Title: Understanding and Mitigating Crash Factors in NYC Boroughs

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Introduction

Understanding the primary factors contributing to vehicular crashes is crucial for improving road safety across New York City's boroughs. This research focuses on identifying these factors and providing actionable recommendations to make roads safer, especially for vulnerable road users.

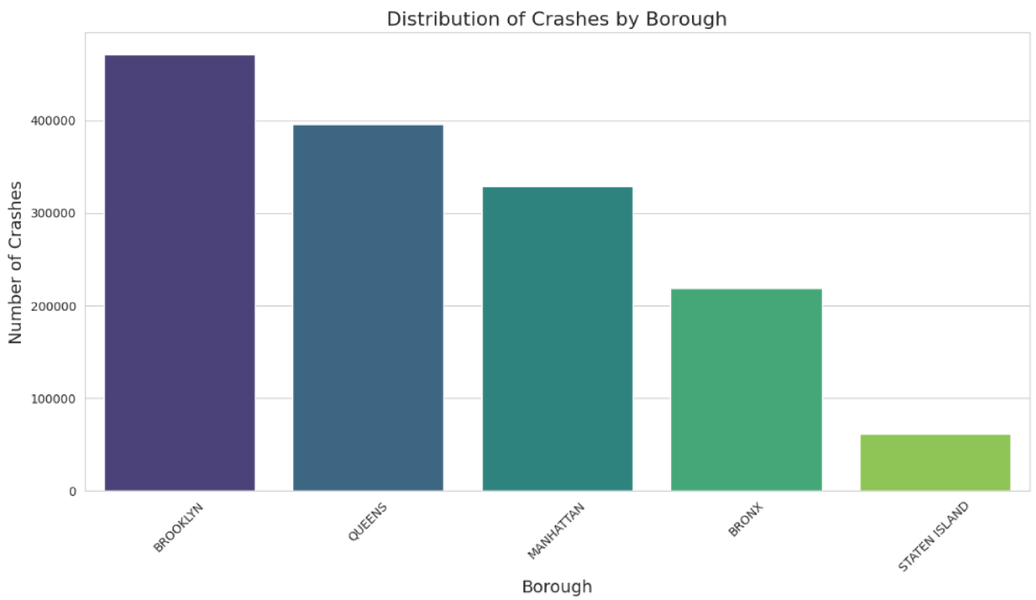

Figure 1. Distribution of Crashes by Borough

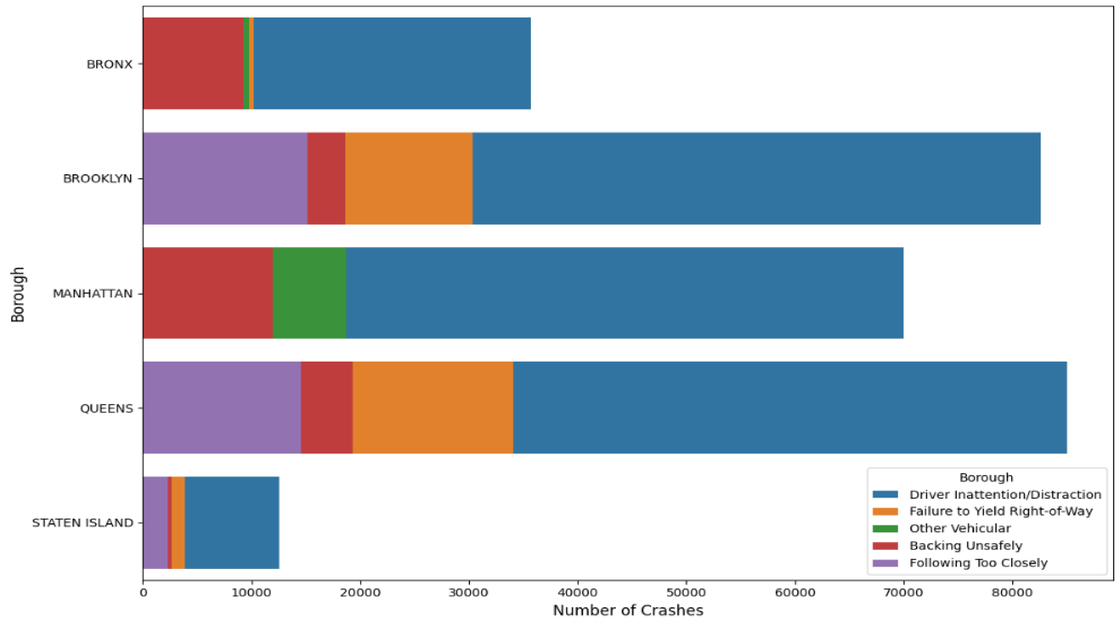

Figure 1. Top 5 Contributing Factors Vehicle 1 per Borough (Excluding “Unspecified” Contributing Factor)

Key Research Insights

1. **Research Question:** What are the leading contributing factors to crashes in NYC boroughs, and how can this knowledge inform safety improvements for vulnerable road users?
2. **Data Visualization Rationale:** We chose horizontal bar charts for their effectiveness in visually comparing borough-specific data, emphasizing key contributing factors such as "Driver Inattention/Distraction," "Failure to Yield Right-of-Way," and "Following Too Closely.“
3. **Data Analysis Findings:** Driver Inattention/Distraction is the leading cause across all boroughs, accounting for the majority of crashes. Queens and Brooklyn exhibit significantly higher crash numbers compared to Staten Island, which has the lowest. Factors like "Failure to Yield Right-of-Way" and "Following Too Closely" are secondary but critical.

Recommendations to the Department of Transportation and Federal Highway Authority

1. Address Driver Inattention/Distraction:
   - Increase educational campaigns on distracted driving.
   - Leverage technology like automated monitoring systems to penalize distracted driving.
2. Prioritize High-Risk Boroughs:
   - Allocate resources to Queens and Brooklyn for targeted interventions, including better signage, stricter enforcement, and traffic calming measures.
3. Vulnerable Road User Safety:
   - Install more pedestrian safety islands and bike lanes, particularly in boroughs with higher crash rates.
   - Launch programs promoting shared road awareness among drivers, cyclists, and pedestrians.
4. Conduct Further Research:
   - Investigate additional contributing factors like weather and road conditions to create a more comprehensive safety strategy.
   - Integrate emerging data sources like IoT sensors for real-time traffic monitoring.

Outstanding Research Question:

- How do seasonal changes impact crash factors and rates?
- What role does vehicle type play in crash causality?

Conclusion

Our research underscores the importance of addressing "Driver Inattention/Distraction" as a primary crash factor. Targeted interventions and resource allocation can significantly enhance road safety. Collaborative efforts among stakeholders, including city planners, law enforcement, and the public, are imperative to achieving safer roads.