Ultimate Challenge Part 2

1. I would measure number of vehicles that head into each city on the weekdays. This is a quantity that should be easy to collect at the toll booth and would indicate interest of heading into the next city.
   1. For a month, count the number of vehicles passing either toll gate on a weekend in 50 hours, chosen randomly, not during a holiday, and during a time when tolls still cost money (assuming this data has not been collected yet). Then, make tolls free for a month and make the same counts on the same day and hours chosen in the next month. The ratio would be something I’d ask management more information on. What constitutes a successful increase in between city traffic? If they happen to know how many driver partners are in the two cities, this could be helpful in determining a successful increase.
   2. I would conduct an ANOVA test if the distribution of the 50 1-hour samples was normal. If it is not, I would use Wilcoxon-Mann-Whitney. The size of 50 was chosen as a “large sample size”.
   3. If the p-value from the ANOVA test is less than 0.05, then we can reject the null hypothesis that the mean traffic is the same when tolls are paid as when tolls are free. If the null hypothesis is rejected and the ratio mentioned earlier is reached, then I would recommend making tolls free. It should be noted that seasons may also affect this experiment.