**The Association between Precipitation Intensity and Traffic Speeds**

**Abstract**

This project seeks to develop an understanding of the relationship between traffic conditions and precipitation intensity as well as the time of day.

1. **Introduction**

It is well established that there is a strong interaction between weather and traffic speeds. CITE THE FHWA. Many can relate to the experience of driving in inclement weather conditions when speeds drop drastically. It would be ideal to flesh out the relationship between many weather variables such as temperature, dewpoint, wind speeds, wind direction, and precipitation intensity but locating a high temporal resolution weather data is particularly difficult. A typical choice for weather data is the Federal Aviation Administration’s (FAA) Automated Surface Observing Systems (ASOS). This dataset was downloaded and experimented with but proved to be missing entirely too much data to be useful. Due to the amount of missingness in the data, imputation wasn’t even an option. An ideal choice for this analysis would be the High-Resolution Rapid Refresh (HRRR) weather model by the National Oceanic & Atmospheric Administration (NOAA) but there are no existing archives of the 15-minute data, only the hourly data. Hourly data, for the purposes of traffic weather interaction analysis, will not do as smoothing the traffic speed data over an hour would cause the data to regress to the mean. The interest of this study is on short term interactions, thus a high temporal resolution is necessary.

1. **Data Preparation & Exploration**

Texts..

Mention the data sources

Mention the interpolation process

A discussion between kriging and bilinear or nearest neighbor will be sufficient.

1. **Relation Between Traffic Speeds & Precipitation Intensity**

Texts..

1. **Conclusions**

Texts..

**Acknowledgement**

* **JTRP for traffic data**
* **Jie Shan for consultation**

**References**

* **Reference IEM data download for ASOS**
* **Reference IEM for mrms data**
* **Packages for R**