ANALYSIS OF TRAFFIC ACCIDENT REPORT IN THE NETHERLANDS

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EXECUTIVE SUMMARY

This report employs SAS Visual Analytics to explore, analyse, interpret and visualise data related to traffic accidents in the Netherlands. Using a comprehensive data set named ONGEVALLEN2016_EN, found in SAS Viya, key trends, meaningful insights, and recommendations for improving road safety were identified. The findings from the analysis highlight trends and patterns in accident occurrences, focusing on the type of accident. The analysis of the types of accidents was done based on the road type, weather, location, urban/buildup type and accident ending. This comprehensive analysis was done to provide a nuanced understanding of various factors influencing the different types of traffic accidents that occur in the Netherlands.

The analysis attempts to answer the following questions, among others, to discover trends and patterns and gain insights from the data given.

1. What kind of accidents are common in urban and built-up areas?
2. In what province and county do the most accidents occur, and what type of accident is common?
3. What kind of road situation is peculiar to each type of accident?
4. What kind of accident endings do the type of accident have, and the number of accidents that ends in a particular way.

Key Findings

10 types of accidents were identified from the analysis, of which side accidents were the most common. (33.41% of accidents that occur are side accidents). The type of accidents involving parked vehicles occur the least (0.59%).

Urban/Built Up Area (BI/BU) Analysis: 63.9% of accidents that happen occur in BI areas, while 36.1% occur in BU areas. Pedestrian and parked vehicle accidents hardly happen in BU areas, accounting for only 7.8% and 6% of accidents that happen in the BU area, respectively. Despite this low occurrence, the casualties are usually very high. The ratio of casualties and lethal casualties in the BU area due to pedestrian and parked vehicle accidents is higher than in the BI. For the other types of accidents, the ratio of casualties and lethal casualties is higher in BI areas.

Location Analysis: 12 provinces were identified in the country. The analysis revealed the top 10 accident-occurring counties in each of the 12 provinces. Zuid-Holland is the province with the largest number of accidents, with 20.03% of accidents occurring there. In Zuid-Holland, accidents occur more frequently in Rotterdam County. The least number of accidents (1.98%) occur in Flevoland province.

Even though Drenthe is the third-least least province where accidents occur, it records the highest ratio of lethal casualties to the number of accidents that occur in all the provinces. This means that, compared to the number of accidents that occur in the province, the number of lethal casualties is high. Groningen records the highest number of ratio casualties and ratio injured hospital, while Zuid-Holland has the highest number of ratio injured miscellaneous.

