



The Zenith Travel Modelling System





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The Zenith Travel Modelling System was originally developed in 1986 by the Australian owned Veitch Lister Consulting (VLC) as a traffic simulation and travel demand tool.

While primarily used for transport infrastructure planning, Zenith has been incorporated into the **MOVE** (Measurement of Outdoor Visibility and Exposure) system to generate the potential audiences of outdoor advertising. In media terms, this means those people with the Opportunity To See (OTS) outdoor advertising faces.

How Zenith works

Zenith allocates trips according to many thousands of travel zones within a given market. These zones generally reflect the same areas used by the Australian Bureau of Statistics (ABS) to collect Census information.

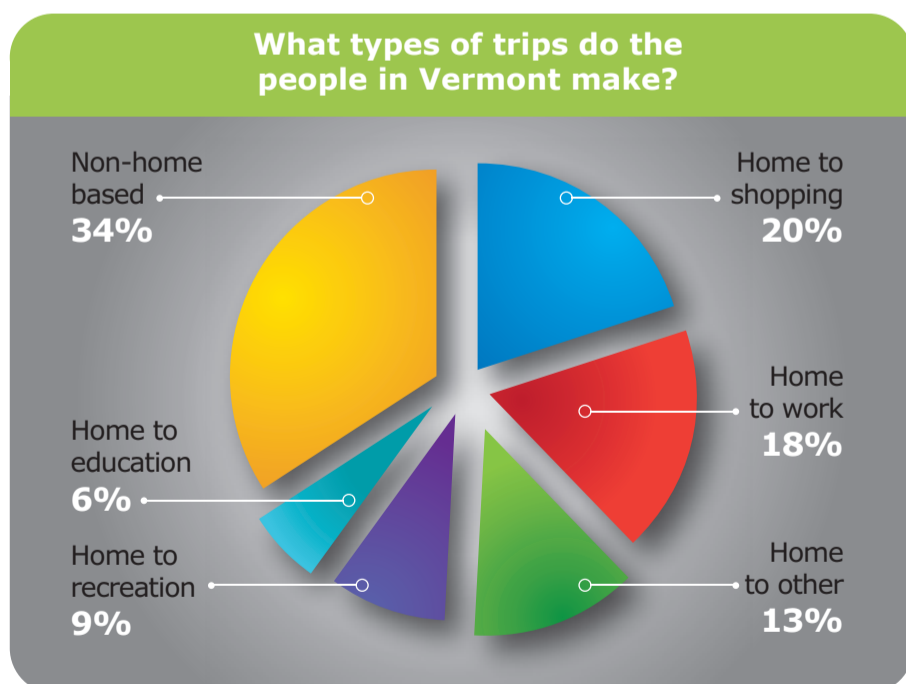
The following comprehensive databases are used to predict travel behaviour:

- 68,000 annual Government Household Travel Surveys, providing details of more than 600,000 daily travel journeys (trips).
- ABS Census Data.
- Transport network information, including fully updated bus/tram/rail timetables, traffic flows and pedestrian movements.
- Land use surveys.

Using this information, Zenith applies a four step process to allocate trips within each of the five **MOVE** markets.

