Project 2: Staffing and Mapping Estimation Model

Goal:

To develop a model that can estimate:

1. Necessary Workforce: the number of teams (where a ‘team’ = 1 Supervisor & 4 HS students) needed to map a given geography (“x” number of square miles or “x” number of places); and
2. Community Area Assignments: the community areas to be mapped by each Host Site and its assigned field teams (where each Host Site has at least 3 team, sometimes 4); and
3. Daily Assignments/Field Team: the number of places to map per day taking into account community characteristics and travel

The output we are looking for:

1. The number of teams needed for the entire summer’s mapping goal
2. The community area assignments (listed by Host Site)—Example: “Host Site 1= Auburn Gresham, West Englewood, South Chicago; Host Site 2= Riverdale, Calumet Heights, Hegewisch; Host Site 3= Bridgeport, Armour Square, Lower West Side”,, etc.
3. The number of commercial places to be assigned per Host Site Field Team per day, based on the community area(s) being mapped for the day/week—this model would ideally be something Supervisors could use on a weekly/daily basis to make field assignments during the mapping period

Scope:

* + We believe productivity varies based on a number of factors:
    - Place density—i.e. the number of places on individual commercial or residential streets (this varies greatly by community area)
    - Travel time to cover the geography—i.e. time to get to mapping location from host site and potentially from place to place within assignments

Weather

* + - Day of week—e.g. Fridays are traditionally reserved for mapping on residential streets ONLY (without high school students)
    - Number of days into the summer program--so faster with more experience
    - Quality of Leader management of team—a weak leader gets drastically different results than strong leader
    - Perception of safety in an area—mapping tends to be slower/stall on certain days in areas perceived as ‘most dangerous’
  + Gather necessary data (MAPSCorps has some of the metadata but others will need a proxy)
    - General geographic size--square miles by zip code (available online)
    - Place density--D&B number of places by zip code (purchase)
    - Error rate of D&B data--how many places aren’t found from D&B and how many places are found that aren’t in the D&B
    - Weather (daily average in past years during the mapping season)
    - Some crime measurement, e.g. violent crime arrests (city)
    - Number of hours mapped per day by each team (MC)
    - Distance walked per day
    - Number of places mapped per day by each team
    - Day of the week
    - Day number relative to program length (Day 4 of 30 for example)

Deliverable(s):

* Model
  + Inputs
  + Methodology
* Tool that executes model

Milestones:

* Draft Model 2/17
* Final Model 3/3
* Draft Tool 3/17
* Final Tool 3/24