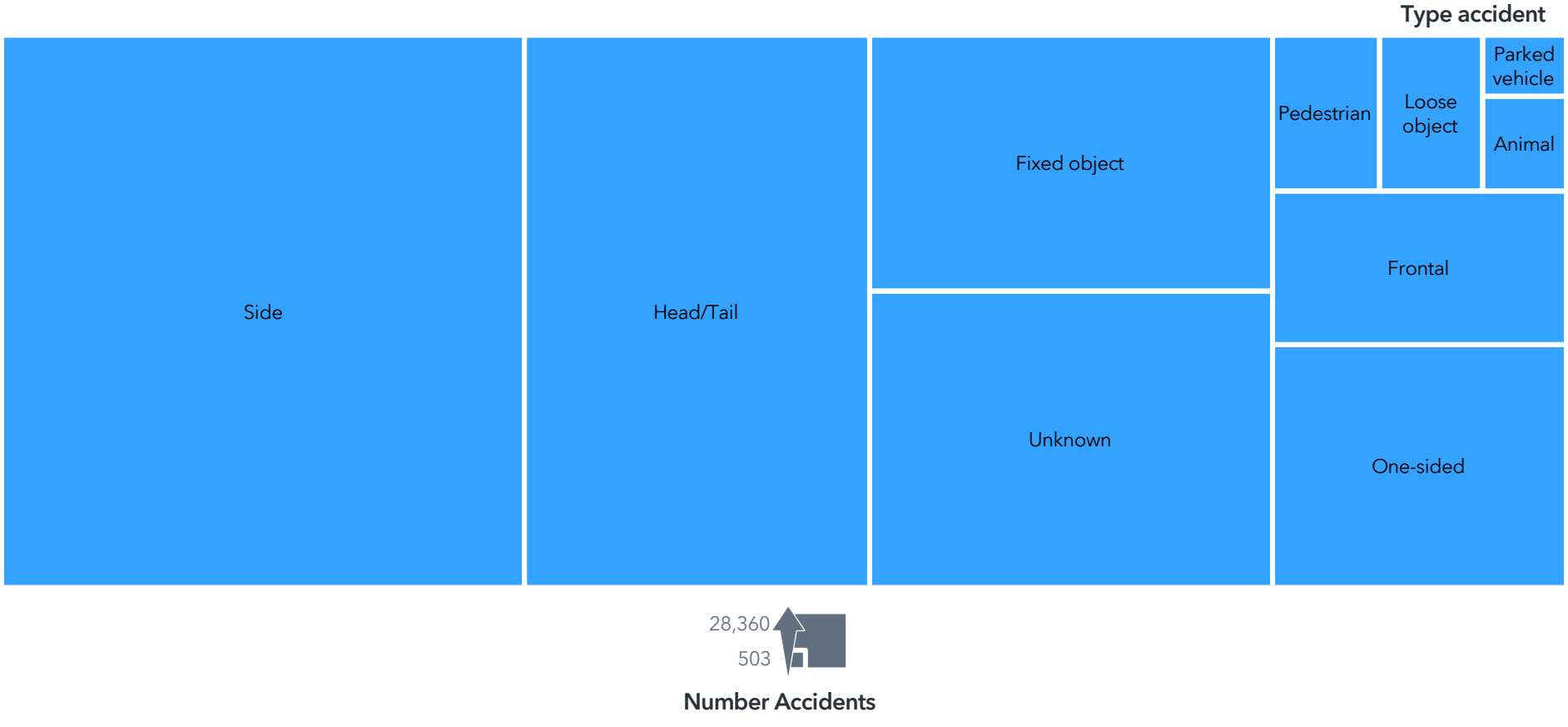
Road Situation Analysis : Accidents occur mostly on straight roads. 49.26% of accidents that happen occur on straight roads. But it is interesting to note that of all the type of accidents, side accidents, which are the commonest type of accidents, occur most commonly on 4-way roads. Out of about 28,000 side type of accidents that happen, 11,808 (41.93%) happen on crossing 4-way roads, resulting in 2975 casualties and 21632 vehicles involved. Other forms of accidents have the highest number of casualties,

Type Accident

This tree map shows the types of accidents by number of accidents. From the tree map, it can be seen that side accidents are the most common type of accident, while parked vehicle accidents occur the least.

Double click on the link to go to Urban/Built Up Analysis and Location Analysis Based on the Type of Accident.

