Dark Mill Smoke). Next I organized the complaints into 3 areas: South Maui (Kihei, Wailea, and Makena), North Maui (Wailuku, Kahului, and Paia), and Upcountry Maui (Makawao, Kula, and Haiku-Pauwela). I decided to do a fourth map on smoke and ash complaints on days when there was no cane burning.

Results & Discussion
As we can see, South Maui had the most complaints by far followed by North Maui and then upcountry Maui. These results are not surprising as north to south winds are prevalent on Maui for most of the year. Since the most complaints come from South Maui, the DOH and HC&S should focus most their efforts on monitoring this area to make sure that air quality is up to standards.

As we can see, there was a total of 102 (85 from Smoke at Ground Level and 17 from Excessive Ash) smoke related complaints on days that there was no cane burning. The majority of these complaints also came from South Maui. It was very surprising that there were so many smoke and ash complaints on days when there was no cane burning. One possible explanation for the smoke complaints could’ve been people mistaking vog for smoke. The excessive ash could also have been from the previous day.

References
http://planning.hawaii.gov/download-gis-data/