Traffic Accidents in the UK

Data Analytics Programming

Sachin Balakrishnan | Rocco Lange | Akankshi Mody | Onyekachi Ugo

INTRODUCTION

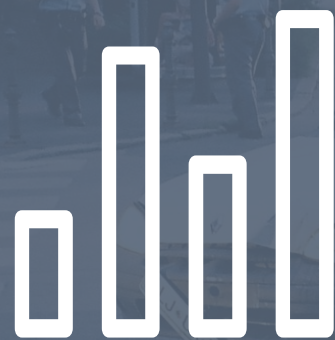# 1.25 million

Deaths per year

20-50 million

People injured or disabled

$518 billion

Road Crashes' global annual cost

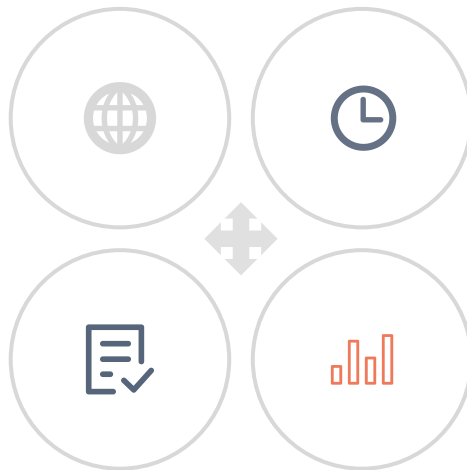# Analyse car accident trends and gain insights on Road Safety

