



Investigating **Car Crashes** in Chicago

Team 08

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An aerial photograph of a multi-lane road. A red sports car is driving in the right lane. The road has yellow and white lane markings. The word 'NO' is painted on the road surface in the left lane.

Dataset Preview

01 *Objective*

Understand influential factors and prioritize safety

02 *Focus*

Explore patterns and significant causes for the benefit of residents and authorities

03 *Motivation*

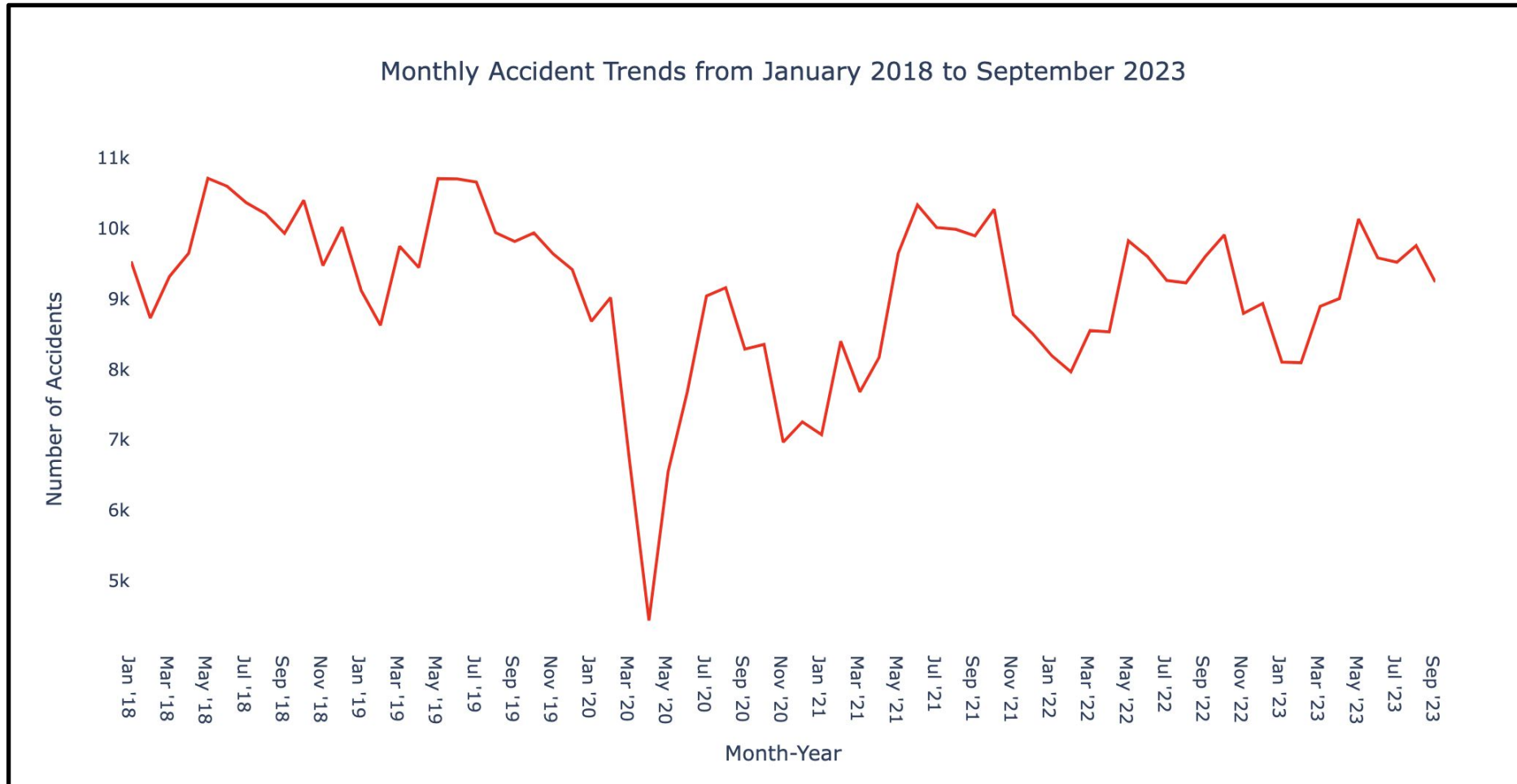
Enhance road safety
Enabling resource allocation for interventions
Reducing future accident risks

04 *Dataset*

Data Source	Jurisdiction of the city
Data Updates	Finalized reports and amendments
Reporting Methods	50% Self-Reported and Police Statements
Recorded Parameters	Recorded by police at crash time
Amendments	Report are accurate and updated frequently
Scope of Data	Crashes within the city responded by CPD

