3 Strategic and Land Use Issues

This section reviews strategic issues which set the context for improvements to transport provision in Boroondara. It considers the socio-economic profile of an area which is an important determinant of current and future travel patterns, opportunities and needs. It also considers existing land use patterns and planned future developments.

3.1 Forecast Population and Socio-Economic Profile

Boroondara, as a well-established area with a significant older population, experiences relatively low population growth. Boroondara's population grew by less than one percent between 1991 and 2001 from 141,096 to 150,233 residents. Table 1 indicates that between 2001 and 2031, Boroondara's population is expected to grow by 3% in comparison with an average of 31% for the rest of Melbourne. In line with Melbourne 2030 and policies associated with Council's My Neighbourhood Strategy (draft), it is expected that most growth will be occur in or in close proximity to Boroondara's Activity Centres.

However, neighbouring municipalities including Manningham, Knox and Maroondah are all expected to experience much greater population growth of than Boroondara with projected growth rates of between 8 and 26%. Boroondara's geographic location, between the outer eastern suburbs and Melbourne's CBD, means growth in neighbouring outer suburban municipalities is likely to generate increased numbers of trips through Boroondara to the CBD placing increased pressure on transport infrastructure.

Table 1 Population and Forecast Population 2001-2031, Boroondara and neighbouring municipalities

	Boroondara		Stonnington	Manningham	Knox	Maroondah	Melbourne Statistical Division
	Number	% Growth	%	%	%	%	%
2002	158,461						
2006	159,118	0.4	2.3	5.8	2.8	3.4	5.4
2011	159,892	0.9	4.8	12.4	4.5	8.4	11.5
2021	161,160	1.7	9.4	14.7	6.5	17.9	22.2
2031	163,136	3.0	13.6	15.9	8.4	25.7	31.0

Source: DSE, Urban and Regional Research Branch, 2003

3.1.1 Population and Age Structure

Boroondara has a high proportion of the population aged over 50 years of age at 30.7% compared to metropolitan Melbourne at 27.5%, as indicated in Table 2. 11.5% of Boroondara's population is aged over 70 years of age, compared to 8.7% for Melbourne. Elderly persons are often more reliant on public transport and community transport which emphasises the need for an accessible and integrated public transport system and community transport service in Boroondara to meet the mobility needs of the older population. The proportion of

people under 18, also a group for whom public transport provision is particularly important, at 22.2% for Boroondara is similar to the average for Melbourne of 23.8%. Boroondara has a significantly lower proportion of 18-35 year olds than the average for Melbourne: 24.6% compared to the Melbourne average of 42%.

Table 2 Age Structure of Boroondara's population compared with metropolitan Melbourne average

Age	Boroondara		Metropolitan Melbourne	
	Number	%	Number	%
0 – 4	7,891	5.3	214,574	6.4
4 – 17	25,125	16.9	579,440	17.4
18 – 24	16,612	11.2	873,459	26.2
25 – 34	19,929	13.4	533,973	16.0
35 – 49	33,324	22.4	752,670	22.5
50 – 59	18,264	12.3	382,753	11.5
60 – 69	10,194	6.9	243,799	7.3
70 – 84	13,264	8.9	245,208	7.3
85 +	3,929	2.6	47,373	1.4
Total	**148,532**	**100**	**3,339,276**	**100**

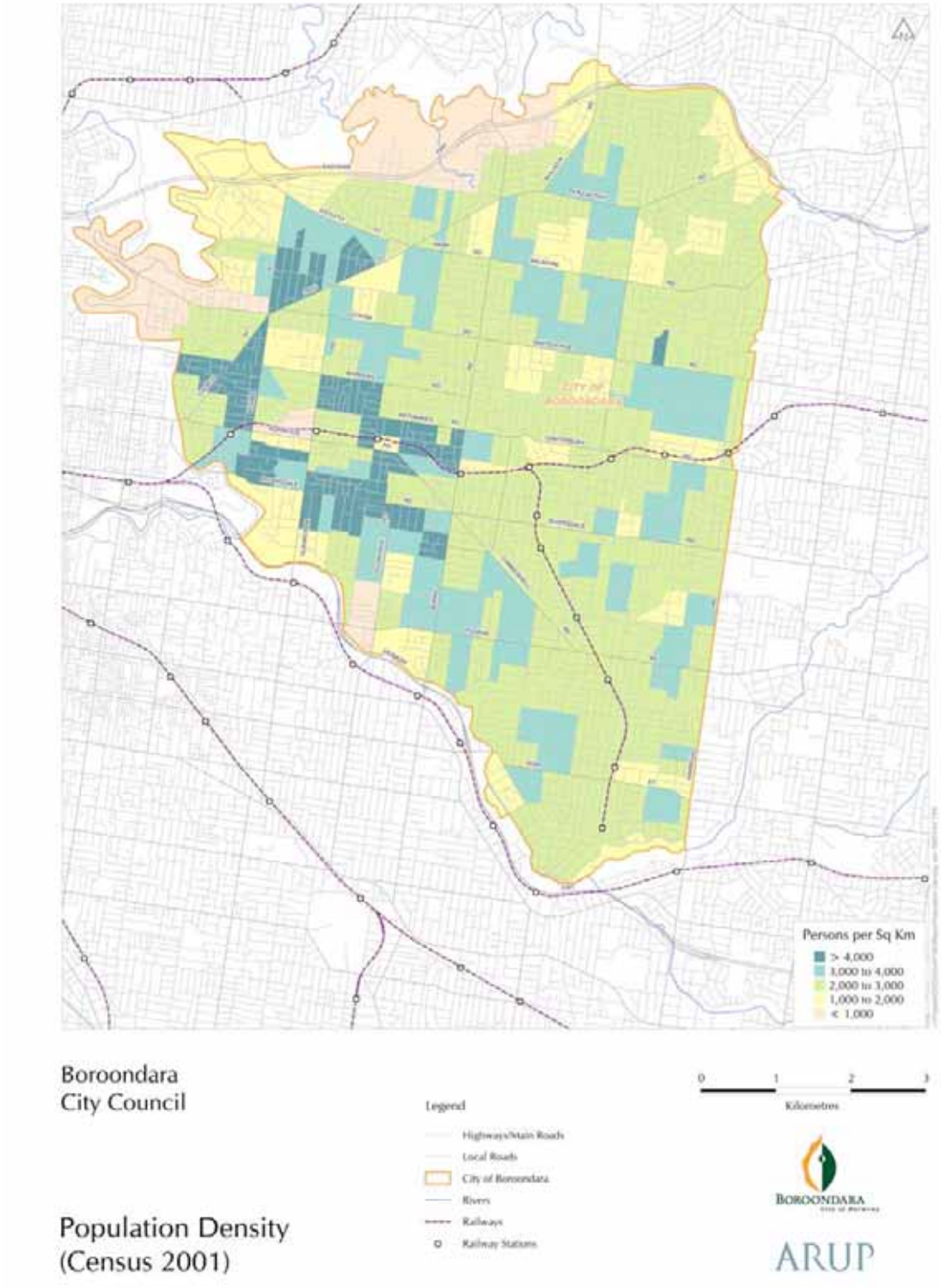
Source: ABS, Census of Population and Housing, 2001

Densely populated areas are generally easier to serve by public transport given that patronage levels and therefore revenue is likely to be higher. Melbourne's population density is rather low compared to many developed cities with comparable populations. Average population density across Boroondara is 24.7 persons per hectare whereas for the whole of Melbourne it is 16.8 persons per hectare.

By way of comparison, the average population density in Toronto is 23.7 persons per hectare with a density as high as 65 persons per hectare in the inner city and 31 persons per hectare in the middle suburbs.

In Boroondara, population densities are greatest north of High Street Kew, in parts of Hawthorn and Glenferrie and around Camberwell Junction, as shown in Figure 2. These are also the areas of Boroondara which have the greatest access to public transport services. However, population densities close to train stations along the Alamein line are no higher than areas located at greater distances from the stations or areas not particularly well served by public transport such as North Balwyn. Higher density areas are also generally those areas experiencing parking pressures.

Figure 2 Population Density



3.1.2 Household Size and Number of Dwellings

Table 3 shows that the average household size in Boroondara is declining in line with general household size trends for Australia. The average household size of 2.51 in Boroondara is lower than the average across metropolitan Melbourne of 2.63 persons per household. This is to be expected given the higher proportion of elderly persons in Boroondara compared to metropolitan Melbourne and, as identified in 3.1.3 and 0, the significant number of relatively higher earning professionals.

Table 3 Household size and number of dwellings comparison between 1996 and 2001

	2001	1996	Change
Number of Households (*occupied private dwellings*)	57,331	55,995	1,336
Avg. Household size (*persons per household*)	2.51	2.49	0.02
Number of Dwellings	61,716	60,323	1,393

Source: ABS, Census of Population and Housing, 2001 and 1996

3.1.3 Employment and Unemployment

Boroondara's main industrial sectors are property and business services, health and community services and retail trade as indicated in Table 4. The proportion of the resident population employed in the property and business services and health and community services areas in Boroondara at 34% is much greater than that for metropolitan Melbourne at 22%. Conversely, employment in manufacturing is much lower for Boroondara (8.5%) than for metropolitan Melbourne (16%). Different employment sectors generate different trips patterns. For instance, those employed in the property and business and retail trade sectors are likely to travel to and from work in the AM and PM peak hours whereas those employed in the health and community services tend to work shifts and consequently travel outside the peaks. Trips outside the peaks are often not well catered for by public transport due to irregular services.

Unemployment has consistently been lower in Boroondara than the average for metropolitan Melbourne. Rates at Dec 2003 were 2.8% for Camberwell North, 4.2% for Camberwell South, 4.6% for Hawthorn and 3.8% for Kew compared to 5.6% for Melbourne.

(Source: Small Area Labour Markets, December Quarter 2003, Commonwealth Government Department of Employment and Workplace Relations).

Table 4 Employment by Industry, Boroondara and Melbourne

Industry	Boroondara Employees	Boroondara Percentage by Industry	Metropolitan Melbourne
Agriculture, Forestry and Fishing	273	0.4	0.8
Mining	226	0.3	0.15
Manufacturing	6,227	8.5	15.95
Electricity, Gas and Water Supply	299	0.4	0.44
Construction	2,541	3.5	6.51
Wholesale Trade	3,675	5.0	5.97
Retail Trade	8,814	12.1	14.59
Accommodation, Cafes, Restaurants	3,395	4.7	4.14
Transport and Storage	1,684	2.3	3.89
Communication Services	1,449	2.0	2.27
Finance and Insurance	4,720	6.5	4.62
Property and Business Services	15,081	20.7	13.07
Government Admin & Defence	2,121	2.9	2.87
Education	7,182	9.9	6.92
Health and Community Services	9,473	13.0	9.33
Cultural and Recreational Services	2,372	3.3	2.76
Personal and Other Services	2,103	2.9	3.32
Non – classifiable	381	0.5	0.58
Not stated	872	1.2	1.8
Total	**72,888**	**100.0**	**100**

Source: Census, ABS, 2001

3.2 Income levels and car ownership

Boroondara has higher income levels than the average for Melbourne with around 36% compared to 22% of households respectively earning more than $1,500 per week as shown in Table 5.

Table 5 Weekly Household Income Levels, 2001

2001	Boroondara		Melbourne
	Number of Households	Percentage	Percentage
Negative and nil	548	1.0	0.7
$1 to $499	10,017	18.1	23.8
$500 to $999	10,405	18.9	25.0
$1,000 to $1,499	7,924	14.4	17.2
$1,500 to $1,999	8,344	15.1	11.8
$2,000 or more	11,587	21.0	10.0
Not stated	6,299	11.4	11.8

Source: Census, ABS, 2001

Boroondara has car ownership levels similar to the Melbourne average as shown in Table 6. The number of households with 1 or 2 cars per household (72.3%) is similar to the Melbourne average (70%) whilst the number of households with 3 or more cars (12.4%) is lower than the Melbourne average (13.7%). This is to be expected in an inner urban municipality with greater densities and public transport provision than outer suburban locations.

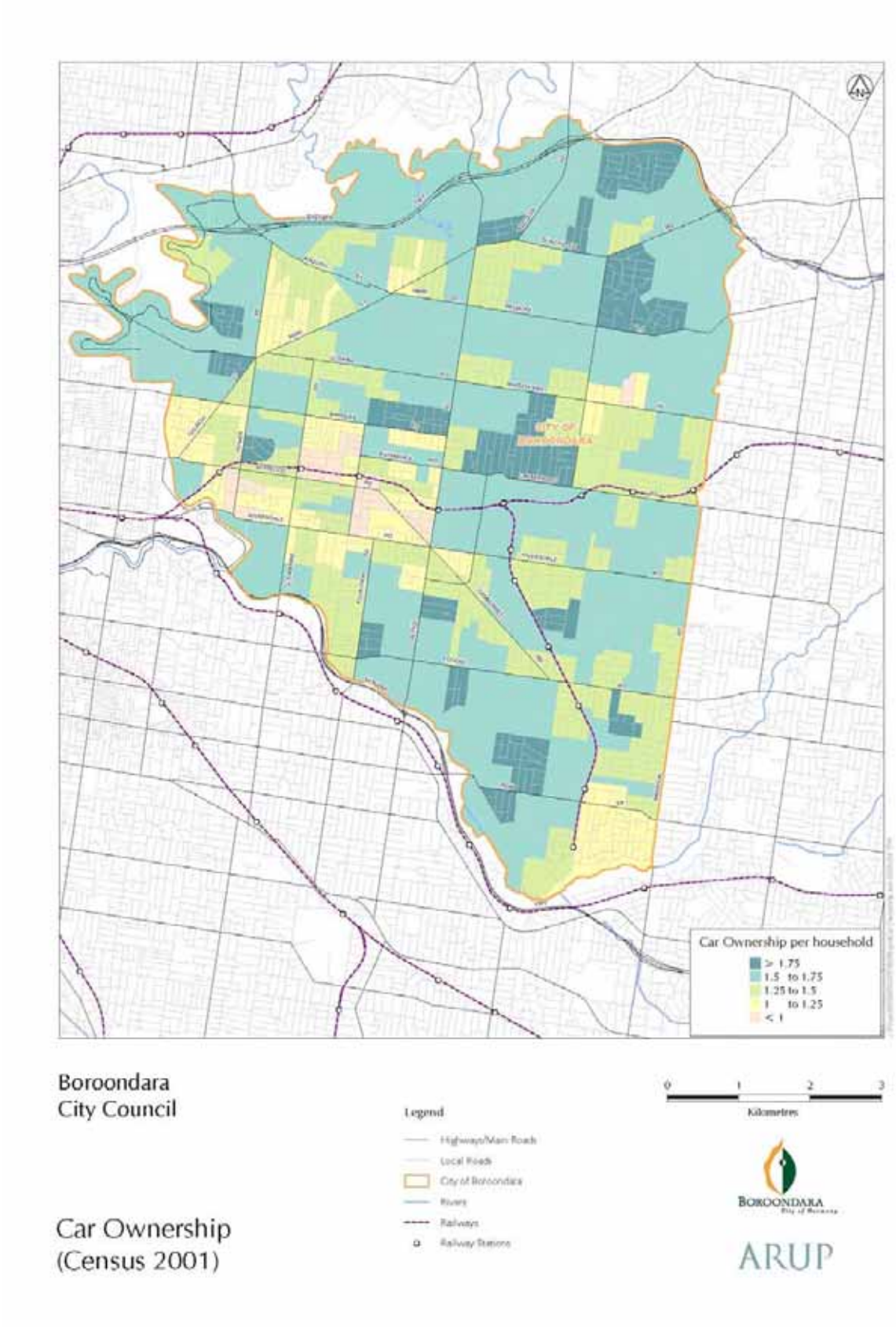
Table 6 Car Ownership per Household, 2001

2001	Boroondara		Melbourne
	Number of Households	Percentage	Percentage
No vehicle	5,269	9.2	9.5
1 vehicle	20,360	35.5	34.7
2 vehicles	21,112	36.8	35.3
3 or more vehicles	7,102	12.4	13.7
Not stated	3,489	6.1	6.7
Total	57,332	100	100

Source: Census, ABS, 2001

Figure 3 shows the distribution of car ownership across Boroondara. There are pockets of high car ownership levels including parts of North Balwyn, Canterbury, Kew and Glen Iris. It is to be expected that car ownership levels are lowest where access to public transport is greatest. However, car ownership levels are generally no lower near railway lines than ownership levels at areas located at some distance from railway stations. Exceptions are Hawthorn, Glenferrie and Auburn stations where car ownership levels are typically less than 1.25 per household.

Figure 3 Car Ownership



3.3 Land Use

As identified at Section 1.5, transport provision improvements need to be planned to improve sustainable land use patterns, particularly ensuring locations for existing or proposed high density development are well-served by public transport. This section therefore considers existing land use patterns in Boroondara and also some of the municipality's key development sites.

