



TDB DATABASE
USER GUIDE

JANUARY 2016



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1 INTRODUCTION

Background

- 1.1 New Zealand Trips and Parking Database Bureau (NZTPDB) was established in 2002 and was expanded in 2008 to include both New Zealand and Australian members when it adopted its present name, the Trips Database Bureau (TDB).
- 1.2 TDB formed following the commission of two research reports by Transfund Research relating to trip generation and parking demand published in 2001. This included Report No. 209 'Trips and Parking Related to Land Use Volume 1' (Report 209). These reports formed the basis of the TDB database and since 2002 the database has been added and updated with new survey information. Other TDB research documents, survey methodology, technical notes and similar aids to the understanding of the database are available on request as well as the website – www.tdbonline.org.
- 1.3 From 2009 the TDB database is supplemented with a database of Australian trip and parking surveys. This database has been formulated through survey data provided by the Roads & Traffic Authority of the NSW (the RTA). The data provided is the basis of the RTA's 'Guide to Traffic Generating Developments' publication. The database also includes data collected by the RTA in 2009 for bulky goods retail stores and retirement villages. This database is referred to as the AU database within this report. In November 2011, RTA merged with NSW Maritime and is now known as Roads and Maritime Services (RMS).
- 1.4 A database of United States' (US) trip and parking surveys is added to the TDB database from 2012. The database comprises data for six student apartment buildings. The data was provided by a traffic study company (Spack Consulting) in Minnesota, United States. This database is denoted as the US database in this report.

Document Structure

- 1.5 This report is a user guide for members when searching the database and when using the Site Survey Summary Sheet. It includes:
 - TDB Database Format and Structure.
 - Land Use Groups and Land Use Activities.
 - Trip and Parking Parameter Definitions.
 - Site Survey Summary Sheet Guidelines.
- 1.6 A number of quotations are taken from other references. Typically these are noted in the text and all quotations are "*italicised*". Important or especially relevant sections are **bold**.

Membership

- 1.7 TDB has over 60 members in New Zealand and Australia and encourages all members to submit completed surveys for inclusion in future database releases. There is however, a minimum range of information required before the database can accept a site. The Site Survey Summary Sheet provides the format for submitting sites to the database and is available on the TDB website www.tdbonline.org and on the TDB Database CD.
- 1.8 Completed Site Survey Summary Sheets can be returned to:

TDB
PO Box 28-105
Christchurch 8242
New Zealand
Fax: +64 3 377 4702
Email: admin@tdbonline.org

Limitation of Liability

- 1.9 The data supplied by TDB is believed to be representative of the surveys undertaken by contributing organisations and individuals. TDB does not accept liability for the underlying quality of survey data or for any consequences arising from the use or interpretation of the database.
- 1.10 As stated in Transfund Report 209: “Simple extrapolation of survey data from one site to another, or from one activity to another, should be done with caution. The planner or engineer’s discretion should be exercised when applying a set of surveyed trip generation or parking demand values to a new site or a site elsewhere in the country. In the absence of appropriate references, there is no option but to undertake more field surveys.”
- 1.11 Members should wherever possible use the database in conjunction with other sources such as TRICS, RTA and ITE. If necessary appropriate expert and experienced advice should be sought for individual circumstances. When searching the database a member must apply their own experience skill and judgement when interpreting the information.

2 TDB DATABASE FORMAT AND STRUCTURE

Introduction

- 2.1 The TDB database is supplied to members as a Microsoft Excel spreadsheet on CD which is updated annually. To maintain the quality of the source data 'reference only' should be made to the database. Detailed analysis or further data reduction must be undertaken on a separate spreadsheet.

Structure

- 2.2 The New Zealand (NZ) database is sorted according to nine Land Use Groups:
- Assembly
 - Commercial
 - Education
 - Industry
 - Medical
 - Recreation
 - Residential
 - Retail
 - Rural
- 2.3 Within each Land Use Activity there are between two and 13 primary activity subgroups.
- 2.4 Each survey entered to the database is numbered consecutively. The database structure and column definitions in summary fall into the following functions:
- | | |
|-------------------|---|
| • Columns A – E | Description of Site |
| • Columns F – H | Land Use Description |
| • Column I | Rural-Suburban - Town Centre Locations |
| • Columns J – K | Co-ordinates of Site |
| • Columns L – O | Frontage Road Hierarchy and Traffic Flows |
| • Columns P – R | Population Details in Catchment |
| • Columns S – T | Pedestrians and Public Transport |
| • Columns U – X | Survey Dates and Times |
| • Columns Y – AC | Prediction Parameters, GFA, SA, Emp etc |
| • Column AD | Comments on Prediction Parameters |
| • Columns AE – AO | Parking Supply and Demand |
| • Columns AP – BE | Vehicle Trips Surveyed AM, Inter, PM, Daily |
| • Columns BF – BW | Derived Trip Rates |
| • Columns BX – CM | Modes of Travel Arrival |
| • Column CN | Notes and Comments |
- 2.5 **Figure 2.1** and **Appendix A** show the fields included in the NZ database. All columns in the database are formatted with drop down boxes to enable filtering of like sites or parameters to be made quickly.
- 2.6 The Australian (AU) database format is based on the NZ database, although there are some minor variations. The AU database focuses on specific landuses, as outlined below:
- Commercial, Business Park
 - Commercial, Office
 - Education, Pre-School/Day-Care
 - Education, Primary School
 - Education, Secondary School
 - Medical, Centre

- Recreation, Gymnasium
- Residential, Retirement Home/Village
- Retail, Fast Food
- Retail, Fast Food, Drive-Through
- Retail, Restaurant
- Retail, Shopping Centre
- Retail, Bulky Goods, Hardware
- Retail, Bulky Goods, Homeware

2.7 A number of sites within the AU database include details of GLFA rather than GFA. These are set out in column R and S of the AU database. Where relevant, trip and parking rates are based on GLFA. Another feature of the AU database is the inclusion of length of stay data and vehicle occupancy details. These are set out in columns DH and DI respectively. Frontage road volumes are specified within the AU database where there is a potential bearing on the traffic generation of the land-use (drive-through restaurant for example). The frontage roads are high volume arterial roads.

2.8 The United States (US) database format is mostly based on the NZ TDB database, although there are some variations. The database structure and column definitions in summary fall into the following functions:

- Column A-D Description of Site
- Column E-H Land Use Description
- Column I Rural-Suburban - Town Centre Locations
- Column J-K Prediction Parameters
- Column L Number of Studies
- Column M-O Survey Dates and Times
- Column P-R Vehicle Directional Split
- Column S-V Vehicle Trips Surveyed AM, PM, Daily
- Column W Notes and Comments

2.9 The database is undergoing continuous development and suggestions are welcome. These can be submitted to Stuart Woods by email: stuart.woods@tdbonline.org.

