Project Brief

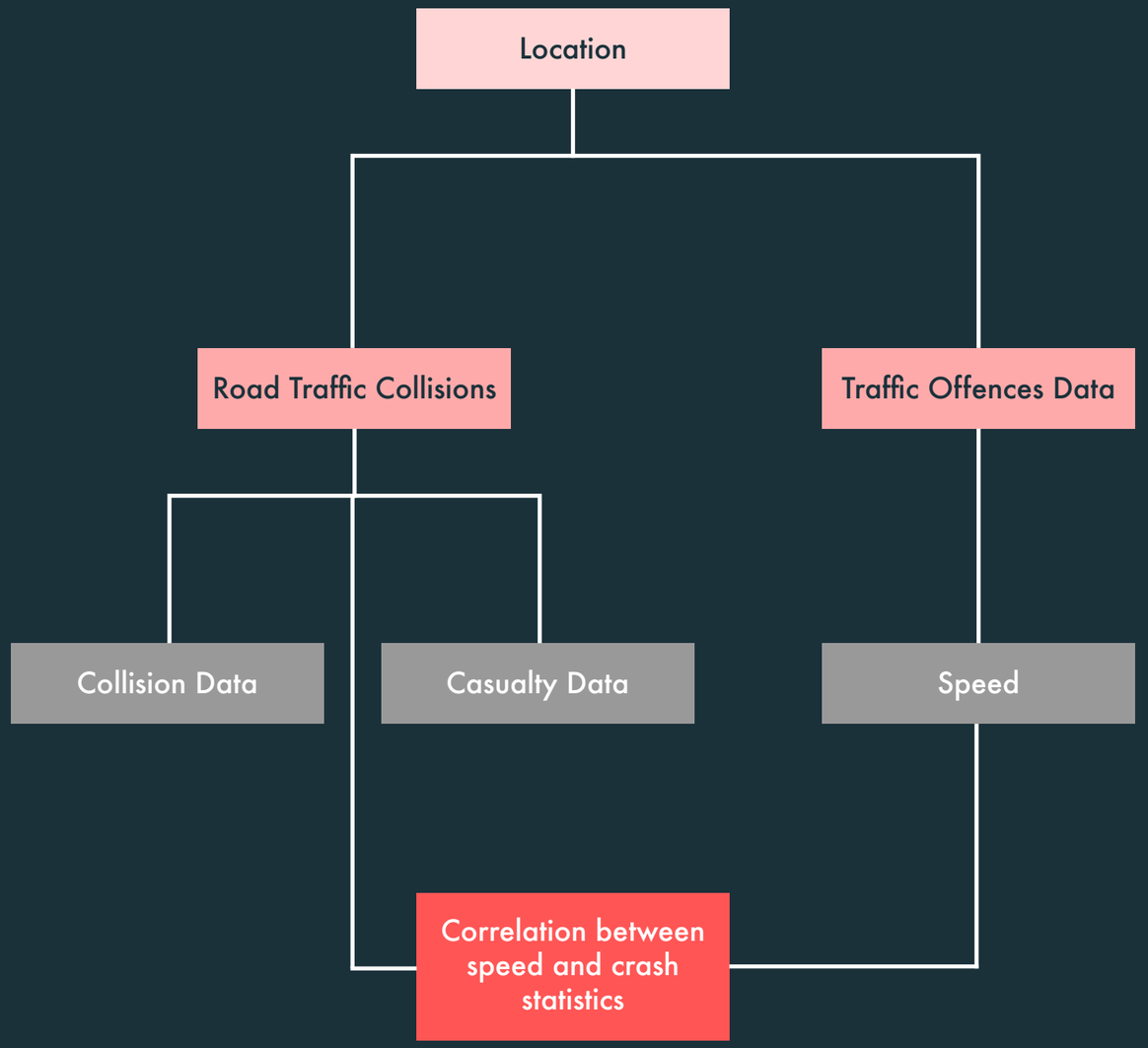
Within this project, I aim to present a concise and informative view of relevant road safety statistics within NI for 2016. This project draws on open-source public data made available by the PSNI and Road Safety Partnership, via opendatani.gov.uk. The purpose is to test the data to see if there is a relationship between speeding and traffic offences in high frequency locations, with the locations of road traffic collisions throughout NI.