OUR DATA

Dataset **Description**

United Kingdom
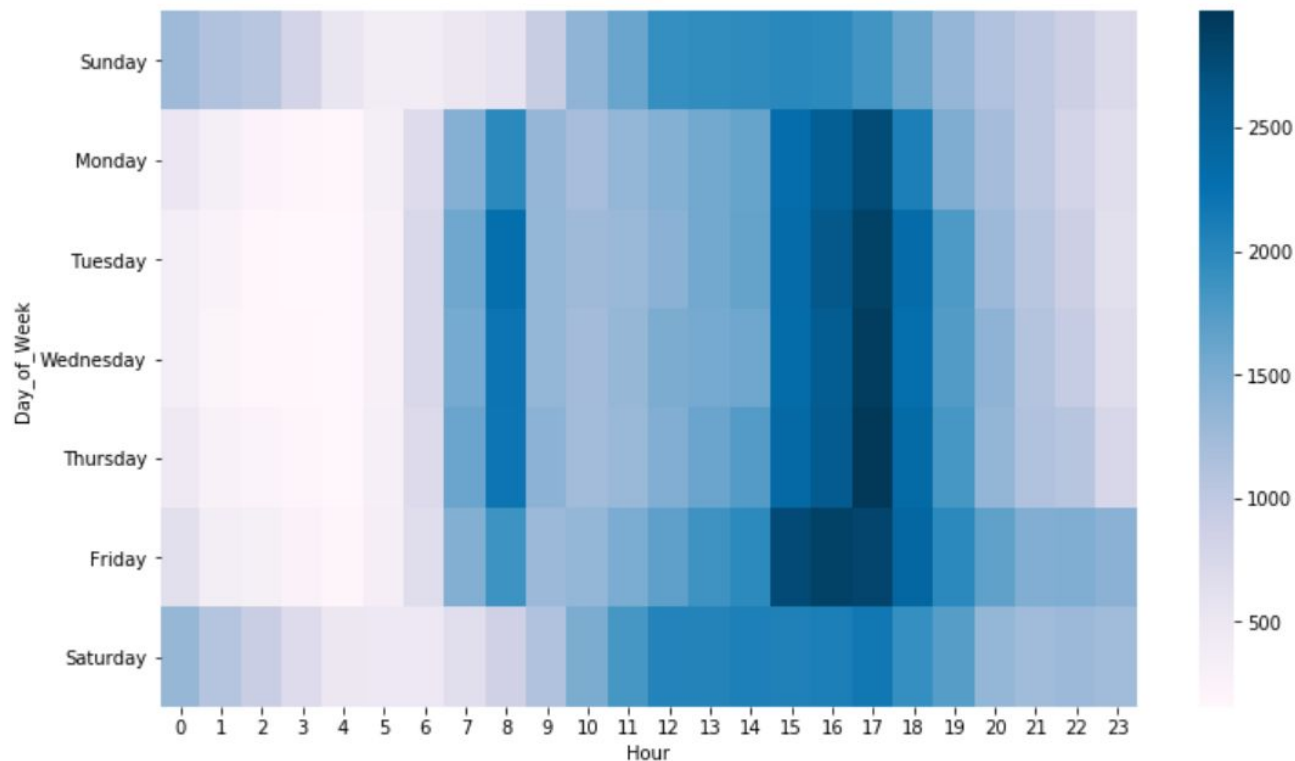Car Accidents

Time Period:
2005 - 2014

Over 1.4 million
accidents reported
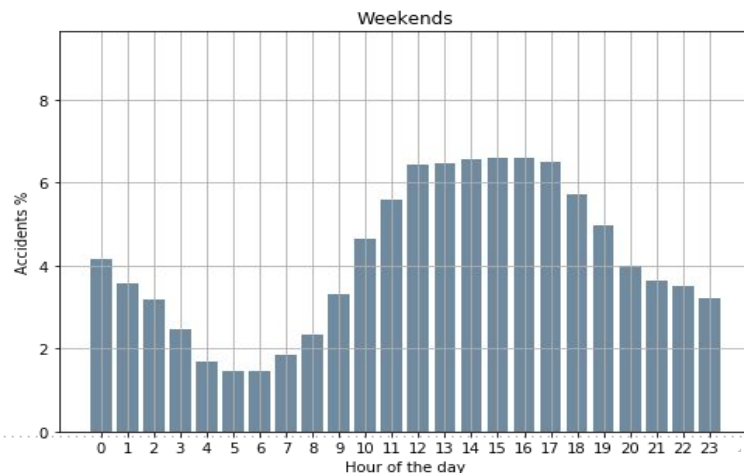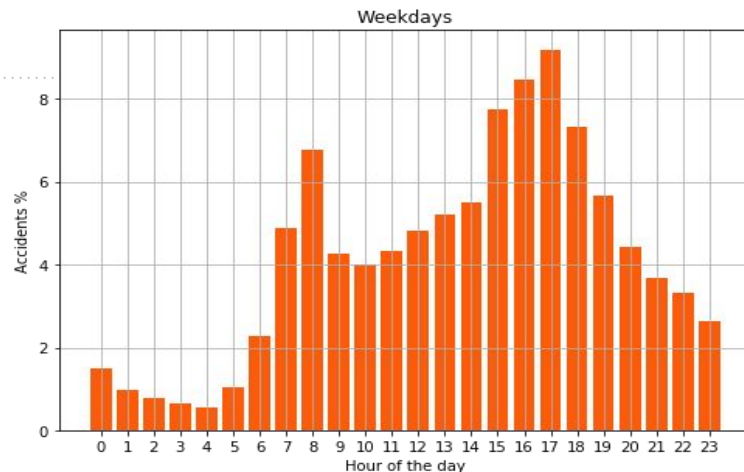
More than 200k
severe or fatal

EXPLORATORY ANALYSIS

Is Time a factor?

Weekend vs **Weekday**

🕐 Peak hours during weekdays(15:00 to 18:00 and 8:00) [People commuting to work]

🕐 High percentage of accidents during late-night and early morning hours on weekends

🕐 "DON'T Drink and Drive !!"

🕐 Weekend overnight drives?