Figure 2.1 – NZ TDB Database Structure

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W																	
Site No.	Source of Data	Territorial Local Authority	Suburb or Locality	Activity Name	Land Use Group	Land Use Activity (Primary)	Land Use Activity (Description)	Location Environment	Latitude	Longitude	Frontage Road Hierarchy and Daily Traffic Volume				Population Details			Pedestrian Activity	Public Transport Accessibility	Date of Survey	Time of Survey	Day of Survey																	
											Major Arterial (vpd)	Minor Arterial (vpd)	Collector Road (vpd)	Local Road (vpd)	within 1 km	within 5 km	Total Population of Urban Area																						
519	DCS Ltd.	Christchurch	Huntsbury	Huntsbury Shopping Centre	Retail	Shopping Centre						8500			9540	130000	333000			12/12/2006	08:30-17:30	Tuesday																	
X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO																						
Year data entered	GFA (m ²)	Site Area (m ²)	Employees	Other Size (please specify value)	Other Unit (please specify unit eg: seats, rooms, beds, bags)	Comments	Parking Spaces Provided On-site	Other Parking Spaces Available On-street and Off-site	MAX ON-SITE PARKING DEMAND	MAX OFF-SITE PARKING DEMAND	(at time)	PEAK TOTAL PARKING DEMAND RATES					Parking Comments																						
												GFA (spaces/100m2 GFA)	SITE AREA (spaces/100m2 SA)	EMPLOYEES (spaces/emp)	Other (spaces/other unit)			Other Unit (if applicable)																					
	2,300	5,600	28			20FT & 8 PT employees	45	36	45	25	17:00	3.04	1.25	2.50																									
AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW						
SURVEYED ARRIVAL/DEPARTURE FLOW												TRIP GENERATION RATES												Trip Generation Comments															
AM Peak (vph)				Inter Peak (vph)				PM Peak (vph)				Daily (vpd)				GFA (I/I+OUT) (vph or vpd/100m2 GFA)				SITE AREA (I/I+OUT) (vph or vpd/100m2 SA)					EMPLOYEES (I/I+OUT) (vph or vpd/Emp)				OTHER UNIT (I/I+OUT) (vph or vpd/other unit)										
IN	OUT	IN + OUT	at time	IN	OUT	IN + OUT	at time	IN	OUT	IN + OUT	at time	IN	OUT	IN + OUT	at time	AM	Inter	PM	DAILY	AM	Inter	PM	DAILY		AM	Inter	PM	DAILY	AM	Inter	PM	DAILY	OTHER UNIT						
54	63	117	11:00-12:00					66	97	163	16:00-17:00				1497	08:30-17:30																			0.72	1.47	1.35	14.49	Houses
BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN																							
TRAVEL MODE (trips)								TRAVEL MODE (percentage)								NOTES AND COMMENTS																							
Car Driver	Car Passenger	Goods Driver	Goods Passenger	Pedestrian	Cyclist	Bus Passenger	Total	Car Driver	Car Passenger	Goods Driver	Goods Passenger	Pedestrian	Cyclist	Bus Passenger	Total																								

3 LAND USE AND SITE LOCATION

Introduction

- 3.1 The database is categorised into nine Land Use Groups. The Land Use Groups are based on the typical definitions used by town planners in developing zones for District Plans. Within the individual Land Use Groups there are further subdivisions which are defined as Land Use Activities in the database. These activities are recognisable town planning, employment and visitor attracting activities. At this level the difference in traffic generating characteristics becomes part of the reason for such definition.
- 3.2 Any practitioner investigating a particular land use will need to study a certain range of data categories as well as individual sites in order to select the appropriate description for the activity in question.
- 3.3 Additional categories of Land Use Groups and Land Use Activities may be required as specific and measurably different parking and traffic characteristics develop. TDB maintains and updates the Land Use Groups and Land Use Activities as necessary.

Land Use Groups

- 3.4 Primary Land Use Groups generally coincide with land use descriptions used in District Plans. The following Primary Land Use Groups are used to classify sites within the database.
 - Assembly
 - Commercial
 - Education
 - Industry
 - Medical
 - Recreation
 - Residential
 - Retail
 - Rural

Land Use Activities and Descriptions

- 3.5 Surveyed sites are first categorised by Land Use Groups, as detailed above, then sub-categorised by Land Use Activity (Column G of the database). The groupings are general in nature and more detailed site information should where necessary be included in Site Descriptions (Column H of the database). These descriptions should include whether the establishment has any exceptional features e.g. post boxes at a shop, or service station at a supermarket etc. The Land Use Groups and Land Use Activities are listed in **Table 3.1**.

Table 3.1 - Land Use Groups and Land Use Activities

Land Use Group	Land Use Activity
ASSEMBLY	Church – traditional church buildings as well as other religious and spiritual meeting places. The actual building may fall within another activity grouping e.g. community centre/hall, but at certain times of the week caters for church-based activities.
	Cinema – including traditional single-screen, stand-alone facilities and multi-screen, multiplex cinemas.

Land Use Group	Land Use Activity
ASSEMBLY (cont)	Community centre/hall – providing generally for the assembly of the public and community groups. These may also involve other ancillary activities e.g. Citizens' Advice Bureau.
	Conference – venues, either separate or part of a hotel or other complex.
	Gallery – all public and private art and exhibition spaces.
	Museum – public and private facilities displaying items of general and specific interest, ranging from small community facilities through to the national museum.
	Theatre – places of live performance and which may also have café/bar facilities on-site.
	Visitor – Tourist Attractions – indoor visitor attractions with a variety of display and entertainment activities.
	COMMERCIAL
Business Park – collection of office buildings in a free standing location, with a variety of organisations sharing access and services.	
Office – government and corporate administrative and professional services.	
Self Storage Facility – general storage solutions that can be leased for long or short term use. Exclude climate controlled or document storage.	
Services – office operations where personal services such as insurance, accounting and real estate and other personal professional services (excluding medical) are provided.	
EDUCATION	Campus – extensive military camps, training establishments, business schools, outward bound, health and recreation camps in rural and urban settings.
	Community – independent specialist education activities such as WEA offices, career training consultants and other training facilities.
	Library – libraries public and institutes including University archives, research library also research laboratories.
	Pre-school – including kindergartens, nursery schools, crèches, Kohanga Reo and Montessori facilities.
	Primary – state and independent schools including intermediate schools, catering for Years 1 to 8.
	Composite – catering for Years 1 to 13.
	Secondary – catering for Years 9 to 13.
	Tertiary – university and polytechnic institutions as well as the increasing range of “education providers” offering Qualifications Authority approved tertiary courses.

