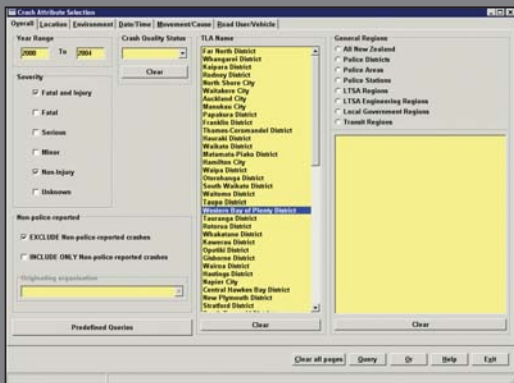
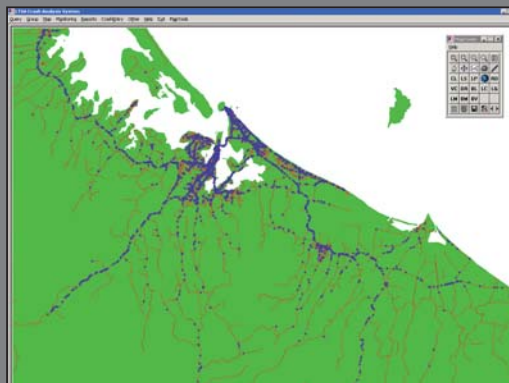


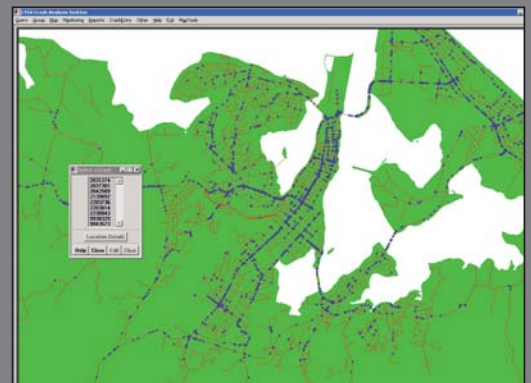
Using CAS – an example



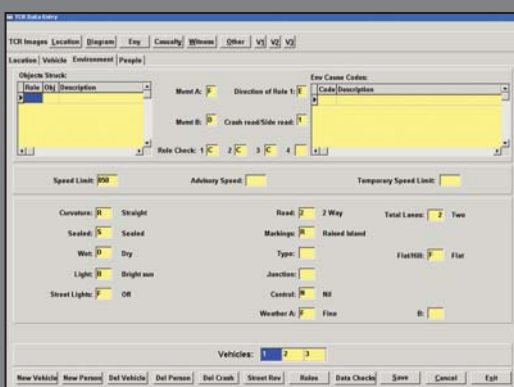
1 This is the main crash query screen. There are screens for crash location, environment, date and time, movement, contributing factors, vehicles and road users. This query is for all crashes in the Western Bay of Plenty/Tauranga area from 2000 to 2004.



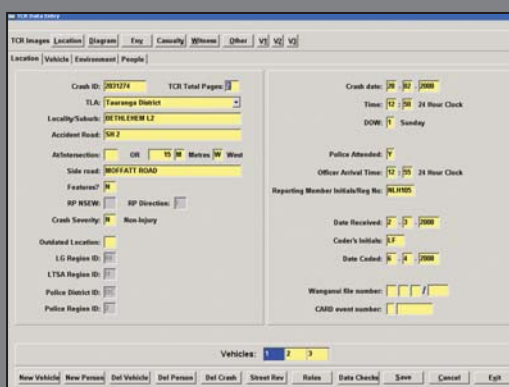
2 CAS performs the query, producing either a report or, as in this example, a map of the requested crashes.