Is **Junction Control** a factor?
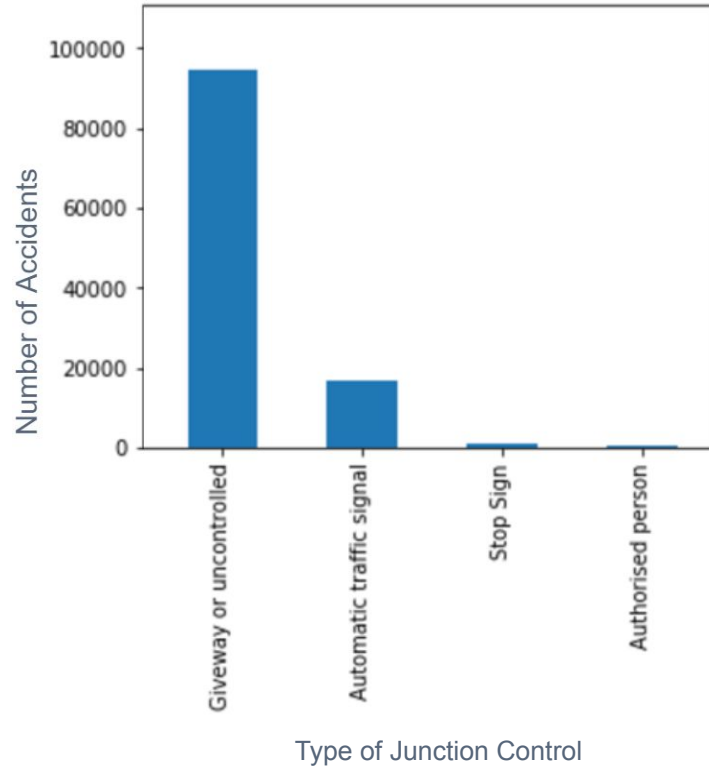
Give-way or uncontrolled is **six** times more probable than Automatic traffic signal

Even adding a basic form of junction control could reduce the number of accidents greatly
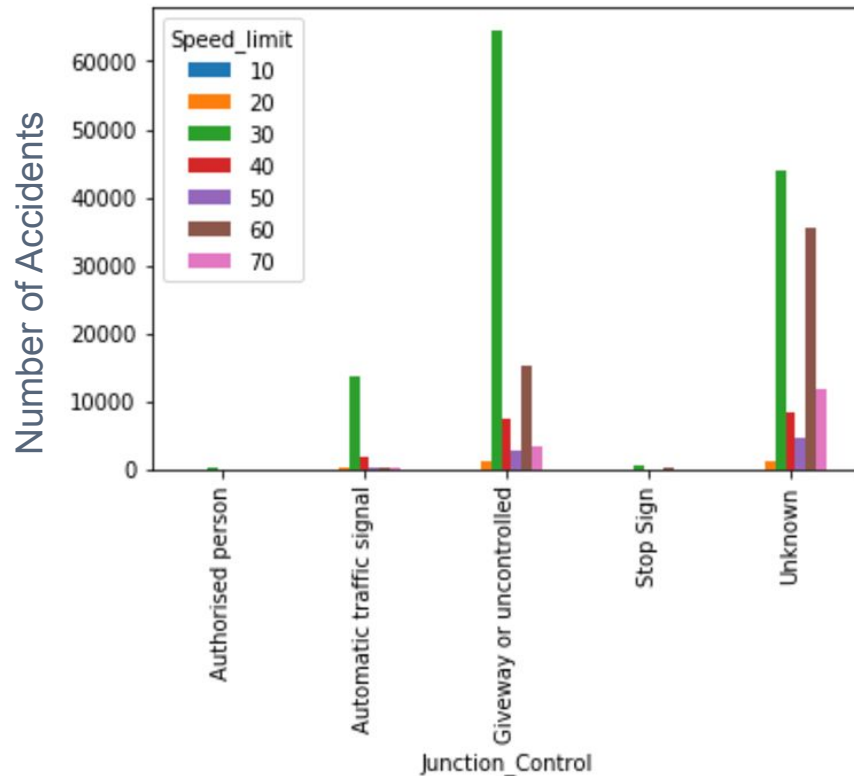
Junction Control vs **Speed Limit**

Highest number of accidents occur when it's a giveway and speed limit is 30

Possibly, the accidents take place due to over speeding ?