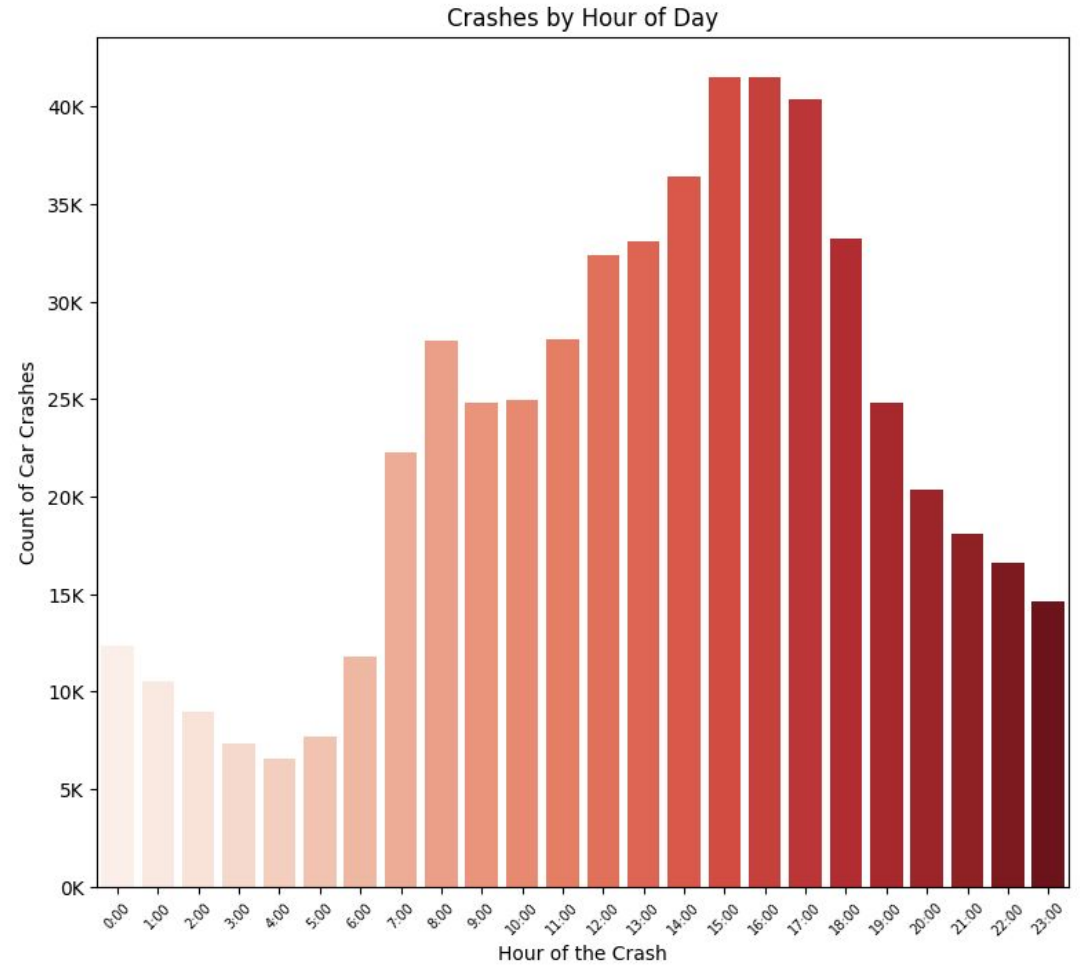
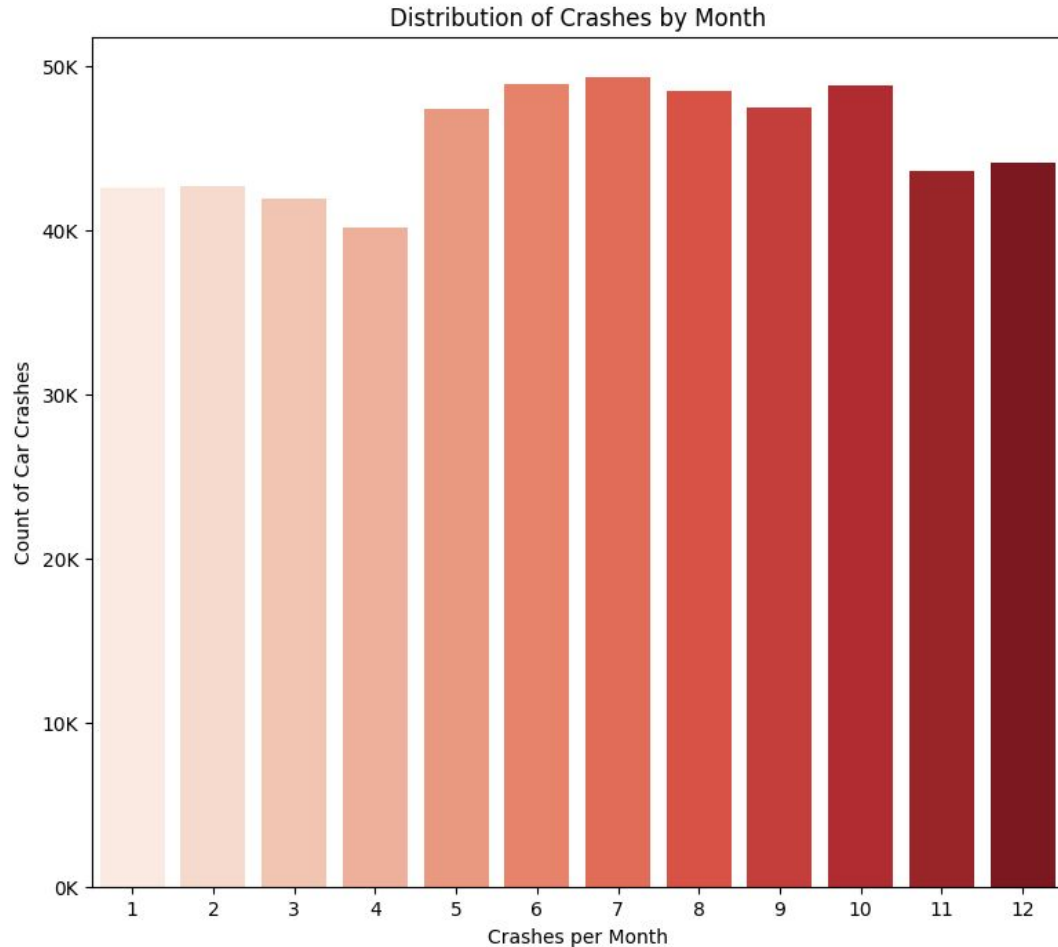
Time

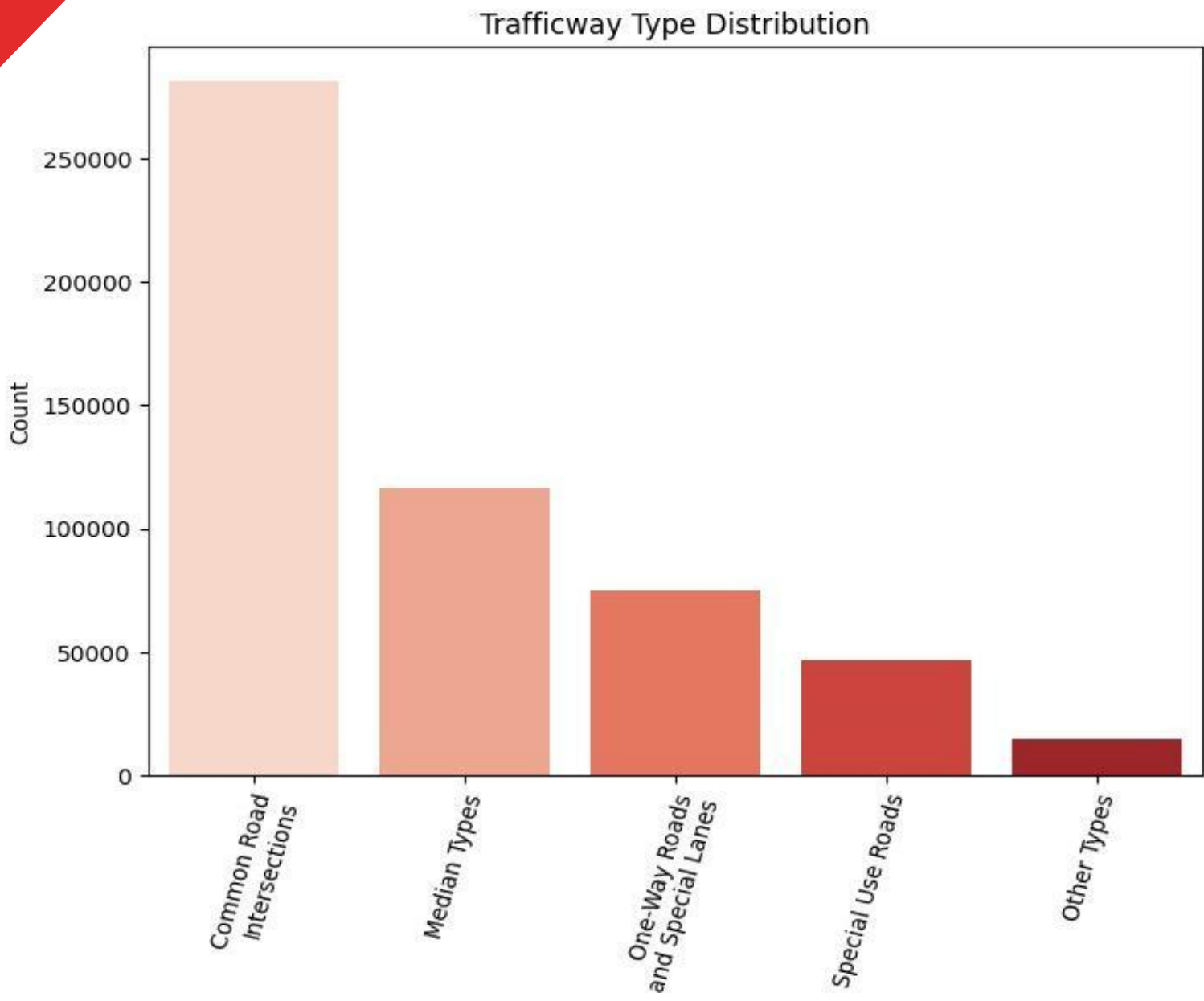
When did crashes most frequently take place?