Land Use Group	Land Use Activity
INDUSTRY	Commercial – light industrial activities generally associated with industrial parks. May include industrial offices, and research laboratories.
	Contractor – where a range of construction and manual services are undertaken off site.
	Industrial Park – collection of industrial sites in a free standing location.
	Manufacturing – production sites where raw materials, goods and services are further processed and then distributed.
	Storage – including warehousing, container storage, repacking and storage facilities for consolidation for forward transport (e.g. containers, couriers, mail centres, storage units).
	Transport – activities where vehicles for the transport of people goods are based but the site itself is not used for the storage or processing also terminals/? for road, rail, ports and airports.
MEDICAL	Centre – broad category of general and specialist medical facilities, further defined according to the number of medical professionals engaged within the centre.
	Clinics – specialist chambers, free standing or associated with a hospital and may include minor routines and X-ray.
	Hospital – all public and private hospital facilities providing both day and overnight surgery and care. Could be further defined by size and functions in the third field.
	Veterinary – facilities dedicated to the care and treatment of animals, and involving the sale of pet and animal-related products.
RECREATION	Aquatic – the range of facilities from stand-alone swimming pools to the modern aquatic centre providing water-based activities of many kinds and catering for a wide age range.
	Courses – facilities such as golf courses, and possibly polo fields or similar also driving ranges.
	Gymnasium – facilities for sports and fitness training, either as stand-alone commercial operations or attached to other facilities such as a university or school.
	Indoor courts – including the traditional range of racquet and ball sports.
	Marina – uses involving the berthing, launching, repair and storage of boats, and associated social activities.
	Outdoor courts – for sporting activities generally requiring a hard surface, including netball and tennis.
	Ski Fields – maintain locations of commercial and club fields. Also ice-skating rinks.

Land Use Group	Land Use Activity
	<p>Sports fields – outdoor sporting facilities with primarily grass or artificial turf surfaces for summer and winter team sports but not associated with major audience stands and facilities.</p>
	<p>Stadium – indoor or outdoor seated venues catering for both sporting and cultural events.</p>
	<p>Tourist – outdoor tourist attractions, mazes, bungee jumping, historic villages.</p>
RESIDENTIAL	<p>Backpacker – budget travellers’ accommodation, generally shared communal living facilities.</p>
	<p>Dwelling – traditional detached dwelling-houses, with one or two household units per site.</p>
	<p>High Density Residential Development – residential unit with close proximity to each other including multi-storey apartment building.</p>
	<p>Home – the range of residential and care facilities for the elderly and other age-groups, sometimes providing on-call and full-time medical and hospital care.</p>
	<p>Hostel – communal residential facilities catering for e.g. students, institutional workers such as nurses or project construction workers also prisons and other residential institutions.</p>
	<p>Hotel – travellers’ accommodation facilities which include restaurant and bar facilities on-site, and sometimes also catering and conference facilities such as seminar rooms.</p>
	<p>Lifestyle Dwelling – generally in a rural area, where the predominant use is for a residence. The land can be variable size but larger than an ordinary residential allotment. The principal use of the land is non-economic in the traditional farming sense, and the value exceeds the value of comparable farmland.</p>
	<p>Live / Work Units – units built to cater for both commercial and residential activity</p>
	<p>Low Density Residential – residential units on reasonably large blocks of land, with medium to large setbacks to side boundaries and the street. Each unit tend to have good sized backyards.</p>
	<p>Motel – travellers’ self-contained kitchen and bathroom accommodation catering for vehicle-based travel and typically without on-site drinking or restaurant facilities</p>
	<p>Multi-unit – residential units attached and grouped together and numbering more than 10 individual household units collectively.</p>
	<p>Student Housing Apartment – specifically designated for students. Apartment types vary from studios to multiple bedroom units.</p>
<p>Townhouse – groups of attached and semi-detached households generally one or two storeys high, and with 10 or</p>	

Land Use Group	Land Use Activity
	fewer units per site.
RETAIL	Automobile – new sales, parts, service centre, second hand sales, tyres and rental cars.
	Bar – a wide range of drinking places, from small licensed café/wine bars to the more traditional taverns and pubs.
	Bulk Retail – a recent addition to the range of New Zealand retailing facilities, covering large retail activities selling bulky goods including white ware and home furnishings.
	Car Sales – Car sales yards, showrooms, auctions and rental cars.
	Fast food – activities involving the preparation and sale of food with/without restaurant, sometimes with drive-through and pick-up.
	Garden Centre – typically an indoor storage and display area in conjunction with an outdoor area, sometimes including other on-site facilities such as a café.
	Hardware – full range of building materials, households and garden hardware, DIY stores, such as Placemakers, Mitre 10, Bunnings etc.
	Market – an area either formally or informally arranged to provide for the wholesale or direct selling of fruit, vegetables and other items, e.g. wholesale fruit and vegetable market/auctions, as well as community markets held in parks, public squares and at schools.
	Motor Vehicle – car sales display areas, building and yards.
	Produce – standalone retail outlet specialising in the sale of fresh produce.
	Restaurant – eat-in, sit-down restaurant facilities (excluding fast-food and takeaway outlets).
	Roadside Sales – primary product roadside food stalls and other fruit and vegetable retailers.
	Service station – a site providing primarily for the sale of petrol and other fuels, often including other motoring accessories and services such as car grooming and car washes. On-site food and other retail facilities are also expected from most modern service stations.
	Shop – because of the wide range of individual retail outlets, this category has been left relatively broad and further description should be provided within the data record (H) itself.
Shopping Centre – collection of retail shops and services where joint facilities are shared, such as parking and access. Typically including grocery, pharmacist, hairdressers, bookshops, fruiterers, tailors, dress shops, furniture stores etc which may be surveyed together or separately.	
Supermarket – An establishment with a wide range of food and other retailing operations, ranging from the larger	

Land Use Group	Land Use Activity
	convenience store (e.g. Star Shop) to the grocery warehouse (e.g. Pak 'n' Save) and including discount operators such as The Warehouse, K-Mart and Briscoes.
RURAL	Factory – Farming sites where stock and poultry are housed and managed in factory-farm facilities.
	Farming – primary production includes extensive grazing, raising of livestock, agriculture, growing of field crops for animals or human consumption.
	Horticulture – orchards, market gardens and intensive agriculture including glass houses and hydroponics.
	Primary Processing – primary production yards, timber mills, cheese factories, milk-processing plants, fertilizer plants, winery, packing sheds etc.
	Stalls – see Retail
	Vineyards – where grapes are grown and processed, often also providing wine sales, tasting and sometimes restaurant facilities normally including winery.

Location Environment

3.6 The Location Environment (Column I of the TDB database) of a site is affected by the size of the community in which it is placed and also the relative position to the city centre, suburbs, outer edge of a city or in the rural area. The following main location environment groups are used to classify sites within the database:

- Outer Rural
- Inner Rural
- Outer Suburb
- Inner Suburb
- Town Centre

Co-ordinates

3.7 Columns J and K contain the latitude and longitude for surveyed sites. These give a precise location of where the data was collected and could allow for visual display of data in the future.

Urban, Rural and Road Situation

3.8 Columns P-R of the NZ database have been included to enable the total population of the city or locality involved and also to report the residential population within 1 km and 5 km radius from the site. This information is obtained from census information when results are being processed.