Junction Control vs Pedestrian Crossing Human Control

| Pedestrian_Crossing-Human_Control	Control by other authorised person	Control by school crossing patrol	None within 50 metres
Junction_Control			
Authorised person	16.0	14.0	226.0
Automatic traffic signal	215.0	41.0	16460.0
Giveway or uncontrolled	257.0	164.0	94146.0
Stop Sign	12.0	2.0	994.0

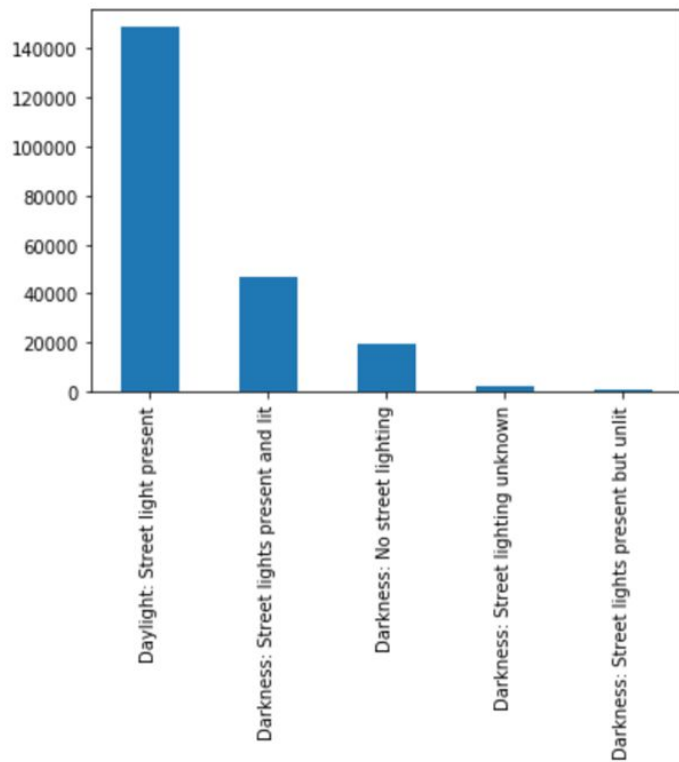# Are **Pedestrian Crossing – Physical Facilities** a factor?

The number of accidents where no crossing facility exists is 15 times as high as where there is one.

This could also mean that accidents involving pedestrians are low.
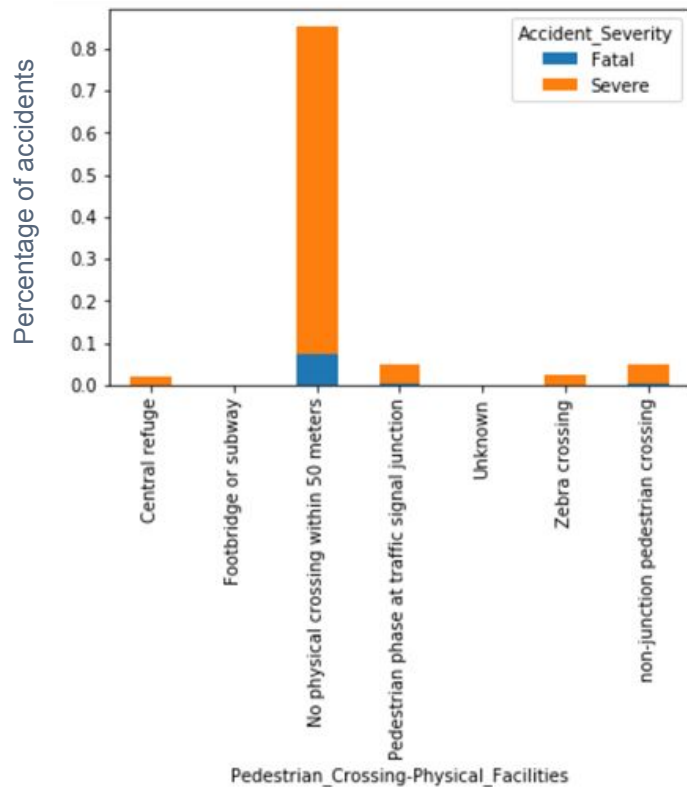
Are **Light Conditions** a factor?

Majority of serious (fatal and severe) accidents happened in the daylight or when streetlights were present and lit.

Even though approx. 68% of serious accidents happened in daylight, only 7.5% of those are fatal.