Time

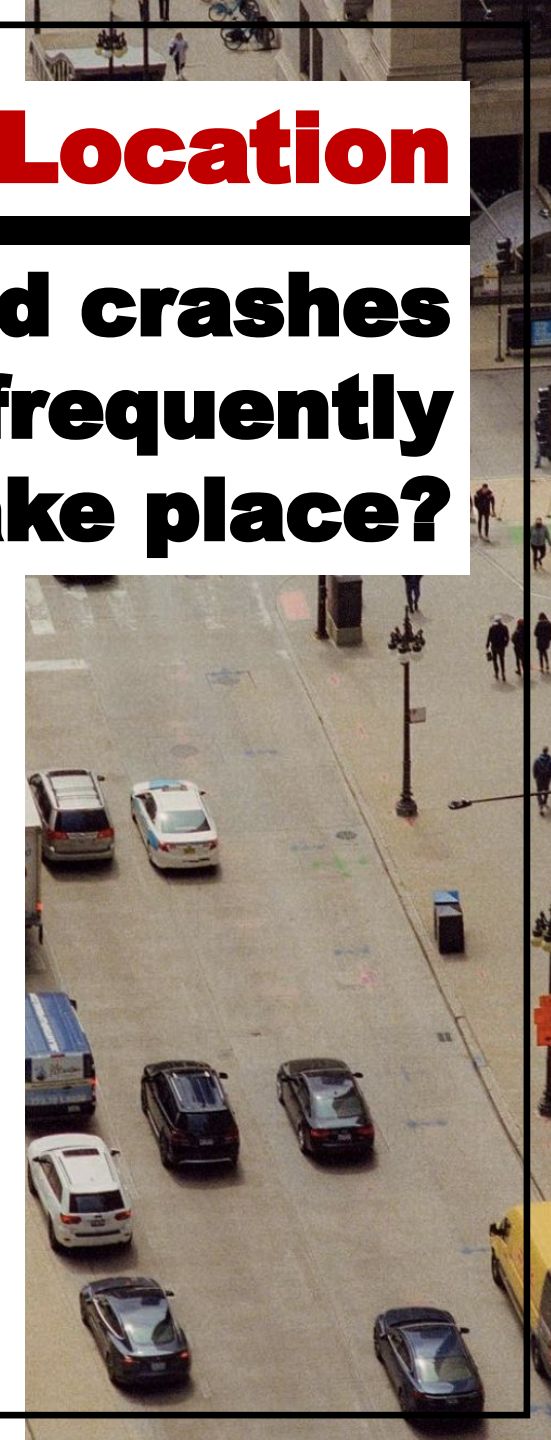
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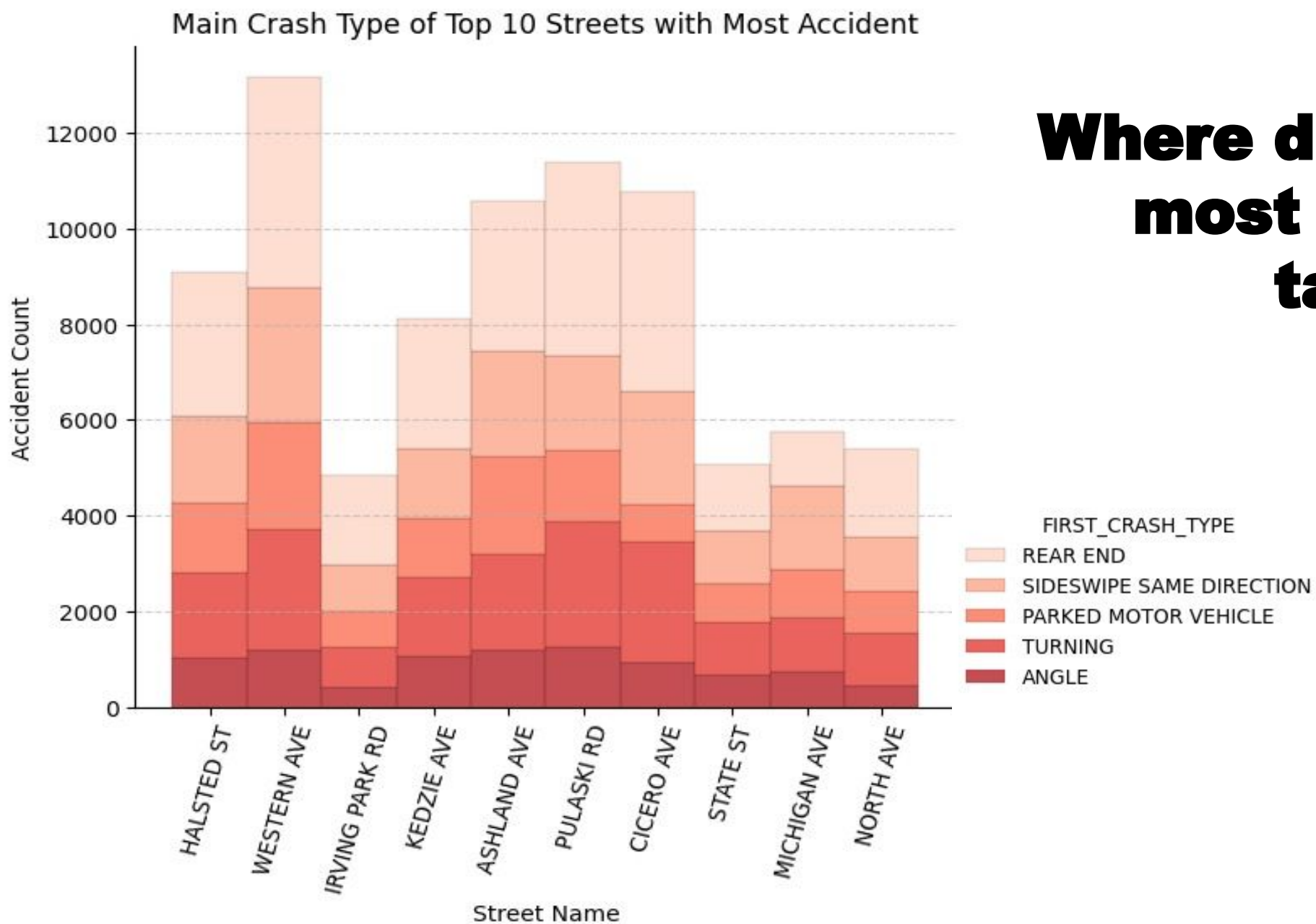