Throughout the analysing and presentation of the data, I hope to deeper understand the state of road safety in NI and whether or not there is any key patterns within the data. Through this I will be able to show the visualisations to an audience so that they may be able to take it and analyse it themselves, becoming more informed through the visual representations, which are easier to understand and process.

This project will draw on 3 datasets specifically, all for the year 2016 so that they are directly comparable. They are;

- Collision data for Injury Recorded Road Traffic Collisions 2016
- Casualty data for Injury Recorded Road Traffic Collisions 2016
- Road Safety Partnership Statistics for Traffic Offences 2016

Using this data to create interesting visualisations, I'm expecting to see some patterns and be able to use it to compare and contrast and also to test several hypotheses about the current situation regarding road safety in NI. The patterns I'm expecting should show particular locations that have frequent high-speed traffic offences: I am expecting they will correlate with the locations within the casualty and collision statistics.

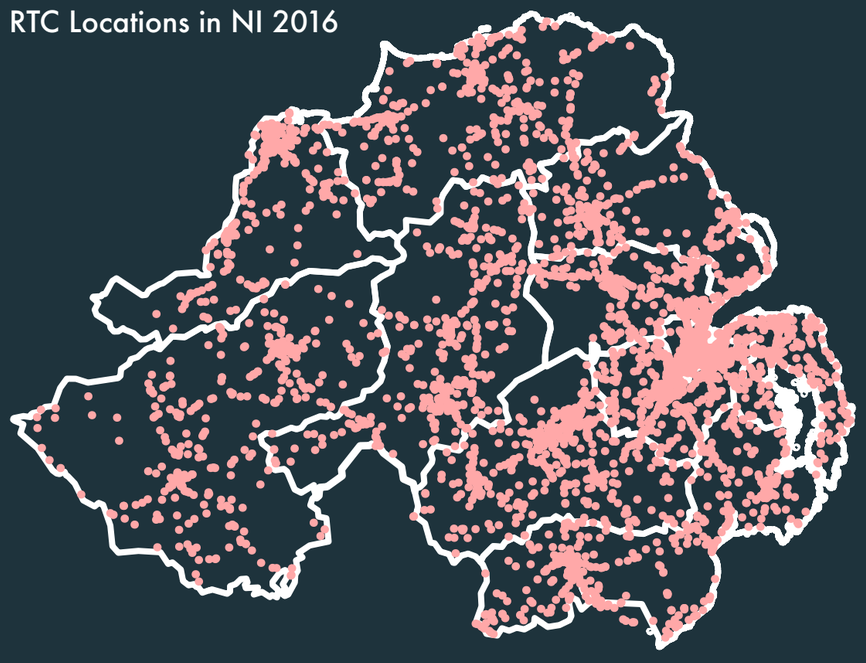


Key Aims

- Present key data statistics in visual form, using relevant datasets
- Analyse data for significant trends within the data
- Gain a better understanding into how visual data can give a much clearer insight to the audience than quantitative text

Visualisation

RTC Locations in NI 2016



Collision location

Key

- Belfast City
- Derry & Strabane
- Lisburn & Castlereagh
- Newry, Mournes & Down
- Armagh & Banbridge
- Ards & North Down
- Antrim & Newtownabbey
- Causeway Coast & Glens
- Mid & East Antrim
- Mid Ulster
- Fermanagh & Omagh

