

## **Traffic Capstone Proposal**

Traffic jams are one of life's most annoying obstacles with people voting them as the 14th (news.com.au, 2013) and 19th (thesun.co.uk, 2018) most irritating things about life. In fact, a study by the Texas A&M Transportation Institute found that the average American commuter spends 42 hours per year waiting in traffic jams (New York Times, 2019).

This waiting is not only frustrating, but also dangerous. Road rage is a leading cause of traffic deaths and according to a study questionnaire of 200 people, traffic jams are one of the biggest factors leading to this type of aggressive driving (Suliman, 2003). Other studies have shown that rush hour between 3pm-6pm is the most dangerous time of day to drive and that Saturday is the most dangerous day of the week to drive due to the number of cars driving and the number of cars on the road (BacTrack, 2016). Dangers due to traffic are not limited to the road either as a study found that domestic violence is 9% more likely to occur after an evening commute on the two busiest highways from 2011-2015 (New York Times, 2019).

Traffic not only costs lives, but also has a financial impact on residents as well. The average increased cost of traffic is \$1700 in the United States, \$2500 in France, and is as high as \$6000 in Los Angeles. These costs are highest for the trucking industry with traffic costing \$74.5 billion for the industry in 2015 and 1.2 billion hours in 2016 (Fleetowner, 2018). Truck drivers are also paid per mile rather than per time, so traffic jams not only cost them valuable time, but also directly impacts their earnings per week too.

With traffic affecting so many aspects of people's lives, one would hope that the problem is being addressed. However, the problem continues to worsen as the number of drivers continues to climb due to increases in population size and increases in the average number of cars per person. The number of drivers in the United States increased about 35% from 1990 to 2017 (Statista, 2019) and the number of cars on the road rose 2.2% from 2018 to 2019 (thedrive, 2019). Throughout this time, road expansion has remained stagnant with only a 6% increase of 8.2 million miles to 8.7 million miles from 2000 to 2017 (bts.gov, 2017).

There are various different solutions proposed to address this problem which usually involve increasing spending on rebuilding the infrastructure or increasing efficiency of spending. However, analyzing currently available data is a low cost method of trying to address this

problem. By looking at different variables, companies and people can better plan their commute to avoid traffic and accidents. A study was done to measure hourly traffic volume on the I84 highway near Minneapolis-St Paul, MN from 2012 to 2018. Factors such as holidays, dates and times, cloudiness, temperature, rain, and snow were all measured and compared. By performing analysis on these factors, people can understand how much of an effect these variables will truly have on traffic conditions.

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