Location

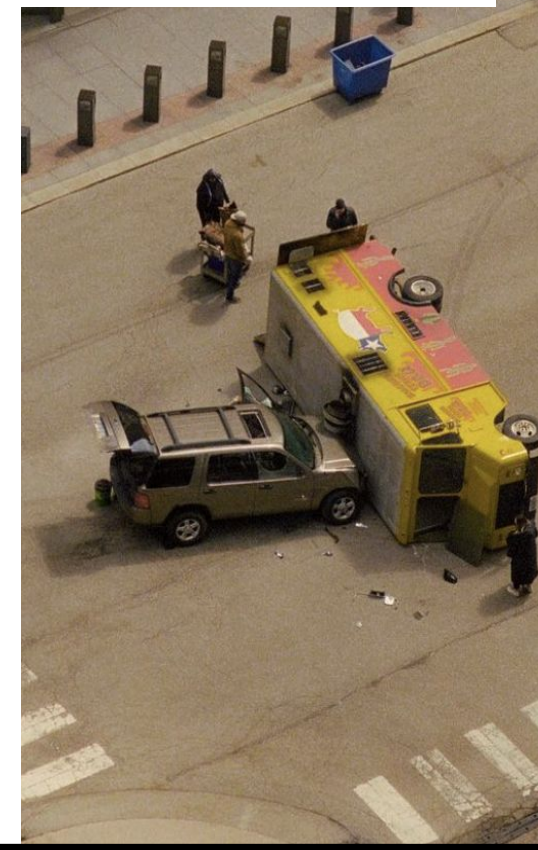
Where did crashes most frequently take place?





Location

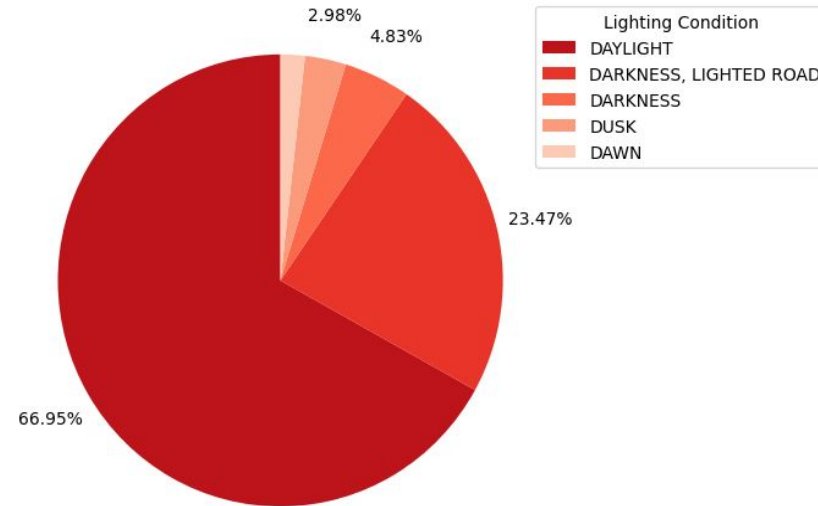
**Where did crashes
most frequently
take place?**



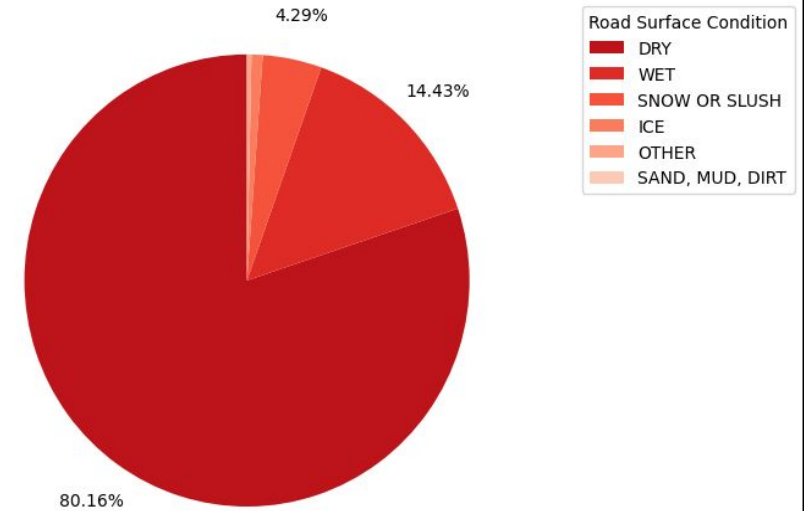
Causes

What are the external factors of crashes?

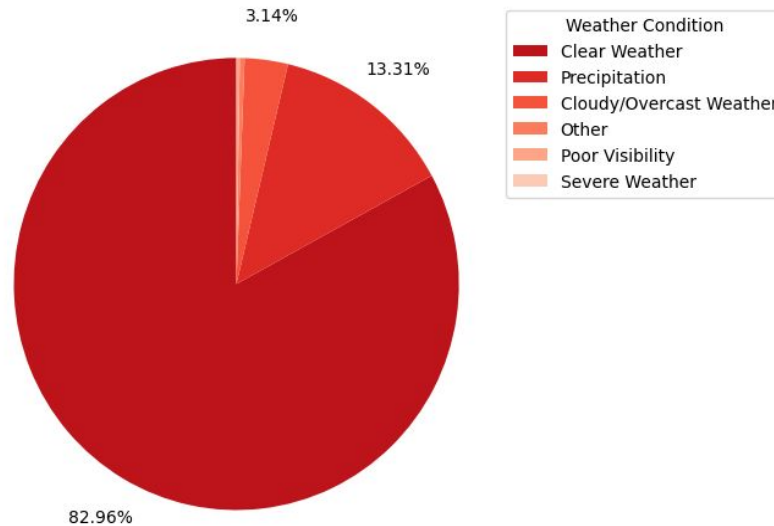
Distribution of Crashes by Lighting Condition



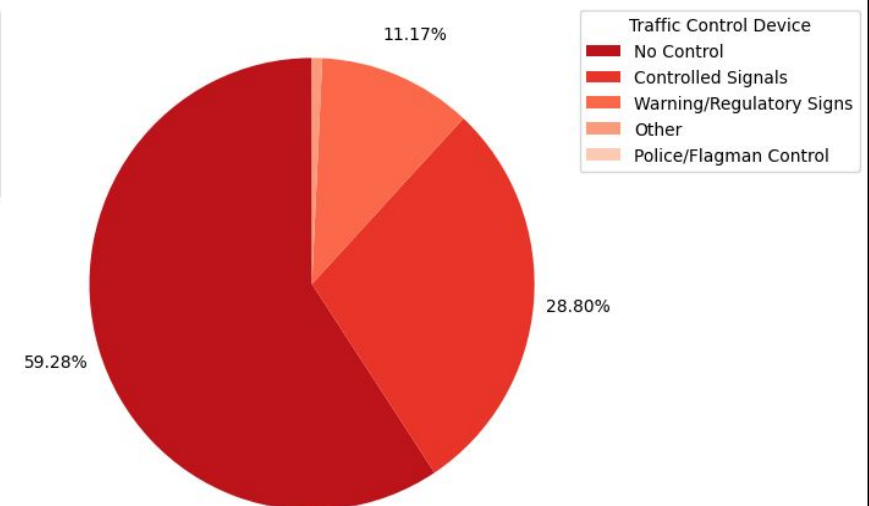
Distribution of Car Crashes by Road Condition



