

Road Safety

# Driving Towards Safety: Road Accident Insights

A comprehensive analysis of road accident data aimed at understanding patterns, causes, and preventive measures to enhance safety on our roads.

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Presenter Designation



# Client Problem

Understanding the challenges in reducing road accidents and improving safety

## Objective

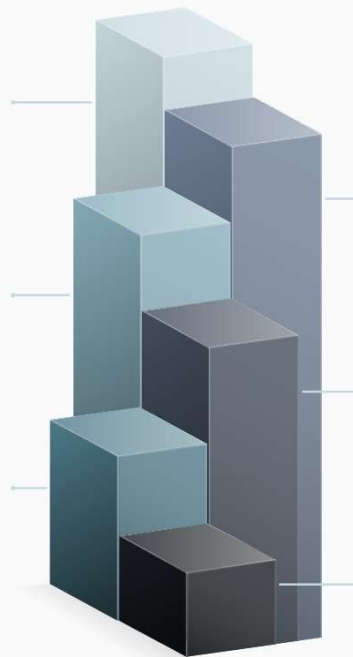
To reduce the number of road accidents and casualties by analyzing historical accident data to uncover patterns and root causes.

## Seasonal Variations

Casualty rates fluctuate throughout the year, necessitating targeted strategies to address heightened risk periods during peak accident seasons.

## Behavioral Factors

Driver behaviors, including speeding and ignoring traffic signals, along with external conditions like inadequate lighting or adverse weather, significantly contribute to the occurrence of



## High Casualty Rates

Despite the implementation of various road safety measures, accidents continue to occur frequently, resulting in fatalities, serious injuries, and significant economic losses.

## Infrastructure Issues

Certain road types and conditions, such as wet or poorly maintained surfaces, are more susceptible to accidents, highlighting the need for infrastructure improvements.

## Urban vs. Rural Divide

There are notable differences in accident frequency and severity based on geographic location, with urban areas facing different challenges compared to rural settings.



PRIMARY KPI	
Sum of Number_of_Casualties	
	417883

PRIMARY KPI	
Severity	Sum of Casualties
fatal	7135
Serious	59312
Slight	351436
Grand Total	417883

SECONDARY KPI	
Veichles	Sum of Casualties
Agricultural vehicle	1032
Cars	333485
Bus	12798
Van	33472
Bike	33672
Others	3424
Grand Total	417883

ROAD TYPE ANALYTICS	
Road Types	Sum of Casualties
(blank)	1.9K
Slip road	4.7K
One way street	7.4K
Roundabout	26.8K
Dual carriageway	67.4K
Single carriageway	309.7K
Grand Total	417883

MONTHLY TREND (2021)	
Year	2021

Months	Sum of Casualties
Jan	18173
Feb	14648
Mar	17815
Apr	17335
May	18852
Jun	18728
Jul	19682
Aug	18797
Sep	18456
Oct	20109
Nov	20975
Dec	18576
Grand Total	222146

ROAD SURFACE ANALYTICS	
Road Surface	Sum of Casualties
Dry	279445
(blank)	396
Wet	115261
Snow Ice	22781
Grand Total	417883

MONTHLY TREND (2022)	
Year	2022

Months	Sum of Casualties
Jan	13163
Feb	14804
Mar	16575
Apr	15767
May	16775
Jun	17230
Jul	17201
Aug	16796
Sep	17500
Oct	18287
Nov	18439
Dec	13200
Grand Total	195737

AREA ANALYTICS	
Areas	Sum of Casualties
Rural	162.0K
Urban	255.9K
Grand Total	417883

CONDITIONS ANALYTICS	
Light Conditions	Sum of Casualties
Daylight	305.0K
Dark	112.9K
Grand Total	417883



