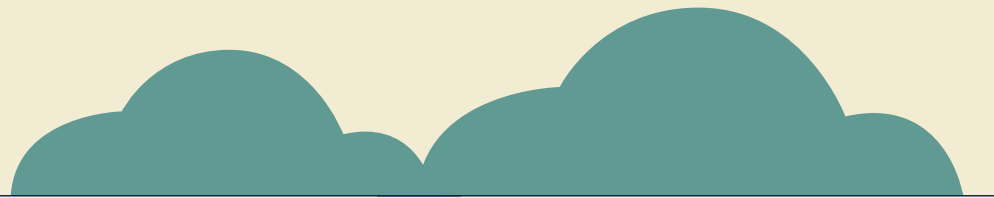# Bike Safety in the Windy City

An analysis of severe bike crash contributors for Vision Zero Chicago

Team Intros and Agenda

Meet the Team

Ryan Moore
Data Scientist
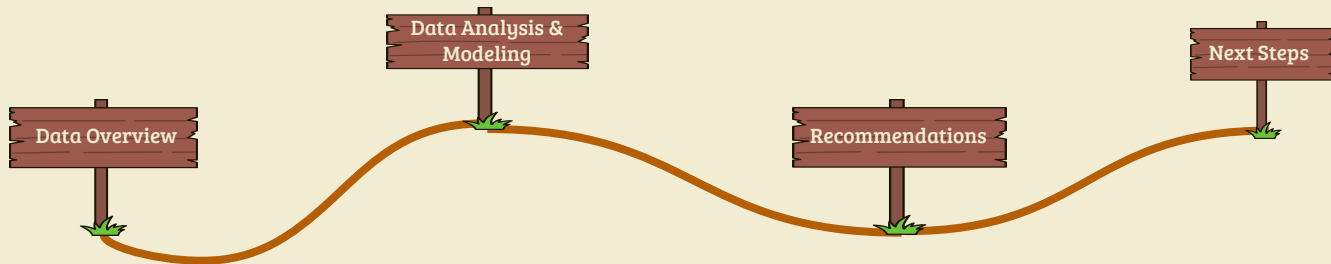
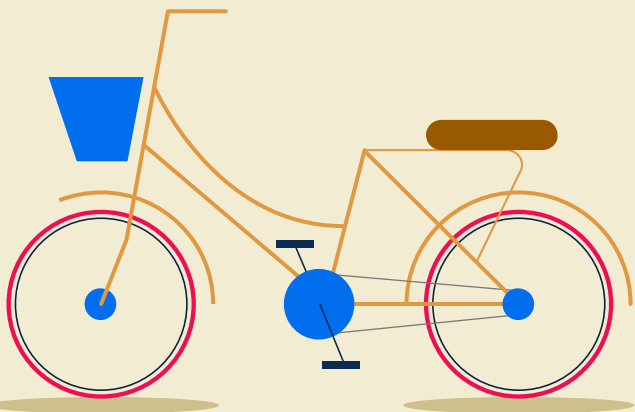**Sean Conlon**
Data Scientist

John Nahra
Data Scientist

High Level Agenda

Data Overview

Data Analysis & Modeling
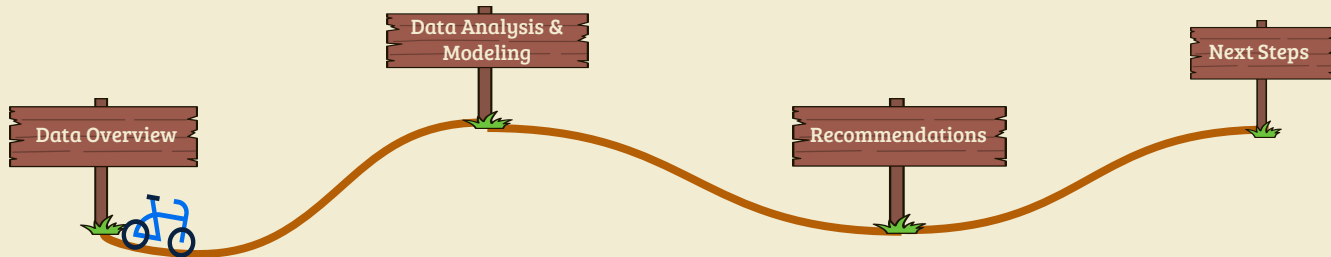
Recommendations

