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Take home challenge

1. The most important metric would be an increase in total drivers that cross over the toll bridge. This metric would need to be compared both before and after the implementation of the reimbursement. The more drivers that are willing to travel over this bridge the less friction it creates between the two cities and will lead to more economic stimulation.
2. I would count each vehicle that crosses the bridge for 2 weeks and the specific direction that they are traveling. (more drivers may be willing to travel to one city but not the other). Then we could implement the reimbursement plan and do the same process. This will not only tell us if more drivers are crossing the bridge but also which way they are traveling.
    a. I would have the toll pass collect the amount of cars that pass through a given toll booth each day and aggregate the numbers.
    b. I would use a t-test and check the p-value for statistical significance. I would set a p-value threshold of 0.05.
    c. While the t-test will provide a good test if an improvement is made, it would be hard to tell how large the impact would be initially. Would a 10% increase in cars create more economic activity, or would more be needed? How much spending done by consumers is contingent upon traveling across the bridge? Maybe, drivers are more likely to cross the bridge but are going to see friends and family. In this case a further study upon the economic impact of this plan would need to take place. We would need to calculate earnings before and after and see if they outweigh the income being made by the bridge tolls. The real reason for this implementation is to create more economic activity and more information would be needed in order to draw that conclusion.