Frontage Road Hierarchy and Daily Traffic Volume

3.9 The surveyed site's frontage road hierarchy and its daily traffic volume also provide further insights into the site location data. The major frontage road of the site is categorised in the following four broad groupings (Columns L-O of the NZ database):

- Major Arterial Road
- Minor Arterial Road
- Collector Road

- Local Road

The AU database only contains the surveyed site's frontage daily traffic volume data (Column L).

3.10 Other factors such as location on the road network, the frontage environment, passing traffic volumes and proximity to adjacent intersections are also relevant. These factors may be identified in the survey comments and notes and reflected in the database information.

3.11 The daily traffic volume of the site's frontage road is recorded and the preferred recorded value is Annual Average Daily Traffic (AADT). Alternatively Vehicles per Day (vpd) as collected and recorded on the survey day could be used.

Pedestrian Activity and Public Transport Accessibility

3.12 An indication of pedestrian activity on the frontage road/s and accessibility of the site to public transport is recorded in Columns S and T of the NZ database. These fields are specified as one of five categories ranging from "Nil" to "Very High". See Tables 5.1 and 5.2 of this report for a guide to the level of activity corresponding to each of the five categories.

4 TRIP AND PARKING PARAMETER DEFINITIONS

Introduction

4.1 Trip rates and parking rates can be calculated using a variety of parameters or data fields. The most common is the rate per 100 sq ms of gross floor area (GFA). This parameter is **always** surveyed and trips and parking rates for **ALL** surveyed sites are calculated on this basis initially. However practitioners will appreciate that for many Land Use Activities other units such as “berths” in a marina or “filling bays” at a petrol station may be superior parameters for predictive purposes.

Alternative Trip Rate Parameters

4.2 Different Land Use Activity categories will use different trip rate parameters, for example GFA and RFA for Food Superstores, ‘beds’ at a hospital or ‘site area’ at a school. Where alternative trip rate parameters have been surveyed these have been included in the database. These assist the practitioner to better understand the survey circumstances and also be equipped with better judgement to assist in undertaking more accurate predictions.

4.3 The full range of parameters are listed below in alphabetical order:

- Bays – For vehicles in petrol filling station sites, the number of bays represents the number of vehicles that can be fuelled at any one time. In civic amenity sites, the number of bays for vehicle delivery or vehicle services stalls for other uses. In all cases trip rates are calculated by bay.
- Bedrooms – The total number of bedrooms within a hotel or a pub/restaurant + hotel site. Trip rates are calculated by bedroom.
- Beds (BB) – The total number of beds within a hospital site. Trip rates are calculated by bed.
- Berths – The total capacity of berths at a marina site. Trip rates are calculated by berth
- Caravans/Camp Sites – The total number of caravans at a non-holiday caravan site or tent sites and caravans at a holiday camp. Trip rates are calculated by caravan.
- Congregation – The total number of ‘enrolled’ parishioners of a church or similar activity
- Courts – The total number of tennis courts (internal and external) at a tennis club site. Trip rates are calculated by court.
- Cycle Racks – No of cycle racks/cycle parks available at site.
- Consulting Rooms – The number of consulting rooms at a medical facility
- Doctors (Dr) – The total number of doctors employed at a GP surgery site or a hospital. Trip rates are calculated by doctor.
- Dwelling Units – Number of residential unit at a site. Trip rates are calculated by dwelling
- EFTS – Equivalent Full Time Students, associated with tertiary education
- Employees – The total number of employed management and staff at the site with due allowances for shifts and part-time workers at the time of survey. Trip rates are calculated by employee.
- Gross Floor Area (GFA) – The total internal floor area of all floors within the site building (s) excluding parking floors. Trip rates are calculated by 100m² GFA.
- Holes – The total number of holes at a golf site. Trip rates are calculated by total number of holes.

- Houses – The total number of residential units at a site. Trip rates are calculated by house.
- Households (H/H) – The total number of residential units at a site. Trip rates are calculated by household.
- Housing Density (Net HD) – The total number of residential units at a site, divided by the site area, excluding public space (in hectares).
- Lanes – For people playing sports e.g. the total number of bowling lanes at a bowling site or booths at a driving range, or queues for entry etc. Trip rates are calculated per lane.
- Members – The number of affiliated members of an organisation or club
- Outdoor Display Area (m²) – The area of outdoor display for a retail activity. Commonly associated with garden centres.
- Occupied Shops – The number of occupied shops at a shopping centre or village
- People in Attendance (PA) – The total number of occupants of premises, employees, visitors, residents, spectators, team members, present at the site either at a point in time or over whole day. Trip rates are calculated using people (totals) related to an appropriate parameter.
- Parking Stalls / Parking Spaces (P) – The total number of on-site parking spaces at a site. These should be classified free, time restricted, paid. Trip rates are calculated per space.
- Pitches – In the case of 5-a-side football sites, this represents the number of playing pitches at a site. In the case of a car boot sale site, this represents the maximum number of sales pitches available on any one day. In both cases, trip rates are calculated by pitch.
- Pupils – The total number of pupils that could register at any one day at a school site. Trip rates are calculated by pupil.
- Residents – The total number of residents living at a site, number of patients, number of beds. Trip rates are calculated by resident.
- Retail Floor Area (RFA) – The total retail floor area of all floors within the site building(s) which is directly accessible to the general public (for example the shop floor of a superstore but not storage areas or staff facilities). Trip rates are calculated by 100m² RFA.
- Retail Shops – For shopping centres which include a number of premises, frequently owner operated, the number of small shops (retail outlets) should be recorded. Average trip rates or parking spaces per store.
- Rooms – The number of rooms at a travellers' accommodation activity or similar. The number of rooms is likely to differ from the number of units and the number of beds.
- Seats – The total number of seats of any place of assembly, a restaurant, a road-side food, a multiplex cinema, or a bingo hall etc. Trip rates are calculated by seat.
- Site Area (SA) – Site area (in hectares) occupied by activity(s) surveyed as up to their boundaries, including parking areas etc. Trip rates are calculated per hectare.
- Spectators – The number of spectators or attendees at an event of fixture.
- Sports Fields – The number of fields at a recreational area
- Sports People (SP) – Number of sports people, team members, bowlers, players using the facilities either over a day or at a point in time. Total trip rates calculated per active sports person.

- Stalls – The number of market stalls at outdoor or indoor markets. Trip rates calculated per stall.
- Students (S) – The total number of students enrolled or established to be present during survey, with a college/university. Trip rates are calculated per student.
- Units – Applied to units not referred to above e.g. the total number of accommodation units at a holiday accommodation site. Trip rates are calculated by unit.
- Visitors – (V) Total number of visitors to premises, shopping centres, out patients, gallery, zoo, recreation area etc (excludes residents, employees or sports teams). Trip rates may be calculated by other units.

4.4 **Table 4.1** shows the range of Land Use Groups and Land Use Activities and the variety of parameters which have been use to describe the various trip and parking rates surveyed.