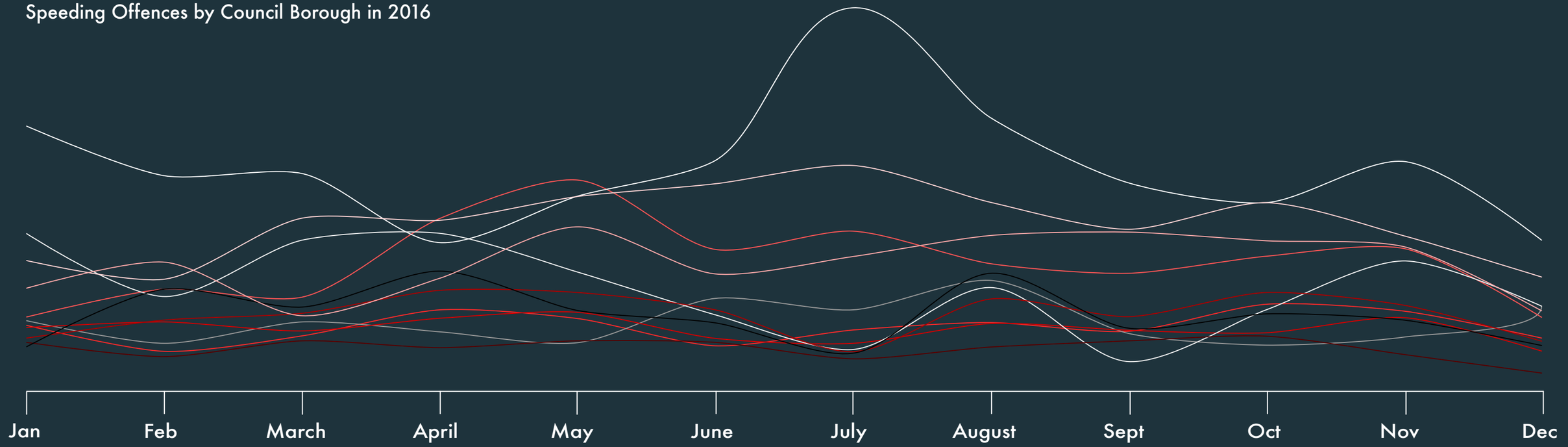
As previously mentioned, I wanted to look at the data for both road traffic collisions (RTC) and speeding offences in NI in 2016, to visualise whether or not there could be a correlation between speed and crashes.

The line graph below shoes the 2016 speeding offences by district. Each line represents a different council borough district. The map on the left plots the coordinates of every RTC throughout NI in 2016 as a point on the map.

Looking at the map, you can definitely start to see key areas that have a concentrated amount of higher collisions, such as Belfast and Derry City. Taking this information and looking at the speeding offences, it's possible to see that they also represent the top areas in terms of speeding offences;this points to a positive correlation between speeding and road traffic collisions, as I expected to find.

I was expecting to see this kind of correlation, but it's helpful to be able to see it visually and be able to clearly pinpoint the key areas that are most affected by speed and road traffic collisions. This data could be explored much deeper to give an even more in-depth insight into road usage and keeping people safe. As part of looking at the data further, I will be talking about how this data visualisation idea could transformed into an interactive site to allow users to interact with the data and explore it themselves.

Speeding Offences by Council Borough in 2016



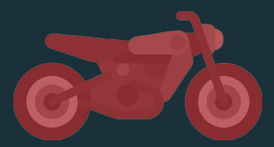
Infographic

Percentage of most common vehicles that were involved in the total **6225** **collisions** in 2016

