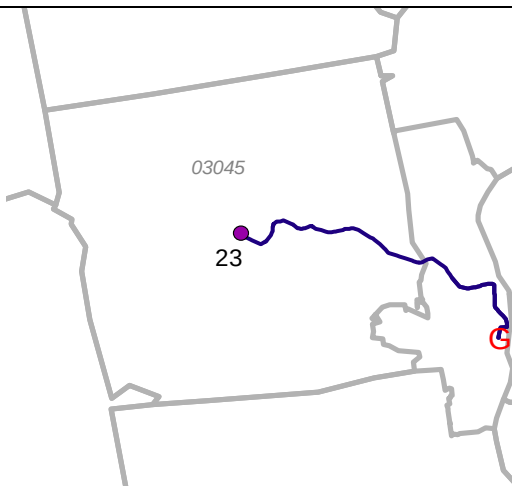


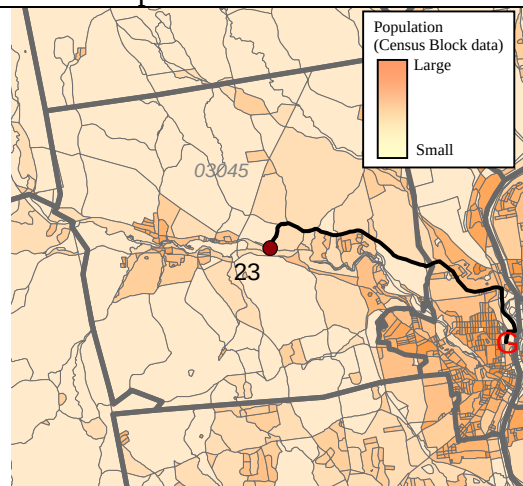
Geometric method

Population-based method

Point-based model

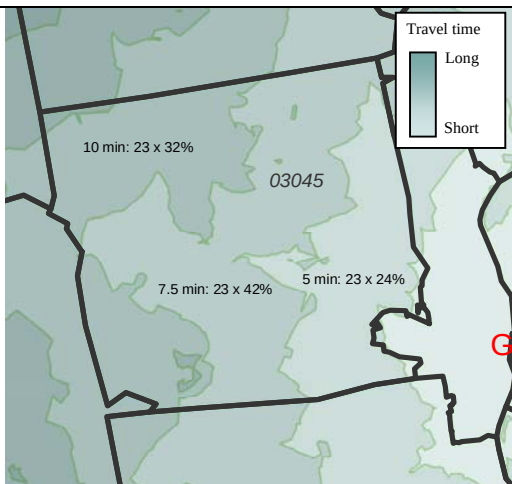


- a. The geometric centroid of a ZIP code polygon is the representative location of all the subjects in the polygon. In the above example, this method assumes that all the 23 subjects in ZIP code polygon 03045 are at the geometric centroid of this polygon.

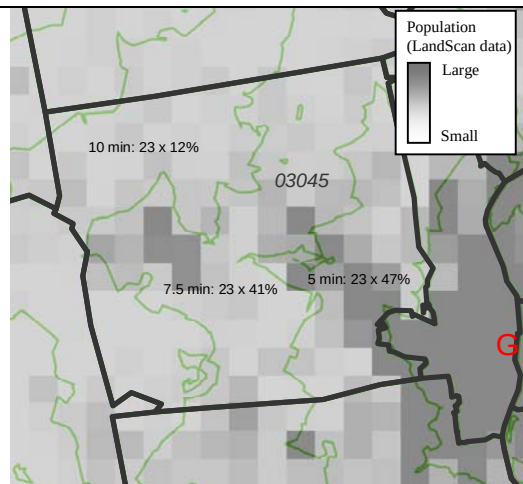


- b. Similar to a, but the centroid is calculated based on Census Block *population* data.

Polygon-based model



- c. A ZIP code polygon divided into “service area” zones defined by travel time. In the above example, the 23 subjects in ZIP code polygon 03045 are proportionally distributed into different zones, with the proportion determined by the percentage of the *area* of a zone in the ZIP code.



- d. Similar to c, but the proportion is determined by the percentage of the *population* in the zip code polygon. Population is calculated based on the LandScan data, shown by the background grid above.