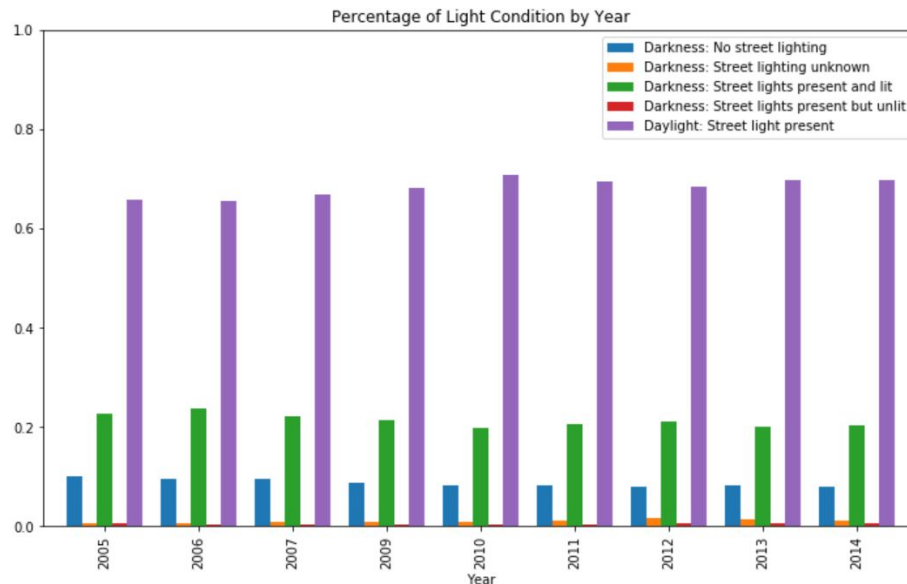11% of serious accidents that happen in darkness were fatal

Light Condition **Percentages**

Stays constant year-to-year

Nearly 70% in daylight each year

More than 20% with street lights on

Percentage of Light Condition by Year

- Darkness: No street lighting
- Darkness: Street lighting unknown
- Darkness: Street lights present and lit
- Darkness: Street lights present but unlit
- Daylight: Street light present
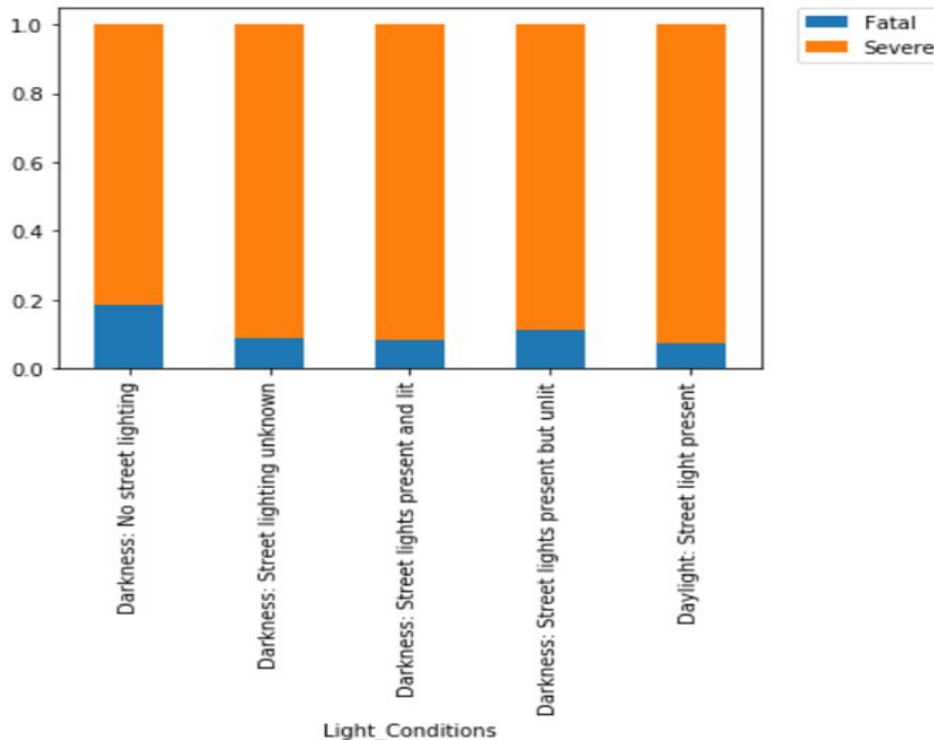
Percentage of Fatalities by Light Conditions