Boroondara has a **strong residential character** and with its green, treed environment and high levels of amenity value; Boroondara encompasses some of Melbourne's most attractive suburbs. The residential landscape has been shaped by successive decades with Victorian, Edwardian, inter-war and post-war development. It is this residential character which the My Neighbourhood Strategy (draft - see Section 2.4) seeks to protect whilst at the same time improving sustainable transport access to these suburbs.

Most residential development activity in Boroondara relates to redevelopment of existing dwellings. Residential development still comprises most of the development activity in the municipality. However, 20% of Boroondara is affected by **heritage** overlays which limit the opportunities for new dwellings. In these locations there is unlikely to be a substantial increase in density.

As identified at Section 3.1.3, Boroondara has much higher proportions of its employees in office-based professions and retailing than in manufacturing/ industry compared to elsewhere. Boroondara is an **important office location** outside Melbourne's CBD and generally sees low vacancy rates. 60% of Boroondara's office space is in Hawthorn, predominantly along Burwood Road and Camberwell Road. Other office locations include Canterbury Road, Tooronga Road and the Coles-Myer site. The small amount of manufacturing activity in the municipality is concentrated along Burwood Road and Camberwell Road.

Boroondara has a total of 39 **shopping areas**. The main centres are the activity centres of Camberwell Junction, Kew Junction and Glenferrie Road (Hawthorn). Other retail areas include: High Street, Ashburton; Whitehorse Road, Balwyn; Toorak Road, Hartwell and Canterbury Road.

Boroondara is an important provider of **education and health services** in the region. There are 58 primary and secondary schools with an additional eight specialist schools. Tertiary establishments include Swinburne University, Melbourne University (Hawthorn Campus) and nearby Holmesglen Institute of TAFE (outside but in very close proximity to Boroondara). In addition, there are 15 hospitals, 20 nursing homes and around 900 private medical facilities. In terms of sporting and recreation facilities, the municipality has 80 outdoor and 60 indoor sporting and recreational activities.

Improvements to travel and access need to maximise provision to the commercial, retail, manufacturing, education, health and recreation services identified above, these being the principal 'trip attractors' for Boroondara as shown in Figure 4. This is alongside the need to reach out and better serve the municipality's residential areas.

3.4 Planned and Future Strategic Development Sites

As an established, predominantly residential municipality, there are few strategic development sites in Boroondara. Most development is in the form of small scale residential development involving demolition of existing buildings. Table 7 presents an overview of planned or possible future strategic development sites. Given the size/ significance of these proposed developments, there are strong opportunities to ensure effective public transport and cycling and walking links.

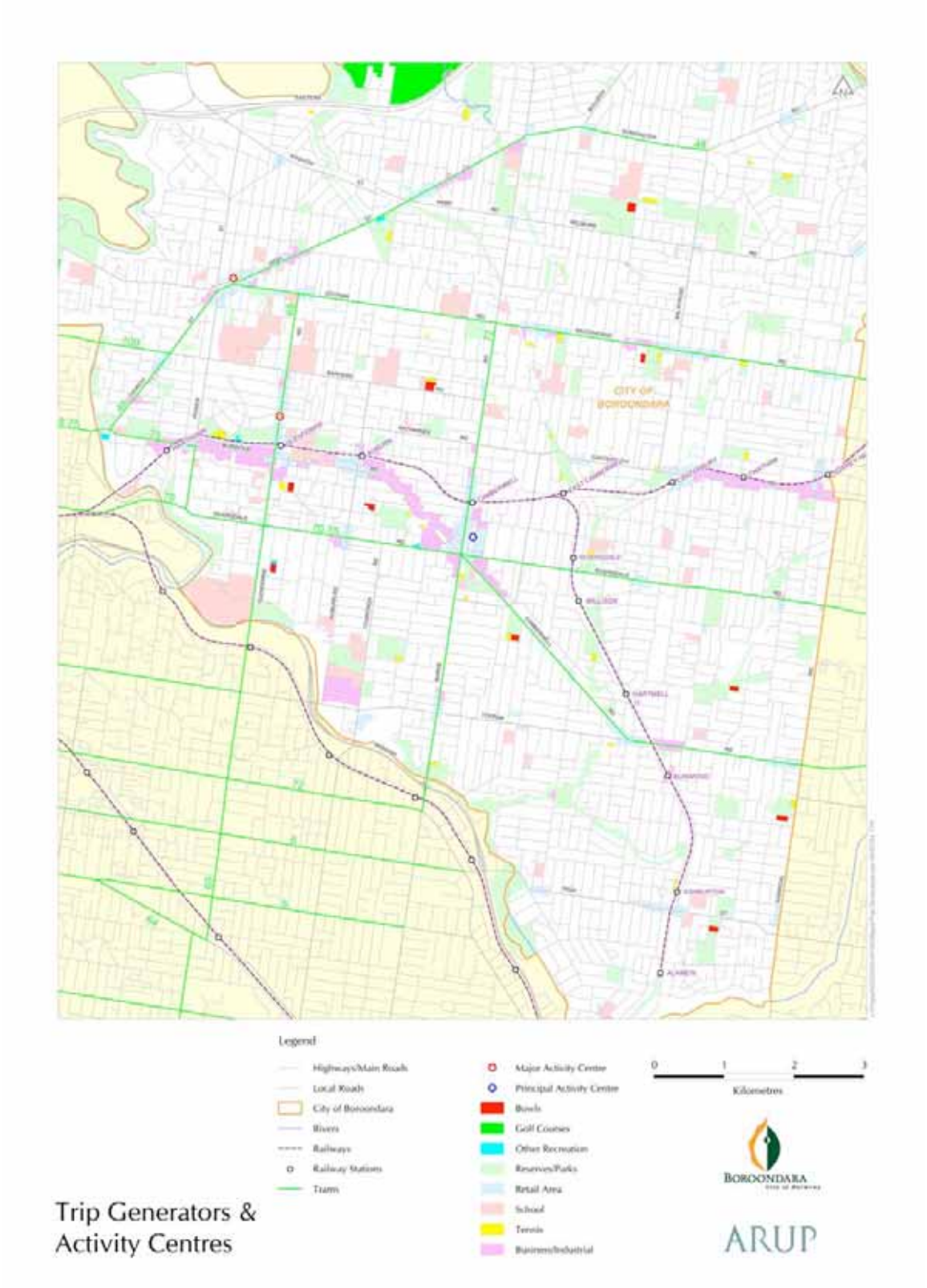
Table 7 Summary of planned/future strategic development sites

	Site Issues/Opportunities
Kew Residential Services Location: Princess Street, Kew Developer: Walker Corporation Expected Completion: unknown	Formed in 1887, Kew Residential Services (KRS) is Australia's largest and oldest institution for people with an intellectual disability. Located adjacent to the nationally significant former 'Willsmere Hospital', the KRS site occupies 27ha of the north western corner of Kew and is owned by the Department of Human Services. In 2001, the Premier of Victoria announced plans to redevelop the significant KRS site. In order to facilitate redevelopment, a Development Plan for the site must be approved by the Minister for Planning in accordance with the Boroondara Planning Scheme. Council and the community developed an Urban Design Framework (UDF) and subsequent new planning controls for the Kew Residential Services site over a period of 18 months. The Minister for Planning then replaced the UDF and planning controls with her own in November 2003, through the approval of Amendment C53 to the Boroondara Planning Scheme. In doing so, the Minister for Planning also assumed full control for the future planning of this 27 hectare site. A Development Plan was initially received by Council from the Walker Corporation (on behalf of the Department of Human Services) in June 2005. A revised Development Plan was subsequently prepared in October 2005 and was provided to Council. Council considered these plans at Urban Planning Special Committee Meetings on 27 June 2005 and 5 December 2005. In order to inform its submission to the DSE in response to the revised Development Plan, Council requested further information from the Walker Corporation. The Walker Corporation has since demonstrated compliance with the requirements of the Boroondara Planning Scheme, and responded to the issues raised in Council's submission. The Minister for Planning has approved the development plan for the site which includes a maximum of 520 dwellings. Council will now

	seek to work with the Walker Corporation to deliver the best possible outcome on the site.
Camberwell Train Station Location: Burke Road, Camberwell	Council established a community based working group in January 2004 to prepare an Urban Design Framework (UDF) for the Camberwell Station precinct. The UDF states in broad terms how a site should be developed and will guide the future development and enhancement of the site and its surrounds. As part of the UDF process, the working group is required to consider various options from No Development to Development. The working group has based the potential development area for Camberwell Station on the area tendered by VicTrack which could include development above the Camberwell Railway Station and surrounding carpark area.
Tooronga Village Shopping Centre Location: Corner of Toorak Road and Tooronga Road, Glen Iris	The Tooronga Village Urban Design Framework (UDF) was prepared by key stakeholders and community representatives and endorsed by Council in November 2001, after the site's owner foreshadowed an intention to redevelop the site in the future. The UDF states in broad terms how a site should be developed and will guide the future development and enhancement of the site and its surrounds. The Tooronga Village UDF has a strong focus on the size and form of buildings, vehicle and pedestrian movement, residential amenity and the Gardiner's Creek environment. New development on this site will need to have significantly improved pedestrian connections and public transport links. Without these, the site would be a major traffic generator. Existing public transport access in the area is limited with the Monash Freeway acting as a major barrier to pedestrian access to Tooronga Station and only a north-south bus service (number 624) operating in close proximity to the site. At the request of the developers Stockland, Council decided on 17 October 2005, to prepare and exhibit an amendment to the Boroondara Planning Scheme to facilitate the redevelopment of the site, with a number of changes to Stockland's proposed plan, namely: ∞ reduction in building heights; ∞ an increased setback from Gardiners Creek; and ∞ provision for the Coles Myer overspill car parking for 500 cars. Council subsequently wrote to the Minister for Planning on 19 October 2005 seeking authorisation. On 13 January, the Minister advised Council that he would only agree to the exhibition of the amendment with Council's changes deleted. Council resolved at its UPC meeting on 30 January 2006, not to proceed with the amendment as authorised by the Minister. Instead Council maintained support for the form of its own Amendment (Amendment C43). Against the wishes of Council, the Minister for Planning

	later assumed responsibility for the future planning of the site. An amendment to the Planning scheme is currently being exhibited by the Minister for Planning which Council is concerned will result in 600 new dwellings, and 3800sqm of office floor space. The exhibition period will conclude on 29 May 2006.
Australand site Location: Toorak Road, Glen Iris	A previous permit (BOR/01/00184 issued on 20 November 2001) allowing for an Australand residential development of the site has not been acted upon. The Planning Group, on behalf of Leighton Properties has made a permit application to develop the land at 740 - 742 Toorak Road, Hawthorn East for a 'Homemaker Centre' (Permit Application PP06/00112) which was lodged on 10 February 2006. Council has not yet formed a view concerning the merits of this proposal.

Figure 4 Trip Generators and Activity Centres



4 Travel Patterns

This section explores the current travel patterns for trips made to, from and within Boroondara, drawing on the following datasets:

- Travel to work characteristics (derived from ABS Census 2001);
- Travel to schools (from school questionnaire survey);
- Travel to key activity nodes (derived from VATS data); and
- Travel to, from and within Boroondara for all trips (from VATS data).

Public transport patronage usage trends and vehicular traffic patterns on roads in Boroondara are explored in further detail in Sections 5 and 6 respectively of this strategy.

4.1.1 Travel to Work

The travel to work patterns for Boroondara and neighbouring municipalities are presented in Table 8. Private vehicle (car as driver or passenger) accounts for the highest proportion of work trips in Boroondara (60.2%). This is lower than the Melbourne average (66.8%) which is to be expected given the train, tram and bus service provision in Boroondara particularly in comparison with outer suburbs and given that a much higher proportion of Boroondara's population are employed in professional occupations which are often located in urban centres and therefore more likely to be access by public transport.

A total of 11.8% of work trips in Boroondara are made by public transport. This may be a slight underestimate given that a portion of multi-mode trips may be made using public transport. Train and tram account for the highest proportion of public transport trips, with buses accounting for less than 10% of public transport trips. Public transport usage is higher than most surrounding municipalities and the metropolitan average. This is to be expected given that Boroondara has greater access to public transport than most metropolitan areas. Stonnington which, arguably has a comparable level of public transport provision to Boroondara, has a higher mode share to public transport at 17.1%.

The proportion of trips to work by cycling in Boroondara is higher than the metropolitan average. This is likely to be a reflection of Boroondara's higher density and closer proximity to the CBD than other municipalities and good provision of shared pathways. A higher proportion of people walk to work than cycle which highlights the importance of shared pathways being designed for multi users and also for the pedestrian network being able to fulfil its role as a means for commuting to work. Around 6% of Boroondara residents worked from home, which is around 2% higher than the metropolitan average.

Table 8 Travel to work patterns for Boroondara and selected adjacent municipalities

	Boroondara		Banyule	Manningham	Monash	Stonnington	Whitehorse	Metropolitan Melbourne
Car, as a Driver	41,260	56.6%	62.7%	66.7%	62.5%	50.2%	61.3%	61.7%
Car, as a passenger	2,647	3.6%	4.5%	5.3%	5.0%	3.5%	4.3%	5.1%
Train	4,652	6.4%	6.1%	0.8%	5.1%	10.9%	5.8%	4.4%
Bus	830	1.1%	1.0%	4.2%	1.1%	1.0%	1.0%	1.0%
Tram	3,123	4.3%	0.1%	0.1%	0.1%	5.2%	0.6%	2.0%
Walk	1,777	2.4%	2.2%	0.9%	2.1%	4.8%	1.9%	2.4%
Bicycle	781	1.1%	0.7%	0.2%	0.6%	1.3%	0.5%	0.8%
Other mode	865	1.2%	2.0%	1.8%	1.9%	1.4%	1.7%	2.1%
Multiple modes	2,948	4.0%	4.3%	3.0%	5.3%	4.2%	5.8%	4.0%
Worked at home	4,281	5.9%	3.4%	5.3%	3.9%	5.5%	4.1%	3.9%
Did not go to work	8,035	11.0%	11.0%	9.6%	10.2%	9.8%	10.8%	10.2%
Not stated	1,685	2.3%	2.1%	2.2%	2.2%	2.3%	2.0%	2.3%
Total	**72,884**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: ABS, Census of Population and Housing, 2001

4.1.2 Where do Workers come from?

Based on 2001 Census Data, 18,630 or 33.5% of Boroondara's workers live and work in Boroondara while the remaining 66.5% of workers come from all over Melbourne with reasonable proportions from Whitehorse, Manningham, Monash, Stonnington and neighbouring municipalities as shown in Table 9.

The journey to work data that is presented below is based on the 2001 Census Question: *"For the main job held last week, what was the person's workplace address?"*

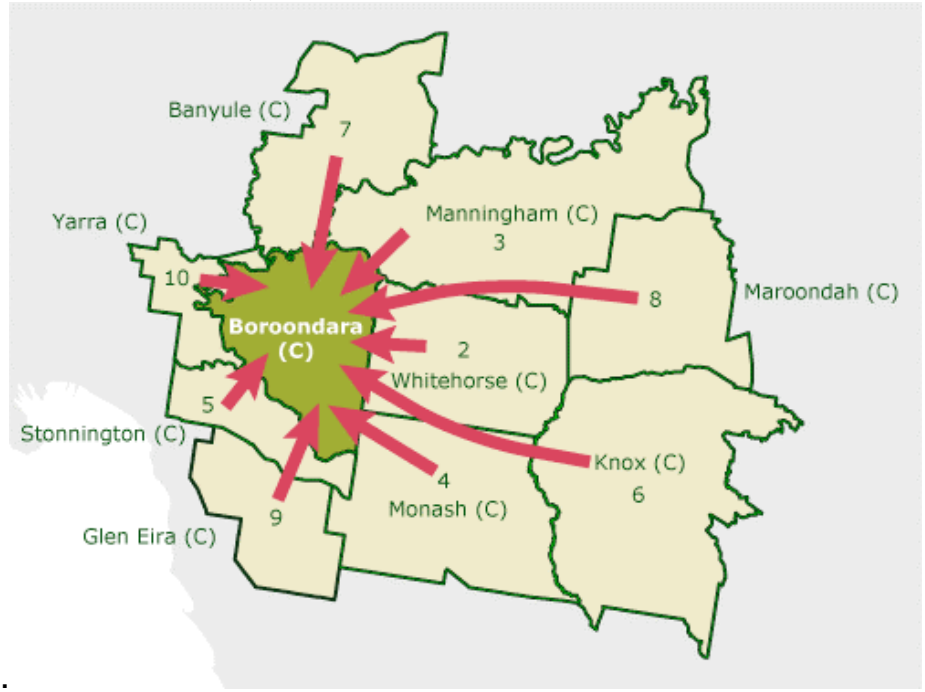
This data is then cross-tabulated with the person's current usual residential address to create a matrix of home to work, with the focus of the analysis on the work destination. This information is generally not available at the small area (suburb / locality) level due to geographic limitations when being coded or processed.