Distribution of Car Crashes by Weather Condition

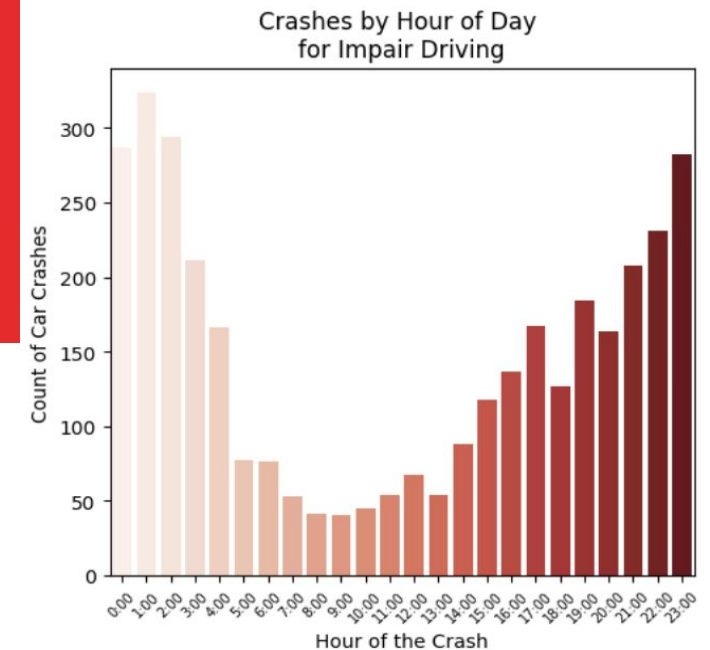
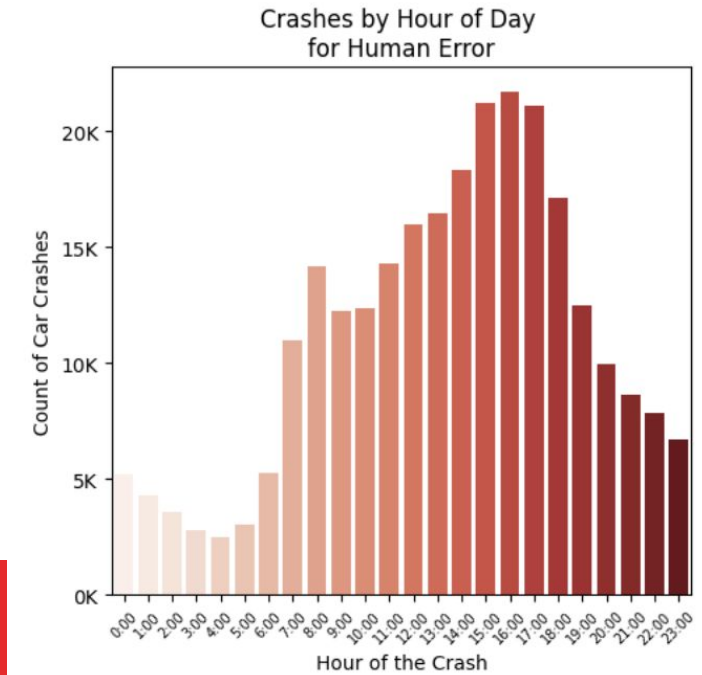
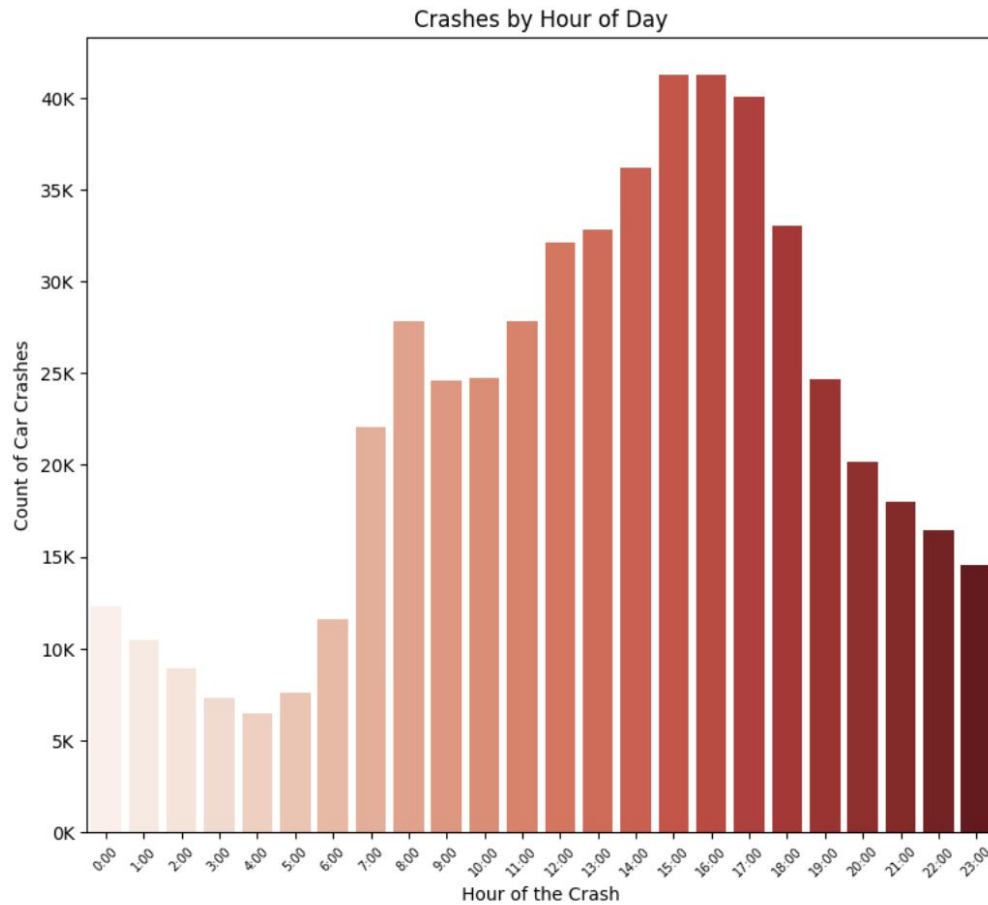