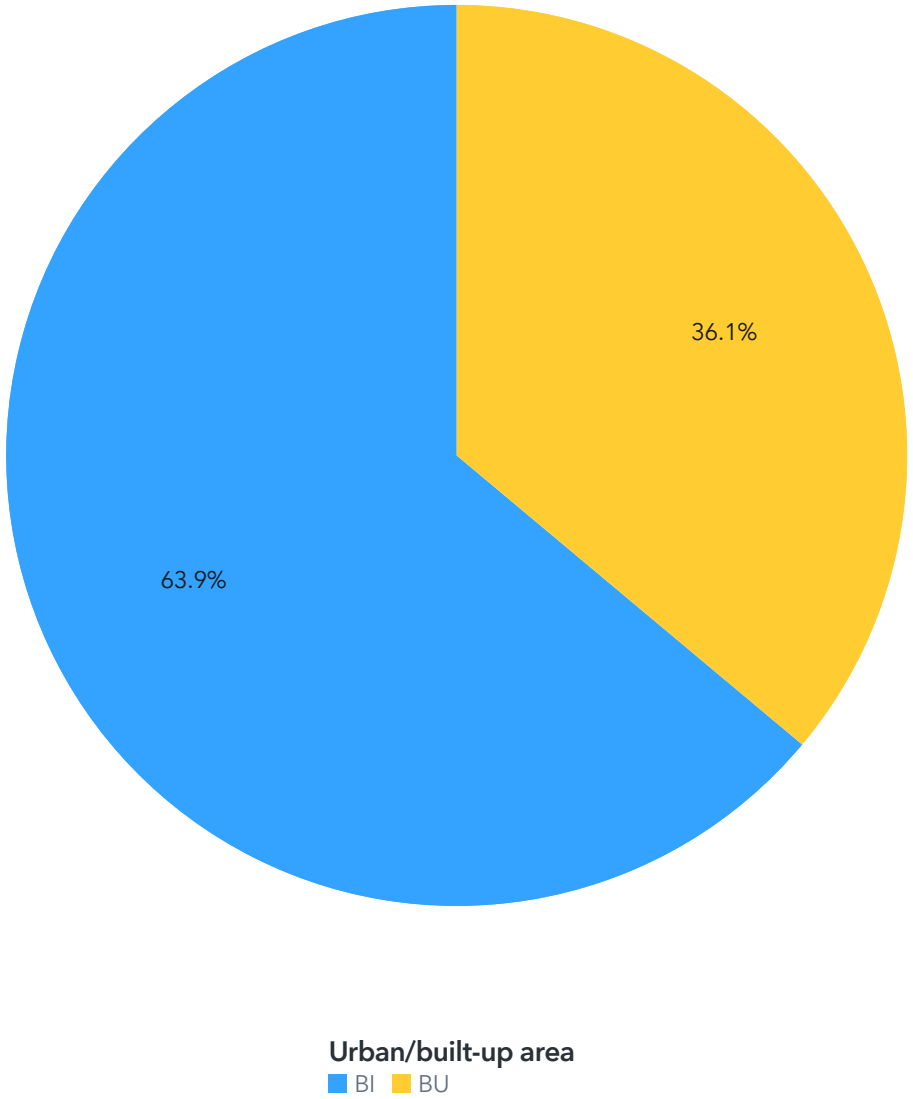
Type Accident by Number Accidents



A2.1

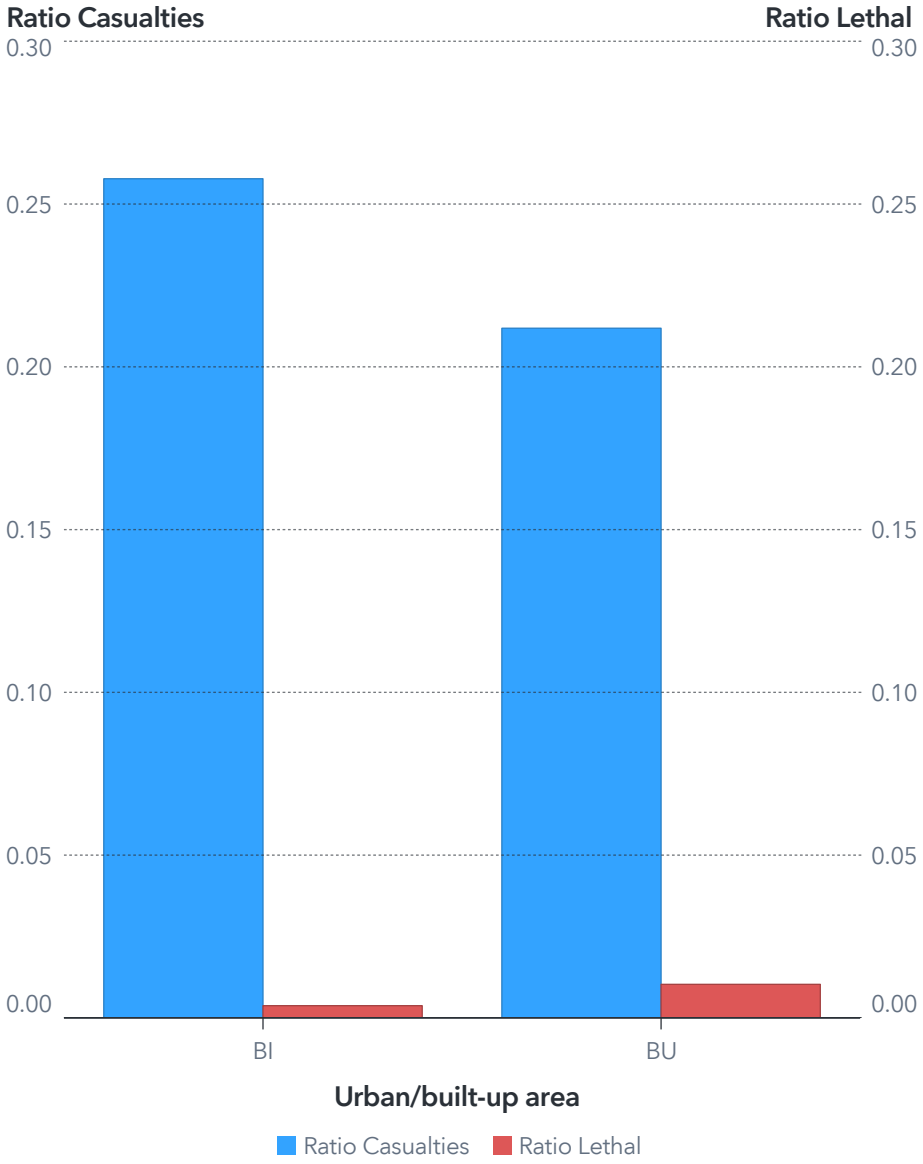
Urban/Built Up Analysis

Urban/built-up area by Percent Accidents



A3.1

