

A scenic view of the Chicago skyline across a body of water, likely Lake Michigan. The foreground is filled with trees displaying vibrant autumn foliage in shades of orange, yellow, and brown. The water reflects the city's skyscrapers, including the prominent Willis Tower. A few small figures of people can be seen in the water.

Investigating Chicago Auto Incidents

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**Identify leading
factors of auto
incidents to locate
areas of
improvement for
safety**

Goal



TABLE OF CONTENTS

01

DATA OVERVIEW

02

DATA EXPLORATION

03

CLASSIFICATION AND
EFFECTIVENESS

04

RESULTS

05

THE ROAD AHEAD



DATA OVERVIEW

01

WHAT WE WORKED ON

OVERWHELMING AMOUNTS OF DATA

3 different datasets totaling at close to a million observations

INCORRECT DATA

Abundance of data that did not make sense in a realistic setting.

- over 1,000 lanes present

MEANINGLESS DATA

Features recording the same value for every entry

MISSING DATA

Crashes - >20%

People - >35%

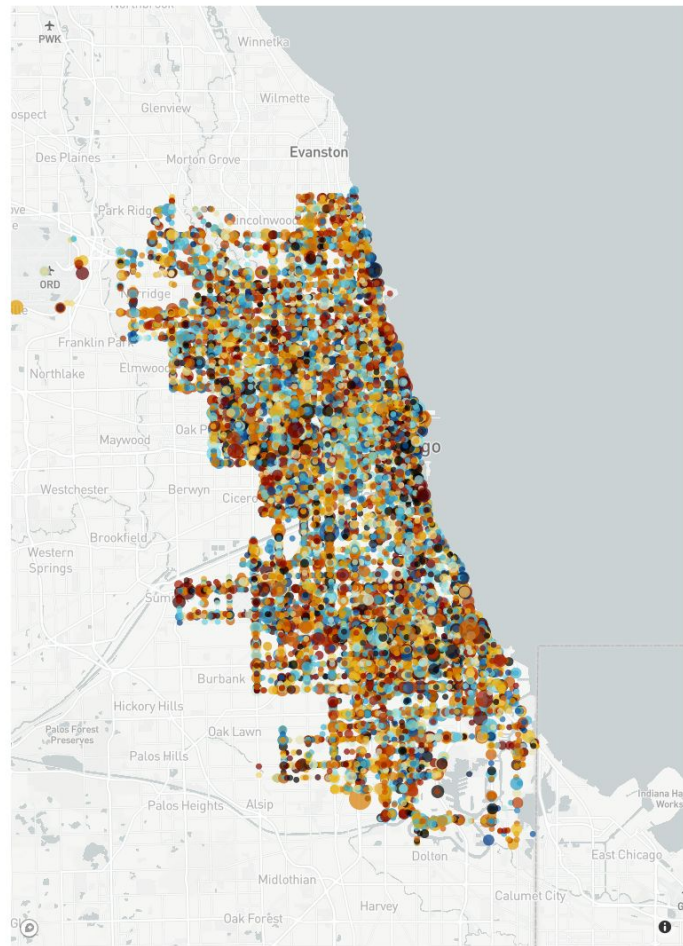
Vehicles - >70%

A wide-angle photograph of the Chicago skyline at sunset. The sky is filled with soft, orange and pink clouds. The city's skyscrapers, including the Willis Tower, are silhouetted against the bright horizon. In the foreground, a large Ferris wheel is partially visible on the left, and a body of water (Lake Michigan) stretches across the middle ground. A road with cars and a pedestrian walkway are visible in the lower part of the image.