Common Database Fields

4.5 The following six parameter fields are included in the database as being common to a large proportion of Land Use Groups and wherever possible all six should be observed and recorded:

- Gross Floor Area (GFA)
- Site Area (SA)
- Employees (Emps)
- Residential Units (H/H)
- People or Occupants (PP) (visitors or patrons additional to employees or players on the site at one time)
- Car Parks (P) included as part of the surveys for all sites.

4.6 The database also includes four 'comments' fields where any of the other parameters and comments can be entered as appropriate.

Modal Split Data

4.7 Modal split data is provided for in Columns BX to CM of the NZ database and Column BN to DG of the AU database. In the NZ database, modal split data is based on the modal split observed over the entire survey period, rather than during any peak period. Where modal split data is included in Australian surveys, provision has been made so that the modal split can be recorded separately for different periods throughout the day.

5 SITE SURVEY SUMMARY SHEET GUIDELINES

Purpose

- 5.1 These guidelines provide a summary of the information needed when completing the Site Survey Summary Sheet. Attention to detail is required when filling in the sheet because the survey data may be included in future editions of the database. The Site Survey Summary Sheet is contained in **Appendix B**.
- 5.2 These guidelines do not set out in detail a manual of traffic engineering survey procedures and the manner of undertaking site surveys. Planning, arranging and undertaking the surveys can be a complex task and specific expert advice is required for each site. For this purpose a separate survey methodology manual is being prepared.

Field Survey Sheets

- 5.3 It is emphasised that the Site Survey Summary Sheet is designed to be completed in the office using information derived from the field survey sheets. These can take a variety of forms and different organisations use different styles. Example field survey forms are included in (Appendix D) of Report 209, the forms include:
- A Site Location and Activity
 - B Parking Demand Survey
 - C Sketch Site Plan
 - D Trip Making Environment
 - E Modal Split of Employee Trips to Work
 - F Peak Hour Generation Survey
 - G Daily Trip Generation
- 5.4 These forms have been developed to meet particular situations. If those included in Report 209 do not suit the particular needs of a survey they can be varied. If need be TDB is willing to discuss and draft a survey form suited to a particular situation.

Site Survey Summary Sheet

- 5.5 A key concept for the development of the Site Survey Summary Sheet is as a concise one page form that can be used for all sites and situations. While most of the inputs to the form are straight forward some uncertainty regarding some inputs may require supplementary notes. As such these guidelines have been developed to progress members through any uncertainty when filling out the form and to ensure consistency of survey data is maintained.
- 5.6 The Site Survey Summary Sheet indicates the level of detail regarding trip and parking generation that needs to be collected for a site and its associated activity. The form has been developed for use by any organisation undertaking trip and parking surveys and there is space provided at the top for organisations to insert their own logo. The sheet also meets the specific format required for survey data to be entered into the TDB Database and is a critical step in standardising the quality of New Zealand survey data.

Date and Time

- 5.7 Separate Site Survey Summary Sheets are used for surveys undertaken on multiple days and if surveys are undertaken at morning and evening peak hours separate field sheets may also be used. For example if a survey was undertaken on a Thursday, and again on a Saturday, the site would have two Site Survey Summary Sheets. If data has been collected on multiple days for the purposes of generating daily data, then the area for 'Extended Data Collection' should be ticked and each day should be summarised on a separate summary sheet.

Land Use Description

- 5.8 Land Use Groups and Land Use Activities are defined to be compatible with New Zealand District Plan zone patterns. At the same time Land Use Activities are defined with the spectrum of trips and parking associated, in particular with visitor attracting uses in mind. In addition to the broad Land Use Groups and Land Use Activities there is space on the survey forms and in the database to deal with other descriptions of the site as mentioned earlier, if that is necessary for clarity.

Pedestrian Activity

- 5.9 The following is a guide to the level of pedestrian activity across the frontage or on the adjacent footpaths.

Table 5.1 - Level of Pedestrian Activity Across the Frontage or on Adjacent Footpaths

LEVEL	DESCRIPTION/EXAMPLE
Nil	No footpath provided
Low	Typical of rural environments, no infrastructure to facilitate pedestrians, up to 10 pedestrians per hour.
Moderate	Typically residential neighbourhood shopping centre etc. Footpaths are present, but no other substantial infrastructure to cater for pedestrians. Approximately 10 – 100 pedestrians in a peak hour on frontage roads.
High	There are additional facilities for pedestrians such as 2-3 metre width footpaths pedestrian crossings and texturised paving. 100-600 pedestrians per hour.
Very High	Town Centre, major shopping centre. Over 600 pedestrians per hour.

Public Transport Opportunities

- 5.10 The following is a guide to the level of public transport opportunities.

Table 5.2 - Level of Public Transport Opportunities

LEVEL	DESCRIPTION/EXAMPLE
Nil	No public transport provided.
Low	Rural or small town.
Moderate	Some bus or public transport services exist, but times between buses are over 1 hour. The site could be located a significant walking distance from the facilities, for example a remote area of a city.
High	An arterial bus route, bus frequency is approximately 30 minutes to 1 hour.
Very High	Site is located close to a train station, bus exchange, taxi stand, city centre and/or services are of 10-15 minute frequency.

Site Trip Rate Parameters

- 5.11 Site Area (SA) and Gross Floor Area (GFA) are recorded for all sites and are the variables which are always used for calculating trip rates. If SA and GFA are not deemed to be the most appropriate parameters for calculation purposes, for example if residential units, holes of a golf course, bed numbers or pupil numbers etc is considered a more appropriate parameter, then these should also be used as appropriate with this being clearly stated.
- 5.12 Other parameters which are normally used include:
- Employment EMP
 - People PP
 - Residences HH
 - Parking Supply PS
- 5.13 There are a range of specific parameters such as:
- Residential Units
 - Beds in hospitals
 - Doctors at clinics
 - Berth for marinas
 - Holes for golf
 - Courts for tennis
- 5.14 These more specialised parameters should be completed in the 'other size' field and the 'general comments and notes' field of the site survey summary sheet.

Parking Supply and Demand

- 5.15 Parking spaces provided both on-site and off-site should be recorded. Where necessary the parking supply for staff both on-site and off-site should also be stated. If parking is known to take place on-street or off-site and the survey did not extend to include these areas, then it should be noted in the comments field. Also survey the parking supply including demand both on and off site for the land use being investigated. The site survey summary sheet should identify the parking demand on-street and off-street where appropriate.

Staff Parking

- 5.16 If possible survey and state the number of spaces occupied by staff. This may also be stated as a percentage of the maximum total parking demand in the comments. If it is not possible to identify staff parking it may be necessary to undertake a staff questionnaire survey and obtain the full array of travel modes used by the employees on their trip to work.