Percentage of crashes in darkness with no streetlights that were fatal was more than double the percentage of fatal crashes in daylight

What makes these crashes in darkness so dangerous?
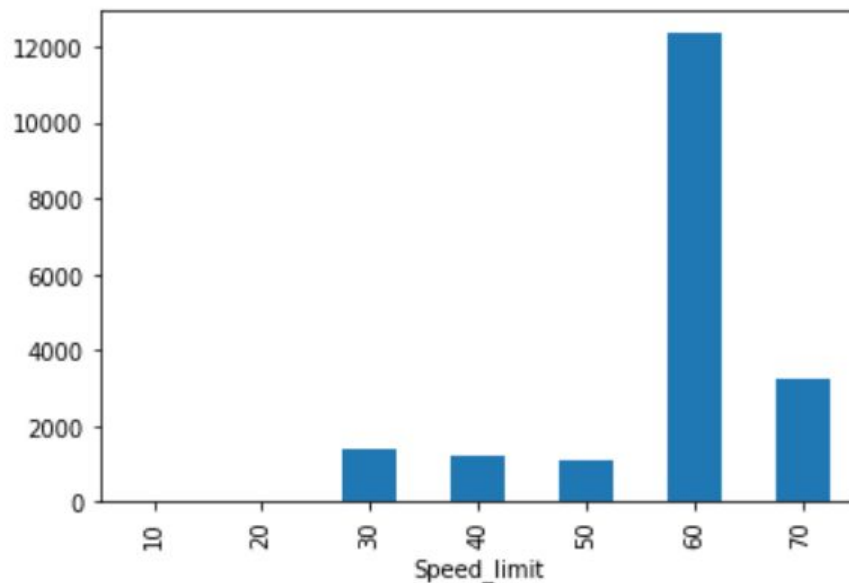
- Speed?
- Road Type?
- Area?

Higher speed limit in the dark?

Mean Speed Limit by Light Condition

Light_Conditions	Speed_limit
Darkness: No street lighting	57.640327
Darkness: Street lighting unknown	39.397978
Darkness: Street lights present and lit	34.610090
Darkness: Street lights present but unlit	39.741071
Daylight: Street light present	41.337120

Speed limit distribution of accidents in the dark

Single Carriageway

Road Type
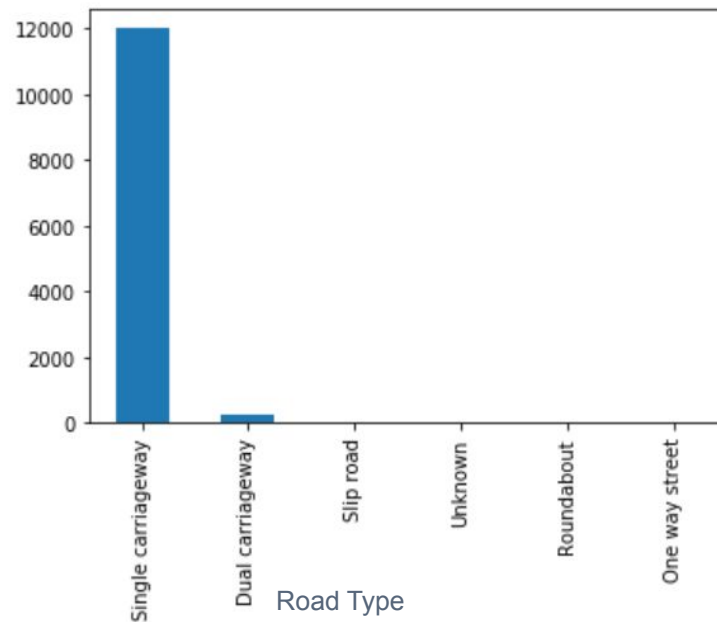
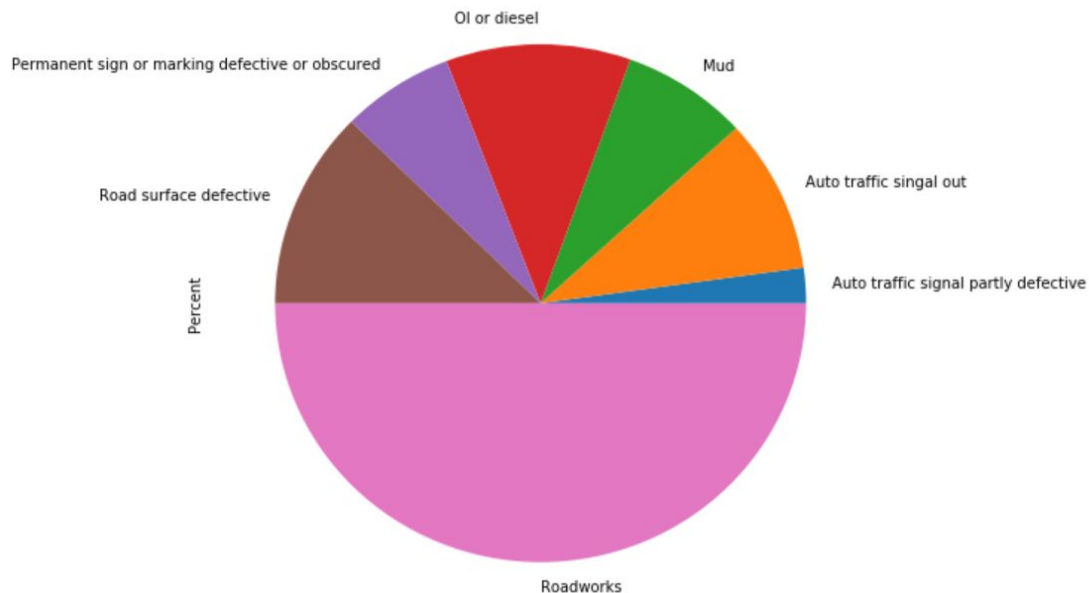Most common road with accidents at night and 60 MPH speed limit