Table 9 Top 10 Local Government Areas of residence for the City of Boroondara's Workers, 2001

		Number	%
1	Boroondara (C)	18,630	33.5
2	Whitehorse (C)	5,338	9.6
3	Manningham (C)	3,244	5.8
4	Monash (C)	2,677	4.8
5	Stonnington (C)	2,079	3.7
6	Knox (C)	1,957	3.5
7	Banyule (C)	1,922	3.5
8	Maroondah (C)	1,814	3.3
9	Glen Eira (C)	1,628	2.9
10	Yarra (C)	1,467	2.6
	Other areas	14,783	26.6
	Total workers in the City of Boroondara	**55,539**	**100.0**

Source: Australian Bureau of Statistics, Journey to work, unpublished data, 2001.

Figure 5 Map of top 10 residential locations for the City of Boroondara's workers, 2001



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Source: Australian Bureau of Statistics, Journey to work, 2001.

4.1.3 Travel to School

Boroondara is host to a total of 58 primary/secondary schools, eight specialist schools and numerous preschools, childcare centres and kindergartens. These facilities generate significant amounts of traffic on the local and arterial road networks, with most schools located in residential areas. A survey was conducted amongst School Principals in Boroondara to inform the preparation of this strategy in order to understand the travel patterns of both staff and students to schools and kindergartens/preschools/child care centres. A 50% response rate was achieved with 32 schools and 35 preschools, childcare centres and kindergartens responding to the survey. A copy of the questionnaire is contained in Appendix C.

Travel patterns to schools are influenced by many factors most notably the distance involved, location of the school, whether the school is serviced by public transport or a school bus and the student's age. The survey indicated that most (more than 50% of) primary school children live within 1km of their school, but that, with the exception of Balwyn High School, less than 25% of secondary school students live within 1km of their school.

Table 10 shows the estimated proportion of students travelling to school by each travel mode. The main conclusions are as follows:

- Travel patterns change according to the age of the student. Secondary students are more independent than primary age students and hence a greater proportion of secondary students catch **public transport** to school, with the surveys indicating that around 50% of secondary school students travelling by public transport.
- There is a notable reduction in proportion of students **cycling** to school when they reach secondary school age. This may be associated with the fact that only children aged 12 years and under are permitted to cycle on footpaths.
- **School buses** play only a minor role in transporting students to and from school. Only one of the eight secondary and combined primary/secondary schools and one of the 18 primary schools were serviced by a school bus. All specialist schools operated a school bus service. This suggests a clear opportunity for school buses to have a greater role in transporting students to school.
- Fewer secondary students **walk** to school than primary school students, which is to be expected given that secondary schools students generally travel further to school. There is opportunity to increase the number of students walking to school with the progressive introduction of council's 'Walking School Bus' program and participation in other simular programs.

Whilst travelling by car assumes a lower mode share at secondary schools than primary schools, parking and traffic problems can be more severe at secondary schools given that they generally have higher total student numbers.

Table 10 Travel to School Patterns within Boroondara – Students

	Travel Mode (% of students travelling by mode)						
	Car	Cycling	Walking	School Bus	Public Bus	Train	Tram
Primary School	64	4	30	1	<1	<1	<1
Secondary School	20	2	21	1	24	19	13
Specialist School	22	0	2	70	4	<1	<1
Childcare centre, preschool, kindergarten	87	1	13	1	1	1	2

Staff travel patterns are influenced by factors such as distance travelled, the need to carry books/equipment, varied work hours and proximity of the school to public transport services. Table 11 shows travel to work patterns for school staff. Car is the dominant travel mode for staff at schools, accounting for more than 90% of the mode share. Results indicated that the majority of staff at schools reside more than 5km from their workplace.

Table 11 Travel to Work Patterns within Boroondara – Staff at Schools

	Travel Mode (% of students travelling by mode)						
	Car	Car with/ as passenger	Cycling	Walking	Bus	Train	Tram
Primary School	95	1	1	<1	<1	1	1
Secondary School	89	3	1	2	1	1	1
Specialist School	92	4	1	2	2	0	<1
Childcare centre, preschool, kindergarten	85	2	0	6	3	1	2

4.1.4 Travel within and trips originating in Boroondara

The Victorian Activity and Travel Survey (VATS) is a household based survey, last undertaken in 2001, that provides a detailed description of daily travel and activity patterns of household members in Victoria. VATS records all travel by all modes and all out of home activities by all people in the households that participate in the survey sample.

The mode split for all trips (including work trips) which originated in Boroondara with a destination either within Boroondara, surrounding municipalities or the City

of Melbourne derived from VATS data is presented in Table 12. These proportions are based on weighted trips i.e. based on the sample and extrapolated by VATS for the municipality as a whole. For all trips originating in Boroondara, 68% are by private vehicle with around 60% of work based trips being by private vehicle.

Low proportions of trips are taken by public transport to Banyule in the north, Monash in the south-east and Manningham in the north-east which suggests that public transport connections to areas are less than adequate. Buses are the only public transport mode servicing trips between Boroondara and these municipalities. The more significant proportions of trips by public transport for those trips to the City of Melbourne are attributed to the strong radial, east-west public transport connections. The proportion of trips by public transport is greatest where connections are provided by either train and/or tram, for example the Whitehorse – tram and train, or the Yarra – tram and train). The general exception is Stonnington which has tram connections to Boroondara (number 69 and 72) but to which only 5% of trips are made by public transport.

Similarly, the low proportions of people cycling to Banyule, Monash and Manningham suggest that bicycle connections to these areas should be improved. The Eastern Freeway is a significant barrier to cycling from Boroondara to the north.

Table 12 Modal Choice for Trips Originating in Boroondara (Average 24 Hour Weekday Weighted Trips by LGA by Mode)

Destination (Municipality)	Private Vehicle	Public Transport	Walk/Cycle	Other/School Bus	Total
Banyule	94%	5%	1%	1%	100%
Boroondara	68%	4%	28%	0%	100%
Manningham	91%	6%	1%	2%	100%
Melbourne	60%	37%	3%	0%	100%
Monash	93%	5%	1%	1%	100%
Stonnington	90%	5%	5%	0%	100%
Whitehorse	88%	7%	4%	1%	100%
Yarra	82%	13%	4%	2%	100%

Source: VATS 2001

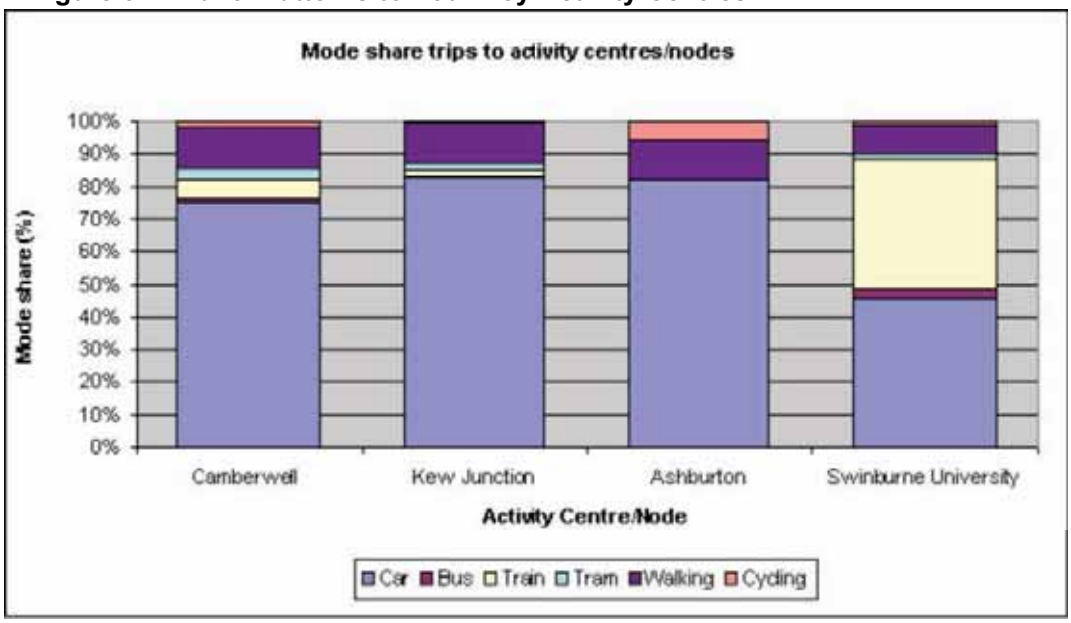
4.1.5 Travel to Activity Centres and Key Trip Attractors

Travel patterns to key activity centres, namely Camberwell, Kew Junction, Ashburton and Swinburne University, on a typical weekday and weekend are presented in Figure 6. This is of particular relevance to Camberwell and Kew Junction's roles as Activity Centres in Melbourne 2030. Whilst Ashburton and Swinburne University are not defined in Melbourne 2030 as Activity Centres, they are significant trip attractors in Boroondara.

The weighted total trips on an average weekday to these activity nodes are around 1,800 and 2,900 respectively.[1] In the case of the three shopping locations (Camberwell, Kew Junction and Ashburton), the trips on an average weekend day exceed the number of average weekday trips to the location, a reflection of the significant Saturday shopping levels. It highlights the importance of providing regular public transport services to these centres on weekends.

9-13% of trips to these centres were undertaken on foot. Trips by car accounted for just 46% of the trips to Swinburne University but for 83% of trips to Kew Junction. Despite Camberwell Junction being served by train, tram and bus services, only 10% of trips are made using public transport with bus being the least popular public transport mode to Camberwell.

Figure 6 Travel Patterns to Four Key Activity Centres



Source: VATS 1994 – 1997 trip data – Weekday + Weekend trips to the Activity Centre (Excludes Non-Home based trips)

[1] VATS 1994-1997 trip data - Weekday + Weekend trips to the Activity Centre (Excludes Non-Home based trips)

Figure 7 and Figure 8 show the origins and destinations of trips in Boroondara, drawing on output from the Melbourne Integrated Transport Model. The figures show the number of trips by all modes of travel per square kilometre area in a weekday morning peak period. The origins of trips are closely correlated to population density since the greatest number of trips, generated are where population density is highest. Trip destinations are areas of employment such as offices, retail centres, schools and health facilities.

Figure 9 and Figure 10 similarly show origins and destinations in a weekday morning peak hour but for trips made by private vehicle. When these figures are compared with Figure 7 and Figure 8 they demonstrate those areas where car use is highest. Together, the maps indicate where people are travelling to and from and the amount of car use to/from these locations, thereby providing focus for identifying where there is scope to improve public transport. The main observations from these maps are as follows:

- The highest trip number of trip 'origins' occur where there is the highest population density eg Hawthorn, Camberwell and Glenferrie.
- Areas with the highest trips 'origins' coincide with areas in Boroondara that are generally well served by public transport.
- Popular destinations are areas where there is a high level of employment eg: Toorak Road/Tooronga Road office area, Camberwell Junction, Burwood Road and High Street.
- There is a need to improve services on existing public transport routes in order to increase access by public transport to those areas which see higher numbers of trip 'destinations' per sq. km.

Figure 7 Trip Origins in Boroondara – all modes (AM Peak Year 2001)

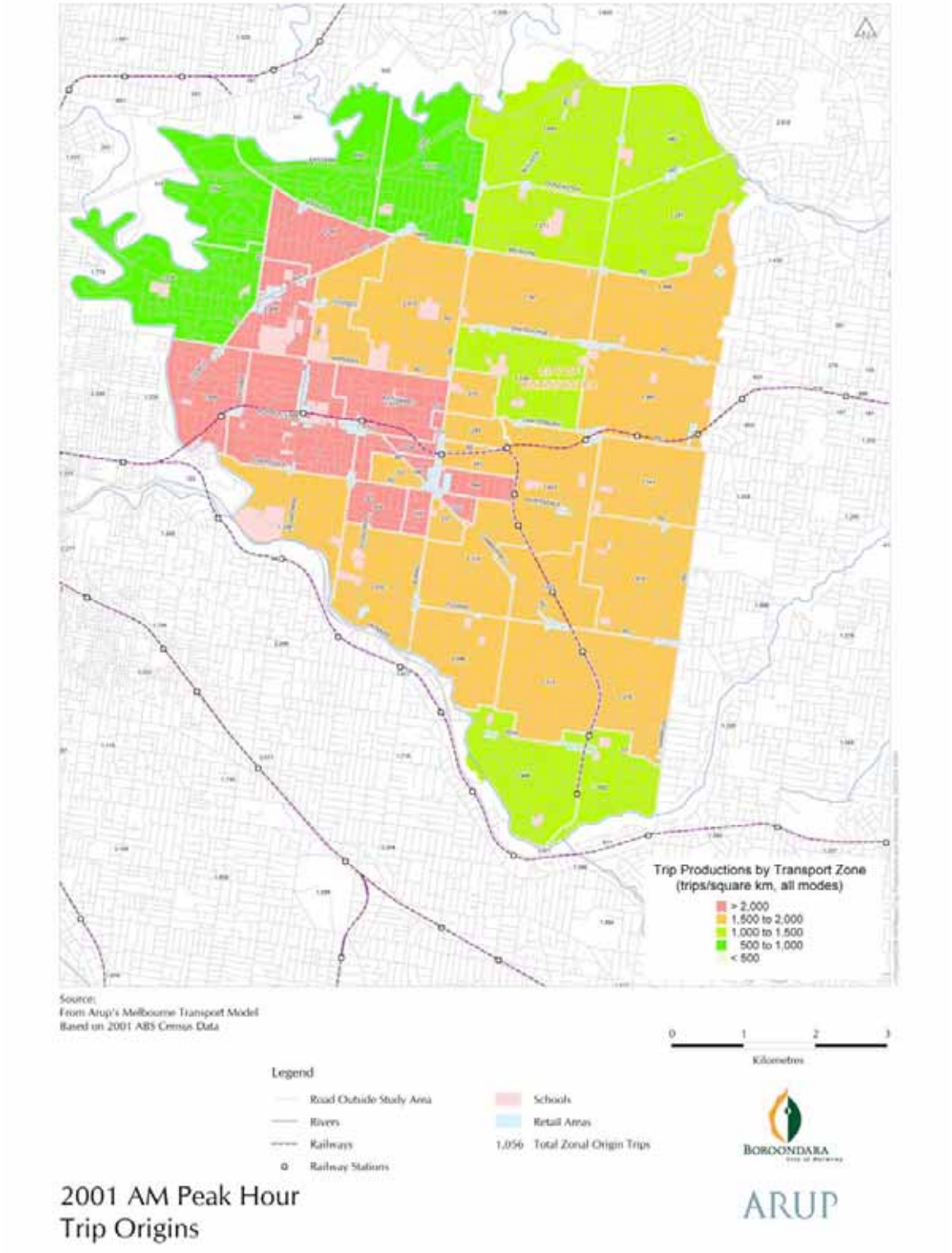


Figure 8 Trip Destinations in Boroondara – all modes (AM Peak Year 2001)