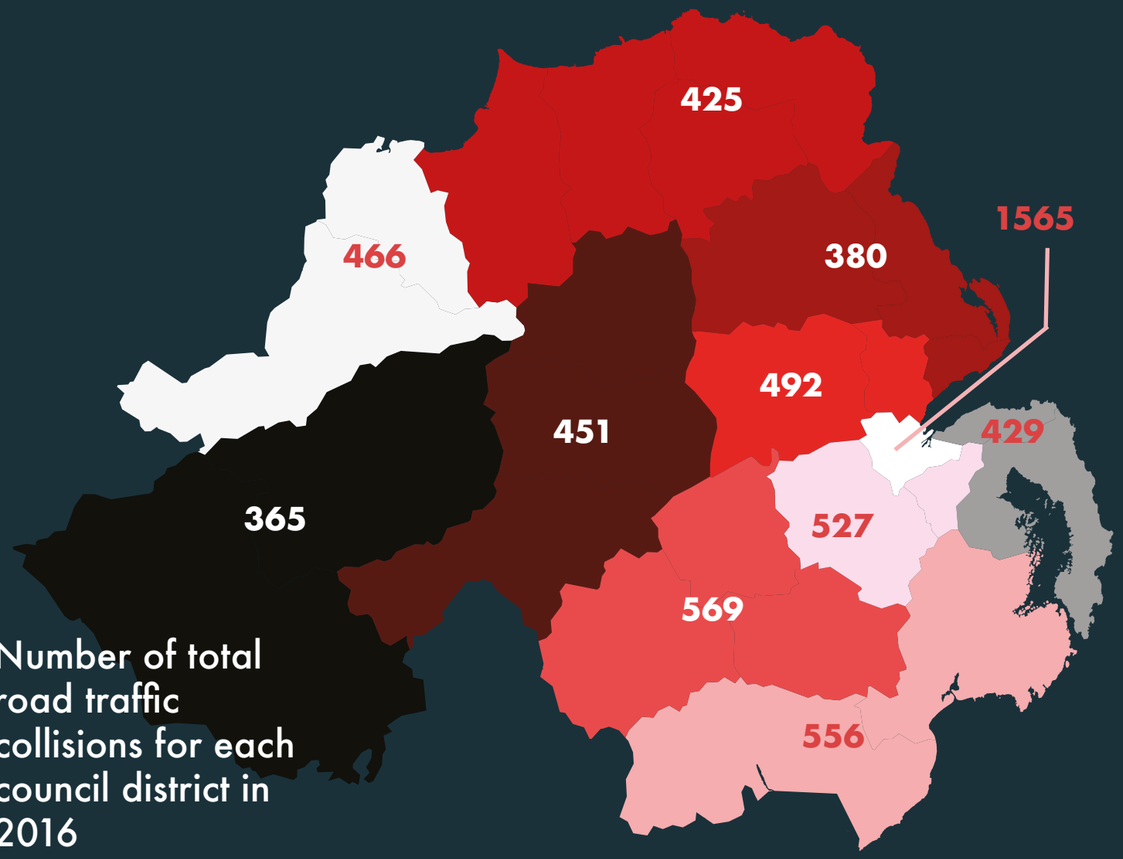
84%

7%

3%



2%

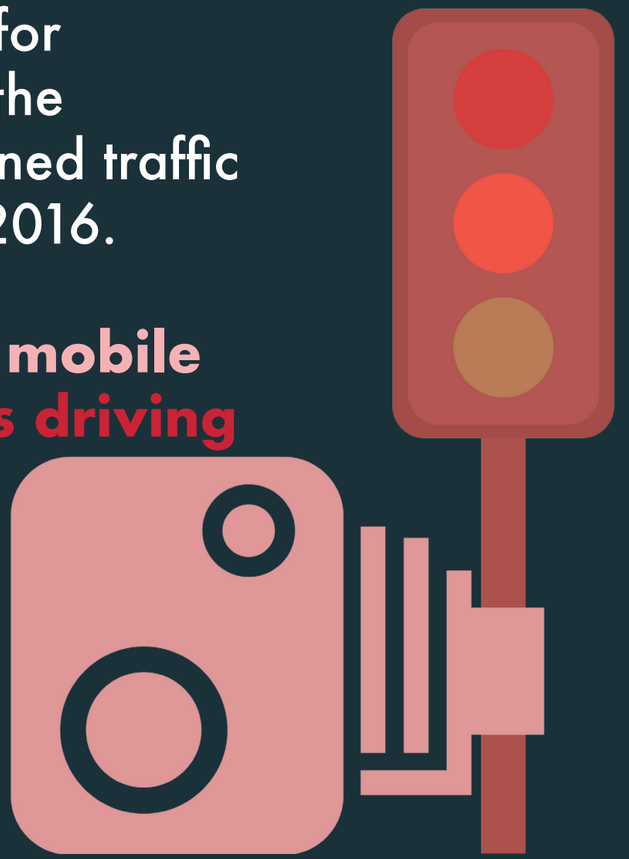


Number of total road traffic collisions for each council district in 2016

Belfast accounted for **25%** of all traffic **collisions** in 2016

Speeding accounted for **27%** of all the combined traffic offences throughout 2016.