No median or center divider

Most are rural roads

Special Conditions

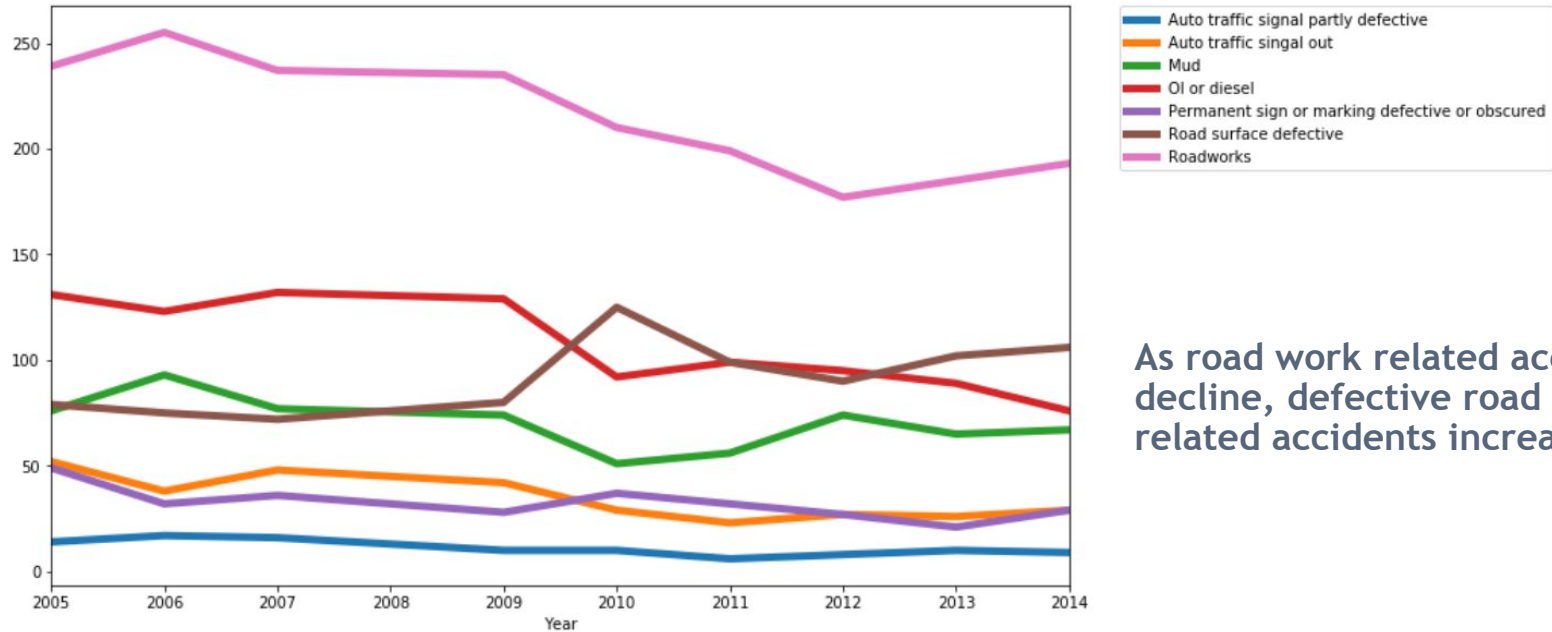| 50%	Road Works
12%	Defective Road Surface
11%	Oil or Diesel
10%	Traffic Signals Outage
8%	Mud
9%	Others