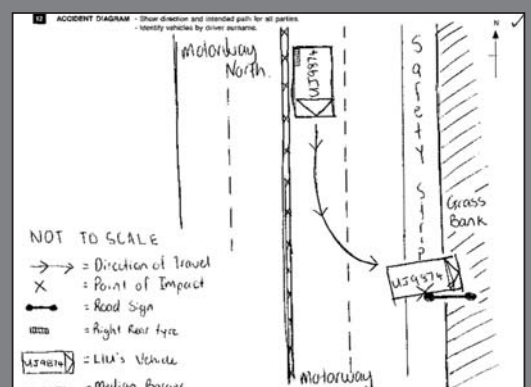
3 The map is zoomed into Tauranga's built-up area. The crashes at a particular intersection can be selected and examined in detail.



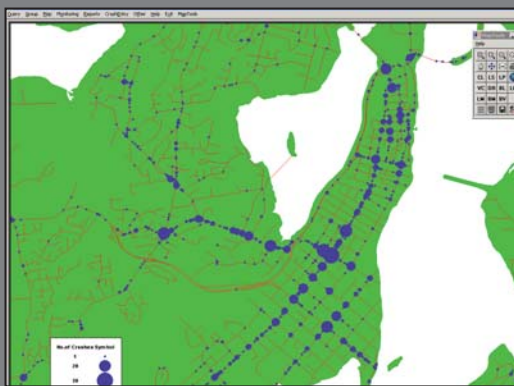
4 After selecting a crash from the list its details can then be read on different screens. This is a crash environment screen. There are other screens for the crash location, and the vehicles and people other than drivers involved in the crash.



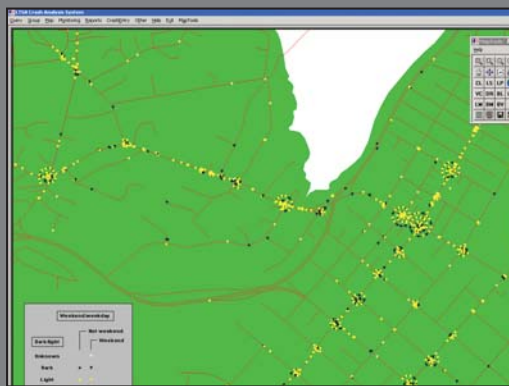
5 This is a crash location screen.



6 Crash diagrams may be accessed from the crash information screens.

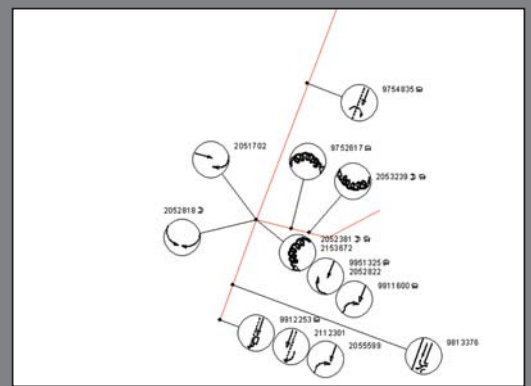


7 Crashes can be clustered to identify the 'black spots' with multiple crashes.



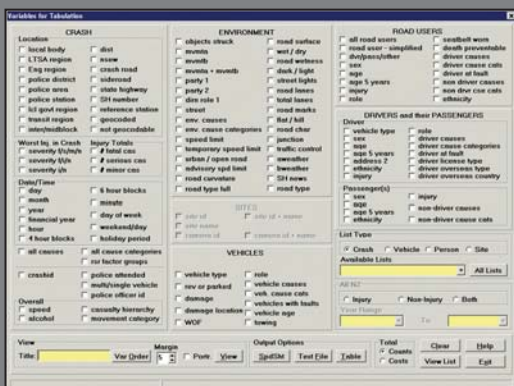
8 Using a thematic template, individual crashes at a particular location can be spread out and identified with different symbols to make them more visible. Each crash symbol can be coloured and/or shaped to show its characteristics.