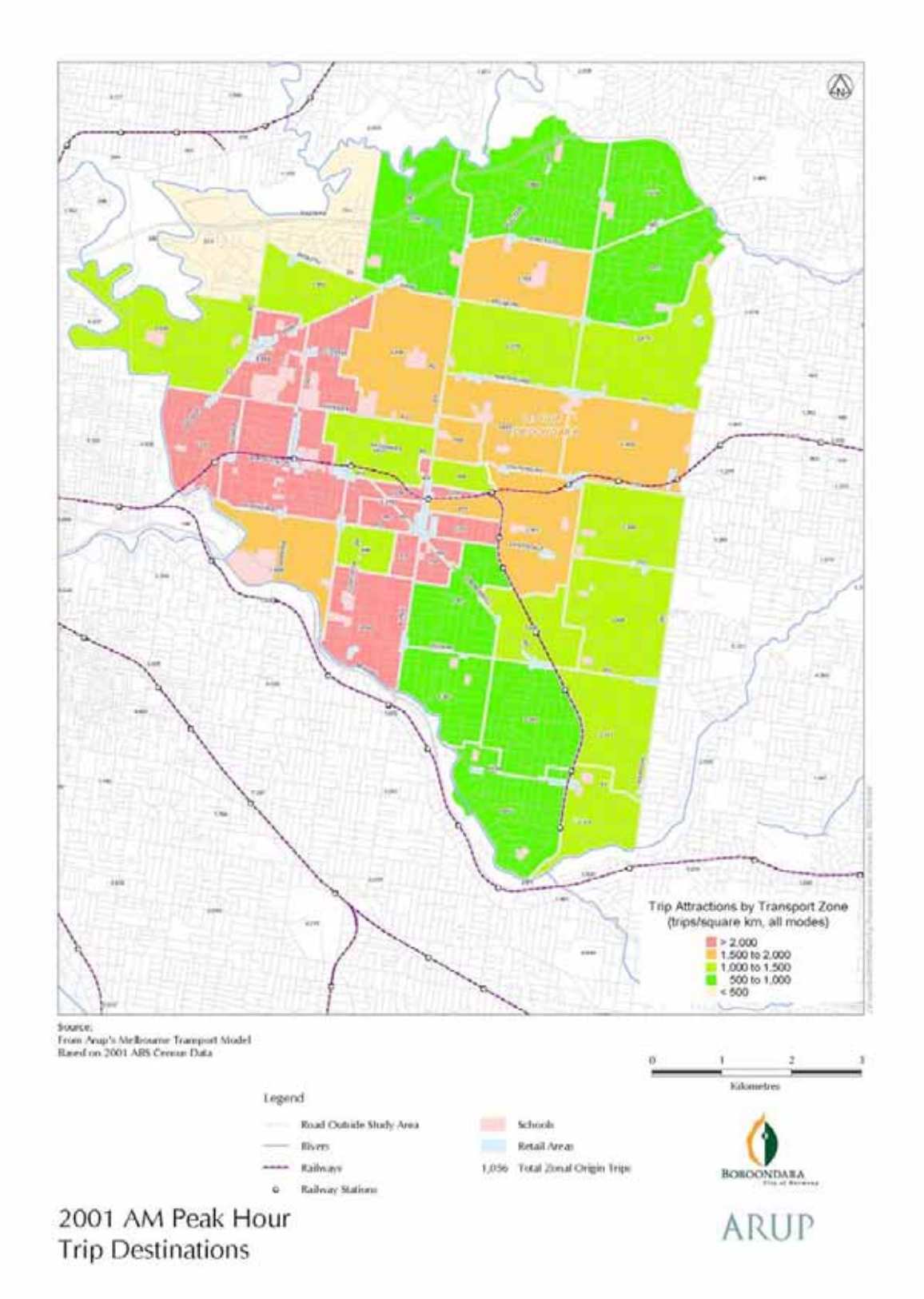


Figure 9 Trip Origins in Boroondara – Private Vehicle (AM Peak Year 2001)

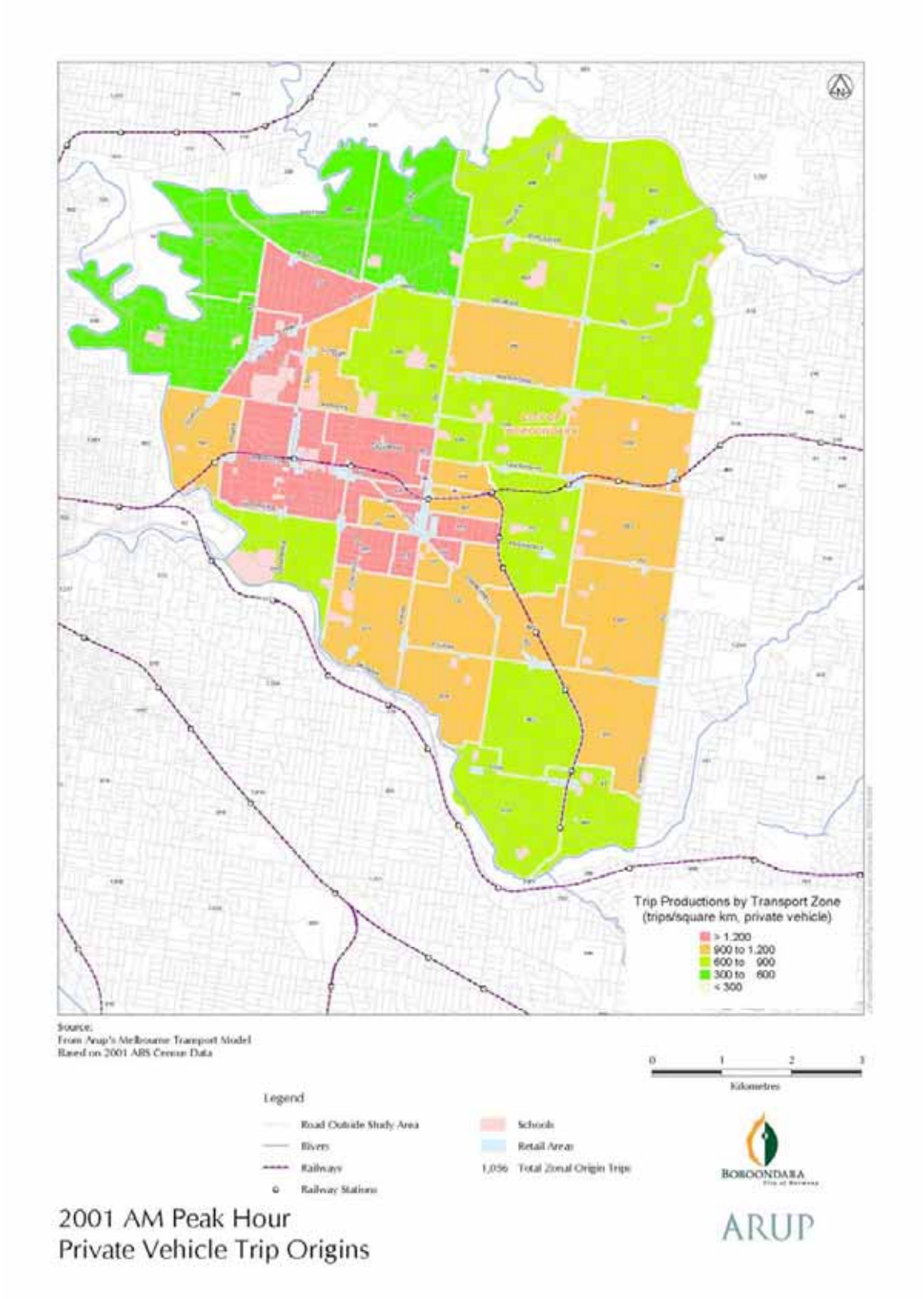
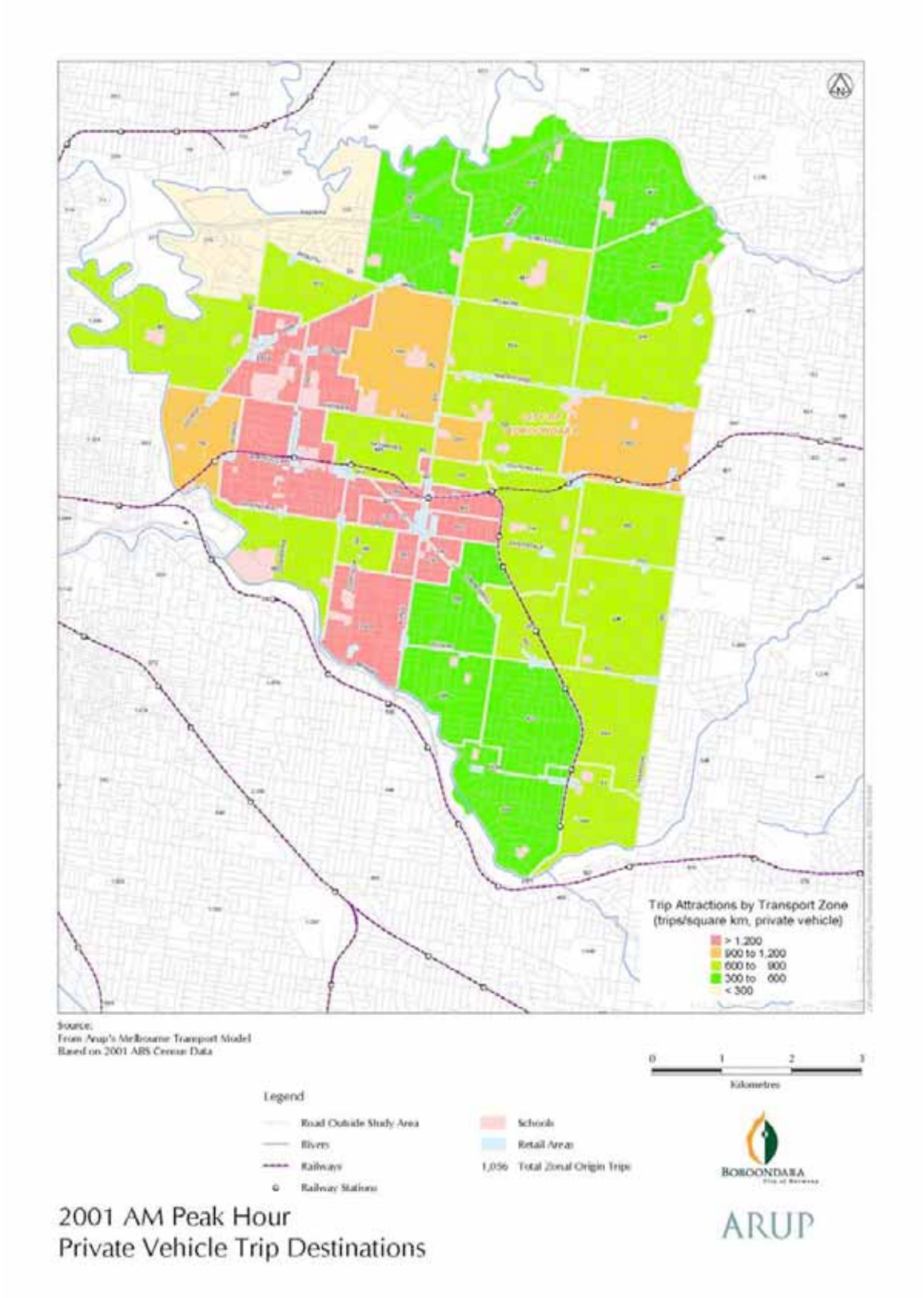


Figure 10 Trip Destinations in Boroondara – Private Vehicle (AM Peak 2001)



5 Public Transport

5.1 Public Transport in Boroondara

Boroondara is served by a network of trains, trams and buses as shown in Figure 1. This map also shows the Principal Public Transport Network (PPTN). In addition, consideration is given in this section to community transport and taxi provision. Boroondara's public transport provision is comparable with that of other inner urban municipalities, in that it is served by multiple suburban railway stations, tram and bus routes, specifically:

- Two train lines – Alamein and Belgrave/Lilydale lines, with 14 railway stations. In addition the Glen Waverley line runs along the south side of Boroondara with a further eight stations in very close proximity to the municipality. Each train line currently serves passengers only.
- Eight tram routes – 16, 24, 42, 48, 70, 72, 75, 109.
- 28 bus routes, of which six run along the Eastern Freeway. A further eleven school bus routes operate.

The activity centres of Camberwell Junction, Kew Junction and to a lesser extent the urban centre of Glenferrie station/ Glenferrie Road form the main public transport destinations and interchange locations. Melbourne's train and tram networks are operated by two operators: Connex and Yarra Trams respectively. Around six operators run bus services in or through Boroondara.

This section considers the extent of and limitations associated with existing provision. Whilst Boroondara has a fairly extensive network, there are a number of challenges if increases in the use of public transport are to be achieved, including:

- Better integration of existing public transport provision both in terms of physical links and timetable co-ordination;
- Improvements to the frequency, reliability and coverage of existing services, including those areas poorly served by public transport and particularly during evenings and weekends;
- Better north-south provision to complement more comprehensive east-west radial routes into and out of the CBD; and
- Improved integration of public transport with routes for cyclists and pedestrians.

The above accord with Strategic Objectives 1 and 5 of this Strategy:

SO 1 To facilitate improvements to and better integration of all forms of public transport.

SO 5 To promote safe and secure alternative forms of travel to the car and to increase the attractiveness of these (through travel demand management).

They also contribute to Strategic Objectives 3 and 4

SO 3 To create more pedestrian friendly street environments and high quality urban centres which are less car-dominated.

SO 4 To introduce measures to better manage traffic, public transport, cycling and walking on congested roads and particularly in urban centres.

Those public transport improvements that are planned or underway are identified in Section 2 and referred to in this section. Of particular relevance is TravelSMART Alamein which has increased use of all public transport in suburbs including Ashburton, Burwood, Hartwell and Camberwell.

5.2 Trains

5.2.1 Current Services

Train frequencies to the railway stations in Boroondara are provided below (Table 13).

Table 13 Train Frequencies from Stations in Boroondara

	Alamein Line *(Riversdale, Willison, Hartwell, Burwood, Ashburton* and Alamein)*	**Belgrave/ Lilydale Line** *(East Camberwell, Canterbury, Chatham)*	**Stations on both lines** *(Hawthorn, Auburn)*	**Premium stations***		
				Glenferrie	Camberwell	Surrey Hills
Weekday morning peak *(7.15am – 9.30am)*	14 – 20 mins	9 – 15 mins	5 – 11 mins	2 – 9 mins	1 – 8 mins	2 – 12 mins
Weekdays during day**	15 mins^	11 – 15 mins	11 – 15 mins	7 – 15 mins	7 – 15 mins	11 – 15 mins
Weekday evenings***	11 – 18 mins	13 – 18 mins	11 – 18 mins	11 – 18 mins	2 – 18 mins	13 – 18 mins
Saturday *(during day)*	20 mins^	20 mins	20 mins	20 mins	20 mins	20 mins
Saturday evenings	30 mins after 7.30pm^	30 mins after 7.30pm	30 mins after 7.30pm	30 mins after 7.30pm	30 mins after 7.30pm	30 mins after 7.30pm
Sunday *(during day)*	30 mins^	20 mins	20 mins	20 mins	20 mins	20 mins

Notes:
Train services relate to frequency of services from stations to the CBD with the exception of weekday evening services which relate to services from the CBD.
^ Change at Camberwell – otherwise Train service frequencies refer to direct services (without changing).
*Ashburton is also a premium station but has the same train service frequencies as other stations on the Alamein Line.
** Trains start operating more frequently again early afternoon.
*** After 9pm train services are generally half-hourly.

Train services are mostly used for access to and from the CBD. Local train services focus on providing access to Camberwell Junction and Glenferrie, (the latter particularly for access to Swinburne University), and to a lesser extent the retail centres at Canterbury and Ashburton. Reasonable train service frequencies are achieved on weekdays but there is considerable scope to improve evening and weekend services, introduce more frequent and more direct services through

to the CBD on the Alamein line and improve train frequencies particularly addressing 'timetable gaps'.

In addition to the above two train lines, eight stations on the Glen Waverley train line are in close proximity (often less than 0.5 km, or around 6 minutes walk[2] from Boroondara). Of these, seven can be easily accessed from Boroondara as follows:

- Kooyong station via Glenferrie Road (Tram 16);
- Tooronga station via Tooronga Road (Bus Route 624);
- Gardiner station via Burke Road (Tram 72);
- Glen Iris station via High Street (Bus Route 612) and a pedestrian overpass from Brixton Rise;
- Darling station via Moira Street/Dunlop Street and a pedestrian overpass;
- East Malvern station via Solway Street; and
- Holmesglen station via Warrigal Highway (Bus Route 700).

The Monash Freeway is a significant barrier to accessing the above stations. Pedestrian and cycle access is often along main roads carrying significant traffic levels and the pedestrian and cycle paths associated with road crossings frequently do not provide attractive access routes. Other pedestrian/ shared paths to these stations across the Monash provide useful links but there is often a need to improve maintenance of and signage to these routes and to the stations. Most of the stations can also be accessed from the Gardiner's Creek Trail via crossing points over the Monash Freeway.

5.2.2 Patronage and Future Demand

Patronage levels on the Alamein and Belgrave/Lilydale lines (the latter as far inbound to the CBD as Camberwell) indicates that services have spare capacity during peak weekday hours with considerable capacity during off-peak weekday periods. However, services inbound to the CBD from Camberwell are understood to be more congested. Patronage forecasts suggest significant increases in passenger numbers on the Belgrave/Lilydale lines in the long-term. Unless passenger numbers significantly increase on the Alamein line, Connex is unlikely to increase the frequency.

5.2.3 Stations and Their Facilities

Most railway stations in Boroondara are reasonably well maintained, particularly in comparison with other suburban stations in the metropolitan area. Many have also seen investments in facilities such as improved lighting on pedestrian paths at stations, Metlink signage, improved station access and expansions in car parking. However, there remain a number of key issues associated with access and facilities at and to stations including:

- Perceived lack of **capacity** at some stations, i.e. Camberwell, Auburn, Glenferrie and Hawthorn;
- Poor **pedestrian and cycle access** to stations including steepness of ramps (e.g. at Canterbury Station), safety and security of pedestrian paths and underpasses particularly during evenings and on approaches to stations;

[2] based on average unimpeded walking speed of 1.35 metres per second, as defined in Austroads Guide to Traffic Engineering Practice, Part 13, Pedestrians

- **Safety and security** including: pedestrian route visibility, lighting, passive surveillance through more passenger numbers as well as station staffing;
- **Bicycle parking provision** at stations. Bicycle parking is provided at some stations but there is scope to increase provision at others or improve the quality and security of existing provision;
- **Disabled access**;
- **Adequate signage** at stations and on approach routes to stations;
- **Toilet provision** at stations (particularly important for some passengers e.g. older people);
- **Staffing** at stations to improve passenger safety and disabled access. Government is increasing station staffing at selected stations including introducing morning peak period staff at Auburn;
- The need for more **ticket machines**, particularly to cater for peak periods; and
- Opportunities for newspaper and other **recycling**.