Next Steps

The Bottom Line

Your bike safety campaign should focus on the most important factors in serious bike accidents:

- impaired drivers
- older bikers
- traffic law abidance by bikers
- time of day
- road speed limits

Data Overview

Data Acquisition and Filtering

Data Acquisition

City of Chicago database of crashes, and information on the people and vehicles involved (2015 to present)

Data Filtering

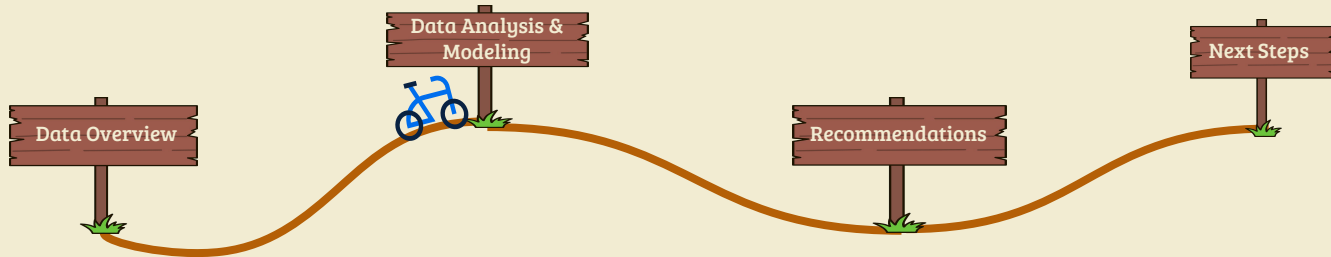Merged datasets together, filtered for crashes involving cyclists

Data Limitations

Lots of subcategories, unknown/missing values, heavily one-sided data

Data Analysis and Modeling

Data Overview

Data Analysis & Modeling

Recommendations

Next Steps

Data Analysis and Modeling

Modeling

Target binary variable: Severe biker injury

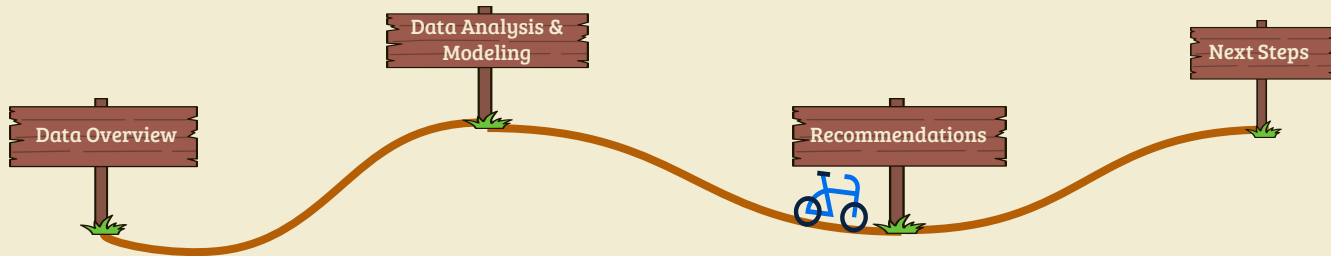To determine leading causes of serious cyclist injuries, utilized :