Urban/Built up Area by Ratio of Casualties and Ratio Lethal

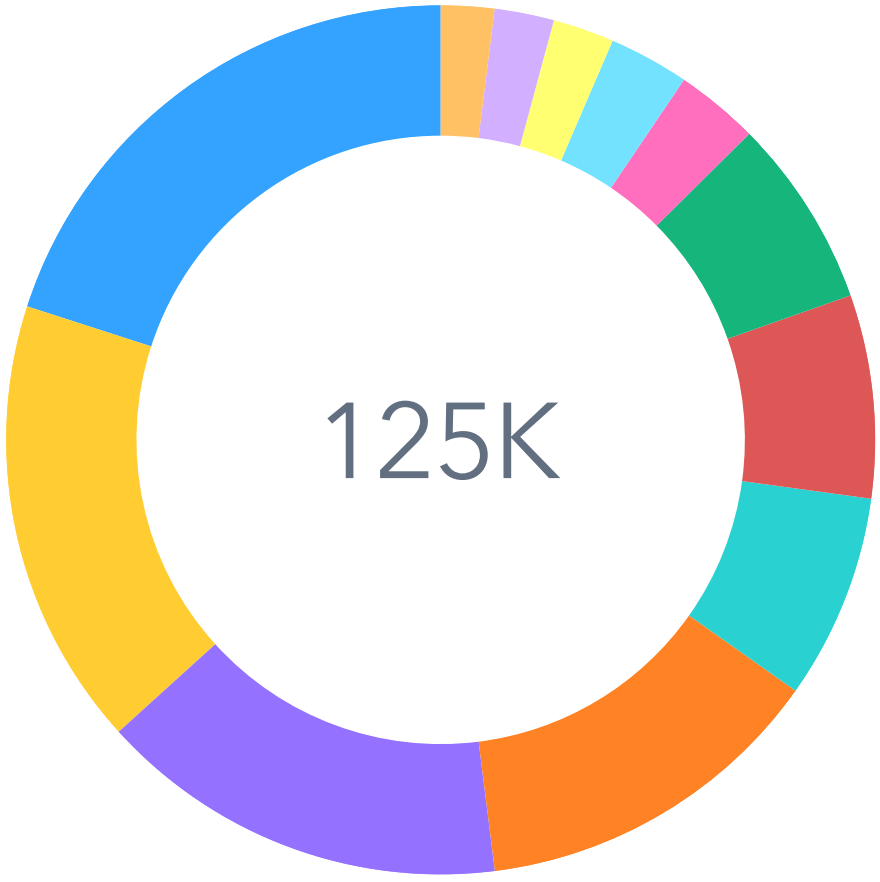


A3.2

Double-click on each pie to see the top 10 counties in each province where accidents occur the most.