Distribution of Car Crashes by Traffic Control Device



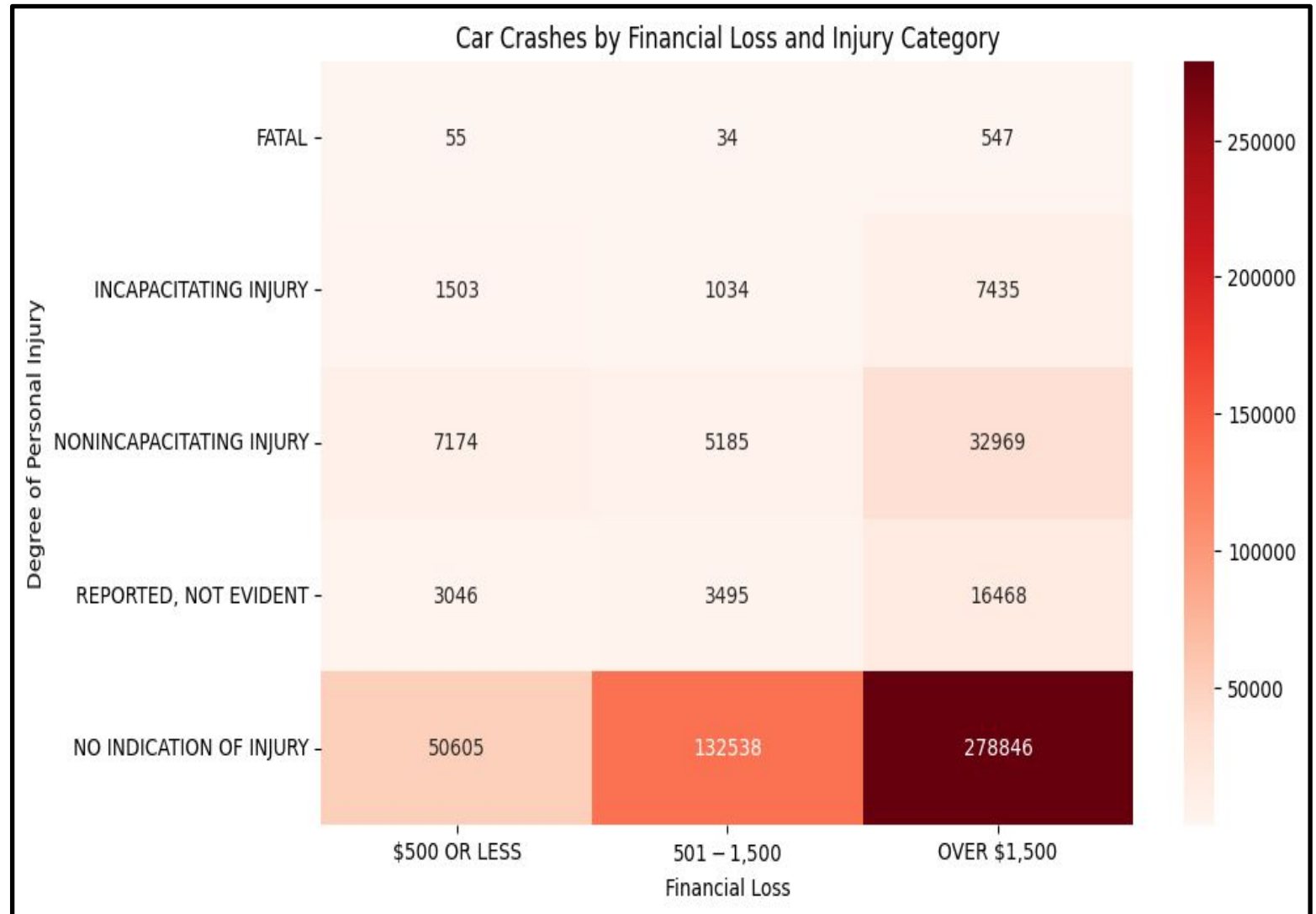
Causes

What are the distribution of different causes of crashes?



Consequences

What are the consequences of crashes?