- driver characteristics
- biker characteristics
- crash conditions

Ran logistic regression, decision tree, random forest machine learning models

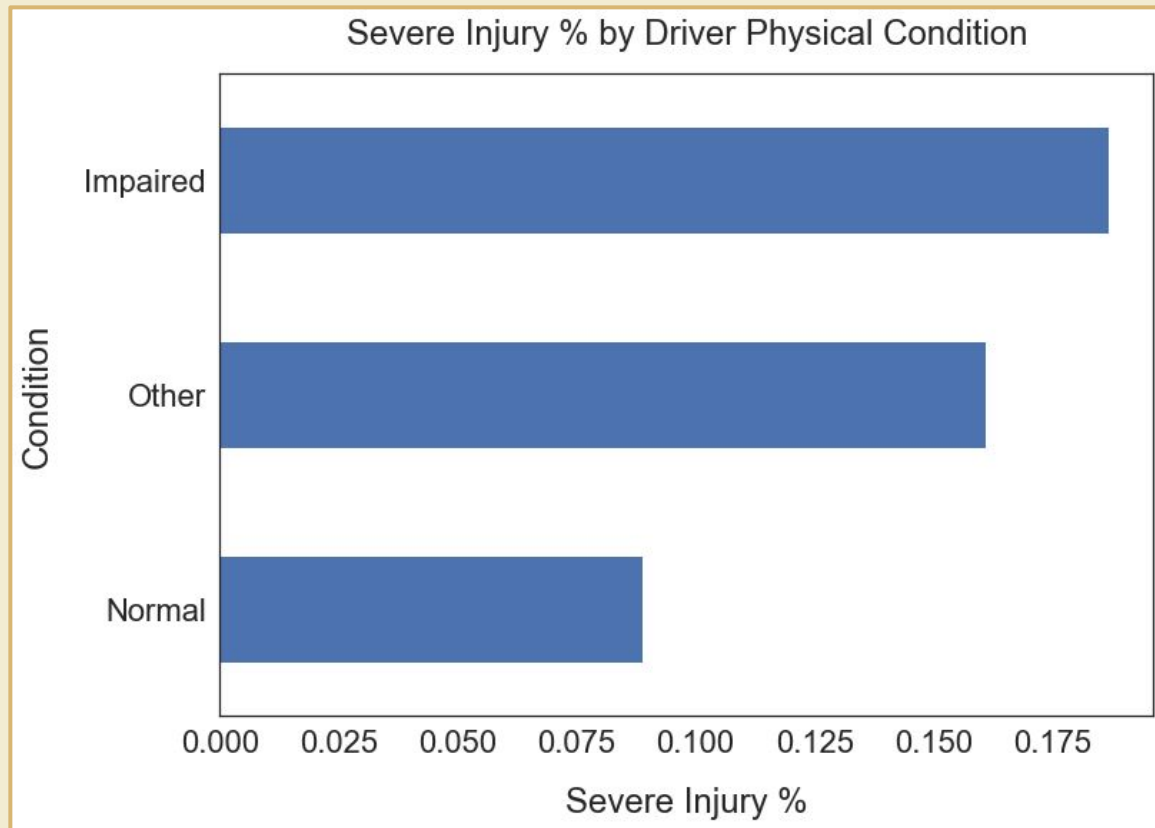Extracted most important features and interpreted coefficients
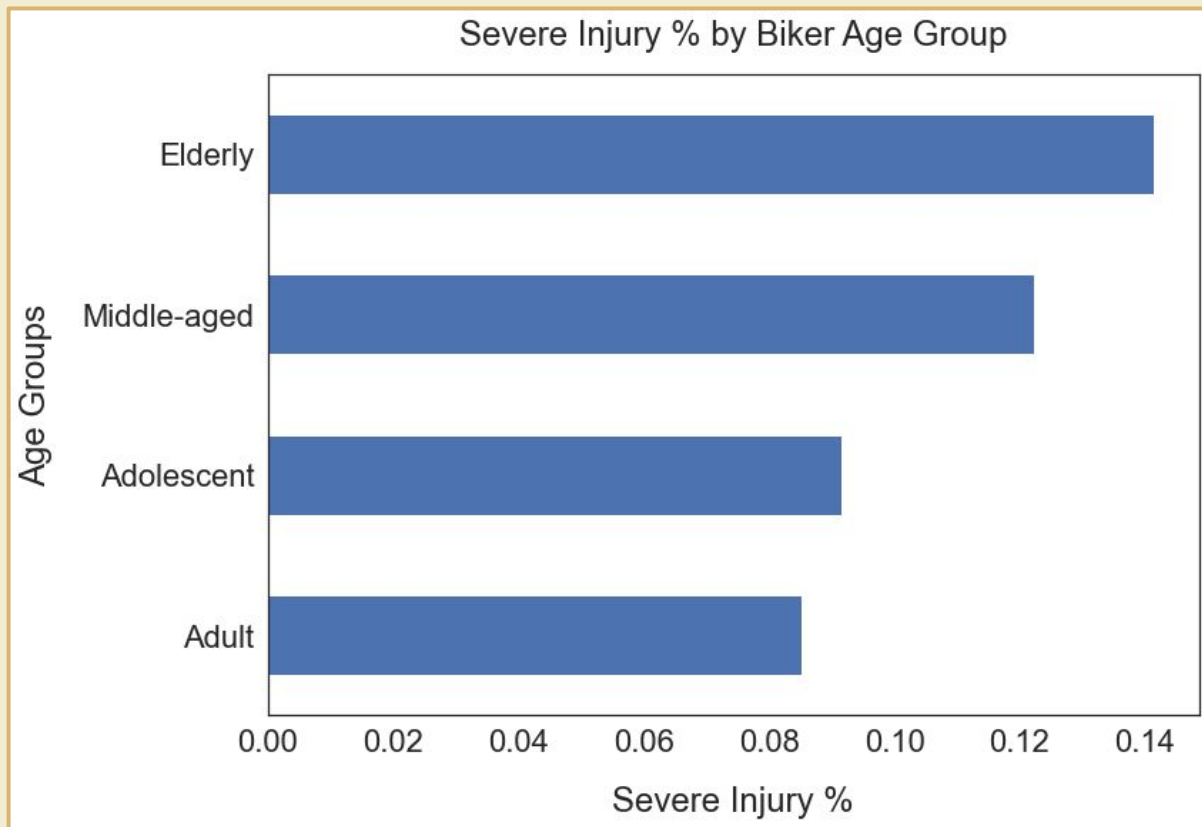
Recommendations

