Urbsol

Case Study Project: Crash Data Analysis and Visualisation
Client: Town of Victoria Park

Overview

According to the Road Safety Council of Western Australia Road accidents cost the Western Australian economy in excess of $2B in 2014.

The Western Australian Government's road safety strategy "Towards Zero" is based on the internationally recognised Safe Systems approach which identifies strategies for safe roads and roadsides, safe speeds and safe vehicles.

The Study

Urbsol was engaged by the Town of Victoria Park to help analyse and visualise 10 years' worth of road traffic accident data for the Town.

An understanding of the costs, causes and influences means funding, policy and design standards can best adapt to help meet the challenge of reducing road trauma.

The focus of the work was on key metrics including:

- o Crash costs by location
- o Crash count by location
- o Crash severity by location
- o Crash severity by time of day

Crash data dashboards that integrated both geospatial analysis methods with traditional but interactive charts were created. These made use of key data filters including intersection/midblock, crash severity, lighting conditions, crash type, crash nature codes and road owner responsibility.

Annual temporal filters were applied to better understand trends between years and "top 'N' filters" were included to help identify top crash locations for further investigation.
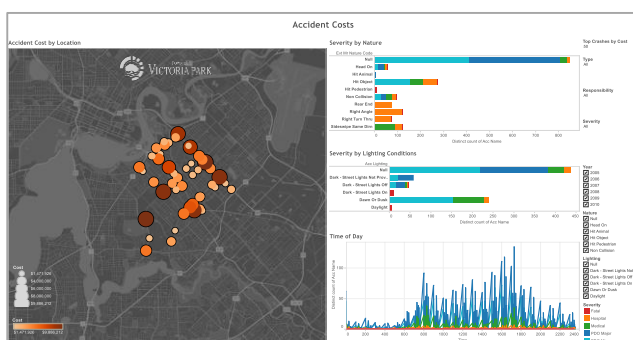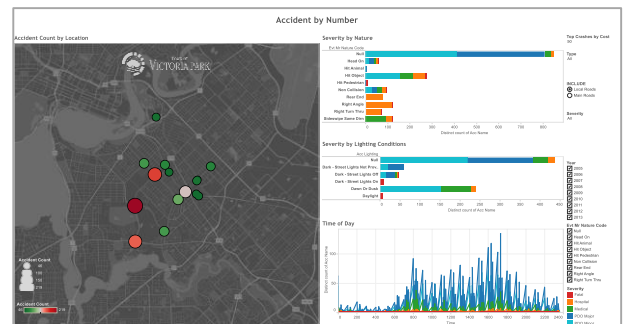

Crash cost dashboard

Crash costs were estimated using standard values as a function of Road User Movement codes.

Data Visualisation

Urbsol used Tableau to analyse and visualise the 10 year crash dataset in a readily digestible format that would be simple for users to interact with and interrogate.

Crash count dashboard

The workspaces provided immediate indications of locations that saw the highest number and costs of accidents at both mid-block and intersection levels.

Historical tracking of crash animations also demonstrated the development pattern of accidents by location.

Tableau was chosen as the most suitable tool for this task for a number of reasons:

- o Strong visual analytics
- o Readily deployable outputs
- o Simplicity of dashboard creation
- o Strengths in cross relational databasing
- o Ability to provide filters across all data levels
- o Geospatial display capabilities
- o Data animation capabilities

The analysis has shown a number of clear relationships between crash frequencies and costs and has helped in understanding the differences in crash nature and severity as a function of road owner responsibility.

The tool is expected to play a key role in future applications for blackspot funding and will help communicate the importance of planned road projects and treatments to key stakeholders and decision makers alike.