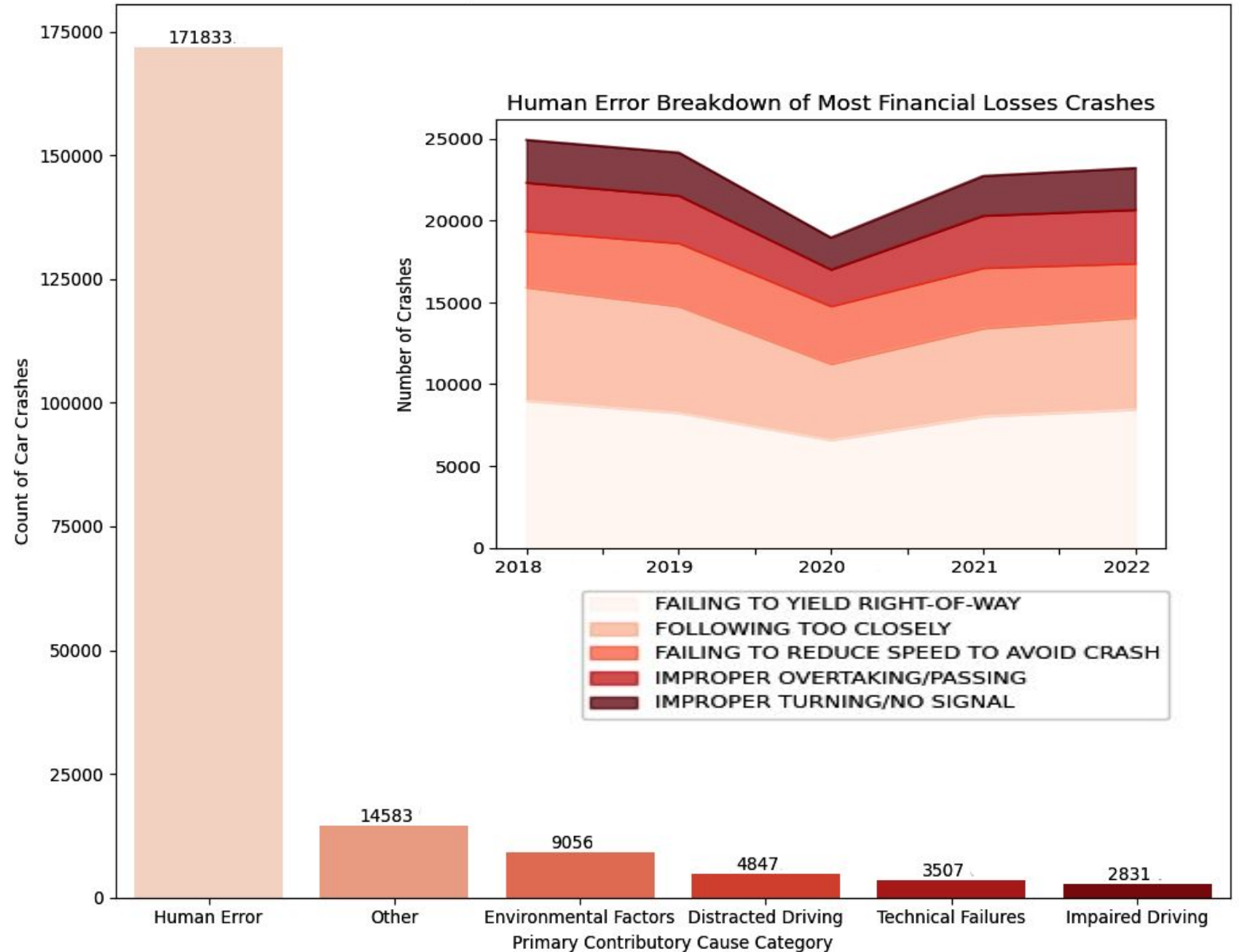


Consequences

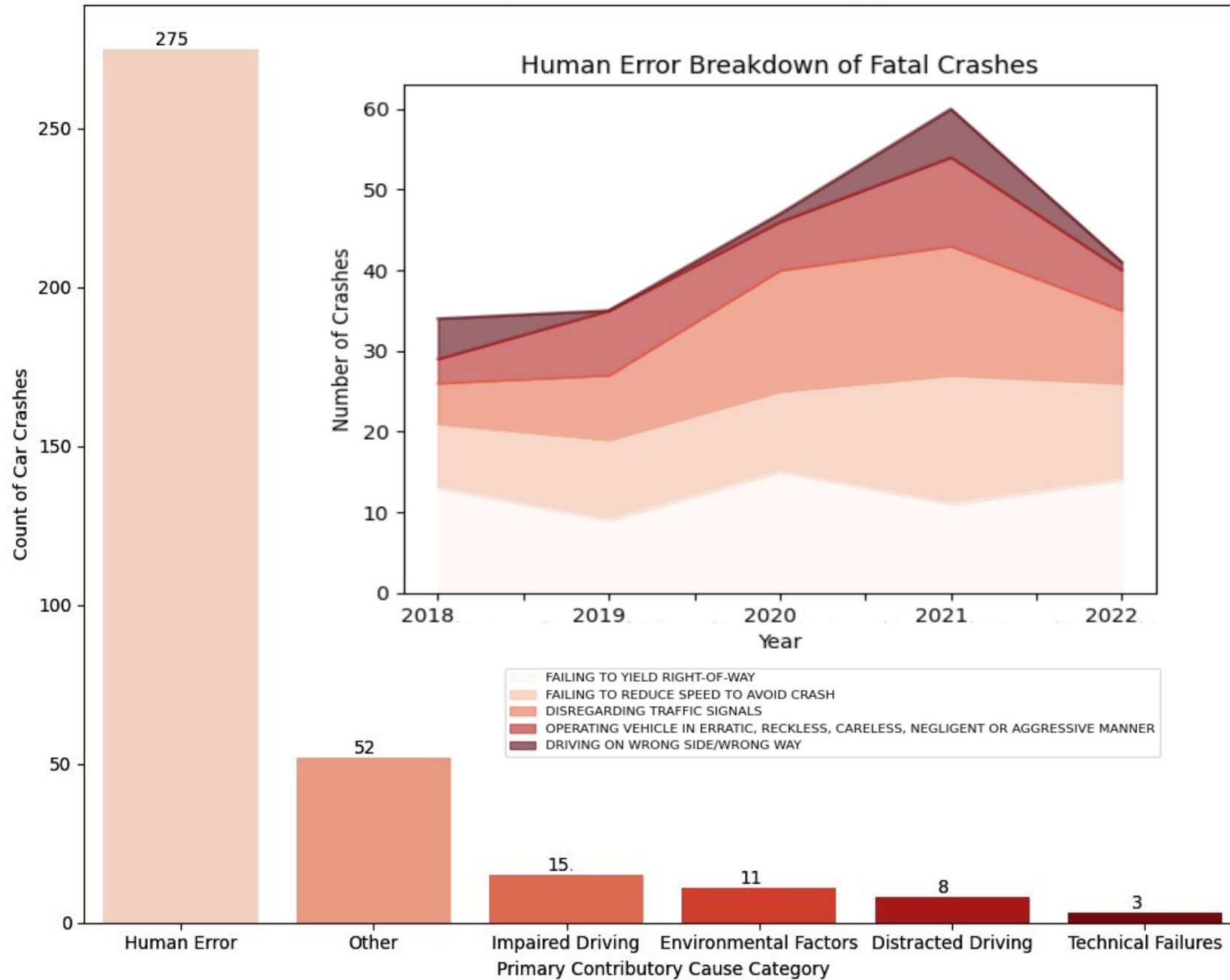


How is the
most
financial
damage
of crashes?

Primary Cause for Crashes with Most Financial Losses

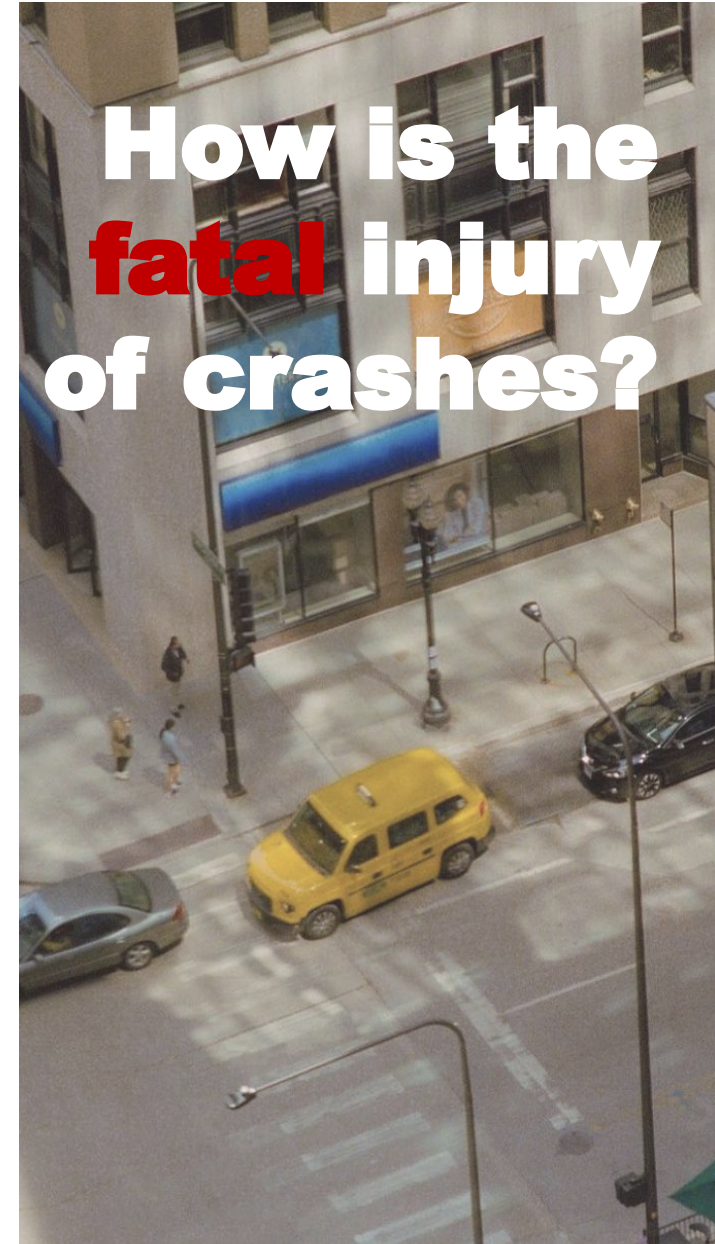


Primary Cause for Crashes with Fatal Injury



Consequences

How is the **fatal** injury of crashes?