The Big Issue

An unimpaired driver ("Normal") reduces the likelihood of severe injury by 30%
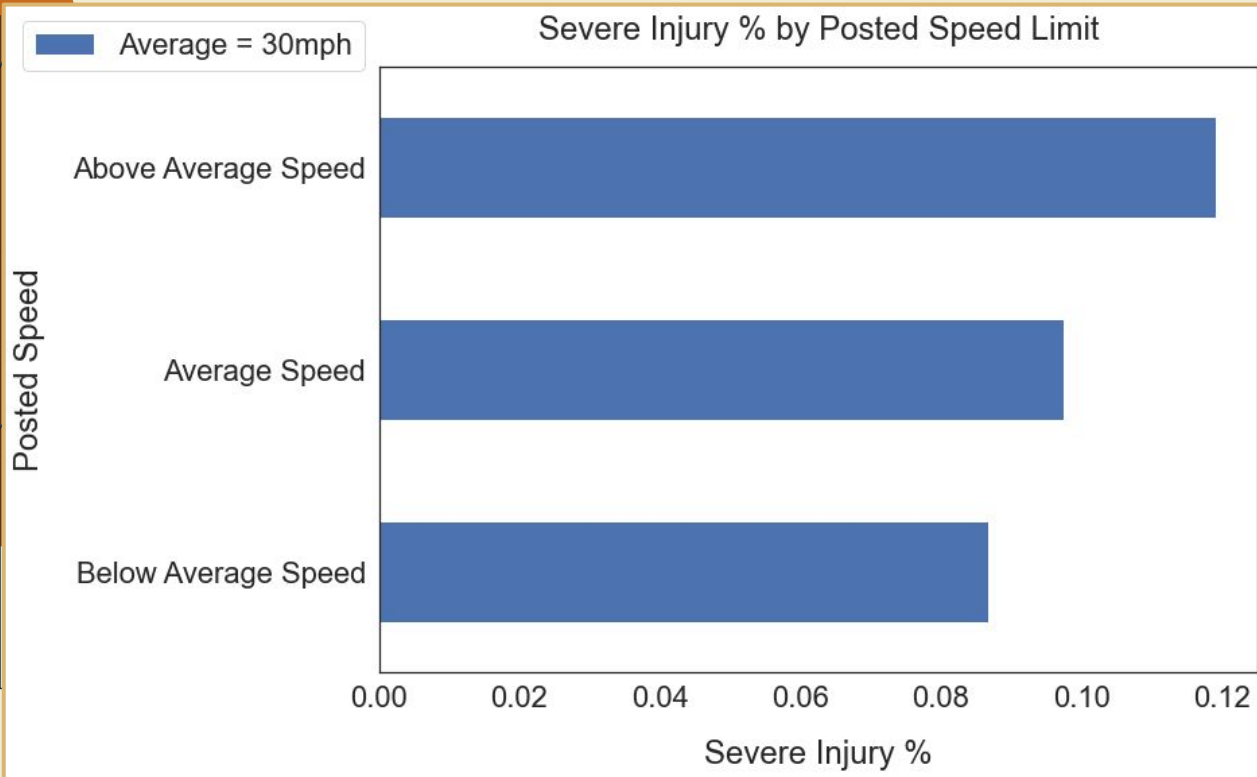