5.3 Trams

5.3.1 Current Services

Tram service frequencies for the eight tram routes are shown in Table 14.

Table 14 Tram Service Frequencies

	Weekday Morning Peak (7.15am – 9.30am)	Weekdays	Weekday Evening Peak (4.30 – 6.30pm)	Weekday Evenings	Saturdays	Saturday Evenings	Sunday
16 *Kew – Melbourne University (via St Kilda)*	10 – 15 mins	10 – 12 mins	10 mins	20 mins	12 – 20 mins	12 – 30 mins	12 – 30 mins
24 *North Balwyn – City (via La Trobe Street)*	10 mins	-	10 – 12 mins	-	-	-	-
42 *Box Hill – City (Collins Street West)*	8 – 20 mins	-	-	-	-	-	-
109 *Box Hill – Port Melbourne*	4 – 8 mins	8 mins	3 – 8 mins	10 – 20 mins	10 mins	10 – 20 mins	12 mins
48 *North Balwyn (Doncaster Road / Balwyn Road) – City*	5 – 9 mins	10 mins	6 – 9 mins	20 mins	12 mins	20 mins	12 – 20 mins
70 *Wattle Park – City*	7 – 10 mins	10 mins	7 – 10 mins	17 – 20 mins	12 mins	20 mins	8 – 14 mins
72 *Camberwell – Melbourne University*	10 – 14 mins	10 – 12 mins	10 mins	20 mins	12 – 13 mins	20 mins	12 – 13 mins
75 *East Burwood – City*	6 – 11 mins	10 mins	8 – 10 mins	20 mins	10 – 12 mins	20 mins	12 mins

Note: Tram services relate to frequency of services from Boroondara to the CBD with the exception of weekday evening services which relate to services from the CBD.

Trams are more heavily used for local trips than train services. In general, they are more frequent than local train services but journey times are slower. Services are reasonably frequent on most routes during peak hours and during the day. However, evening services are typically every 20 minutes on most routes which are insufficiently attractive for many potential users. Route 109 (along Whitehorse and Cotham Road) and route 48 (along Doncaster Road, High Street and Church Street) see the most frequent routes into the CBD during the morning peak hours. Routes 70 and 75 have similar tram frequencies. They also run alongside each other along Riversdale Road between Burke Road and Glenferrie Road increasing tram frequencies into the CBD along this stretch of Riversdale Road.

Key locations for tram access, referred to as 'hub' locations where there are high numbers of passengers boarding or alighting trams, include:

- For shopping, Camberwell Junction, Kew Junction and junction of Riversdale Road/ Glenferrie Road.
- For work, again Camberwell Junction, Kew Junction and junction of Riversdale Road/ Glenferrie Road. Other locations include Whitehorse Road/ Balwyn Road, Burke Road/Cotham Road and Doncaster Road/ Bulleen Road.

One of the most significant challenges to improving tram services is the need to reduce **travel time delays** usually associated with signalling and congestion at major intersections such as Camberwell and Kew junctions. Vehicles obstructing/ delaying trams along routes are also significant in causing travel time delays. The State Government's 'Tram Priority Program' (see Section 2.4) seeks to address these delays and involves investigations being conducted on a route by route basis.

Vehicles queuing in tram lanes or performing right hand turns from trams lanes are a common cause of delay for trams. **Fairways** are intended to provide priority for trams where an exclusive right of way for trams (segregation from traffic lanes) cannot be achieved. Compliance with fairways is a major problem in Boroondara where there is significant congestion and limited road space. Unauthorised use of fairways by vehicles causes significant delays to trams which can be transporting a large number of commuters. Alongside the 'Tram Priority Program', VicRoads is investigating ways of achieving greater compliance of the fairways, principally through more effective enforcement in order to speed up tram travel times. Delays cause tram services to fail to meet timetable schedules reducing overall service reliability and sometimes encouraging trams to speed to meet timetables.

5.3.2 Patronage and Future Demand

The existing tram network in Boroondara provides greater east-west coverage and more coverage in the western half of the municipality than the eastern half. Consideration has previously been given to the scope to expand the network e.g. by extending existing routes such as route 72 north along Burke Road to (from Whitehorse Road) to High Street and south along Burke Road to Monash University's Caulfield campus, route 8 further along Toorak Road to Hartwell, route 6 along High St to Warrigal Road, routes 24/ 48 further along Doncaster Road to the park and ride facility or to Doncaster Shoppingtown and possibly

along Princess Street in Kew (which could service the Kew Residential Services site).

5.3.3 Casualty crashes

Data available from Yarra Trams identifies tram incidents recorded over the last 5 years for selected routes (those operated by Yarra Trams before acquiring additional MTram routes in 2004), shown in Table 15.

Table 15 Tram Incidents 1998-2003 on Selected Routes

Location	Number of Incidents	Tram Route(s)
Camberwell Junction	45	70, 75 and 72
Burwood Road/Power St	32	75
Toorak Road/ Warrigal Road	31	75
Riversdale Road/Glenferrie Road	25	70 and 75
Riversdale Road/ Auburn Road	21	70 and 75
Riversdale Road/Tooronga Road	13	70 and 75

Source: Yarra Trams Incident Register Report, Camberwell Depot, 1 July 1998 – 31 Dec 2003

Of the top 20 locations with the highest incidents for Yarra Trams, six were in Boroondara and all of these concerned locations on route 75 with most also on route 70. This suggests that safety upgrades to these routes for passengers and measures to reduce the number of incidents with other on-road vehicles should be a priority for Boroondara. The crash locations are shown on Figure 11.

5.3.4 Tram Facilities

Most tram stops have only very simple facilities with many not providing seating for waiting passengers. Government in conjunction with Yarra Trams has long-term plans to upgrade tram stop facilities across Melbourne. The development of tram route 109 has seen the introduction of 'accessible tram stops' which allow disabled access. These stops facilitate access onto trams by the use of ramps and raised platforms to allow same level access to low floor trams and increase safety associated with crossings across traffic lanes to the stops or ensure that trams can be accessed direct from the kerbside. Accessible tram stops ('super stops' or 'kerb access stops') have been introduced at locations in the CBD and along the extension of tram route 109 to Box Hill. Further stops are being considered for route 109 where it passes through Boroondara. In addition to step-free access, new stops also see the following:

- Improved shelter and pavement/platform waiting areas for passengers;
- Improved street lighting in the vicinity of stops;
- Improved timetable information with real-time travel information at some stops;
- Ticket machines at selected stops; and

- Improved landscaping at many stops.

Whilst significant improvements in accordance with the above are proposed in long-term for Melbourne, simpler and more cost-efficient improvements are needed in the short-medium term in order to improve the safety, comfort and attractiveness of using trams. These include:

- Better timetable information (this is sometimes missing or not replaced quickly at some stops);
- Seating at more stops;
- Shelter at more stops (to increase weather protection);
- Provision to increase passenger safety in boarding trams from tram stops (particularly important for older people and those with restricted mobility) e.g. through road markings of 'tram boarding zones';
- Real-time travel information at busy/high use stops; and
- Ensuring tram stops are more conspicuous to passengers and other road users.

Existing users also identify a preference for tram conductors. These services are and will largely be provided by tram attendants who provide assistance and information to tram passengers and whose numbers are being increased across Melbourne.

5.3.5 Tram 109

The Tram 109 Project is a major State Government infrastructure initiative linked to Melbourne 2030 and the State Government's commitment to achieve 20% of all motorised trips by public transport by 2020. It seeks to bring Melbourne's public transport in line with the Disability Discrimination Act requirements of universal access. These objectives are consistent with Council's commitment to enhance public transport options.

The project aims to increase tram patronage through:

- Improving overall travel time and reliability.
- Improving safety.
- Providing for universal access.
- Creating an integrated urban design.

Following extensive community consultation, Council on 12 December 2005, resolved to support a design for centre platform tram stops (CPTS) with associated streetscape improvements.

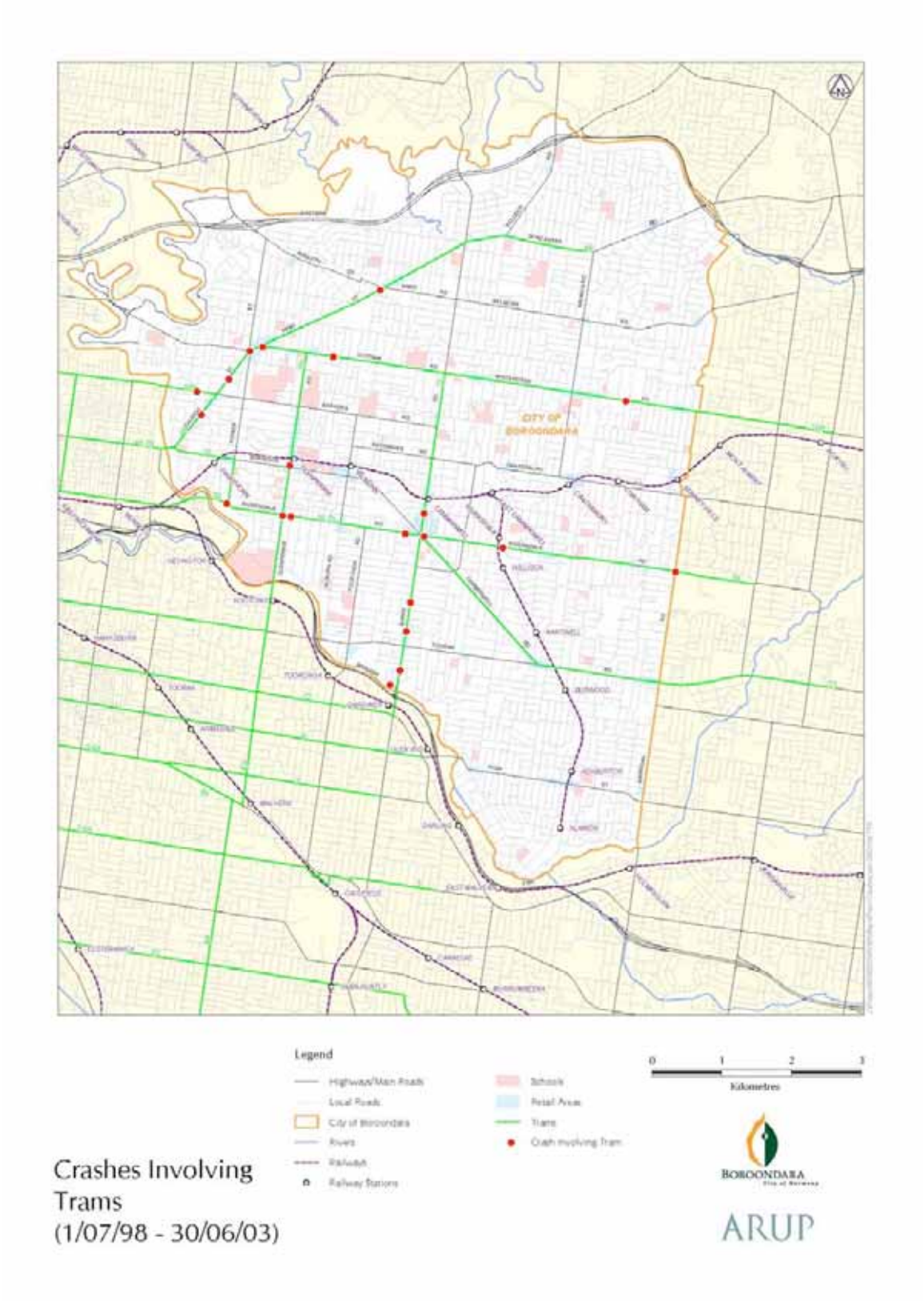
The design essentially involves the relocation of tram tracks to create a continuous 2.8m wide central median incorporating DDA compliant tram stops. The central median has multiple uses, including tram stop platforms, space for right turning vehicles, relocation of tram/electricity poles, access, planting and streetscape improvements including undergrounding of power.

The CPTS option provides:

- Significant tram travel time improvements.
- Minimal loss of car parking spaces.
- Reduced travel time for motorists.
- A whole of streetscape design solution.

The Council has advised the Minister for Transport and VicRoads of its position. VicRoads intends to lodge the project with the State Government for formal consideration and a decision.

Figure 11 Crashes Involving Trams (July 1998- June 2003)



5.4 Buses

5.4.1 Current Services

Bus service frequencies for the 22 principal bus routes serving Boroondara are shown in Table 16. A further six routes operate along the Eastern Freeway on Boroondara's northern boundary and an additional eleven routes operate as school bus routes.

Half of the 22 services operate at 30 minute frequencies during weekdays. Route 700 (the planned SmartBus route) along Warrigal Road operates more frequently with 20 minute intervals. All other bus routes operate less frequently during the weekday with few operating in the evenings. Thirteen of the 22 services operate on Saturdays with only seven operating on Sundays. In general, therefore whilst buses provide a reasonable network of routes complementing the train and tram network, services have the following limitations:

- Almost all services are insufficiently frequent to be used on a 'turn up and go' basis and require journey planning;
- Many services are targeted at commuters into the CBD and less frequent services operate during the day (off-peak periods);
- Most services are very limited during evenings and at weekends with many not operating at all;
- A number of services only operate to certain destinations at certain times of the day;
- A number of routes are restricted in terms of the locations where they collect or drop-off passengers with some largely operating as routes through Boroondara and not necessarily serving sections of the route on which they operate. For example route 684 does not pick up passengers in Boroondara unless they are coming or going from origins/destinations east of Coldstream on this route to Healesville and similar pick-up /set-down restrictions operate on High Street, Kew; and
- A number of routes are circuitous e.g. route 612, which whilst serving greater areas of the municipality causes lengthy journey times.

Most services can be described as inter-regional, with many providing east-west connections from locations such as Box Hill and Doncaster into the City. Available data indicates that the north-south bus routes e.g. from Kew or Box Hill to Chadstone are more heavily patronised and this may be due to the lack of other available public transport routes (only two tram routes run north-south, plus the Alamein train line). Route 700 which is the planned Warrigal SmartBus route (see Section 2.4) is one of the most well-patronised bus routes through Boroondara.

In general, buses encounter fewer delays than trams and consequently average journey times are faster than for trams. Buses in Boroondara still experience delays caused by congestion with traffic e.g. at traffic signals or significantly when vehicles are double parked or parked in bus stops. In general buses are considered to be less attractive as a form of public transport than trams or trains, usually due to perceptions associated with comfort, ride smoothness, ability to move around whilst on-board and sometimes on-board amenities. In general, there is less knowledge of the routes which buses follow. Smaller buses are more attractive for local routes, particularly narrow streets but can be economically and operationally disadvantageous to operators.

Table 16 Bus Service Frequencies

Bus No	Description	Weekday	Weekday evenings	Saturdays	Sundays
200	City – Bulleen - Doncaster Shoppingtown	30 mins	hourly	30 mins	30 mins
201	City - Warrandyte (via Doncaster Shoppingtown & Templestowe Village Shops)	30 mins	hourly	hourly	1.5 hours
202	East Kew - Box Hill Central Shopping Centre	hourly (more in am peak)	-	hourly	-
203	City - Doncaster Shoppingtown	30 mins	-	-	-
205	Melbourne University - Doncaster Shoppingtown (via Kew Junction & Bulleen)	30 mins, but only am + pm peaks	-	-	-
207	Donvale - Doncaster Shoppingtown - City (via Doncaster Road)	30 mins	1-2 hours	hourly	1.5 hours
284	Box Hill - Doncaster Shoppingtown (via Mont Albert)	30 mins	-	hourly	-
285	Doncaster Shoppingtown - Camberwell (via Canterbury)	hourly (more in am + pm peaks)	-	-	-
302	Box Hill – Kew East - City	hourly (more in am + pm peaks)	hourly	hourly	1.5 hours
307	City – Mitcham (via Eastern Freeway & Doncaster Road)	30 mins (more in am + pm peaks)	-	hourly	every 2 hours
309	City – Donvale	hourly (more in am + pm peaks)	-	-	-
313	Templestowe Shops - City (via High Street & Kilby Road)	only 2 am and 2 pm peak services	-	-	-
315	Box Hill – City (via Balwyn)	only 1 am and 1 pm peak services	-	-	-
316	Deep Creek Reserve - City (via Doncaster Road & Eastern Freeway)	only 3 am and 3 pm peak services	-	-	-
319	The Pines Shopping Centre - City (via King Street, High Street & Eastern Freeway)	Hourly	-	-	-
548	Kew (Cotham Road) - La Trobe University Bundoora	30 mins (more in am + pm peaks)	-	every 1 hour, 10 min	
609	Kew - Fairfield (via Royal Talbot Hospital)	4 services per day	-	-	-
612	Box Hill - Chadstone Shopping Centre (via Camberwell & Glen Iris)	every 30 mins	-	hourly	-
624	Kew - Chadstone Shopping Centre - Holmesglen T.A.F.E. - Oakleigh	every 30 mins	-	45 – 60 mins	-
684	Melbourne - Marysville - Alexandra - Eildon	Daily	-	daily	daily
700	Box Hill - Mordialloc (via Chadstone Shopping Centre)	every 20 mins	hourly	25 mins	50 mins
734	Glen Iris - Glen Waverley	30 mins (more in peaks)	-	hourly	-

5.4.2 Bus Facilities

As with tram stops, most bus stops have only very simple facilities with again many not providing seating for waiting passengers. There is a need to improve bus stop facilities to attract more passengers to use buses by providing similar facilities as those needed for tram stops including better timetable information, seating, shelter, street lighting, and access for those with restricted mobility and real-time travel information on some routes.