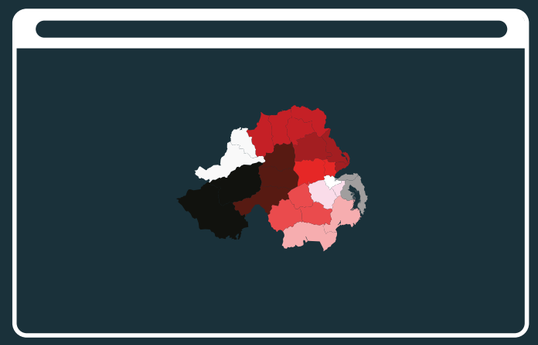
Speeding, **using a mobile phone** and **careless driving** were the most common offences.



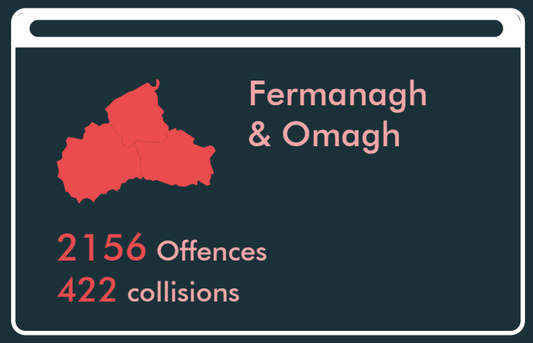
All figures and statistics use public data from OpenData NI and PSNI report data for 2016

System Map

Interactive Site



The website gives a clickable, interactive interface that allows the user to interact with the data gathered from the database

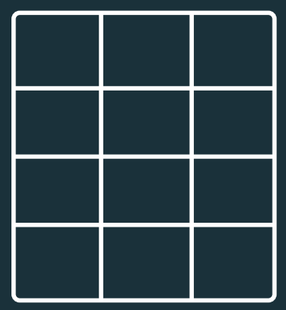


Clicking on a district on the map that pulls down an interactive page that displays detailed information about each district.

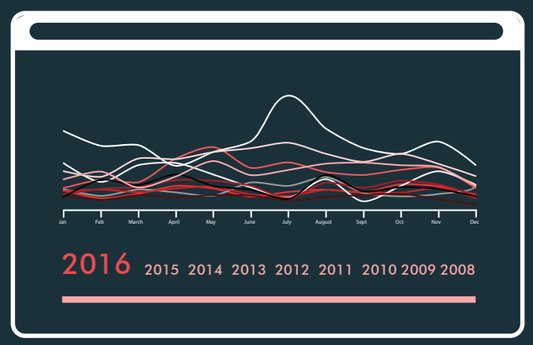
User

The user is able to manipulate the website through interactive features to reveal the data in different ways that allows them to learn from it and inspect it