Severe Injury % by Driver Physical Condition

Path for Pops

Encourage elderly bikers to stick to bike paths, as they are 34% more likely to be seriously injured in an accident
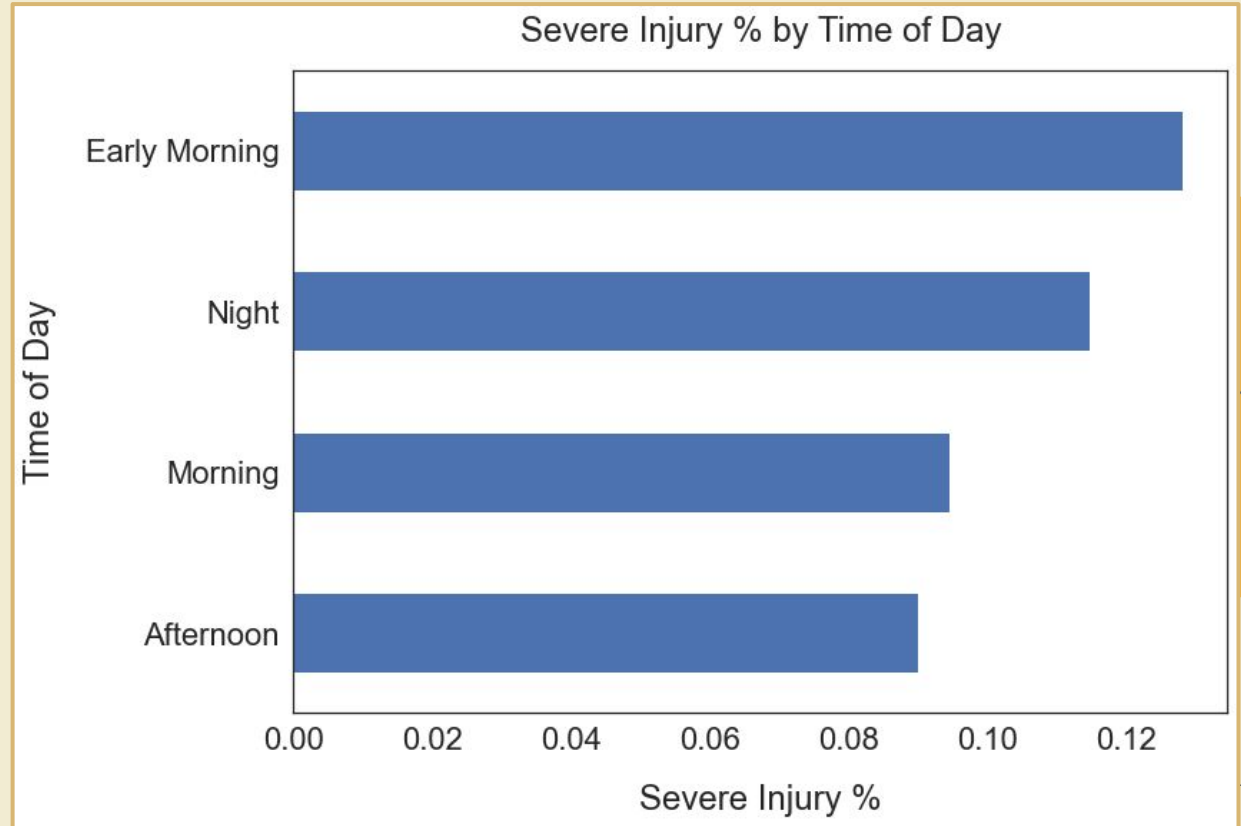
Severe Injury % by Posted Speed Limit