Multi-mode Trips

- 5.17 It is desirable that the total person trips to and from a site by all modes are surveyed. This applies to both trips to work by employees, and also visitors. The site survey summary sheet includes a column for recording this information and enables calculation of the % arrivals by each mode as follows:
- Car Drivers
 - Car Passengers
 - Goods Drivers
 - Goods Passengers
 - Pedestrians
 - Cyclists
 - Bus Passengers

- 5.18 Future surveys should be designed to collect this information either by field observation or interview/questionnaire of employees and visitors at the establishment as a matter of basic survey information.

Design Hour and Seasonal Factors

- 5.19 Selecting an appropriate design hour requires careful consideration. Chapter 2 of Report 209 discusses seasonal factors and design hours fully. Obviously adopting an average figure and reporting average figures will mean that half of the time the spaces will be inadequate or the level of trips will be exceeded. While it is not relevant in some cases generally the 85% satisfaction and/or the 30th highest hour is a good starting point for design or establishing planning standards.
- 5.20 For shopping centres the 85% satisfaction will generally coincide with the 50th highest hour of the year, the 30th highest day and the 10th busiest week. It is also desirable to ascertain the peak hour of the 5th busiest week which for shopping centres may be at 2pm on a Saturday, and for other mixed commercial and fringe of CBD industry may occur on a Friday (refer to Chapter 2 of Report 209).
- 5.21 These issues should be traversed to meet the circumstances of trip and parking surveys, transportation assessments and design standards for new facilities and access to existing land uses.

Land Use Development Characteristics

- 5.22 When surveys are being undertaken there are some useful descriptive terms used by Town Planners to explain the characteristics of the development and arrangement of its travel. These may be included in the site survey summary sheet general comments and notes field.
- Coverage – This is the percentage of the site covered at ground level by buildings. By difference it also describes the balance of the site used for parking, driveways, yards and landscaping.
 - Plot Ratio – Ratio of total gross floor area (all floors on site) divided by site area. Applies particularly as a description of a multi-floor commercial development.
 - Travel Plans – Where establishments have, or are proposing travel plans for employees designed to modify mode split and travel patterns. This should also be referred to in the comments

Completion of Survey Forms

An example completed site survey summary sheet is shown in **Figure 5.3**. This illustrates the information summarised from a typical day long site survey.

SITE SURVEY SUMMARY SHEET

Survey for (name of client /council): Huntsbury Shopping Centre - Centaurus Rd	Office Ref Only
---	-----------------

Survey Period	Tuesday	12.12.06	0830 start	1730 end
Date & Time	Extended Data Collection (Several Days)	N/A		N/A

A.	SITE DATA	Activity Name	Huntsbury Shopping Centre				
		Land Use Description	Retail- Grocery, Garden, 6 shops, Tavern, Restaurant				
		Territorial Local Authority	Christchurch City				
		Street Address & Suburb	65-91 Centaurus road - Huntsbury				
		Survey Site General Location	Rural <input type="checkbox"/>	Suburb <input checked="" type="checkbox"/>	Inner <input type="checkbox"/>	CBD <input type="checkbox"/>	
		Highest Classification of Frontage Road/s	Major Arterial <input type="checkbox"/>	Minor Arterial <input checked="" type="checkbox"/>	Collector <input type="checkbox"/>	Local <input type="checkbox"/>	
			Traffic aadt = 8,500 vpd		SH/TLA/Other Rd (state)	TLA	
		Pedestrian Activity	Nil <input type="checkbox"/>	Low <input checked="" type="checkbox"/>	Moderate <input type="checkbox"/>	High <input type="checkbox"/>	V High <input type="checkbox"/>
		Public Transport Opportunities	Nil <input type="checkbox"/>	Low <input type="checkbox"/>	Moderate <input checked="" type="checkbox"/>	High <input type="checkbox"/>	V High <input type="checkbox"/>
		Occupied Site Area (Ha or m ²)	5,600 sq ms + 400 sq ms of street space=6,000sq ms				
Gross Floor Area (GFA m ²)	2,300 sq ms incl Tav/Rest 400 sq ms, Garden way 400 sq ms						
Employees	20FT and 8 PT						
Other Size (please specify value and units eg seats, rooms, beds, pupils)	Restaurant 100 seats, Gardenway 400gfa+500 sq ms yard						

B.	PARKING	Parking Spaces Provided On-site (Inc Staff)	45 offstreet parks		
		Other Parking Spaces Available On-street Off-site	36 end on street parks		
		Staff Parking Spaces Provided On-site	25 offstreet staff parks		
		Staff Parking Spaces On-street and Off-site	Nil		
		Peak Parking Demand	1700 hrs	70 spaces	25 for staff
		Peak Parking Demand During Survey	3.3/100 sqm	0.5/ Res Bed	1/100 sqms

C.	TRIP GENERATION	SITE SURVEYED ARRIVAL/DEPARTURE FLOW	AM Peak (veh/hr)	TIME	1100 hrs	1200 hrs	
				IN	54 vph	117 vph	
				OUT	63 vph	in+out	
			PM Peak (veh/hr)	TIME	1600 hrs	1700 hrs	
				IN	66 vph	193 vph	
				OUT	97 vph	in+out	
			Daily (veh/day)	TIME	0830 hrs	1730 hrs	
				TOTAL IN+OUT	1495 vpd		
			Peak Trip Rate per 100m ² or other unit (state)	AM Hr	5	/ 100m ² GFA / hr	/ other unit (state) / hr
				PM Hr	8.3	/ 100m ² GFA / hr	/ other unit (state) / hr
DAILY	(in+out) 65 / 100m ² GFA / day						

GENERAL COMMENTS AND NOTES																												
eg. Site location characteristics, parking durations, and other special aspects (school holidays, public holidays)																												
1. The site is located in Heathcote on the urban fringe. Two large centres 2km away. 2. Centaurus Rd a busy ring road and bus route carries a lot of cycles, goods vehicles and buses. 3. NB. The survey was on a December Tuesday for a design day Thursday/Friday. The results may need to be factored by X 1.3 to 1.4 times																												
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: left;">Modal Split</td> <td style="text-align: center;">Number</td> <td style="text-align: center;">%</td> </tr> <tr> <td>Car Drivers</td> <td style="text-align: center;">1426</td> <td style="text-align: center;">71%</td> </tr> <tr> <td>Car Passengers</td> <td style="text-align: center;">335</td> <td style="text-align: center;">15%</td> </tr> <tr> <td>Goods Drivers</td> <td style="text-align: center;">69</td> <td style="text-align: center;">3%</td> </tr> <tr> <td>Goods Passengers</td> <td style="text-align: center;">17</td> <td style="text-align: center;">1%</td> </tr> <tr> <td>Pedestrians</td> <td style="text-align: center;">124</td> <td style="text-align: center;">5%</td> </tr> <tr> <td>Cyclists</td> <td style="text-align: center;">103</td> <td style="text-align: center;">4%</td> </tr> <tr> <td>Bus Passengers</td> <td style="text-align: center;">14</td> <td style="text-align: center;">1%</td> </tr> <tr> <td>Total 12 hr Day</td> <td style="text-align: center;">2088</td> <td style="text-align: center;">100%</td> </tr> </table>	Modal Split	Number	%	Car Drivers	1426	71%	Car Passengers	335	15%	Goods Drivers	69	3%	Goods Passengers	17	1%	Pedestrians	124	5%	Cyclists	103	4%	Bus Passengers	14	1%	Total 12 hr Day	2088	100%
Modal Split	Number	%																										
Car Drivers	1426	71%																										
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Pedestrians	124	5%																										
Cyclists	103	4%																										
Bus Passengers	14	1%																										
Total 12 hr Day	2088	100%																										

