**Red Cross Fire Risk Map v2**

*What areas in the USA are at the highest risk of home fires, and where should the American Red Cross go to install smoke alarms?*

In Phase 1 DKDC created 6 models to analyze fire response data, smoke alarm data, and census data to assign a fire risk score to census tracts across the United States. The results from these models helped generate a map of high-risk census tracts across the United States, which informed planning and helped us adjudicate resources. Now, DKDC has been asked to replicate this effort at a census block level (a smaller geographic unit), so that the Red Cross can more efficiently target smoke detector distribution efforts. This phase of work will help ensure fire alarms are handed out where they are most needed.

Phase 2 has three primary objectives:

1. Refine and update risk model to include smaller geographic areas and new data.
2. Update the user interface so Red Cross end users can interact with the risk scores, view their more specific components, and prioritize locations to distribute smoke detectors.
3. Set up a method so that the model can easily be refreshed by the Red Cross team when new home fire datasets are available.

**Data Ambassadors:**

Kelson Shilling-Scrivo – [k.shillingscrivo@gmail.com](mailto:k.shillingscrivo@gmail.com) – DKDC Slack Name: Kelson

**Project Discussion and Materials:**

*Join DKDC Slack:* dkdc.herokuapp.com  
*Red Cross channel:* #rcp2\_public  
*GitHub Repo:* <https://github.com/DataKind-DC/rcp2>  
*Data Location and Dictionaries:* Links to Google Drive containing data and dictionaries are on GitHub repo  
*Phase 1 Map:* <http://home-fire-risk.github.io/smoke_alarm_map/>

**Getting Involved:**

Please review the skills we are looking for below, and let us know if you’d like to get involved by emailing a data ambassador or posting in the Slack channel - we’d love your help!

*Skills used/needed:* There are two main components of the project: data modeling, and visualization. The modeling part requires aggregating, joining, and geocoding large datasets, and modeling fire risk from the variables contained. R has been the main language for the project so far and is preferred, but python or other data analysis welcome also. The visualization portion of the project needs front-end web development skills, particularly Mapbox GL, D3.js, html and javascript.

*More reading and background:* The GitHub Repo contains links to the onboarding powerpoint, notes on the original model, and related background research.

*Current To Dos:* Right now, we need help downloading and pre-processing U.S. census data at the block and/or block group level, and merging this with the home fire and other data. After that, we will need help creating home fire risk score machine learning models and updating the user interface. Specific tasks can be found in the GitHub Project Board and Issues.