A spiral connects each crash back to its location. This map shows whether or not the crash occurred at night and whether it was at the weekend.

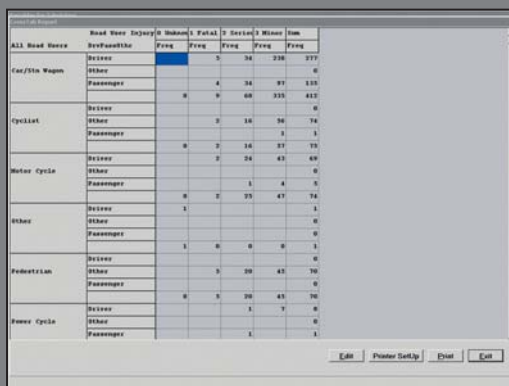


9 There are several tools for analysing crash clusters. One tool is the collision diagram which shows the movement type for each crash aligned with the roads.

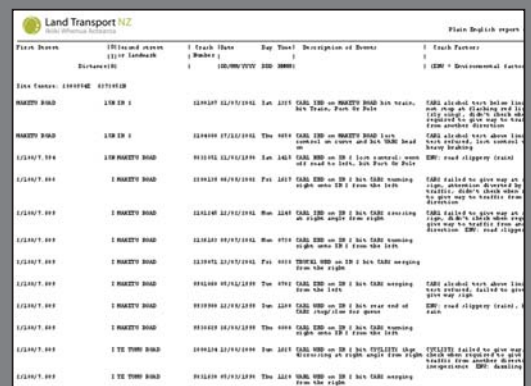
Other tools include factor grids, an alarm report of sites with significantly increased crashes, a summary report showing crash totals by year at each cluster and a detail report (one page per site).



10 CAS includes a comprehensive cross-tabulation tool. This can provide counts of data at several levels: crashes, vehicles, people, and the various mixtures of crashes, vehicles and people. The report can be in a variety of forms: list, table or a file for importing into a spreadsheet.



11 This cross-tabulation breaks down the information provided about people injured, into types of road user.



12 CAS includes tools for reporting crashes and crash clusters. This is part of a plain English crash report on one crash cluster.

Land Transport New Zealand's (Land Transport NZ) crash analysis system (CAS) is a vital tool in New Zealand's drive to reduce road trauma.

CAS is a tool that manages, analyses and maps traffic crash and related data. It is a computer system in which people can:

- enter road crash data
- select crashes for analysis
- map crashes
- view images of the crash report diagrams
- locate and map crash clusters
- report on crashes or crash clusters
- monitor trends at crash sites
- automate the production of collision diagrams
- identify high-risk locations.

The information CAS provides is used to help analyse and determine road safety funding allocations. It is also used in the targeting of road safety programmes and the monitoring of their performance. In this way CAS provides a platform for the development and implementation of new road safety initiatives, making a significant contribution to crash prevention in New Zealand.

Because it integrates mapping with other functions, CAS represents a significant advance over previous crash analysis systems. A key innovation is the ability to link crash and roading data.

CAS provides a platform for the development and implementation of new road safety initiatives, making a significant contribution to crash prevention.

What are crash analyses?

Crash data is extensively analysed at several different levels:

NATIONAL

eg trends in alcohol-related night-time crashes, or trends in truck crashes

LOCAL

eg crash trends on major local roads, or the location of wet-road crashes

DETAIL

eg the types and locations of crashes at a particular roundabout or intersection.

Typically, crash analysis is undertaken by selecting crashes and then using some of the many reporting tools provided by CAS. An example of this is shown on the reverse. The information provided by the reports allows Land Transport NZ and its road safety partners to identify problem areas and trends that can then be targeted.

Who analyses crashes?

Many organisations in New Zealand contribute to improved road safety through road crash prevention. Major users of crash data include Land Transport NZ, New Zealand Police, Transit New Zealand, local authorities, engineering consultants, ambulance services, fire services and road safety co-ordinators.

