

ANALYZING CONTRIBUTING FACTORS TO ROAD COLLISIONS IN CHICAGO: INSIGHTS FROM TIME-BASED TRENDS

OBJECTIVE

The objective of this analysis is to identify trends and contributory factors influencing vehicular crashes in Chicago. By examining crash distribution by time of day, primary causes, and their correlation with specific time periods, this study aims to:

- 1.Understand Peak Risk Periods: Highlight the hours of the day when crash occurrences are at their highest.
- 2.Identify Major Contributory Causes: Determine the primary causes behind crashes to prioritize targeted interventions.
- 3.Correlate Causes with Time of Day: Analyze how specific causes vary throughout the day to develop time-sensitive safety measures.

ANALYSIS OF VEHICLE CRASHES BY HOUR

This bar chart demonstrates how traffic crashes in Chicago vary throughout the day. It highlights peak crash times during morning and evening rush hours, while the early morning hours see the least number of crashes. This pattern underscores the impact of high traffic volumes on accident rates and emphasizes the need for increased road safety measures during these critical hours.

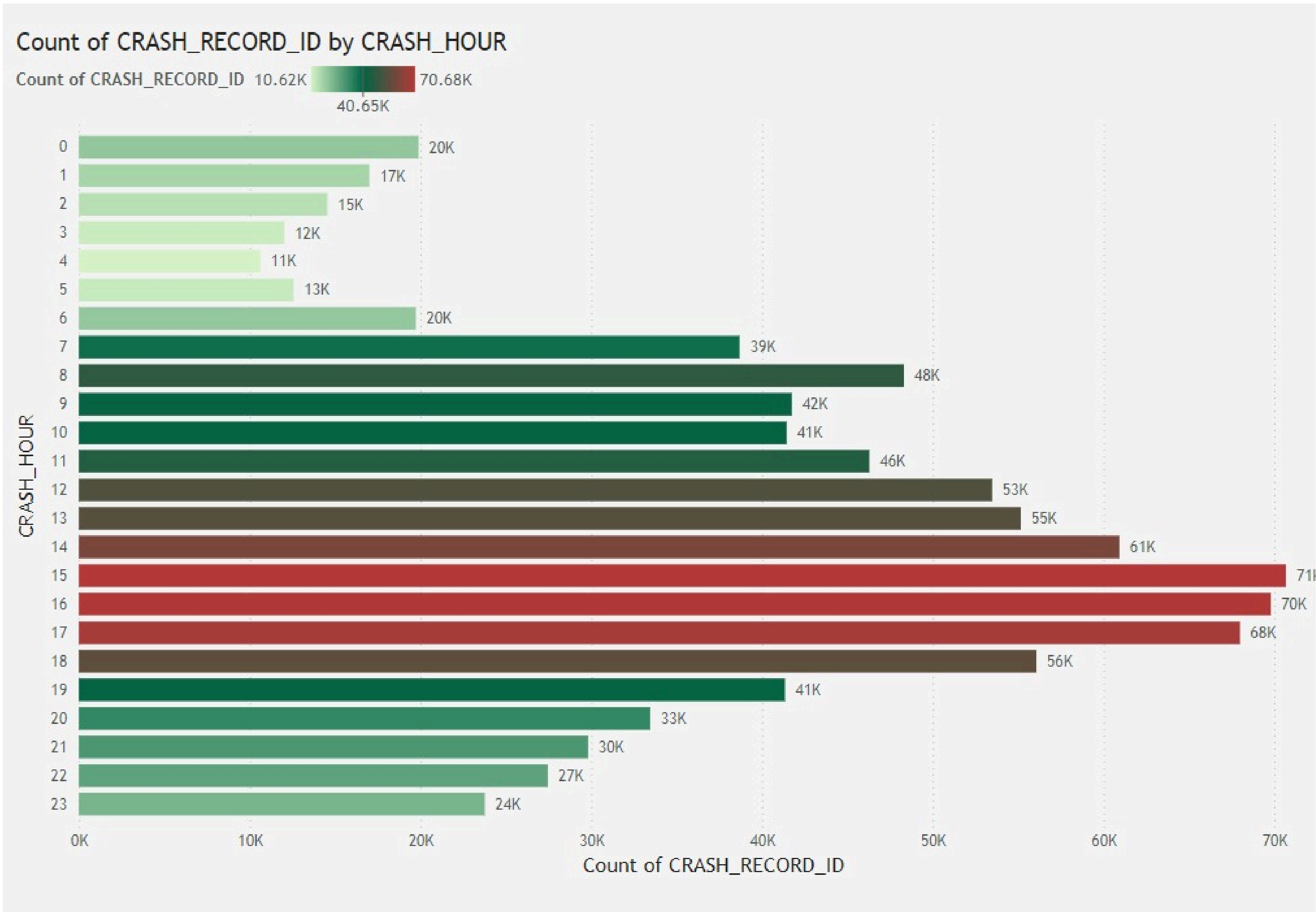


Figure 1: Frequency of Accidents by Hour

- Key Observations
- Crash occurrences show a distinct bimodal pattern with peaks during the morning (7-9 AM).
 - The lowest crash rates occur in the early morning hours (1-5 AM), likely due to reduced traffic volume.
 - The evening peak is more pronounced, indicating higher crash frequency during the end-of-day commute (4-6 PM).

