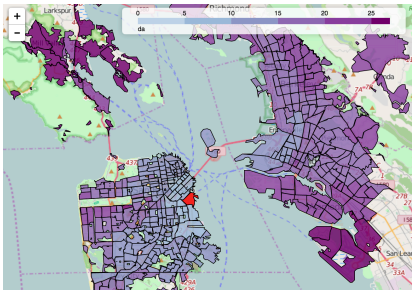
CE 88
Homework 4



In this homework, you will explore travel mode share of trips to a typical major event held at AT&T Park stadium, such as the recent Metallica concert on Saturday Feb 6th 2016, the Super Bowl weekend. You are to use the data sources from the Mini-labs 3 and 4, under the simplifying assumptions described below.

Network. Given the significant flow of people to the venue, we will assume that traffic conditions and travel times are similar to AM peak traffic. All Lyft/Uber/Taxi drivers are old Metallica fans and are taking a day off. No other modes besides driving and regular walk-to-transit are available to reach the venue. Those who prefer driving to the venue carpool with a neighbor, and the average vehicle occupancy is 2 persons (therefore use the carpool travel times). Regarding driving vs transit, all the factors except travel time (such as parking fees, transit fares, crowdedness, etc.) are balancing out so that **travel time** can be considered as **the only factor** in travel mode choice. As parking at the venue is limited, it is known that queuing at the lot or searching for parking in the neighborhood adds **extra 25 minutes** of travel to the driving time.

Finally, assume that decisions are deterministic: people always choose the mode that provides shortest travel time. All attendees residing within a given origin TAZ will chose the same mode.

Following the Mini-labs dataset, you can only consider SF, Oakland, Berkeley, and Marin areas in your estimates below.

Problem 1 (5 points). How many origin TAZs are such that their residents will prefer driving to the venue?

Problem 2 (5 points). Produce a map visualizing the travel mode split. You can use different colors to plot the TAZs corresponding to residents who would drive / take transit.

Your submission must be both a PDF file and the original ipynb.