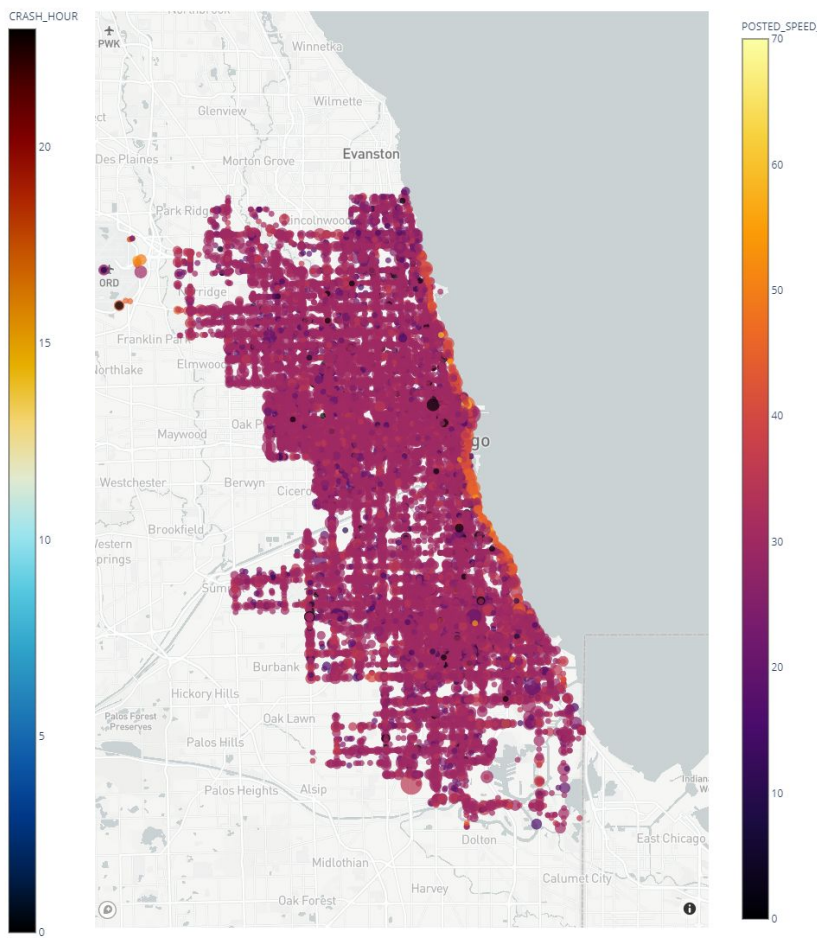
DATA EXPLORATION

02

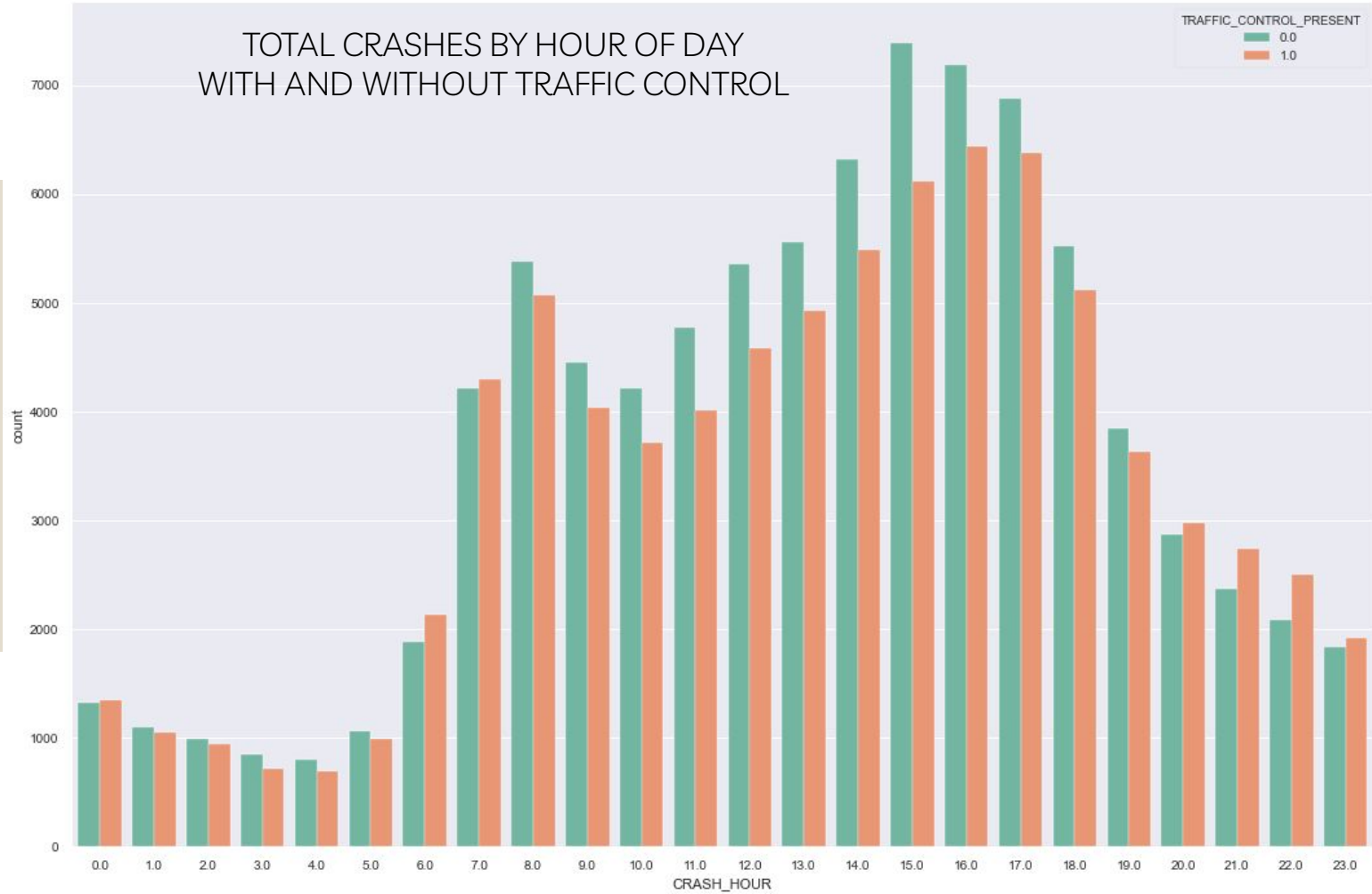
Chicago Crash Locations - Time of Day



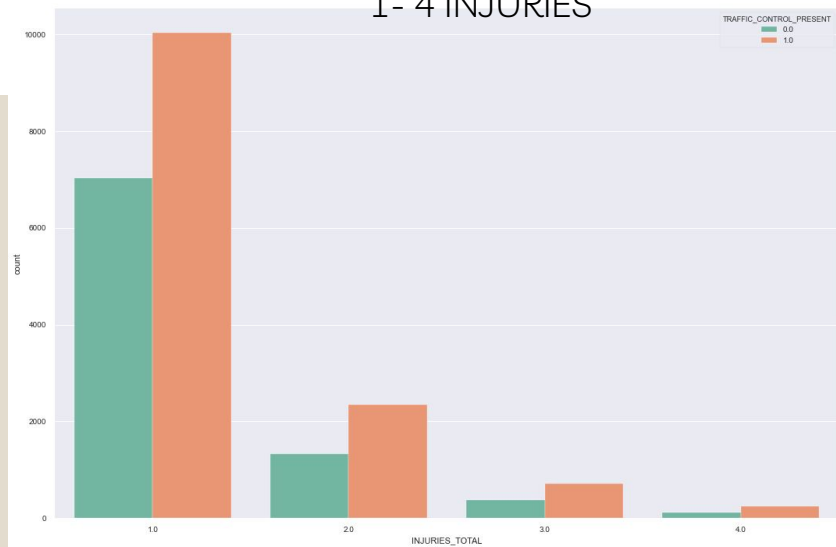
ago Crash Locations - Filtered



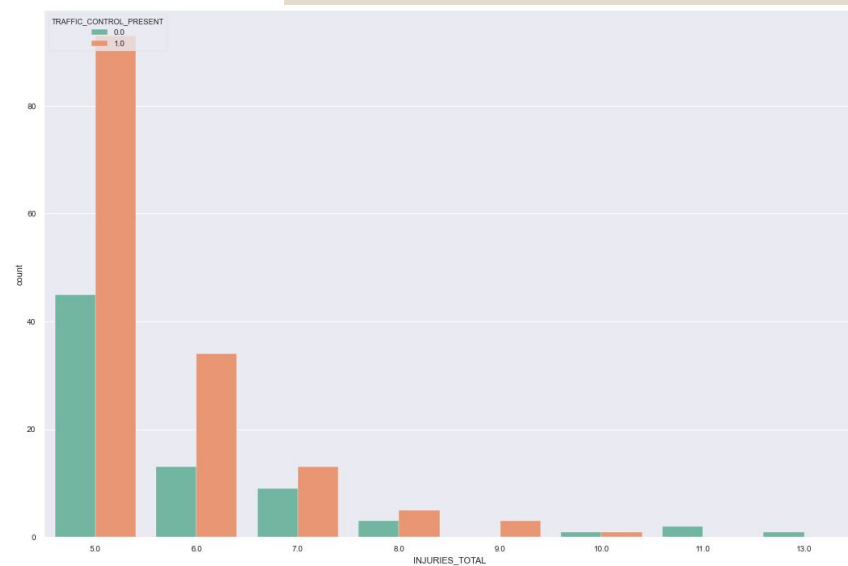