Pie chart showing Province by Number of Accidents

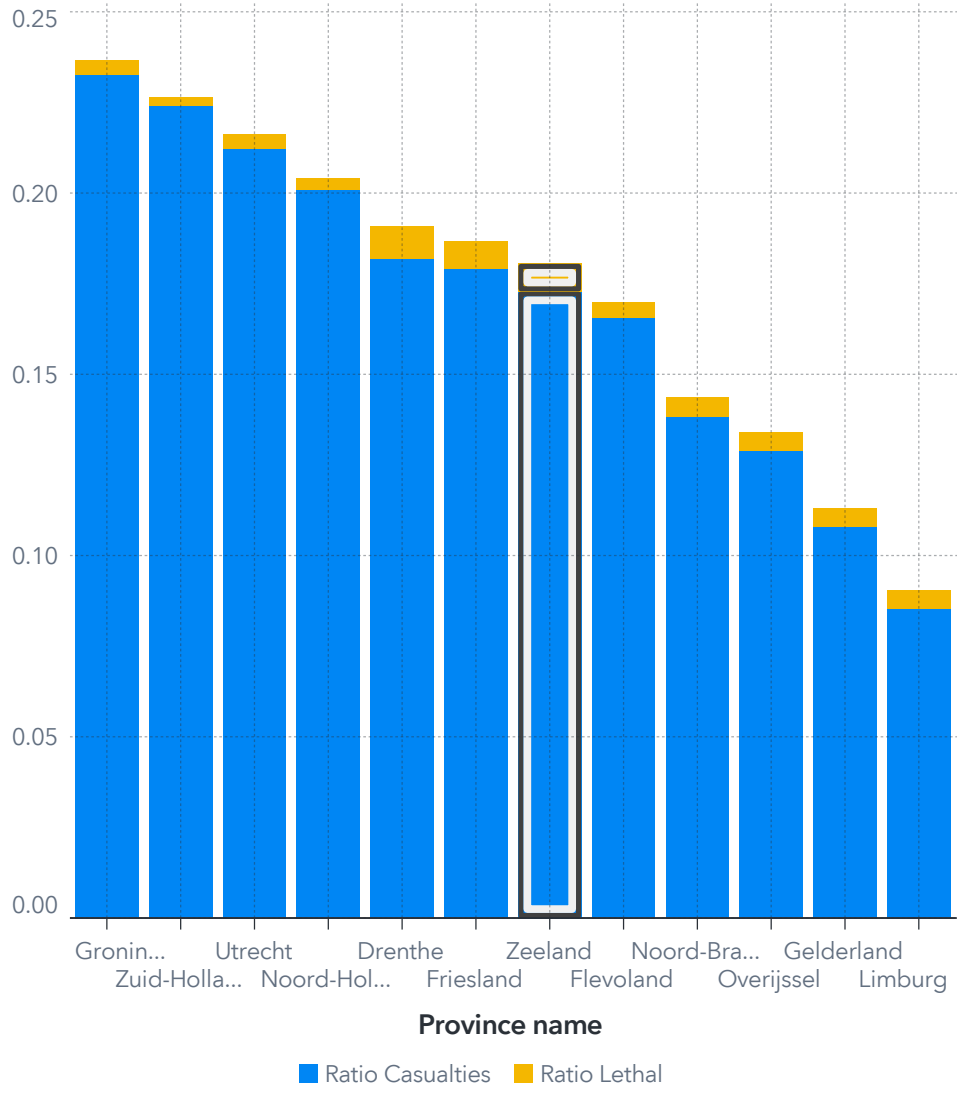
Number Accidents



A4.1

Province and County by Ratio of Lethal casualties

Ratio Casualties / Ratio Lethal



Use the drop-down menu to filter by type of accident. Double-click on the province to see the list of the top 10 counties with the highest number of casualties.