5.5 Taxis

Taxis supplement the public transport system. Due to their higher cost to public transport they are used for many short trips and night trips.

Many people with a disability rely on taxis as their only form of transport.

Taxi parking bays need to be located appropriately in order to ensure that they integrate with other forms of transport and provide access to required facilities. Seating and shelter should be considered at major taxi bays.

5.6 Community Transport and Access

Social isolation continues to be a limiting factor for a proportion of the population who are relatively disadvantaged. As our population ages and a greater portion of our citizens migrate into retirement, available leisure time increases. It is generally accepted that the social capital of a community is dependent upon the extent to which individuals achieve community affiliation and association, thereby increasing their feeling of well being and sense of belonging.

“Activity Centres” will perform a leading role in providing key places where community based facilities will exist to facilitate the achievement of positive social capital outcomes (e.g. libraries, civic spaces, U3A etc.). Without effective transportation, pedestrian access and mobility solutions, it is likely that activity centre effectiveness will be constrained, social capital will underachieve its potential and the quality of life experiences for citizens will be limited for some.

The ITS therefore proposes a specific social capital investment component based upon a non-economic premise.

Community transport and access considers provision for those with restricted mobility including frail, isolated or disabled residents who are unable to access public, private or commercial services. Council provides three buses to serve these groups and these operate every day on weekdays providing door-to-door services to community, health and leisure destinations. The buses are available for hire after hours and at weekends. A fourth Council bus is available for hire by community groups at any time. Other vehicles are available for Home and Community Care (HACC) clients through HACC funded agencies (e.g. BASS Care, Balwyn Welfare).

Council’s review into its community transport provision [3] identifies several recommendations including:

- Analysis of community transport requirements;
- Extend operating hours beyond Monday-Friday, 9am- 5pm;

[3] 2004, Best Value Boroondara Community Transport

- ∞ Undertake consultation with users of the service and the broader community; and
- ∞ Promote the service to increase awareness.

Developments and improvements to public transport services so that they are DDA compliant will allow more of those who currently struggle to use public transport services, who rely on lifts from others or who use Council/ HACC community transport services to use public transport. Access improvements to public transport should therefore be considered as part of Council's overall approach to community transport and access provision.

5.7 TravelSMART

TravelSMART is an innovative Victorian Government program which is aimed at encouraging people to choose sustainable travel alternatives such as cycling, walking and public transport to reduce their dependency on the car. It also plays a key role in helping the state government meet objectives set out in strategies such as Melbourne 2030 and Growing Victoria Together.

It involves state and local government working with individuals, households and organisations to identify and promote these alternatives where possible.

In March 2003, *Socialdata Australia* was awarded the TravelSMART Alamein Train Line project.

The objectives of the project were to:

- ∞ Effectively and efficiently deliver a successful voluntary travel behaviour change methodology for households, to approximately 5000-7500 households along the Alamein train line by July 2003.
- ∞ To achieve a change in travel behaviour of approximately 10-14% reduction in car trips and car kilometres, across the target population, without restricting personal activity, or adverse community or political reaction.
- ∞ To raise awareness of travel behaviour change, and to facilitate a greater understanding of travel behaviour change, and to encourage positive attitudes towards travel behaviour change by the community, local and state government staff, and politicians.

While the project focussed on public transport patronage, car travel alternatives were not restricted to public transport only. It was to encompass all realistic alternatives, including mode change for walking and cycling.

The project involved contacting 6099 households along the Alamein train line. These households were then classified into three main groups, 2276 households (37 %) in the 'Interested / Interesting' group, 1586 (26 %) who were regular users of environmentally friendly modes and 2237 (37 %) of households who would not be contacted again.

Households, which during the previous contact phases showed an interest in using environmentally friendly modes more often and also needed assistance with sourcing information, become the focus for all further attention. A comprehensive list of available information (referred to as the "Service Sheet") was mailed to households so that all household members were able to discuss their specific needs. This aimed to further motivate members of the household to think about their travel choices, to discuss this with others, and to choose only the information that was relevant to their situation.

During this phase, information requested by households returning their "Service Sheet", was collated and individually packaged, addressed and delivered to the household.

In the final contact phase specially selected householders who requested further services were offered a home visit from a public transport expert. Further support was also offered to households interested in taking up more walking and cycling.

In August 2003 the “after” survey was conducted, and 943 householders from the initial 6099 householders were contacted. Comparison with the “before” and “after” surveys showed a 10% reduction in car driver trips as a result of the individualised marketing campaign, and increases in public transport use of 12%, walking 17% and cycling 18%.

The combined modal share of walking, cycling and public transport increased from 22 to 26%, and motorised private modes decreased from 78% to 74%. Overall, the analysis shows that small individual changes in travel behaviour resulted in significant aggregated effects.

Furthermore, the data indicate that these results were achieved without affecting people's overall mobility in terms of their activities outside the home, travel time and number of trips per day. However, a small decrease was recorded in the average daily distance travelled, from 25 km per person per day to 22 km per person per day.

The results show that the program has the potential to reduce car traffic and promote the use of alternative travel modes on a large scale across Melbourne.

References

Department of Infrastructure (2003) TravelSMART News

Department of Infrastructure (2004) TravelSMART Alamein – Final Report

5.8 Overall Public Transport Provision

Figure 12 and Figure 13 show the geographic gaps in public transport provision in Boroondara. Service coverage is particularly reduced at weekends. Significant gaps include: Balwyn, North Balwyn, Hartwell, Hawthorn East and parts of Ashburton and Glen Iris.

Figure 14 provides a general assessment of public transport issues. It identifies opportunities for new connections to fill existing gaps including connections to the surrounding region. Bus provision provides the easiest and lowest cost method of addressing gaps in provision. However, opportunities to improve provision and increase integration need to consider all public transport modes in order to achieve an improved integrated transport system.

Figure 12 Public Transport Provision and Provision Gaps

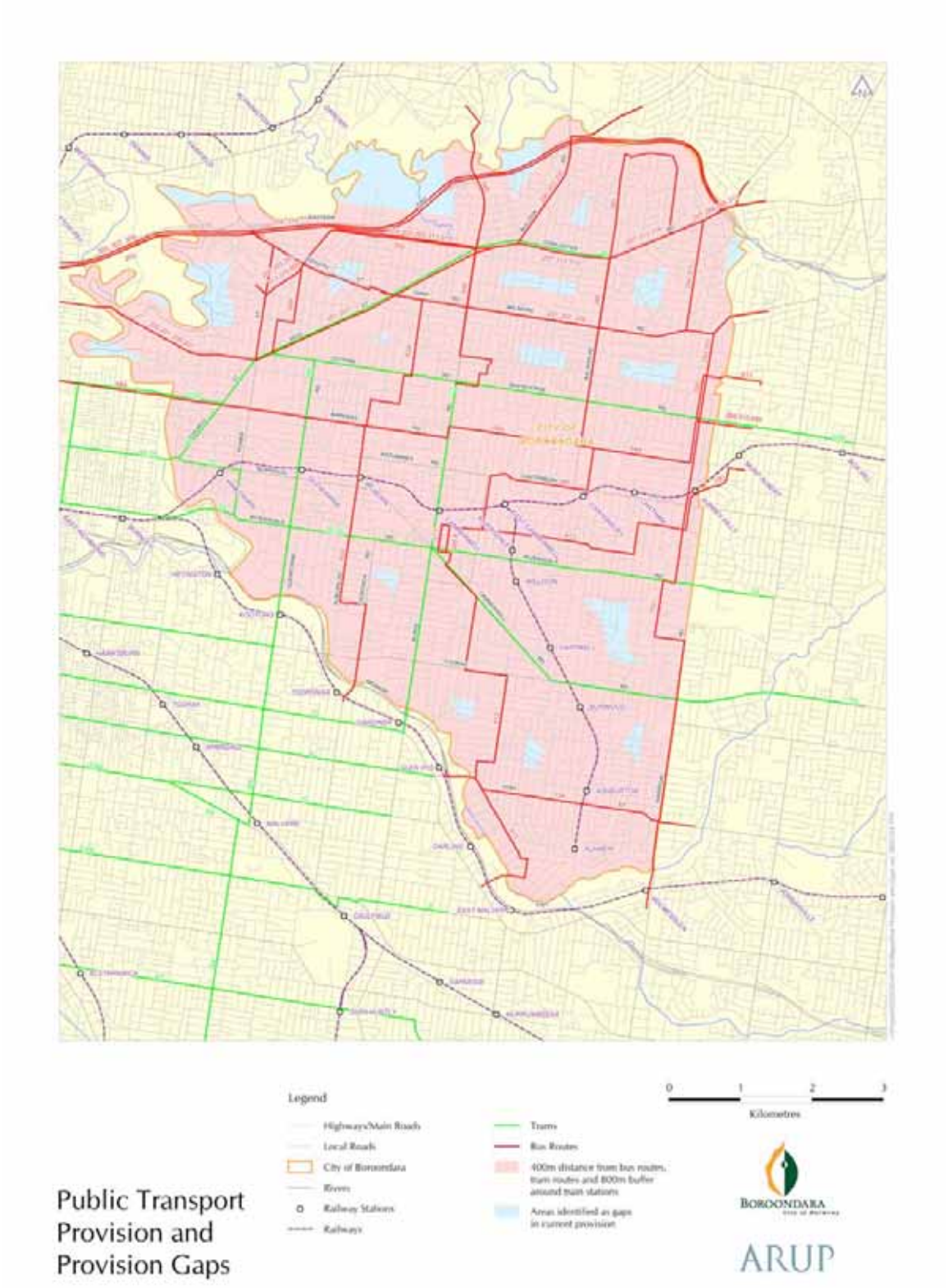


Figure 13 Public Transport Provision and Provision Gaps – Sundays Only

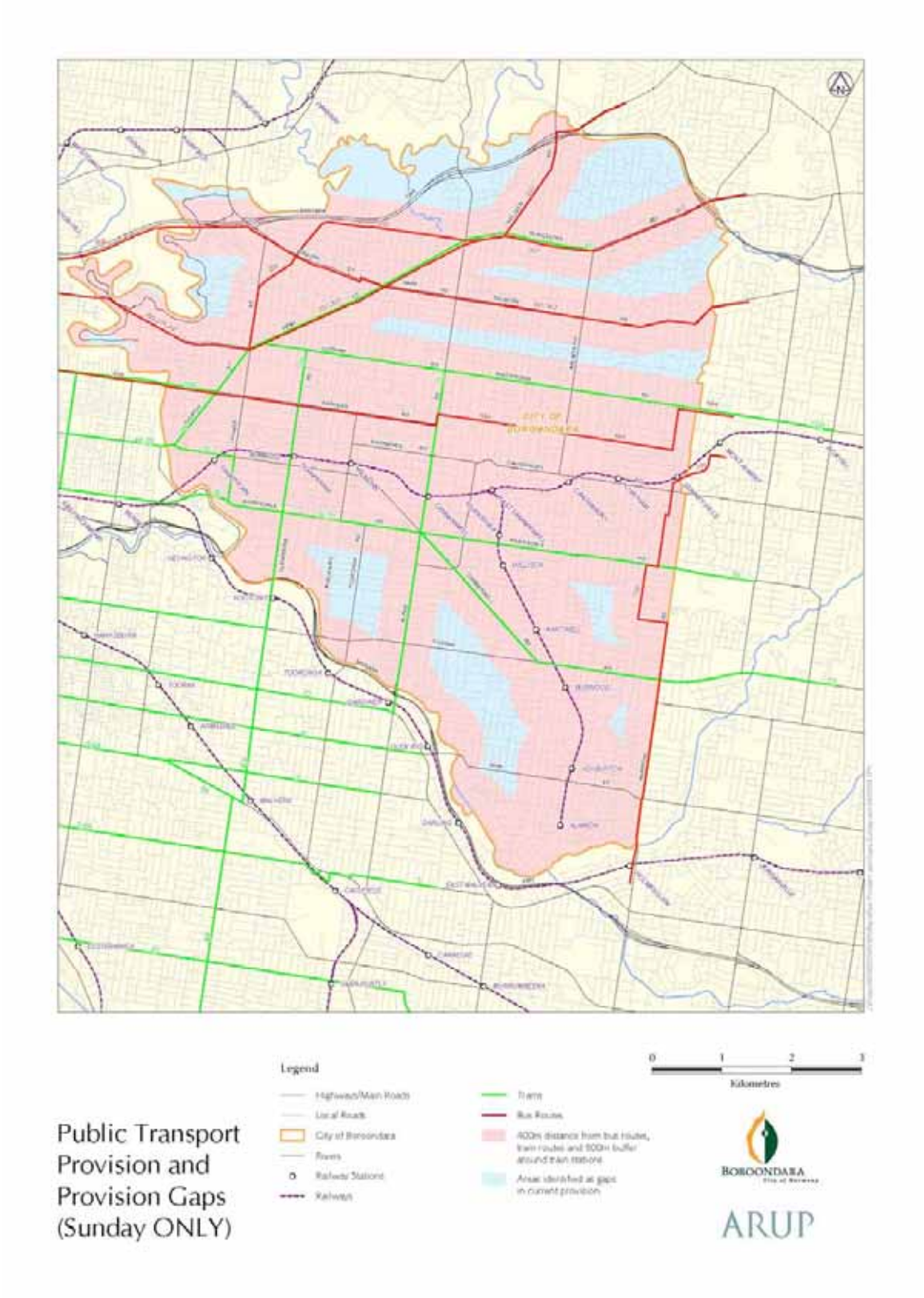
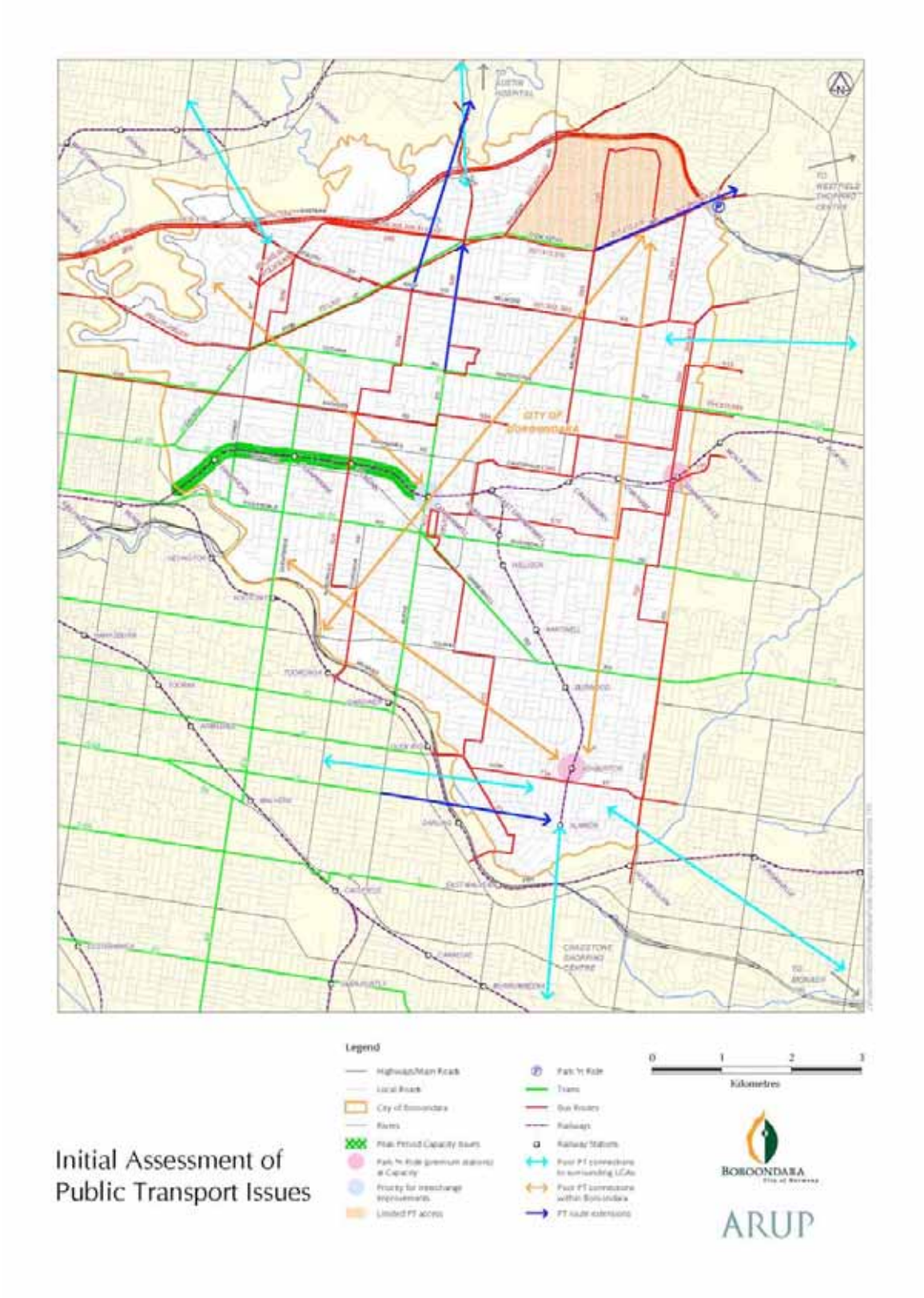


