I. Executive Summary

We observed how many cars actually made a complete stop at the stop sign on Service Road, off of Wick Avenue. We took into consideration and observed a weekday and on the weekend at various times of the day. These times consisted of 8am-10am, 11am-1pm, and 3pm-5pm. Also, we hypothesized that 30% or more of the vehicles would stop on a weekend or weekday.

II. Introduction

We wanted to see how many cars would actually stop at the stop sign on Service Road off of Wick Avenue, which is a one way street. However, the street parallel to Service Road is an exit ramp for the cars exiting the freeway. The cars exiting the freeway onto the ramp have the right-of-way, whereas the cars on Service Road have the stop sign. We took into consideration the mean of the Youngstown population. Now, with a margin error of 8%, we observed 150 cars. We wanted to analyze that more than 30% of the cars would stop either on a weekday or on the weekend. We also wanted to compare on a weekday and weekend how many cars would stop. This was accomplished by stating which out of the two had the greatest number of cars stopping. Also, we wanted to know on a given weekday or weekend, at the various times of the day, when the highest number of cars did not stop at the stop sign and comparing it to the highest number of cars stopping.

We analyzed a weekday at the following different time intervals, 8am-10am, 11am-1pm, and 3pm-5pm. We also did this same analysis on a weekend.

III. Data Collection Techniques

We divided the data collecting between the two of us. Alaina collected data on a weekday from 8am-10am and on the weekend from 8am-10am and 11am-1pm. Kenneth collected data from the weekday from 11am-1pm and 3pm-5pm and on the weekend from 3am-5pm. During each time interval both of us observed 150 vehicles, totaling 450 vehicles for the day. We observed the cars by sitting in the parking lot of Wick and Weller Dorms that sit off of Service Road. As we collected the data we categorized the data as cars that stopped at the stop sign, cars that rolled though the stop sign, and cars that did not stop at the stop sign. Alaina and Kenneth calculated the data in the following categories such as, if a car would ride down Service Road and made a complete stop; we calculated it as a car stopping at the stop sign. If the car reduced its speed or gradually drove though, we calculated it as a car that rolled through the stop sign. If the car continued at a constant speed, we calculated it as a car that stopped at the stop sign.
A problem with collecting our data was when a car did not stop at the stop sign, and paused because there were a frequent amount of cars entering from the ramp. We could not calculate the several cars behind the car that stopped because we did not know if those several cars would have stopped on their own or if they would have proceeded to drive through the stop sign. Therefore, they were not calculated in our data collection.

Another problem was the confusion between which car was actually supposed to stop. Several times the cars getting off the freeway would stop either because they were unsure if they had the stop sign or if the car coming from Service Road did not stop the car from the freeway had to stop to avoid an accident. Both Alaina and Kenneth observed numerous close calls, and were surprised there were not any accidents.

IV. Summary of Data

<table>
<thead>
<tr>
<th>weekDay</th>
<th>stopped</th>
<th>rolled through</th>
<th>did not stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>8am – 10am</td>
<td>40</td>
<td>41</td>
<td>69</td>
</tr>
<tr>
<td>11am – 1pm</td>
<td>55</td>
<td>43</td>
<td>52</td>
</tr>
<tr>
<td>3pm – 5pm</td>
<td>56</td>
<td>36</td>
<td>58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>weekEnd</th>
<th>stopped</th>
<th>rolled through</th>
<th>did not stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>8am – 10am</td>
<td>47</td>
<td>51</td>
<td>52</td>
</tr>
<tr>
<td>11am – 1pm</td>
<td>36</td>
<td>53</td>
<td>61</td>
</tr>
<tr>
<td>3pm – 5pm</td>
<td>35</td>
<td>45</td>
<td>70</td>
</tr>
</tbody>
</table>

80% Confidence Interval

<table>
<thead>
<tr>
<th></th>
<th>8am – 10am</th>
<th>11am – 1pm</th>
<th>3pm – 5pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday</td>
<td>(33, 47)</td>
<td>(48, 63)</td>
<td>(49, 64)</td>
</tr>
<tr>
<td>Weekend</td>
<td>(40, 55)</td>
<td>(30, 43)</td>
<td>(29, 42)</td>
</tr>
</tbody>
</table>

*Weekday – 151/450 (139,164)

Weekend – 118/450 (107, 131)

*For the entire day
V. Visual Summary of Data

**WEEKDAY**

**ACTION1**

<table>
<thead>
<tr>
<th>N = CARS DID NOT STOP</th>
<th>1.00 = 8AM – 10AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>R = CARS THAT ROLLED THROUGH</td>
<td>2.00 = 11AM – 1PM</td>
</tr>
<tr>
<td>S = CARS THAT STOPPED</td>
<td>3.00 = 3PM – 5PM</td>
</tr>
</tbody>
</table>
WEEKEND

N = CARS DID NOT STOP
R = CARS THAT ROLLED THROUGH
S = CARS THAT STOPPED

1.00 = 8AM – 10AM
2.00 = 11AM – 1PM
3.00 = 3PM – 5PM
WEEKDAY & WEEKEND

N = CARS DID NOT STOP  1.00 = 8AM – 10AM
R = CARS THAT ROLLED THROUGH  2.00 = 11AM – 1PM
S = CARS THAT STOPPED  3.00 = 3PM – 5PM
VI. Analysis

We hypothesized that more than 30% of the cars observed did complete stop at the stop sign, on both a weekend and weekday. Our method used was the null and alternative hypothesis. First, we analyzed the weekend:

H₀: The mean of cars stopping at the stop sign will be greater than or equal to 30%.

Hₐ: The mean of cars stopping at the stop sign will be less than 30%.

a = .05        t = -1.820      p-value two-sided (.069)

However, doing a left-sided test, our p-value from the left of –1.820 is .034.

Decision Rule: Reject H₀ p-value <.05

Conclusion: There is not sufficient evidence found that the number of cars stopping on a weekend is greater than 30%.

We can see that less than 30%, from the hypothesis, of the people driving down Service Road will stop at the stop sign.

We next analyzed the weekday using the same method.

H₀: The mean of the cars stopping at the stop sign will be greater than or equal to 30%.

Hₐ: The mean of the cars stopping at the stop sign will be less than 30%.

a = .05        t = 1.596       p-value two-sided (.111)

However, doing a left-sided test, the p-value on both ends of the tail is .055. We know the right side of 1.596 is .055. By subtracting one, the left-side of 1.596 p-value is .944.

Decision Rule: Fail to Reject H₀ if p-value <.05

Conclusion: There is sufficient evidence found that the number of cars stopping on the weekday is greater or equal to 30%.

We also use the 80% confidence interval method telling us how many cars will either stop, roll through, or did not stop for the various times and on either a weekend or weekday (See IV Summary of Data).
VII. Conclusion

The main conclusions of our study are:

- More people tend to stop on the weekday. Perhaps this is due to the fact that drivers are more attentive to traffic on the weekday than on the weekend. The weekend drivers are perhaps more relaxed.

- In our study as time progressed from 8am-10am to 11am-1pm and to 3pm-5pm more people stopped on the weekday. Whereas on the weekend the amount of people stopping decreased.

- Even from our hypothesis, we can conclude that on the weekday more than 30% of the people driving will stop and on the weekend less than 30% of drivers will stop. This hypothesis is telling us that it is more dangerous at that particular stop sign on the weekend than on the weekday.