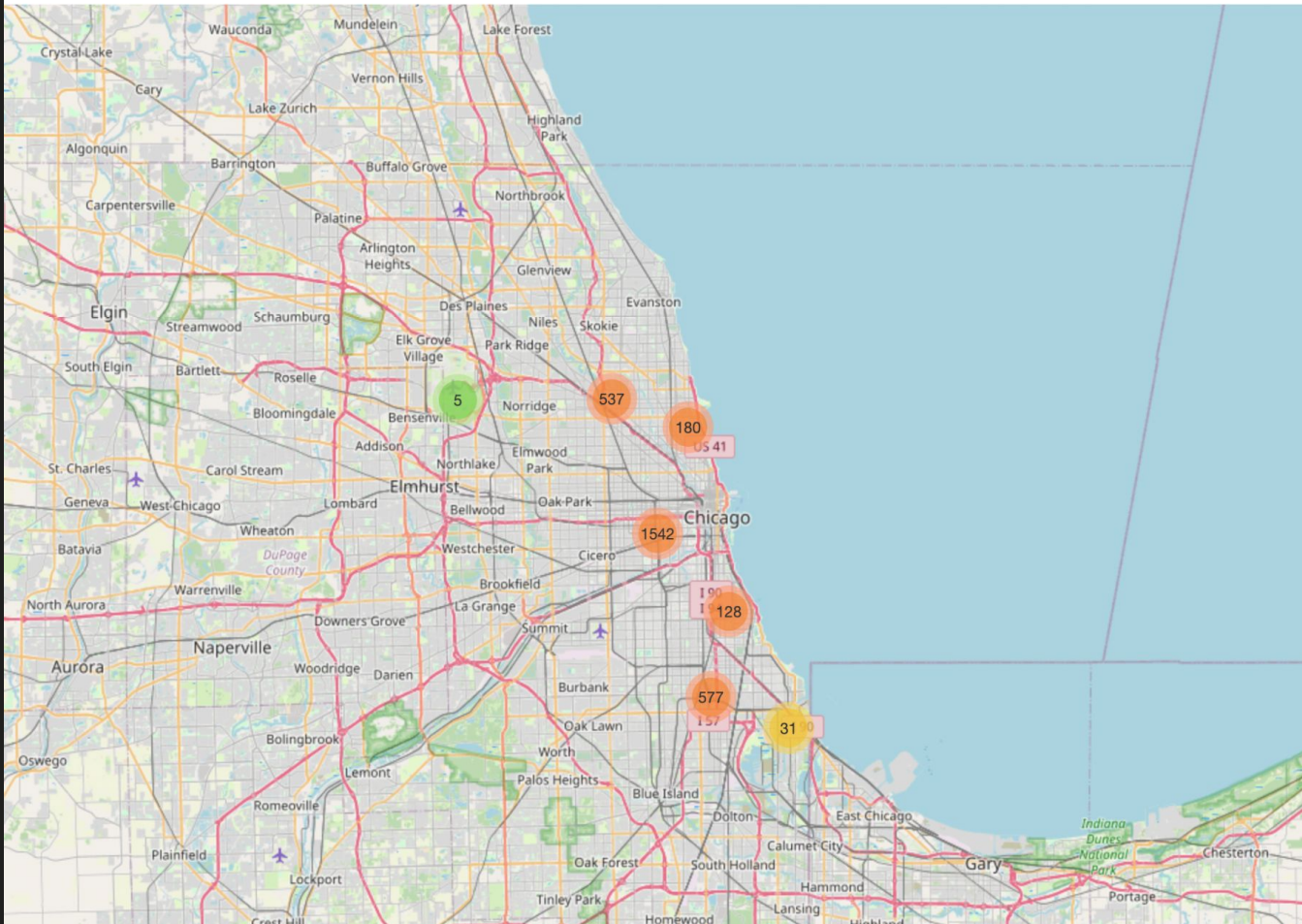


Interactive Map

A Direct Overview of Accident Locations



Chicago Car Crashes



Location: 41.903536788, -87.661859583

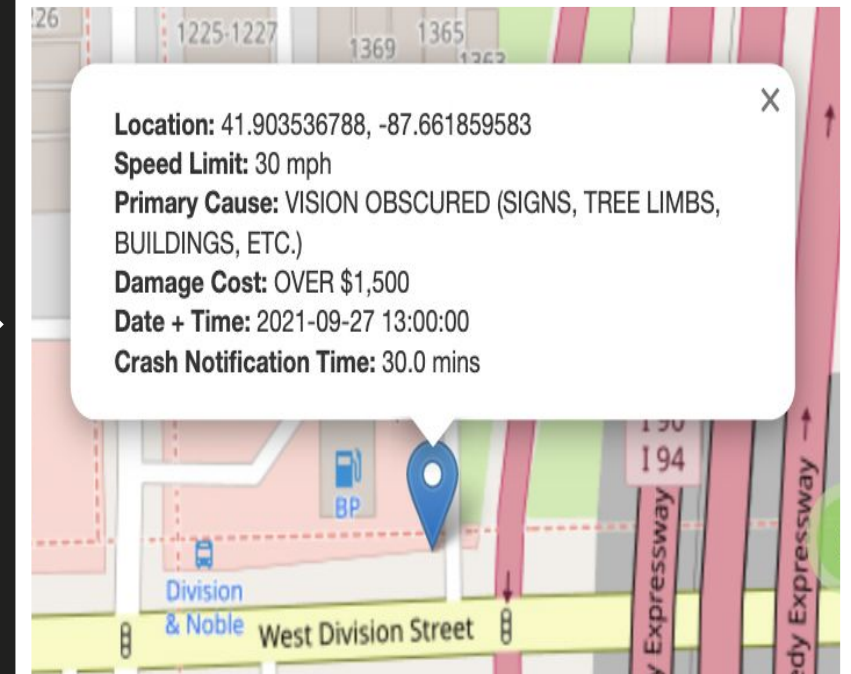
Speed Limit: 30 mph

Primary Cause: VISION OBSCURED (SIGNS, TREE LIMBS, BUILDINGS, ETC.)

Damage Cost: OVER \$1,500

Date + Time: 2021-09-27 13:00:00

Crash Notification Time: 30.0 mins



Conclusions

Enhanced Road Safety Measures

- ✓ Focus on favorable environmental conditions
- ✓ Maintain road safety and vigilance during ideal circumstances

Intersection and Road Improvements

- ✓ Optimize traffic planning and signals at accident hotspots
- ✓ Improve lane markings and visibility at high-risk intersections

Educational Campaigns and Enforcement

- ✓ Raise awareness against tailgating and distracted driving
- ✓ Encourage adherence to traffic rules and signs

Data-Driven Decision Making

- ✓ Invest in data collection and analysis
- ✓ Gather precise, village-level data for targeted interventions



Thank You

References

- <https://python-visualization.github.io/folium/latest/>
- <https://medium.com/@sawsanyusuf/data-visualization-with-python-9-generati-ng-maps-with-folium-e7563bc1a923>
- <https://data.cityofchicago.org/Transportation/Traffic-Crashes-Crashes/85ca-t3if>

Use of Gen AI

We utilized generative AI to create six suitable category labels for classifying unique contributory causes of car accidents, as well as generating labels for distinct values related to traffic control devices and weather conditions