ANALYSIS OF CONTRIBUTING FACTORS

This graph identifies the leading causes of traffic crashes, emphasizing the dominance of human factors like distracted driving and failure to yield over environmental factors.

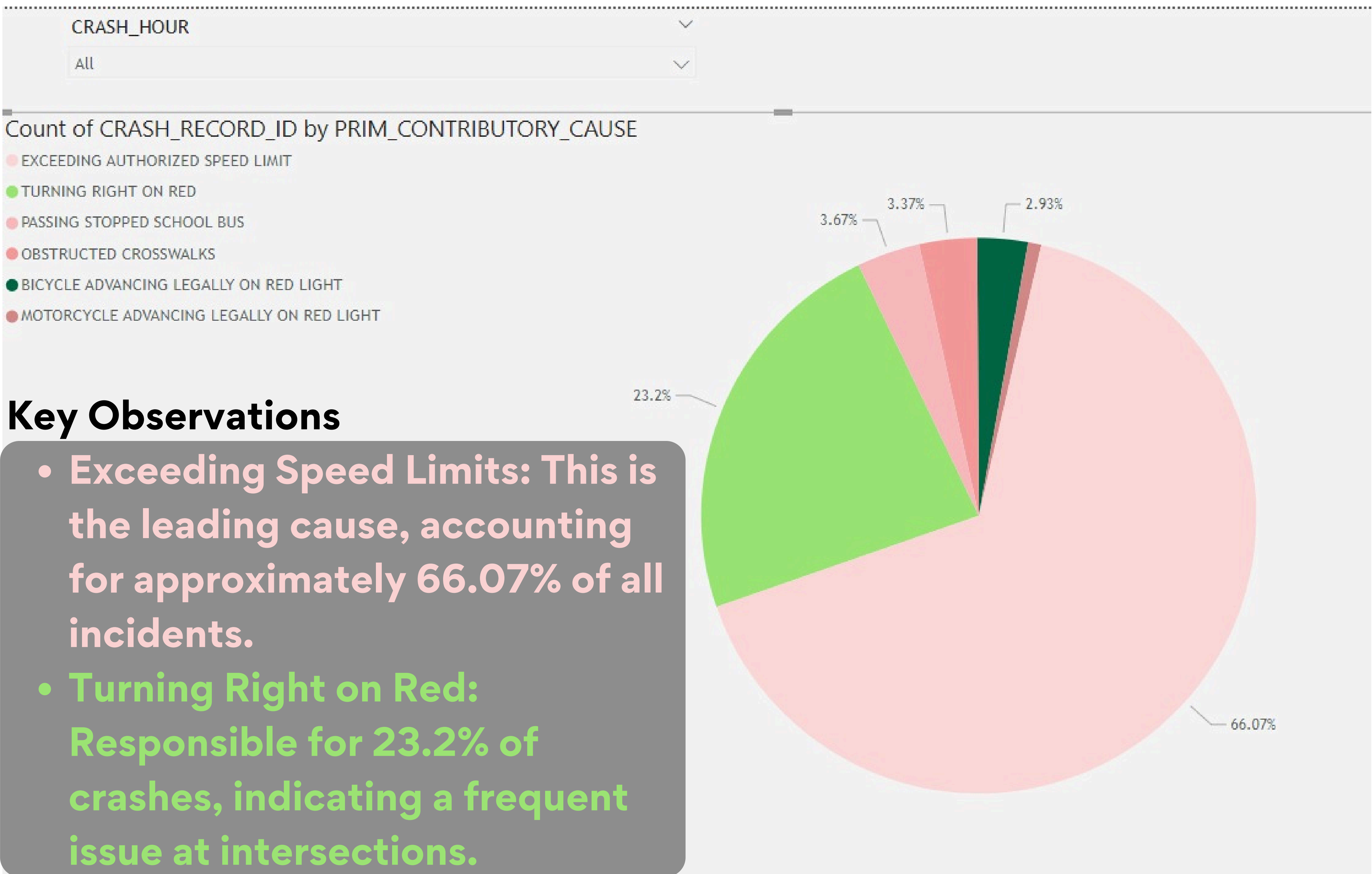


Figure 2: Frequency of Collisions by Contributing Factors

FURTHER RESEARCH

- Investigate the impact of weather conditions on crash rates in Chicago to determine how seasonal changes contribute to crash patterns.
- Analyze the effectiveness of current traffic enforcement measures, such as speed limits and DUI checkpoints, in mitigating high-risk behaviors like speeding and impaired driving.

CONCLUSION

The analysis of traffic crashes in Chicago reveals a clear pattern of peak crash occurrences during morning and evening rush hours, with human factors like distracted driving and right-of-way violations being the leading causes. Time-specific trends, such as an increase in alcohol-related crashes at night, further highlight the importance of targeted interventions. Addressing these trends through informed policies and enforcement can significantly enhance road safety in Chicago.