What crash information does CAS hold?

CAS integrates three primary sources of road safety data: crash reports, diagrams of crashes (from 1996 on) and roading data, which includes road categorisation and traffic flows. The crash data collection is based on the fatal, injury and non-injury crashes reported by the Police to Land Transport NZ. Crash reports include:

- where the crash occurred
- when and how it happened
- who was involved
- the type of vehicle drivers or passengers were travelling in at the time of the crash
- the people involved who were not in vehicles
- information about the crash environment
- a crash diagram.

In the Road Safety to 2010 strategy the government has stated a goal of reducing annual road trauma to no more than 300 deaths and 4,500 hospitalisations by 2010.

Land Transport NZ then codes this information according to the type of crash movement involved (eg overtaking or right-angle intersection collision) and the factors contributing to the crash (eg driving too fast for the conditions or failing to stop at a Stop sign).

Until the CAS system was developed crash diagrams were held in microfiche or paper format. The diagrams are now scanned in, enabling users to instantly access them on-line — a useful tool when undertaking detailed analyses. CAS also holds scanned versions of the other pages from each original crash report.

Every year all road crash information is loaded into CAS. This can mean up to 30,000 non-injury crashes, between 9,000 and 10,000 injury crashes and up to 400 crashes involving death.

How is CAS linked to road information?

CAS has been designed to systematically link crash data with data from the road maintenance and management system (RAMM) used by all roading authorities in New Zealand. It achieves this by linking the road data to maps of the roads. Crash data is also linked to these maps, allowing road data to be combined with crash data.

CAS is an integral part of one of New Zealand's most successful roading projects, the 'black spot' programme. The programme is a joint initiative involving Land Transport NZ and road controlling authorities. It was developed in 1985 to investigate all New Zealand roads, identify black spots and make improvements to them where necessary. CAS includes a system to track crashes at black spots and link site improvements to crash reductions. This allows reporting to roading authorities on the results of their remedial programmes, ensuring that the knowledge gained can be beneficial to others.

Mapping data

CAS utilises mapping data supplied by Critchlow Associates Ltd (www.critchlow.co.nz) who annually rebuild the links between the road maps and RAMM (see 'How is CAS linked to road information?' above).

The mapping data includes state highways, motorways, arterial roads, all roads, railways and railway stations, rivers and lakes, built-up areas, cities, towns, places of interest, territorial authority boundaries, regional government boundaries, census meshblocks and area units, Transit New Zealand boundaries, and police station, area and district boundaries.

When crash map co-ordinates are calculated by CAS, all the boundary-based information is automatically calculated, along with the crash location in terms of RAMM and the Transit route position. The latter two linkages allow CAS crash data to be used externally to CAS in other systems, and data from other systems to be linked to crash data.

Who develops and supports CAS?

Relational Technology International (RTI) (www.rti.co.nz) designed and tunes the database, and develops and supports the application.

Critchlow Associates Ltd provide the mapping data. They provide an annual update of the New Zealand-wide linkage between their road network and road maintenance data.

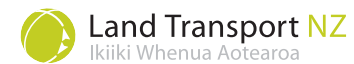
Unisys supports the database and Citrix environment that brings CAS to you.

How is CAS made available?

CAS is available over the internet, using the Citrix Metaframe Technology which will download the first time you connect to CAS. The CAS session seen by the user is actually running on a server at Unisys in Auckland, and the screen produced there is transmitted over the internet.



A road safety tool



How can I find out more about CAS?

Please contact the CAS helpdesk at Land Transport NZ (see below) to obtain up-to-date information on CAS availability and conditions of use.

Email | ISTService@landtransport.govt.nz
Phone | 0800 805 263
Fax | 06 953 6412

Postal address | IST Service Delivery
Private Bag
Palmerston North

To find out more about Land Transport NZ visit the website at www.landtransport.govt.nz



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