Mark Frederick

Professor Zaigralin

Stat 300

April 18, 2021

CI Project Proposal

**Goal**:

The goal of this study is to produce 90% CI for the proportion of houses in Cresleigh Ranch Village Elk Grove who parked their SUV vehicles on their driveway or street.

**Population:**

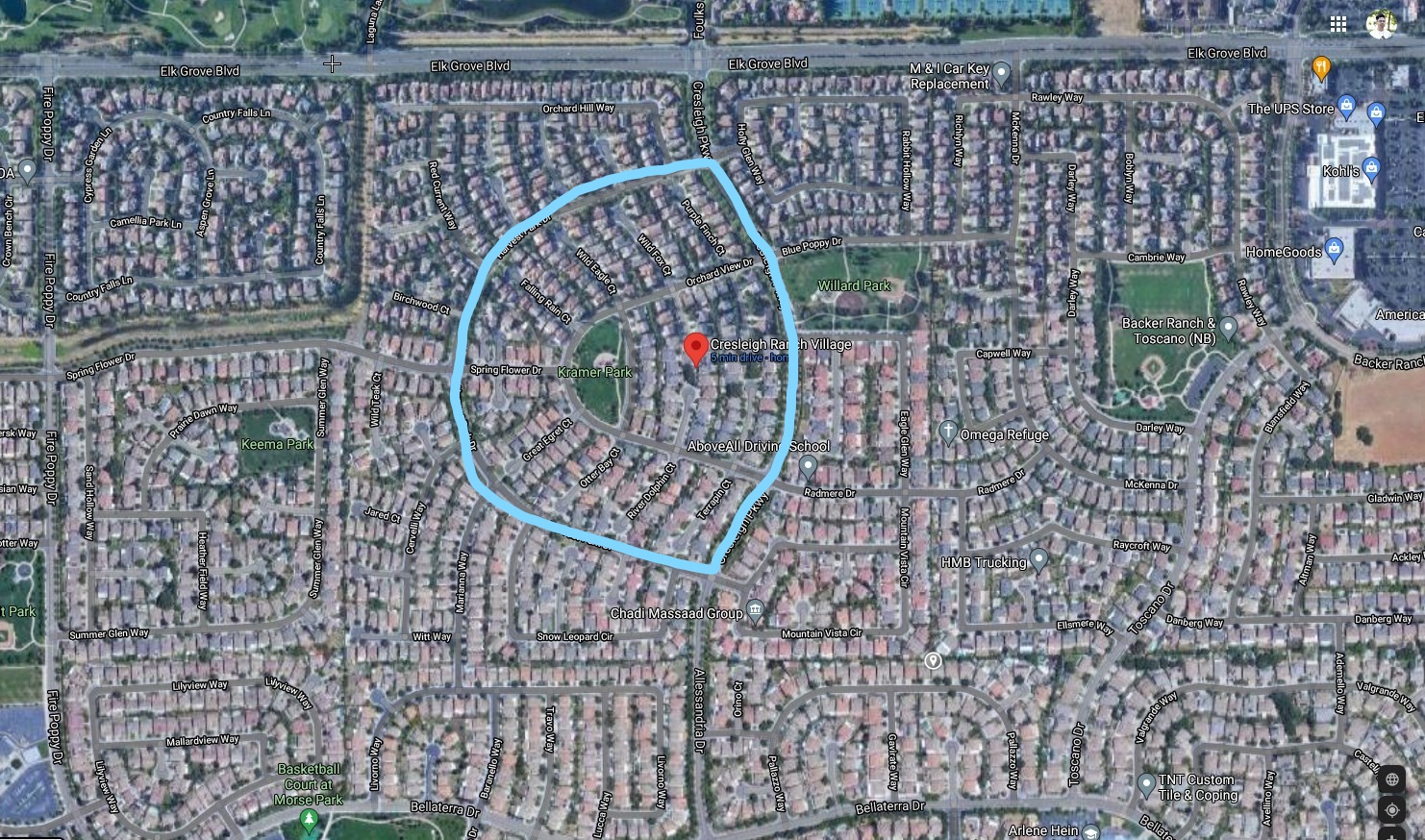
Every house within the Cresleigh Ranch Village Elk Grove neighborhood with or without silver SUV vehicles parked on their driveway or street will be considered for this study.

**Sampling Frame:**

Individual houses will be chosen based on a systematic sample of streets within the Elk Grove neighborhood.and all houses with SUV vehicles parked on the driveway or street.

**Sampling Method:**

A systematic sample selection of 6 streets out of 12 streets within the Cresleigh Ranch Village Elk Grove neighborhood will be selected. Study will begin from 5:00pm-6:00pm on a Friday. At 5:00pm, I will start driving by every other odd street or every other even street and observing the driveways or streets whether they have silver SUV vehicles parked in front of their house or not. (street 2, street 4, street 6,...) or (street 1, street 3, street 5,...)



**Discussion:**

* The sample size of houses being calculated will be about 100.
* Some streets might have houses that have no SUV vehicles parked on the driveway.
* Some houses might have their vehicles parked in the garage which will cause a reduction in the sample size.
* Bias is introduced because we’re collecting data on Friday evening and people might not be home yet from work.

**CI Proportion Publication:**

**Data Analysis:** Raw data is attached in a separate file (*Frederick Sample Data-P-Estimate.csv*)

* Adjusted sample size: n = 103
* Responses: Yes = 33

No = 70

* Sample proportion (point estimate): ˆp = 0.3106795

90% CI for population proportion using Z as the sampling distribution:

(0.2356705,0.3856888)

Margin of Error: 0.07500915

103 - 0.3106795 (1 - 0.3106795) = 22.05824807

**Discussion:**

With the good sized sample size, we’re able to determine that the sample size was enough to prove the application of the normal distribution and the sample proportion was accurate enough to find the CI with 90% confidence. np(1-p) = 22.06 which showed that the sample size was the right size to justify the normal distribution. During the data collection, there were quite a lot of people that owned silver SUV vehicles than I’d expected.