Special Conditions

As road work related accidents decline, defective road surface related accidents increase.

SOLUTIONS & INSIGHTS

Trend of accidents over Time

🕐 Observed a decrease in the % of accidents over the years.

🕐 A slight increase in the %traffic from 2013 may have an impact on the upward trend in 2014.
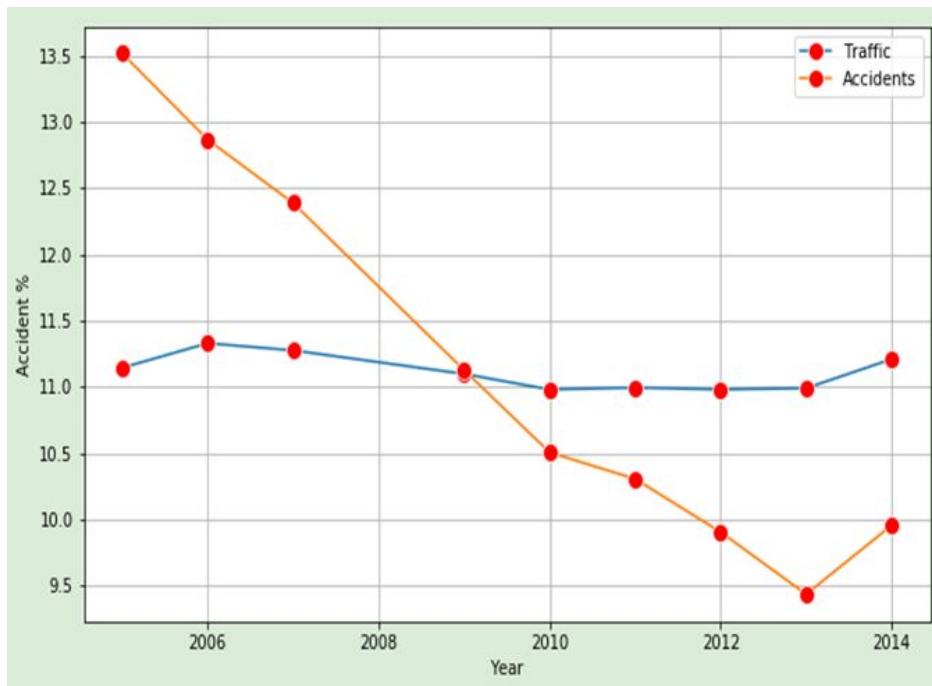
Our **Recommendations**

Single Carriageway

Increase road safety measures for single carriageway roads to potentially reduce the number of accidents.

1

Street Lights & Cameras

Set up street lights in rural areas, and cameras to discourage drivers from overspeeding.

2

Junction Control

Improve Junction Control and Pedestrian Crossing Facilities such as traffic signals and crosswalks.

3

Thanks for Watching

We hope you enjoyed watching the presentation
as much as we enjoyed making it.

? QUESTIONS

Acknowledgments

- The license for this dataset is the Open Government License used by all data on data.gov.uk.
- http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/
- The raw datasets are available from the UK Department of Transport website.
- https://www.dft.gov.uk/traffic-counts/download.php

Source: https://www.kaggle.com