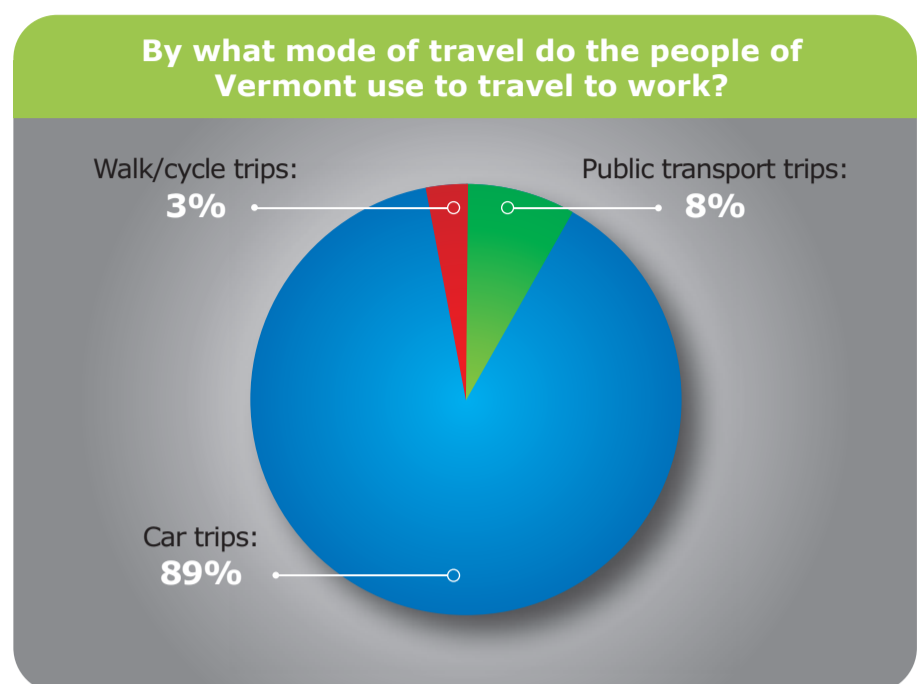
The first step is to understand the **Trip Generators**, which indicate the number of trips that will be generated by each travel zone. These are determined by factors such as household size, level of car ownership and number of dependants, and are categorised as either home-based or non home-based trips.

Home-based trips are those starting or ending at the home. Non home-based trips are those made between educational institutions, shopping centres, recreational and other activities, but not starting or ending at the home. Below is an example of the types of trips taken in the suburb of Vermont, Melbourne, using Zenith:



The next step is **Trip Distribution** – that is the places people go to fulfil their journey purpose. To achieve this, each travel zone has **Trip Attractor** data loaded such as shopping centres, employment and educational facilities. This enables the model to predict for example where the primary school age children within a particular travel zone will go to school, or where the resident workforce will be employed. The cost and duration of travel help define these choices to ensure total trips = total available destinations.

In the third step Zenith predicts the **Travel Mode**. Looking again at Vermont, this shows the breakdown between trips made by private vehicle, public transport and walking/cycling.



Finally, Zenith predicts the route over which a trip will be undertaken. This is known as the **Trip Assignment**. Zenith contains detailed information regarding the capacity of each route.

Delivering OTS

The outputs of Zenith combine with the site details of more than 60,000 outdoor advertising faces to deliver the OTS results for every advertising location.

However, significant enhancements were required to Zenith to enable accurate measurement of the wide variety of outdoor media formats within the **MOVE** system.

For instance, while Zenith can predict the number of people by demographic that will go to a particular shopping centre, railway station or airport, the Model only takes those people to the door of their destination.

Bespoke surveys and new model designs were necessary to predict the movement of people within these internal environments.

A new model was also required for the audiences of bus and tram advertising because the inventory on which the advertising faces appear is moving rather than static.

Applying Reach and Frequency

Zenith provides information on the travel behaviour of Australians over the course of an average working day.

MOVE provides Reach and Frequency (R&F) results for outdoor media campaigns that take into account people's varying travel patterns over time.

An online longitudinal survey of 3,000 people asked respondents to provide details of their daily trips over a continuous nine-day period, including two weekends. This provided the necessary input on trip variability.

The results of this survey were included to quantify the audience duplication both within the same trip (seeing two or more faces carrying the advertisement) and across time (seeing the same advertisement on different days), as part of the R&F model used for all campaign results.

Model validation

The Zenith Travel Modelling System is regularly audited by governments to ensure its accuracy in showing people's travel movements within cities.

This involves validating the Zenith outputs against published data, such as traffic and pedestrian counts, and public transport commuter numbers.

For **MOVE**, a further audit was required to ensure the accuracy of the classification details for the advertising face, including for example their exact location according to GPS coordinates.



For more information about MOVE please visit

www.moveoutdoor.com.au

or contact (02) 9357 9944