Survey undertaken by (org): Douglass Consulting Services Ltd	Surveyor Contact: Malcolm Douglass 980.5504
Survey undertaken by (surveyor): M Douglass	douglass.m@clear.nz

6 DATABASE QUALITY ASSURANCE

It is important that information in the database is accurate for member confidence and sector acceptance of the data and information as basis for analysis. There are several possible sources of error which could be present in the survey data. These include errors in:

- Survey methodology
- Survey equipment
- Site recording
- Data reduction to summaries
- Transcription between documents

For the first three items, TDB recommends best practice guidance documents and processes to be used. TDB also undertakes a series of checks related to assessing whether error has occurred in data prior to its receipt in an effort to minimise any erroneous information being brought in, but is not able to guarantee that unknown or unseen issues may have occurred.

Quality assurance activities which are conducted include:

- Addresses and co-ordinates are confirmed online
- Site areas and GFAs are confirmed online where available
- Sense checks are always made such as:
 - cannot be more cars recorded than vehicle occupants
- Splits and proportions, such as mode splits, are checked by making sure they add up to 100% where applicable.
- Rates which involve calculations, such as parking demand and trip generation rates, are calculated using Excel formulae. Rates are then checked against the ones recorded on the summary sheets
- All numbers are double checked as they are entered

If there are errors in the database noticed by users, users are encouraged to notify TDB (at admin@tdbonline.org) at the earliest opportunity so that the database can be either corrected or the data flagged for future users. This will provide continuous improvement of the database to the benefit of all members and the transport sector at large.



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APPENDIX A

TDB DATABASE STRUCTURE



NZ Database Structure

COLUMN	LABEL	COMMENT
A	Site Number	A unique site/survey number assigned by TDB administrators
B	Source of Data	Survey organisation
C	Territorial Local Authority	
D	Suburb or Locality	
E	Activity Name	Address or name of site
F	Land Use Description 1	Land Use Group
G	Land Use Description 2	Land Use Activity Group (Primary)
H	Land Use Description 3	Land Use Activity Group (Description)
I	Location Environment	Location of activity in relation to its proximity to the town centre
J	Latitude	Latitude of activity location
K	Longitude	Longitude of activity location
L-O	Frontage Road Hierarchy and Daily Traffic Volume	Daily traffic volume (vpd) of the activity's highest ranking frontage road under the road hierarchy
L	Major Arterial (vpd)	Daily traffic volume (vpd) of the activity's Major Arterial frontage road
M	Minor Arterial (vpd)	Daily traffic volume (vpd) of the activity's Minor Arterial frontage road
N	Collector Road (vpd)	Daily traffic volume (vpd) of the activity's Collector frontage road
O	Local Road (vpd)	Daily traffic volume (vpd) of the activity's Local frontage road
P-R	Population Details	Population within a certain area around the activity
P	Within 1km	Population within 1km of activity
Q	Within 5km	Population within 5km of activity
R	Total Population of Urban Area	Total population of the urban area containing the activity
S	Pedestrian Activity	Level of pedestrian activity adjacent to the site (low, moderate or high)
T	Public Transport Accessibility	Level of accessibility to the site using public transport (low, moderate or high)
U	Date of Survey	
V	Time of Survey	
W	Day of Survey	
X	Year data entered	First database update to include survey data
Y	GFA (m ²)	Gross Floor Area
Z	Site Area (m ²)	
AA	Employees	Number of employees at the activity that may provide a useful variable for demand rate analysis
AB	Other Size (please specify value)	Value of another unit of scale of activity that may provide a useful variable for demand rate analysis
AC	Other Unit (Please specify unit, eg: seats, beds, rooms, pumps)	The other unit of scale of activity that may provide a useful variable for demand rate analysis
AD	Comments	Comments on the initial 29 columns, eg: level of accuracy of measurements, explanation of other units, passing traffic volumes, any other comments required
AE	Parking Spaces Provided (on-site)	
AF	Other Parking Spaces Available On-street and Off-site	Parking spaces that are likely to constitute the available on-street and off-site parking available for use by staff and visitors to the activity
AG	Max On-Site Parking Demand	The surveyed peak accumulation of vehicle within the site
AH	Max Off-Site Parking Demand	The surveyed peak accumulation of vehicles off-site areas associated with the activity
AI	At time	The time of peak parking accumulation (note that this time will be the time of peak total accumulation and may not necessarily be the busiest for one or other on-site or off-site parking)
AJ-AN	Peak Total Parking Demand Rates	Total parking demand rate (ie on-site + off-site) expressed as spaces per unit specified in column header