Database

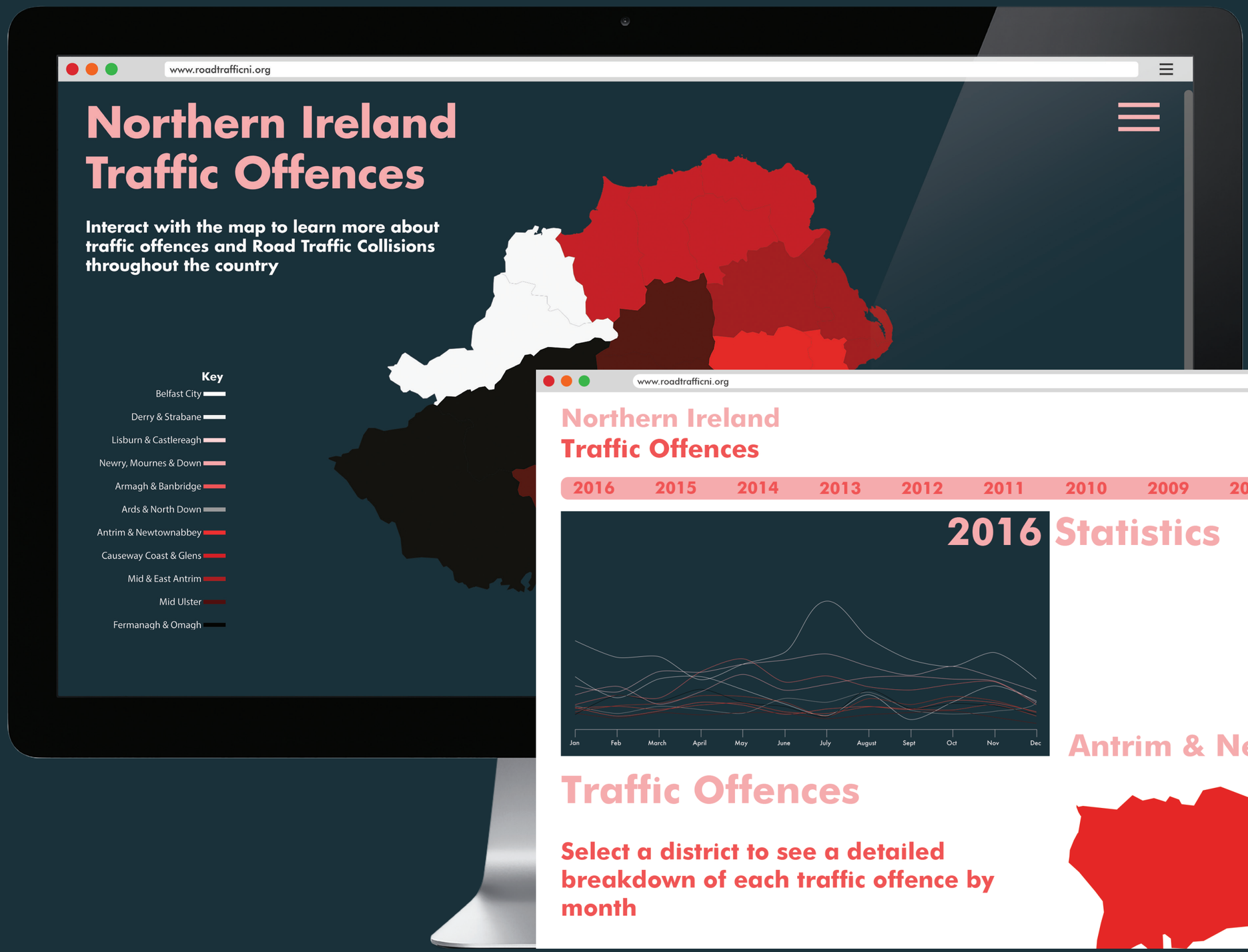


The website retrieves the relevant data to create and display the graph models to the user, who is able to interact with these and view the data.



Scrolling down from the home map shows the data for whole of NI. Tabs and sliders allow the user to change the data shown according to categories like year, month and offence type.

Design Sheet



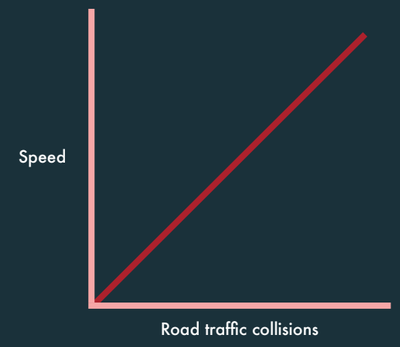
In this section, I created several mock-ups to visualise what an interactive website might look like, using this project idea of traffic offences in NI.

Users would be able to interact fluidly with the map elements to view the data easily, selecting different years and categories: this allows them to compare and interact with the data themselves.

The website would be simple and easy to navigate, allowing the user to concentrate on the data.

Project Summary

In completing this project, I sought to take a specific dataset and visualise it through charts and diagrams. By doing so and using the data visualisation, I wanted to see if I could test a hypothesis regarding speeding and road traffic collisions.



The hypothesis proved to be true and I could see this and a few other key patterns within the data, showing hotspots for collisions and speeding offences. It also gave an opportunity to discover some key statistics which was informative, as shown on the infographic page. It has given me a much clearer understanding of the process of data analysis and designing visually with data. Overall, I think the project would give an audience a fairly good insight into data through the visualisations I have presented, with scope to expand the project into an interactive site to further enhance the data analysis and learning for the user.

I looked back at my initial key aims to see if I had met them as intended within the project brief.

Key Aims

- Present key data statistics in visual form, using relevant datasets
- Analyse data for significant trends within the data
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I believe that all the aims were met in the design brief. I was able to take the data from the source and compile it into several key visualisations to help analyse the data, while giving myself a better understanding of the whole process of data visualisation and analysis and its wide ranging impact in today's digital society.