No need for speed

Traveling on streets with speed limits above 30 mph is 30% more likely to result in a severe injury
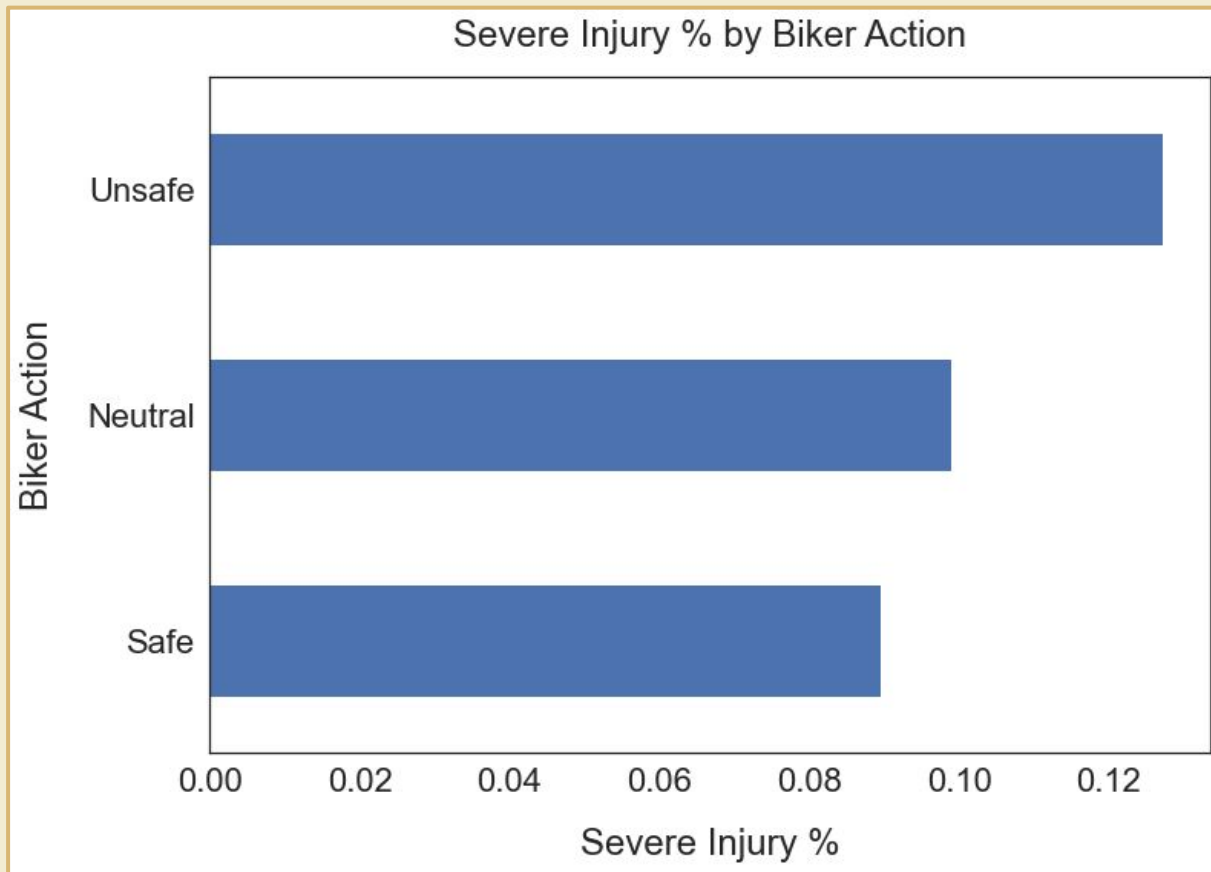
Afternoon delight

Bike accidents in the early morning are 22% more likely to be severe

Severe Injury % by Time of Day

Follow the law

Following the law decreases the likelihood of a severe injury by 16%

Severe Injury % by Biker Action

Next Steps and Other Considerations

Next Steps / Other Considerations

Location Information   Model currently treats all geographies of the city as the same

Additional Crash Circumstances   Interviews of bikers and reporting officers could provide additional trends to investigate

Thanks

Do you have any questions?

John Nahra
github.com/jnahra

Sean Conlon
github.com/seanconlon29

Ryan Moore
github.com/mooreaz92

You made it!