DATA ANALYSIS  
AND  
KEY TRENDS



# ROAD ACCIDENT DASHBOARD

Total Casualties **417883**

Fatal Casualties

**7135**



Serious Casualties

**59312**



Slight Casualties

**351436**



Casualties by Car

**333485**



Total Casualties by Vehicle Type

**33348**

**33472**

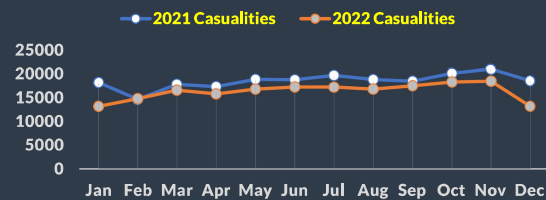
**12798**

**33672**

**1032**

**3424**

CY Casualties VS PY Casualties Trend



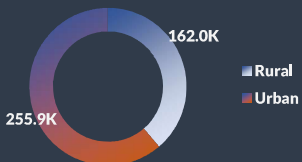
Casualties by Road Type



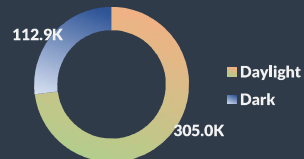
Casualties by Road Surface



Casualties by Location / Area



Casualties by Light Condition



Filter Panel

Accident Date

2021 - 2022 YEARS

2021 2022 2023

☐ ☐ ☐

☐

Urban\_or...

Rural

Urban



Introduction

Problem  
Statment

Results and  
Insights

Recommendations

Conclusion

# Results and Insights

Understanding Patterns and Factors  
Influencing Road Safety

01

## Accident Trends

Casualties are significantly heightened during the months of May and June, suggesting a seasonal pattern in accident occurrences. Urban areas are predominantly where accidents take place, although rural regions tend to report higher fatality rates, indicating a need for targeted safety measures in these locales.

02

## Severity Breakdown

While fatal accidents represent a smaller percentage of overall incidents, they incur substantial societal and economic costs. In contrast, the majority of reported accidents are classified as slight or serious, highlighting the need for ongoing awareness and prevention strategies to address these common occurrences.

03

## Key Risk Factors

Poor road conditions, such as wet or icy surfaces, are strongly correlated with increased accident rates. Additionally, junctions that lack proper control mechanisms, like 'Give Way' signs, are particularly susceptible to severe accidents, necessitating infrastructure improvements to enhance safety.

04

## Vehicle and Weather Insights

Motorcycles and goods vehicles are disproportionately involved in accidents, raising concerns about the safety of these vehicle types on the road. Furthermore, fine weather conditions without high winds lead to more accidents, likely due to



# Recommendations

## Strategies for Enhancing Road Safety

01

### Targeted Safety Measures

To effectively reduce traffic accidents, it is crucial to implement targeted safety measures. This includes launching awareness campaigns during high-accident months, notably May and June, when accident rates typically spike. Additionally, enhancing monitoring at high-risk junctions and improving traffic control

02

### Infrastructure Upgrades

Improving road infrastructure is essential for ensuring safe travel. This can be achieved by upgrading road surfaces that are prone to issues during wet or icy conditions, thus preventing accidents caused by poor road quality. Furthermore, enhancing lighting and signage in rural and poorly lit urban areas will significantly

03

### Policy and Enforcement

Stricter policy enforcement is key to maintaining safe driving environments. Enforcing lower speed limits and imposing harsher penalties for violations in urban zones can deter reckless driving. Additionally, mandating regular safety checks for high-risk vehicles, such as motorcycles and goods carriers, will ensure that

04

### Technological Solutions

The integration of technological solutions can revolutionize traffic safety management. Implementing AI-driven traffic monitoring systems will allow for the prediction and prevention of accidents by analyzing traffic patterns. Moreover, deploying speed cameras and automated enforcement tools in accident-prone areas will act

# Key Conclusions on Road Accident Patterns

An In-Depth Analysis of Road Safety Trends

## 01 Total Casualties Identified

A total of 417,883 casualties were recorded, indicating a critical public safety issue that necessitates immediate attention and strategic intervention.

## 02 Decrease in Casualties

The analysis shows a decrease in casualties from January 2021 to January 2022, suggesting that current safety measures may be effective. However, this progress highlights the need for ongoing efforts to maintain and enhance road safety.

## 03 Identification of High-Risk Road Conditions

The study has identified specific high-risk road conditions that contribute to accidents, emphasizing the necessity for targeted maintenance and strategic policy interventions to improve safety.

## 04 Data-Driven Strategies for Road Safety

The project outlines practical solutions to mitigate road accidents, focusing on data-driven strategies that can lead to enhanced safety measures and better-informed decision-making.