TOTAL CRASHES BY HOUR OF DAY WITH AND WITHOUT TRAFFIC CONTROL



INJURY DISTRIBUTION BY TRAFFIC CONTROL IN THOUSANDS 1- 4 INJURIES



INJURY DISTRIBUTION BY TRAFFIC CONTROL IN TENS 5+ INJURIES



CLASSIFICATION AND EFFECTIVENESS

03

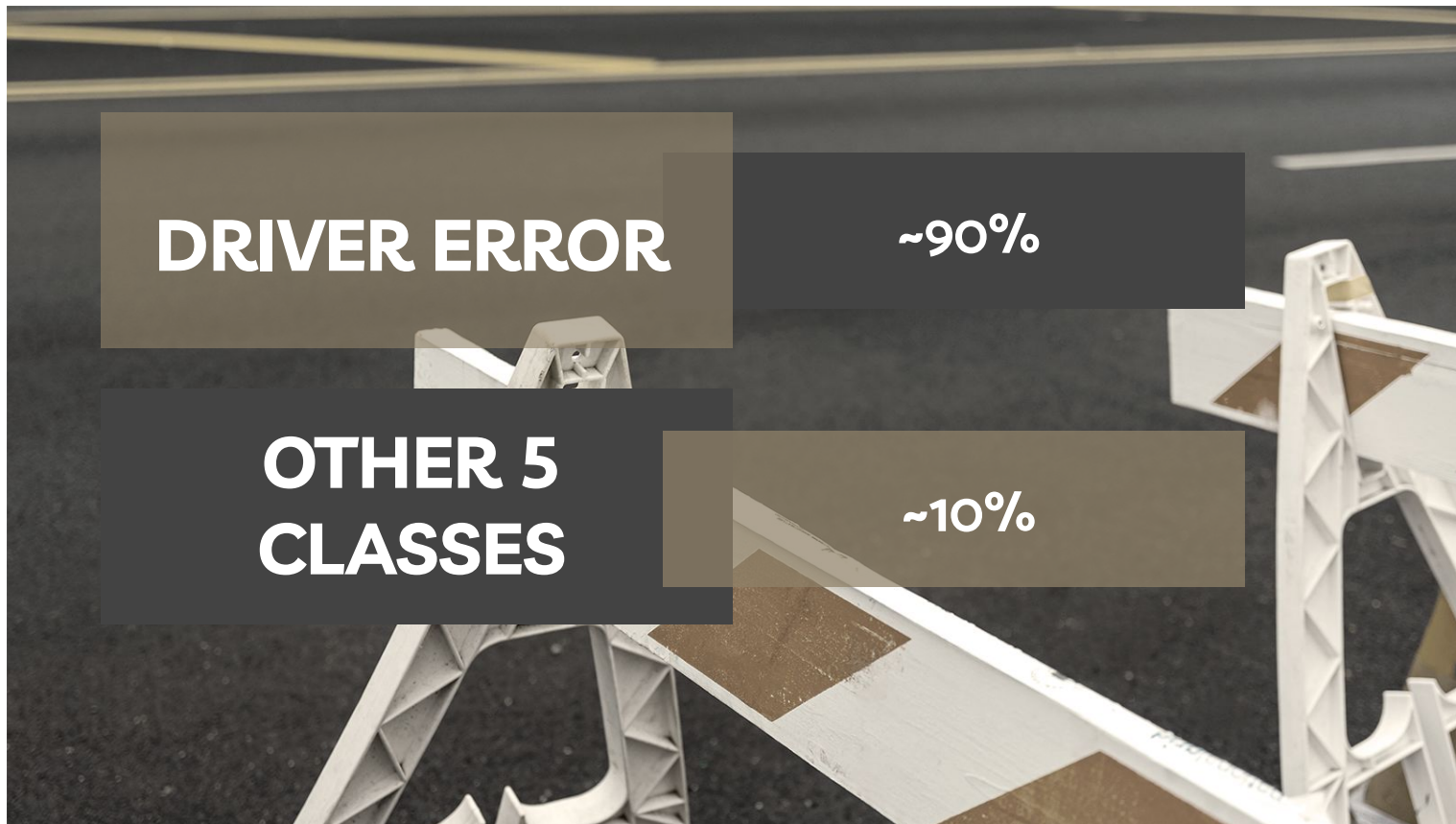
CLASS IMBALANCE

DRIVER ERROR

~90%