Table showing the Breakdown of Casualties by Province and County

Province name ▲	Ratio Injured Hospital	Ratio Injured Miscellanous	Ratio Lethal	Ratio Casualties ▼
Groningen	0.17	0.04	0.00	0.21
Utrecht	0.12	0.04	0.01	0.17
Drenthe	0.09	0.04	0.03	0.16
Noord-Brabant	0.11	0.02	0.02	0.15
Noord-Holland	0.10	0.04	0.01	0.15
Friesland	0.11	0.03	0.01	0.15
Zuid-Holland	0.09	0.04	0.00	0.14
Zeeland	0.07	0.03	0.02	0.12
Gelderland	0.09	0.02	0.01	0.11
Overijssel	0.07	0.03	0.01	0.11
Limburg	0.07	0.01	0.01	0.10
Flevoland	0.07	0.01	0.00	0.08

A5.1

Road Situation Analysis

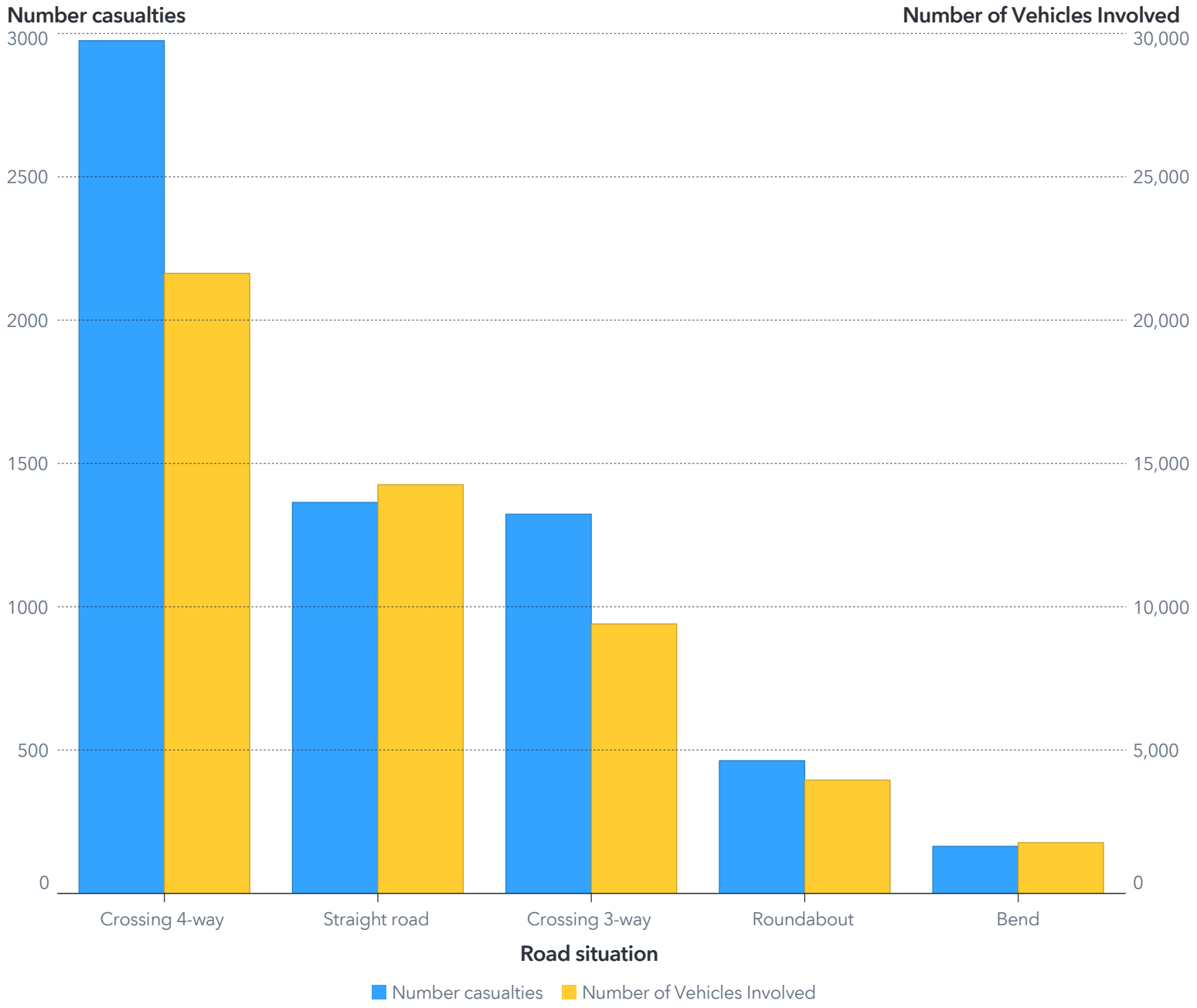
Analysis by Road Situation
Choose from drop down to see the road situation analysis for each type of accident