Figure 14 Assessment of Public Transport Issues



6 Roads

This section of the strategy outlines the existing road network, traffic and road safety conditions in Boroondara. The approved, planned and possible road projects in Boroondara are also considered. Future projects are generally limited to smaller scale projects that address isolated road safety and capacity issues rather than network capacity improvements. This section also addresses the management of road space in recognition of the growing competition between local traffic, through traffic, public transport, cyclists and pedestrians on roads and the need to give greater priority to sustainable travel modes (in accordance with Strategic Objectives 4 and 6 as set out in Section 1.3)

6.1 Existing Road Network

6.1.1 Road Hierarchy

Figure 15 shows Boroondara's road hierarchy based on the functional road hierarchy presented in Table 17 below.

Table 17 Road Hierarchy Definitions

Road Type	Function/Description	Responsibility
Freeway	Primary function is to service large traffic movements (typically >20,000 daily). Freeways have full access control and grade separated intersections.	VicRoads
Primary Roads	Function is to form the principal avenue of movement for metropolitan traffic movements not catered for by freeways. Typically carry 10,000 to 30,000 vehicles daily.	VicRoads for through traffic areas, Council for all other areas including pathways.
Secondary Roads	Function is to supplement Primary Arterial Roads providing for through traffic movement to a level which is generally dictated by roadway characteristics and nature of adjacent land use. Typically carry over 5,000 vehicles daily.	Council
Collector Roads	Non-arterial roads which distribute traffic from the local road network to the arterial road network and provide access to adjacent property. Typically carry up to 5,000 vehicles daily.	Council
Local Road	Provides access to adjacent property and not intended to carry through traffic. Daily volumes are typically lower than 2,000 vehicles.	Council

Source: Adapted from K. W. Ogden and S. Y. Taylor (1996) 'Traffic Engineering Management'

Boroondara's road network is a grid network bordered by the Eastern Freeway to the north and the Monash freeway to the south-west. Whilst the freeways direct through traffic to the CBD, they also, together with the Yarra River, create barriers to traffic movement. On the Monash Freeway, travel west of Toorak Road towards the CBD is tolled. Within Boroondara, access to the Monash Freeway is via Warrigal Road, High Street, Burke Road and Toorak Road. Access to the Eastern Freeway is via Doncaster Road, Bulleen Road, Burke Road and the Chandler Highway. The Yarra River creates particular pinch points, with east-west traffic movements funnelled into several crossing points, namely Riversdale Road (Wallen Road), Burwood Road (Hawthorn Bridge), Barkers Road (Victoria Bridge) and Studley Park Road/Johnston Street.

Boroondara's grid local network can create traffic issues; as long, straight roads can encourage rat running with motorists using these roads as an alternative to more congested arterial roads. Long, straight, local streets can also be conducive to high traffic speeds and consequently traffic management devices are often required to reduce traffic speeds and/or discourage through traffic movements.

Figure 15 Road Hierarchy Classifications in Boroondara

6.1.2 Speeding and Local Area Traffic Management

Council estimates that 20 to 50 percent of traffic on Collector Roads, most of which are residential streets, exceeds the signposted limit. Council has sought to address speeding and rat running issues through undertaking Local Area Traffic Management (LATM) studies. There are 55 LATM areas in Boroondara, of which 31 identified areas have been planned.

Traffic management devices associated with 16 of these plans have been implemented. For the outstanding 15 approximately $1.4M of works are planned with $200K worth of works being undertaken per year. LATMs are demanding and costly to prepare with each LATM involving significant amounts of consultation and taking approximately 18 months to complete. Given the time involved in preparation and subsequent allocation of funding, LATMs may need to be updated prior to funding being secured and additional consultation is sometimes needed.

In prioritising LATMs Council has focussed on addressing speed and traffic safety issues as a priority with through traffic issues a secondary consideration.

Treating traffic issues is often controversial (e.g. Council has a policy of no new speed humps in Boroondara), may have limited effect and may merely result in displacing the problem elsewhere. LATMs treat the problems e.g. through speed reduction measures but do not treat the causal (strategic) factors behind the issue. LATMs are therefore only one element of addressing Boroondara's traffic and road safety problems.

Council has worked with Victoria Police and VicRoads to reduce speeding in Boroondara. This included trialling a 40km/h speed limit at the Whitehorse Road shopping strip in Balwyn and preparation of a campaign to reduce the occurrence of speeding. School speed zones of 40 km/h have recently been installed.

6.1.3 Travel Times

Figure 16 and Figure 17 show travel times for private vehicle to Camberwell Junction on a typical weekday morning for the years 2001 and 2021 respectively. The maps indicate that most locations in Boroondara are within 20 minutes travel times from the junction in the morning peak period. The CBD is within 20 minutes travel time. However travel time to the Melbourne airport exceeds 50 minutes. It shows that within Boroondara east-west travel is generally more efficient with shorter travel times than north-south travel given the arterial roads to the CBD and more developed east-west network.

The forecast travel times for 2021 suggest there will be either no change or an improvement in travel times to most locations over travel times in 2001. This is expected to be largely attributable to the Eastern Freeway extension and the completion of the Mitcham Frankston Freeway which will result in more traffic distributed onto the Eastern and Monash Freeways.

Figure 16 Private vehicle travel time to Camberwell Junction, 2001 (AM peak)

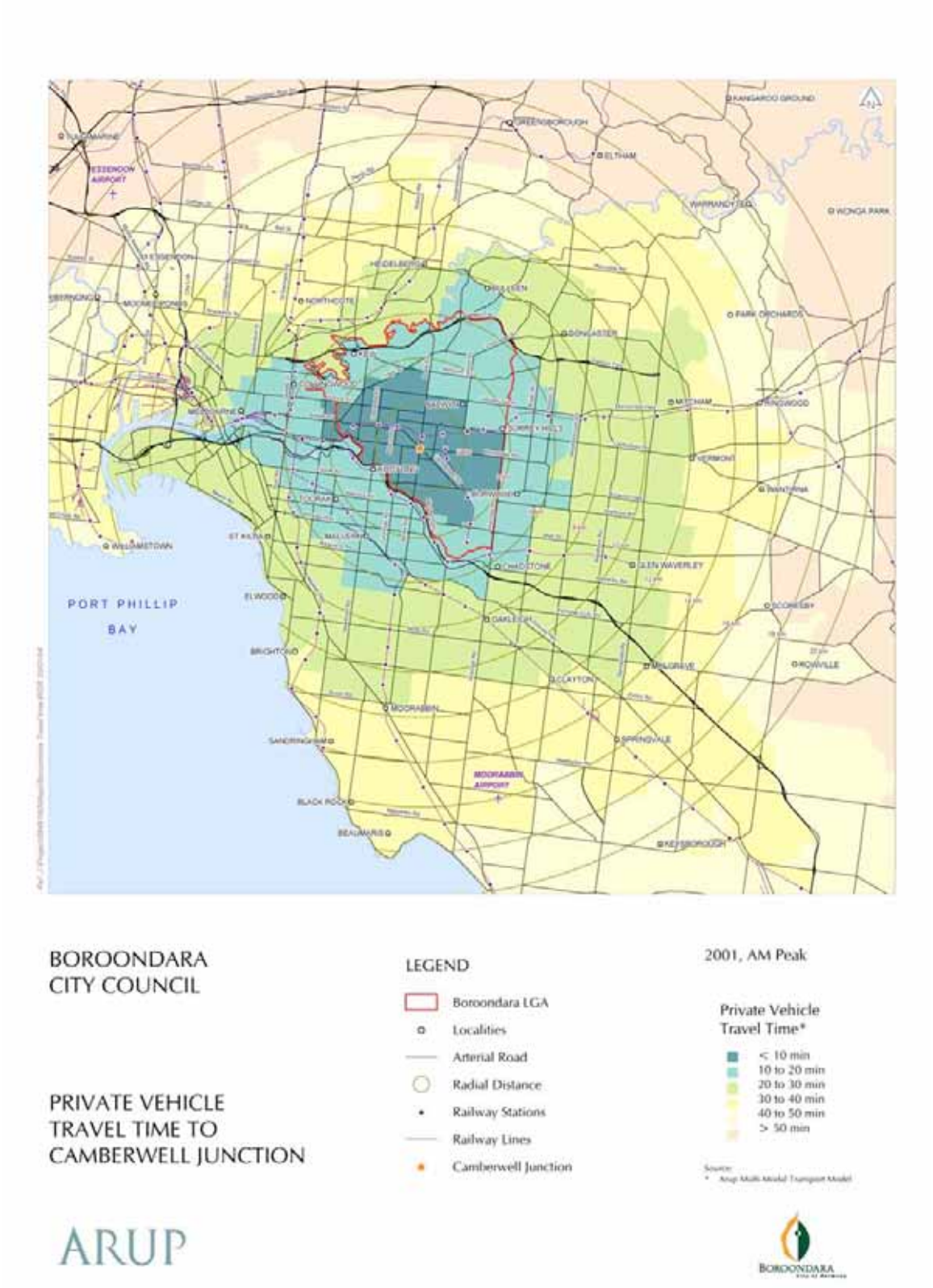
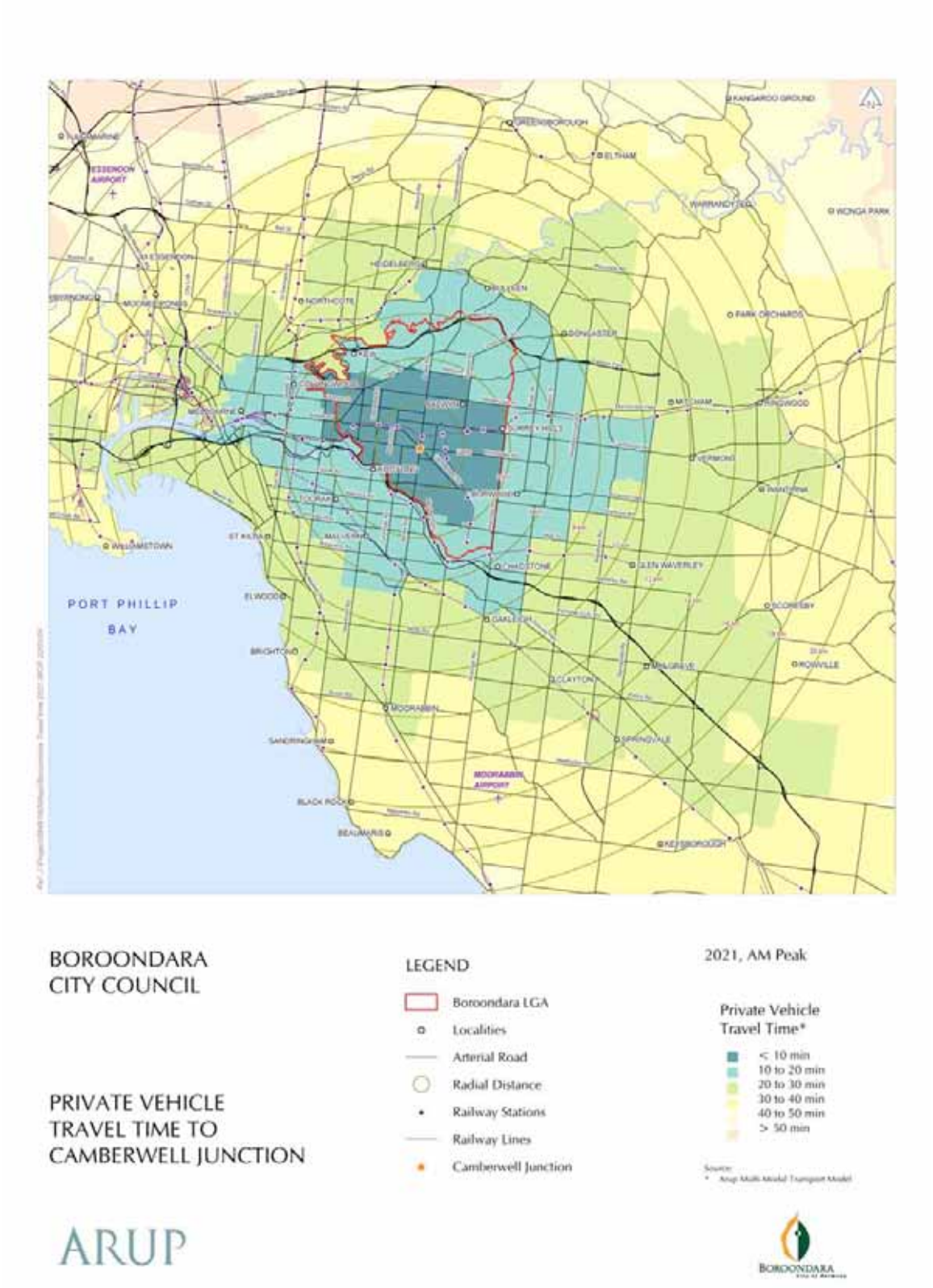


Figure 17 Private vehicle travel time to Camberwell Junction, 2021 (AM peak)



6.2 Existing Traffic Volumes

6.2.1 Through Traffic

Boroondara's location in inner eastern Melbourne suggests a significant proportion of its traffic is likely to be through traffic en route to the CBD or neighbouring suburbs. Figure 18 presents an estimation of through traffic volumes on arterial roads in Boroondara in the weekday morning peak period, based on the Melbourne Integrated Transport Model. The percentage figures provided on the map at arterial road exit/entry locations to Boroondara represent the proportions of traffic entering (i.e. 'in' traffic) and exiting Boroondara (i.e. 'out' traffic). The key locations and proportions of through traffic entering Boroondara are as follows:

- Toorak Road: 73% (western end) and 67% (eastern end);
- High Street: 69% (western end) and 76% (eastern end);
- Camberwell Road: 67% (eastern end);
- Burke Road: 47% (northern end) and 46% (southern end); and
- Riversdale Road: 50% (eastern end).

The key points where through traffic exit Boroondara in the morning peak are as follows:

- Toorak Road: 75% (western end) and 62% (eastern end);
- High Street: 65% (western end) and 58% (eastern end);
- Camberwell Road: 62% (eastern end);
- Burke Road: 48% (northern end) and 75% (southern end); and
- Riversdale Road: 47% (western end).

Most of the roads used as an entry point are also used as an exit point by through traffic. It is expected that roads such as High Street and Toorak Road, which extend for only a short distance in Boroondara (i.e. less than 5km), would be shown to carry a high proportion of through traffic. Burke Road carries the most significant proportion of through traffic of the north-south routes and this may be largely due to the fact that Burke Road connects to both the Monash Freeway and Eastern Freeway. Two of the roads carrying significant proportions of through traffic, Burke Road and Camberwell Road are also tram routes which likely further exacerbates road space congestion. Of the four crossing points over the Yarra River, Riversdale Road carries the highest proportion of through traffic. This road also carries trams.

