

Road Accident Data Analysis Report

Executive Summary

This report analyzes road accident casualty data to identify high-risk road types, surface conditions, and seasonal trends. The objective of this analysis is to uncover patterns contributing to accident severity and provide actionable recommendations to improve road safety and policy planning.

The analysis focuses on casualty distribution by road type, road surface conditions, and monthly trends to determine high-risk environments and time periods.

1. Dataset Overview

Dataset Source Road Accident Dashboard Dataset

Records Analyzed 417,000+ casualties (aggregated)

Key Variables

Road Type

Road Surface

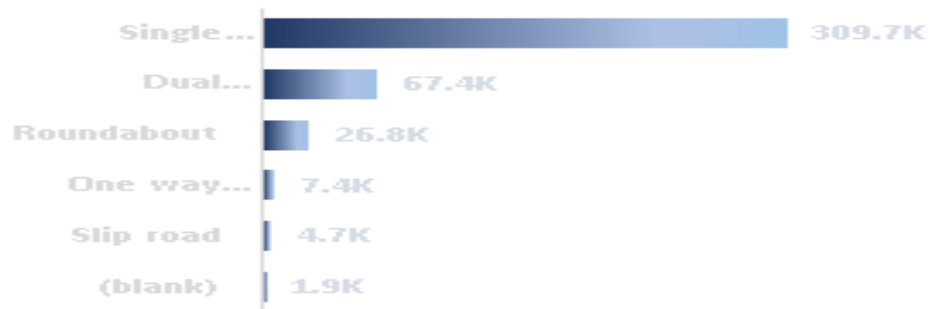
Monthly Casualty Trends

Severity Distribution

The dataset was cleaned and structured to enable trend analysis and visualization.

2. Analysis & Visual Insights

2.1 Casualties by Road Type



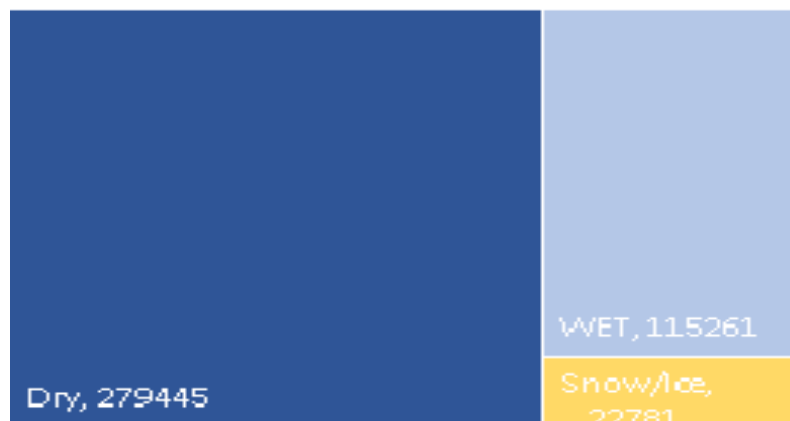
Insight

Certain road types contribute disproportionately to total casualties. High-flow traffic areas such as roundabouts and one-way streets show elevated casualty counts, indicating congestion-related risk exposure.

Business Implication

Infrastructure redesign, signal optimization, and traffic calming measures should be prioritized for high-casualty road types.

2.2 Casualties by Road Surface



Insight

Dry roads account for the highest number of casualties (due to volume of traffic), but wet and snowice conditions significantly increase risk severity relative to exposure.

Business Implication

Seasonal safety campaigns and improved road surface treatment (drainage, anti-skid coatings, winter gritting) are critical interventions.

2.3 Monthly Casualty Trend



Insight

Casualty trends fluctuate seasonally, with noticeable spikes in certain months. These peaks may correlate with weather patterns, holiday travel, or traffic density.

Business Implication

Targeted enforcement, awareness campaigns, and emergency preparedness should be intensified during peak-risk months.

3. Key Findings

High-traffic road types show elevated casualty concentration.

Adverse weather and poor surface conditions increase accident risk.

Clear seasonal patterns exist in accident frequency.

Preventive interventions can be targeted using data-driven prioritization.

4. Recommendations

Implement targeted safety measures on high-casualty road types.

Improve road surface maintenance during wet and winter conditions.

Deploy seasonal awareness campaigns aligned with peak accident months.

Integrate predictive analytics for early risk detection and policy planning.

5. Conclusion

This analysis demonstrates that road accidents are not random events but follow identifiable patterns based on road type, surface condition, and seasonality. Leveraging data-driven insights enables authorities to prioritize interventions, allocate resources efficiently, and improve public safety outcomes. Strategic, analytics-based safety planning can significantly reduce casualty rates and improve long-term road infrastructure performance.