Side

Number Accidents by Road situation

Road situation

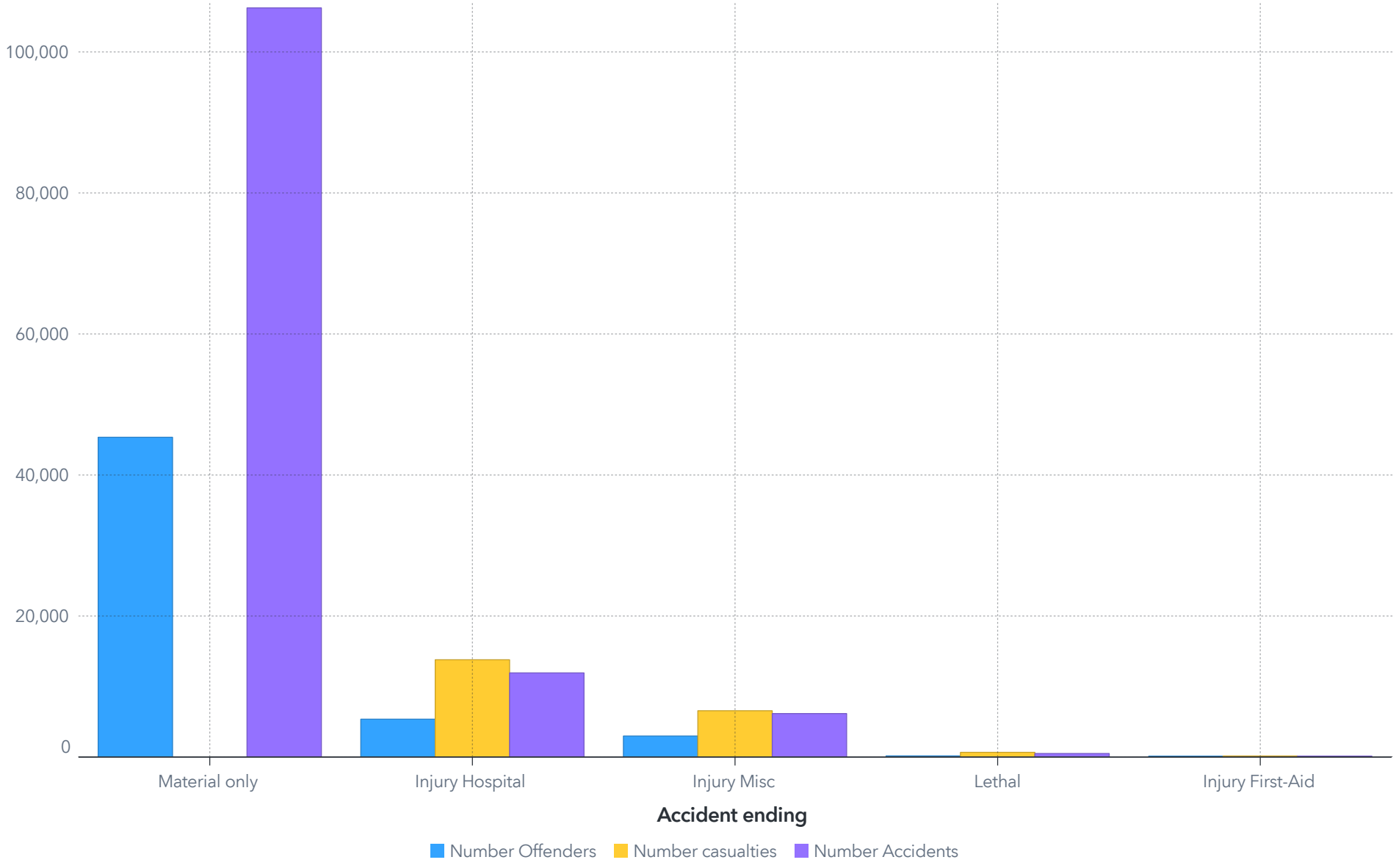
A6.2



A6.1

Accident Ending by Number of Offenders, Casualties and Number of Accident

Number Offenders / Number casualties / Number Accidents



A7.1

RECOMMENDATIONS AND CONCLUSION

Based on the results of the analysis, this report recommends the following:
1. Prevention of Side Accidents:
From the analysis, side accidents are the most common type of accidents, thus awareness campaigns addressing safe driving practices, especially at 4-way crossings, where a significant number of these side accidents occur. There could be modifications to road designs,increased signage, maintenance, and proper visibility on straight roads too, where most of the accidents occur.
2. In BI areas, safety measures such as improved signage and speed limits should be put in place. Also, measures should be implemented to improve pedestrian crossings , designated parking areas to enhance safety in BU zones, seeing that even though there is a low incidence of accidents in this zone, the accidents involving pedestrians and parked vehicles is still very high.
3. Interventions should be tailored to the individual peculiarities of each province based on accident patterns. especially in each county. For instance, in Zuid Holland, safety measures should be prioritized in Rotterdam County, where accidents occur more often.
In Drenthe, more attention should be paid to reducing the high ratio of lethal casualties despite a lower overall accident count.
4. Since most accidents result in material loss, emergency response services, swift and effective first aid and medical assistance should be improved.