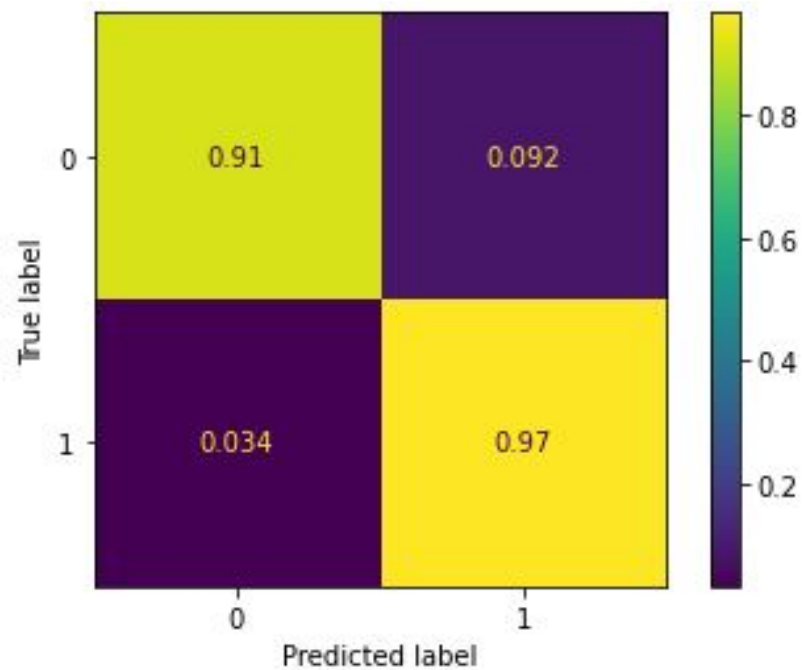
**OTHER 5
CLASSES**

~10%

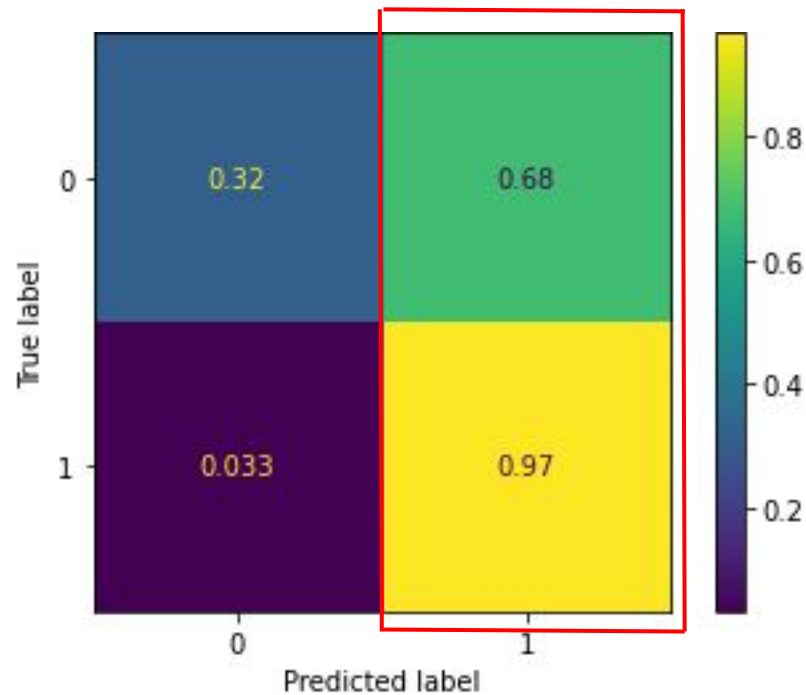


IDENTIFYING DRIVER ERROR

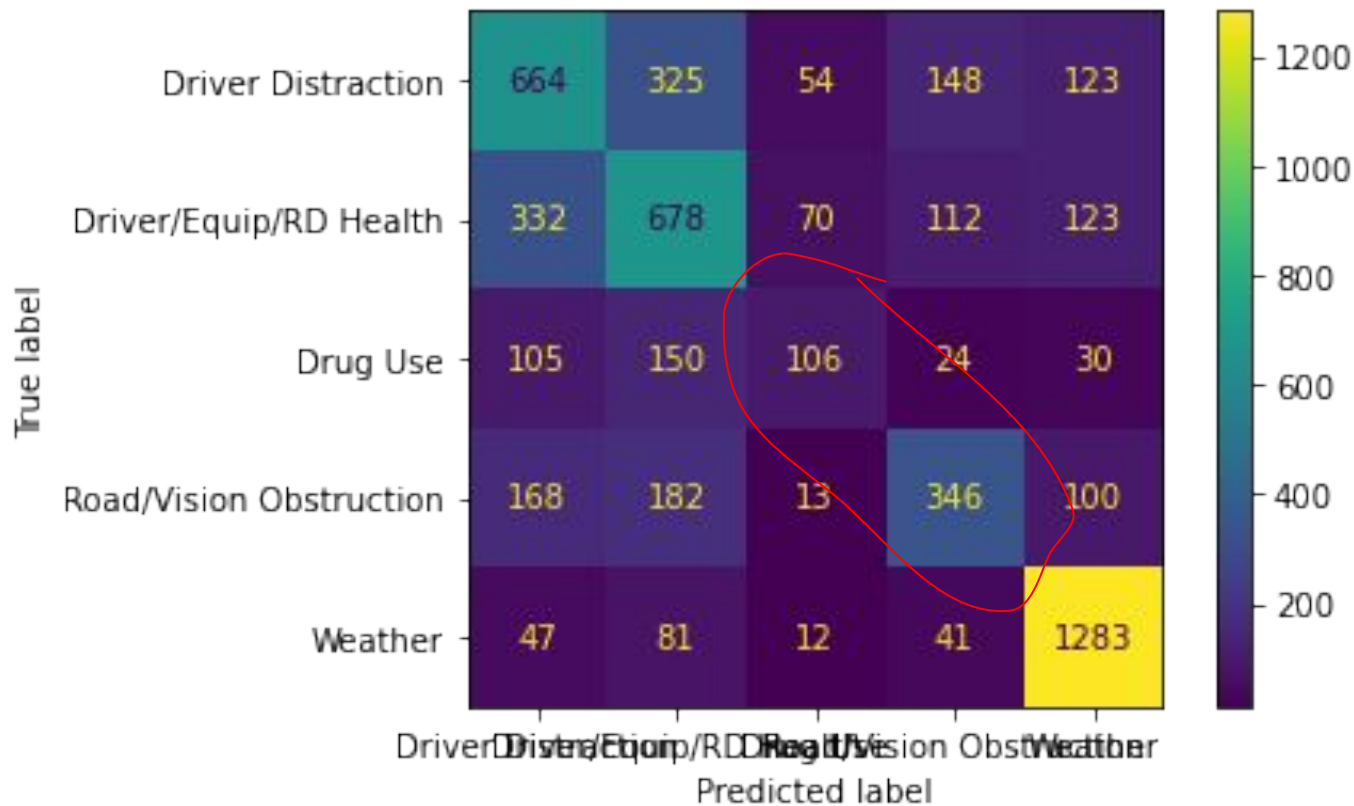
TRAIN RESULT



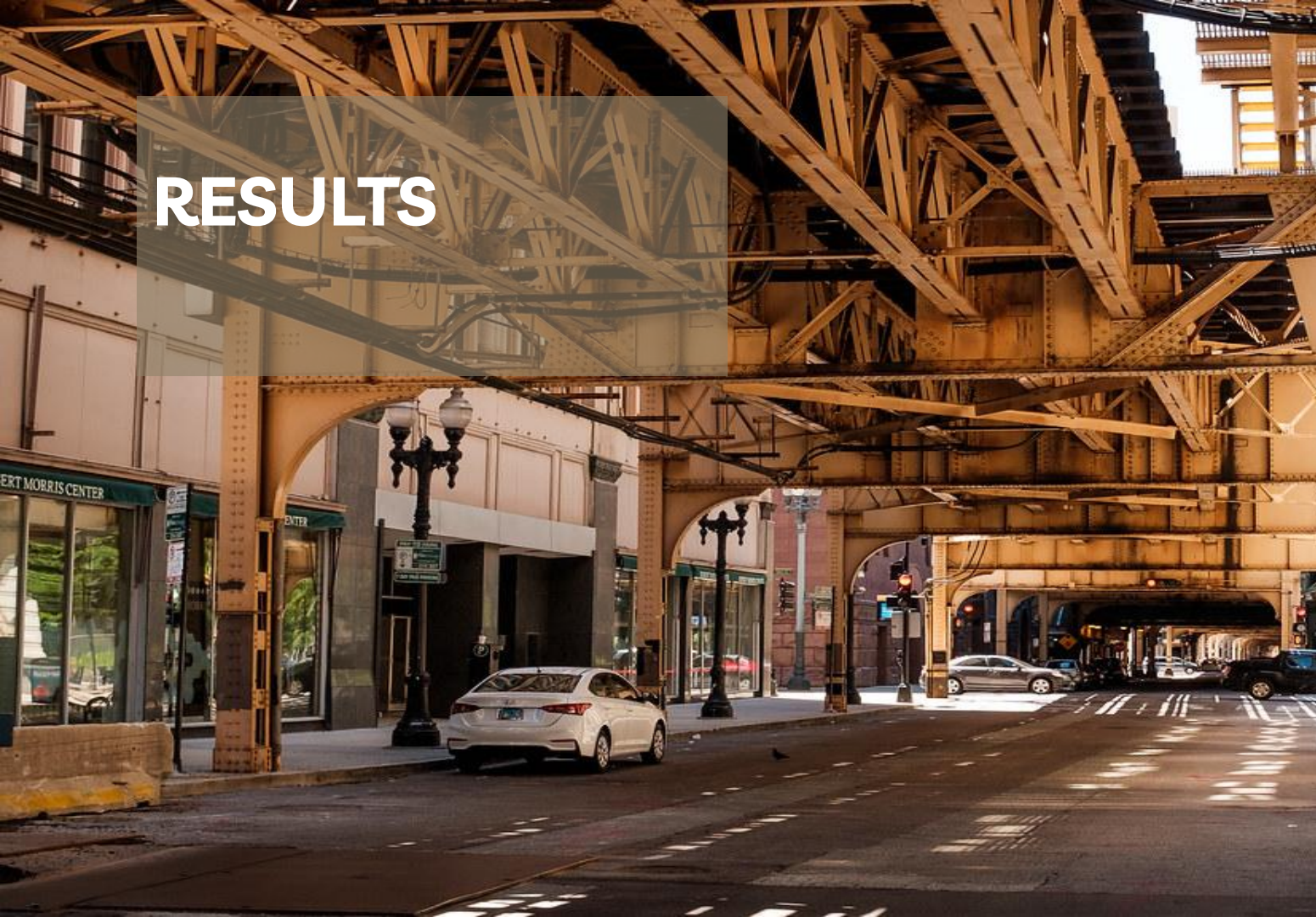
TEST RESULT



IDENTIFYING SUB-CLASSES



RESULTS



04

KEY FINDINGS



LOW INJURIES/FATALITIES

>99% were fatality free
>85% were injury free



TRAFFIC CONTROL

More injuries did occur
WITH traffic control
present
On average more
accidents occurred
WITHOUT traffic control

THE ROAD AHEAD

05



MARY'S MARK

NEXT STEPS



STEP 1

Improve data entry and collection



STEP 2

Clean and incorporate additional datasets for further insights
Identify problem traffic control areas



STEP 3

Model refinement and alternate classification groupings by association

A long-exposure photograph of a multi-lane highway at night, showing light trails from cars and trucks. In the background, the Chicago skyline is visible under a dark, cloudy sky, with the Willis Tower being the most prominent building. A semi-transparent tan rectangle is overlaid on the middle of the image, containing the text "THANK YOU FOR YOUR TIME".

**THANK YOU
FOR YOUR
TIME**