COLUMN	LABEL	COMMENT
AJ	GFA (spaces/ 100m ² GFA)	Total parking demand rate (ie on-site + off-site) expressed as spaces per 100m ² GFA
AK	Site Area (spaces/ 100m ² SA)	Total parking demand rate (ie on-site + off-site) expressed as spaces per 100m ² Site Area
AL	Employees (spaces / emp)	Total parking demand rate (ie on-site + off-site) expressed as spaces per employee
AM-AN	Other	Total parking demand rate (ie on-site + off-site) expressed as spaces per other unit
AM	(spaces/other unit)	Total parking demand rate (ie on-site + off-site) expressed as spaces per other unit
AN	Other Unit (if applicable)	Specify the "other unit"
AO	Parking Comments	Any comments necessary to clarify parking survey
AP-BE	Surveyed Arrival / Departure Flow	Flow of vehicles, in and out, for the morning and afternoon peaks, and daily, at specified times
AP-AS	AM Peak (veh/hr)	Flow of vehicles (vph), in and out, for the morning peak hour at the specified time
AP	In	AM peak arrival flow expressed in vehicle movements per hour (vph)
AQ	Out	AM peak departure flow expressed in vehicle movements per hour (vph)
AR	In + Out	AM peak arrival + departure flow expressed in vehicle movements per hour (vph)
AS	Time	Hour of AM peak period surveyed
AT-AW	Inter Peak (vph)	Flow of vehicles (vph), in and out, for the inter peak hour at the specified time
AT	In	Inter peak arrival flow expressed in vehicle movements per hour (vph)
AU	Out	Inter peak departure flow expressed in vehicle movements per hour (vph)
AV	In+ Out	Inter peak arrival + departure flow expressed in vehicle movements per hour (vph)
AW	Time	Hour of Inter peak period surveyed
AX-BA	PM Peak (veh/hr)	Flow of vehicles (vph), in and out, for the afternoon/ evening peak hour at the specified time
AX	In	PM peak arrival flow expressed in vehicle movements per hour (vph)
AY	Out	PM peak departure flow expressed in vehicle movements per hour (vph)
AZ	In + Out	PM peak arrival + departure flow expressed in vehicle movements per hour (vph)
BA	Time	Hour of PM peak period surveyed
BB-BE	Daily (vpd)	Flow of vehicles (vpd), in and out, for the specified daily period
BB	Daily Arrival Flow	Expressed in vehicle movements per day (vpd)
BC	Daily Departure Flow	Expressed in vehicle movements per day (vpd)
BD	Daily Arrival + Departure Flow	Expressed in vehicle movements per day (vpd)
BE	Time	The period over which the "Daily" flows were surveyed
BF-BV	Trip Generation Rates	Trip rate (vph or vph) for the morning and afternoon/evening peaks, and daily, in terms of GFA, site area, employees, and other units
BF-BI	GFA (In + Out) (vph or vpd/100m ² GFA)	Trip rate (vph or vph) for the morning and afternoon/evening peaks, and daily, in terms of GFA
BF	AM	Calculated AM peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per 100m ² GFA
BG	Inter	Calculated Inter peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per 100m ² GFA
BH	PM	Calculated PM peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per 100m ² GFA
BI	Daily	Calculated daily period trip generation rate expressed as vehicle movements (IN+OUT) per day per 100m ² GFA
BJ-BM	Site Area (In+Out) (vph or vpd/100m ² SA)	Trip rate (vph or vph) for the morning and afternoon/evening peaks, and daily, in terms of site area
BJ	AM	Calculated AM peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per 100m ² site area
BK	Inter	Calculated Inter peak period trip generation rate expressed as

COLUMN	LABEL	COMMENT
		vehicle movements (IN+OUT) per hour per 100m2 site area
BL	PM	Calculated PM peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per 100m2 site area
BM	Daily	Calculated daily period trip generation rate expressed as vehicle movements (IN+OUT) per day per 100m2 site area
BN-BQ	Employees (In + Out) ((vph or vpd/Emp)	Trip rate (vph or vph) for the morning and afternoon/evening peaks, and daily, in terms of the number of employees at the activity
BN	AM	Calculated AM peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per employee
BO	Inter	Calculated Inter peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per employee
BP	PM	Calculated PM peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per employee
BQ	Daily	Calculated Daily period trip generation rate expressed as vehicle movements (IN+OUT) per hour per employee
BR-BV	Other Unit (In + Out) (vph or vpd/other unit)	Trip rate (vph or vph) for the morning and afternoon/evening peaks, and daily, in terms of another unit
BR	AM	Calculated AM peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per unit
BS	Inter	Calculated Inter peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per unit
BT	PM	Calculated PM peak period trip generation rate expressed as vehicle movements (IN+OUT) per hour per unit
BU	Daily	Calculated daily period trip generation rate expressed as vehicle movements (IN+OUT) per day per unit
BV	Other Unit	The "other unit" used for trip generation rate calculations
BW	Trips Generation Comments	Comments and clarification for trip generation section of survey
BX-CE	Travel Mode (trips)	Number of trips made by various specified modes of travel
BX	Car Driver	Number of trips made by a car driver
BY	Car Passenger	Number of trips made by a car passenger
BZ	Goods Driver	Number of trips made by a goods vehicle driver
CA	Goods Passenger	Number of trips made by a goods vehicle passenger
CB	Pedestrian	Number of trips made by a pedestrian
CC	Cyclist	Number of trips made by a cyclist
CD	Bus Passenger	Number of trips made by a bus passenger
CE	Total	Total number of trips made by the specified various modes of travel
CF-CM	Travel Mode (percentage)	Percentage of trips made by various specified modes of travel
CF	Car Driver	Percentage of trips made by a car driver
CG	Car Passenger	Percentage of trips made by a car passenger
CH	Goods Driver	Percentage of trips made by a goods vehicle driver
CI	Goods Passenger	Percentage of trips made by a goods vehicle passenger
CJ	Pedestrian	Percentage of trips made by a pedestrian
CK	Cyclist	Percentage of trips made by a cyclist
CL	Bus Passenger	Percentage of trips made by a bus passenger
CM	Total	Total percentage of trips made by the specified various modes of travel
CN	Notes and Comments	Used to record aspects of the site, survey or calculation procedures, or other survey results that may assist in the interpretation of the data or results

AU Database Structure

For the Australian (AU) database there are some merging of columns but basically it is the same layout. A number of sites within the AU database include details of GLFA rather than GFA. This is set out in column S of the AU database. Where relevant, trip and parking rates are based on GLFA. Another feature of the AU database is the inclusion of length of stay data and vehicle occupancy details. These are set out in columns DH and DI respectively. Frontage road volumes are specified within the AU database where there is a potential bearing on the traffic generation of the land-use (drive-through restaurant for example). The frontage roads are typically high volume arterial roads.

US Database Structure

COLUMN	LABEL	COMMENT
A	Site Number	A unique site/survey number assigned by TDB administrators
COLUMN	LABEL	COMMENT
B	Source of Data	Survey organisation
C	State	Survey location in terms of a state in the United States (US)
D	Suburb or Locality	
E	Activity Name	Address or name of site
F	Land Use Description 1	Land Use Group
G	Land Use Description 2	Land Use Activity Group (Primary)
H	Land Use Description 3	Land Use Activity Group (Description)
I	Location Environment	Location of activity in relation to its proximity to the town centre
J	Independent Variable	Independent variable unit
K	Average Size of Independent Variable	
L	Number of Studies	
M	Survey Date	
N	Day of Survey	
O	Comments	Comments on Column M-N, eg: Duration of survey
P	Year Data Entered	First database update to include survey data
Q-S	Directional Distribution (percentage)	Percentage of total trip ends entering and exiting the site during indicated time period
Q	Entering	Percentage of total trip ends entering site during indicated time period
R	Exiting	Percentage of total trip ends exiting site during indicated time period
S	Total	Total percentage of trips ends entering and exiting site during indicated survey period
T-W	Trip Generation Rates	Trip rate (vph or vph) for the morning and afternoon/evening peaks, and daily, per one unit of independent variable
T	Average	Weighted average number of trip ends per one unit of independent variable
U	Range	Minimum and maximum trip generation rates from the whole range of studies reported
V	Standard Deviation	An estimate of the difference among trip generation rates in all studies reported
W	Unit	Trip rate expressed as vehicle movements (IN + OUT) per unit
X	Notes and Comments	Used to record aspects of the site, survey or calculation procedures, or other survey results that may assist in the interpretation of the data or results



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