5. Further analysis could also be done to identify and address common offenses leading to accidents, especially in cases where material loss occurs. Stricter enforcement measures against offenders and advocate for responsible behaviours to reduce these road traffic accidents.
In conclusion, these recommendations aim to address specific patterns identified in the analysis and provide a foundation for targeted interventions to reduce traffic accidents, and improve overall road safety in the Netherlands.

Appendix

A1.1 EXECUTIVE SUMMARY

A2.1 Type Accident by Number Accidents

Filters: Urban/built-up area NotMissing

A3.1 Urban/built-up area by Percent Accidents

Filters: Urban/built-up area NotMissing

A3.2 Urban/Built up Area by Ratio of Casualties and Ratio Lethal

Filters: Urban/built-up area NotMissing

A4.1 Pie chart showing Province by Number of Accidents

Ranks: Top 10 of County (including ties) by Number Accidents

Filters: County NotMissing

A5.1 Table showing the Breakdown of Casualties by Province and County

Ranks: Top 10 of County (including ties) by Number casualties

Filters: County In(ALL)
Type accident = 'Fixed object'

A6.1 Road situation by Number of vehicles and Number of casualties|

Description: Road situation by Number of vehicles and Number of casualties|

Filters: Road situation NotMissing
Type accident = 'Side'

A6.2 Number Accidents by Road situation

Filters: Road situation NotMissing
Type accident = 'Side'

A7.1 Accident Ending by Number of Offenders, Casualties and Number of Accident

Filters: Accident ending NotMissing

Display Rules: Graph

- Lethal