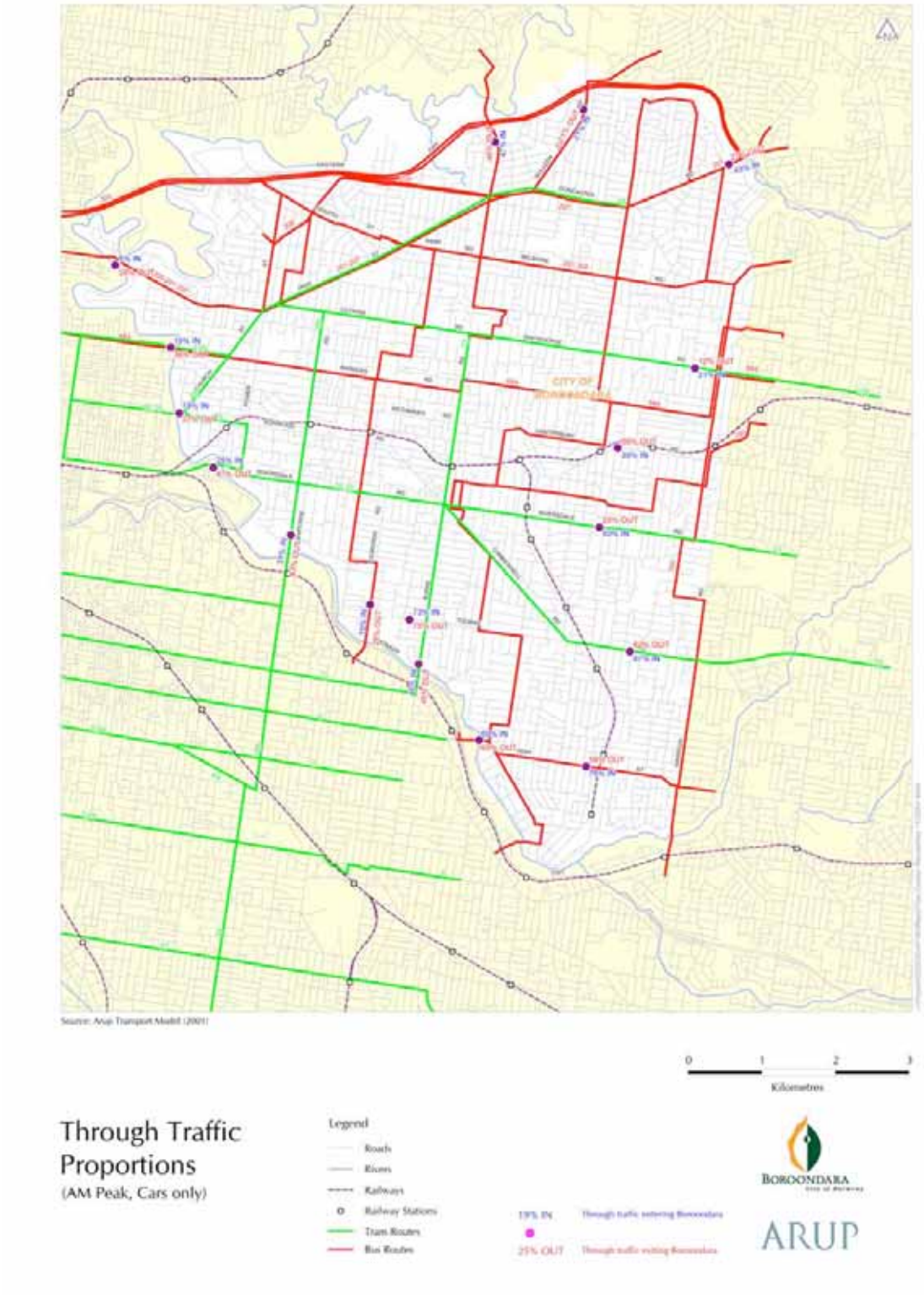
The estimated through traffic volumes are presented in Table 18.

Table 18 Estimated through traffic volumes on arterial roads, morning peak period

Road Name	End	Actual (VicRoads) Traffic Counts		In (entering Boroondara)		Out (exiting Boroondara)		Total (in and out)
		No. In	No. Out	%	No.	%	No.	
Toorak Rd (Burwood Highway)	Western	1832	3320	73%	1337	75%	2490	3827
Toorak Rd (Burwood Highway)	Eastern	3632	2054	67%	2433	62%	1273	3707
High Street	Eastern	3288	2348	76%	2499	58%	1362	3861
Riversdale Rd	Western	2312	4988	25%	578	47%	2344	2922
Riversdale Rd	Eastern	3112	1734	50%	1556	25%	434	1990
Bulleen Road	Northern	2308	1794	21%	485	11%	197	682
Doncaster Road	Eastern	3580	1902	43%	1539	27%	514	2053
Barkers Road	Western	1452	3776	19%	276	38%	1435	1711
Studley Park	Western	1416	4632	5%	71	28%	1297	1368
Whitehorse Road	Eastern	2352	1192	21%	494	12%	143	637
Canterbury Road	Eastern	4458	1584	39%	1739	36%	570	2309
Burwood Road	Western	1668	4698	19%	317	27%	1268	1585
Totals		31410	34022		13324		13328	26652

The above data indicates that through traffic typically contributes between 1,000 and 3,000 vehicles an hour during the morning peak period to arterial roads, emphasising the need to reduce through traffic volumes in Boroondara.

Figure 18 Through Traffic Proportions on Arterial Roads in Boroondara Weekday Morning Peak Period



6.2.2 Congestion Locations

Traffic congestion is frustrating for motorists, but also for businesses and their employees as it may also have significant economic implications, particularly for freight movements and be a deterrent to business development in Boroondara. It also has amenity and other social impacts including negative impacts on street environments particularly for cyclists and public transport users. Congestion on arterial roads can result in motorists seeking alternative routes and using local roads (rat-running).

Congestion is an obvious problem for motorists, but not necessarily for pedestrians and Activity Centres. Congestion allows pedestrians to cross roads. Cars travelling at the speed limit are more of a deterrent to pedestrians than congestion. For this reason, activity centres are in some ways better off with congested streets.

Congestion is generally greatest at signalised intersections between arterial roads which all demand the greatest priority (i.e. green time).

The RACV's survey in 2000 of congestion 'redspots' in Melbourne identified Boroondara as one of the top 10 municipalities with regard to the number of redspots. Redspots are intersections or stretches of road which are sources of significant delay and frustration (The survey identified 96 nominations for redspots in Boroondara with the Chandler Highway/Yarra Boulevard, intersection voted the fourth top redspot in the survey.

Further analysis of congestion locations is identified in the Melbourne Integrated Transport Model which indicates those points where the road network is at capacity during the weekday morning peak period for 2001. The model is based on population and employment trends from 1996. The output of this modelling (volume to capacity plot) is located in Appendix E of this strategy. Stretches of Road and intersections experiencing capacity/congestion issues in the morning peak are as follows:

- Toorak Road (westbound), entire length through Boroondara;
- Warrigal Road (northbound and southbound), south of Toorak Road;
- Burke Road (both northbound and southbound);
- Burwood Road (westbound), between Auburn Road and Glenferrie Road;
- Auburn Road, south of Burwood Road;
- Denmark Street (northbound and south bound), between Kew Junction and Riversdale Road);
- Mont Albert Road (westbound), east of Burke Road;
- Riversdale Road (westbound), east of Trafalgar Road and west of Glenferrie Road;
- Chandler Highway interchange with the Eastern Freeway; and
- Doncaster Road (westbound), Burke Road approach.

It can be expected that similar capacity issues (in the opposite direction) would be experienced in the afternoon/evening peak. It is commonly accepted that the PM peak period is generally less busy than the AM peak period as the PM peak generally occurs over a longer period of time, reflecting a staggered departure profile from work and schools.

6.3 Future Travel Demand

Modelling of the future road network for the year 2021 provides an indication of locations that may experience capacity issues. The traffic volumes are estimated using the Melbourne Integrated Transport Model which is based on the latest Department of Infrastructure population forecasts. The model incorporates those committed and possible future road projects outside the Boroondara municipality which will have an impact on travel patterns such as the Mitcham Frankston Freeway and the Eastern Freeway extension. However no changes to road network capacity within Boroondara are currently forecast.

Forecasts of the traffic volume in comparison with the capacity plot for the year 2021 are presented in Appendix (insert cross-ref) to this strategy. Comparing the volume to capacity ratios for the years 2001 and 2021 suggests that future congestion issues may not be any more significant than currently. However whilst the model uses government forecast population and employment data, the results should be considered with caution given a significant number of the factors which may influence travel patterns.

Projects outside Boroondara such as the Mitcham-Frankston Freeway will result in a redistribution of trips in eastern and south-eastern Melbourne. However it is unlikely that such projects will result in significant overall changes in travel patterns within Boroondara. Given the difficulties associated with forecasting future traffic volumes to 2021, road and public transport infrastructure improvements should be made based on the year 2001 results.

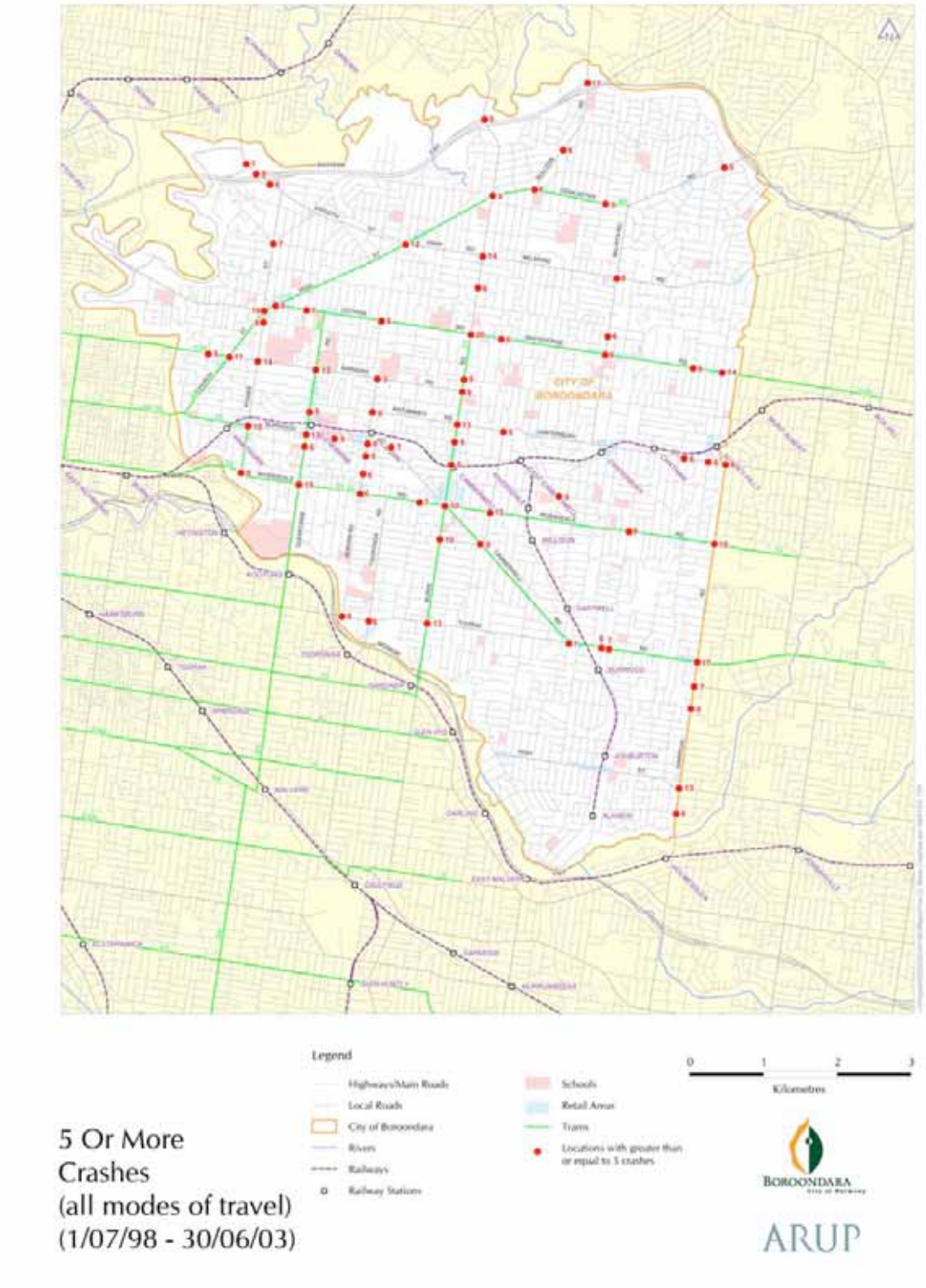
6.4 Casualty Crash Locations

VicRoads CRASHSTATS database indicates the locations where casualty crashes have been recorded in Boroondara for the five year period July 1998 to June 2003. Those locations with more than five casualty crashes during this period are shown on Figure 19. These locations are typically on arterial roads where speed limits and traffic volumes are generally higher. Stretches of road where there are a number of crash sites with five or more crashes near each other include Burke Road (between Seymour Grove and Whitehorse Road), Auburn Road (between Riversdale Road and Barkers Road), Glenferrie Road (between Riversdale Road and Barkers Road), Burwood Road (between Power Street and Camberwell Road) and Kew Junction. The intersections with high numbers of casualty crashes are commonly signalised.

The number and severity of casualty crashes in local streets is expected to have declined more recently in Boroondara since the introduction of reduced speed limits on local roads. VicRoads indicate a reduction of around 15% of fatal and serious crashes in residential areas where lower speed limits have been introduced. As part of the state-wide initiative ‘Arrive Alive!’ road safety strategy, speed limits at some strip shopping precincts have also been reduced to 50km/h. The speed limit along Whitehorse Road, Balwyn has been reduced to 40km/h during high activity times as part of the "Arrive Alive!" program. School speed zones of 40 km/h have also recently been introduced.

A crash location is officially classified as a blackspot when three or more casualty crashes have been recorded over a five year period. Blackspots are eligible for Federal/State Government funding with priority given to sites with a high number of crashes. All sites shown in Figure 19 (in addition to others) are therefore eligible for blackspot funding.

Figure 19 Locations of five or more casualty crashes (recorded over the five year period 1/7/98 to 30/6/03)



6.5 Freight Movements

Most freight movement in Boroondara is associated with deliveries to retail and office uses. With the exception of retail and office land uses, there are few freight generating land uses in Boroondara: freight movement is generally small scale with relatively few movements of any significant size. Most movement uses vans or small/medium rigid vehicles with the exception of articulated vehicles (semi-tailers) which usually make deliveries to supermarkets.

Heavy vehicle traffic[4] movements through Boroondara occur principally on the Monash and Eastern Freeways. Within Boroondara, 11% to 14% of traffic on the Monash Freeway is heavy vehicles (on a typical weekday), with volumes increasing slightly (by around 1-2%) north-west of Toorak Road. On the Eastern Freeway, 3-5% of traffic through Boroondara comprises heavy vehicles. VicRoads classification counts indicate that heavy vehicles on most arterial roads in Boroondara comprise less than 5% of traffic levels. Heavy vehicle proportions are greatest on Warrigal Road, Bulleen Road and Denmark Street, all of which are also bus service routes but which are not tram routes.

Freight volumes within Boroondara are considered to be within reasonable limits and there are no major strategic issues regarding freight movements. Freight issues are generally limited to localised issues usually regarding heavy vehicle access to retail precincts.

It is unlikely that there will be an increase in heavy vehicle proportions in Boroondara given that the manufacturing activity is declining in the municipality and there are limited opportunities for industrial developments given that Boroondara is built up and predominantly residential in nature. The high level of traffic congestion in Boroondara is a deterrent to through freight movements as freight operators place a higher value on travel time than other motorists.

Commercial/ freight vehicle movements should ideally be directed to rail, and to roads which are not public transport routes and which do not have schools and retail precincts in order to minimise potential conflict with local transport users. In practice, in developed areas like Boroondara identifying and encouraging the use of such freight routes can be difficult to achieve. However, Council should consider the identification and promotion of certain arterial roads for freight use. Issues associated with access to retail precincts for loading/unloading are considered in Section 9.1.4.

6.6 Planned Future Infrastructure Developments

Despite the congestion issues outlined above, the Government's emphasis on increasing travel by public transport and the fact that Boroondara is a largely built up area, means there is little focus on or opportunity to increase road capacity in Boroondara despite the congestion issues outlined above. The planned future infrastructure developments focus on road safety issues and isolated issues rather than increasing road space capacity. A list of planned road projects in Boroondara is contained in Appendix F to this report. Most of these projects will address casualty crash locations and are funded through State or Federal Government Blackspot programs.

Public Acquisition Overlays (PAOs) apply to three sites in Boroondara to allow sites to be acquired for road improvements. The details of the PAOs are summarised in Table 18 below.

[4] VicRoads define 'heavy vehicle' as any type of truck ranging from a light rigid truck of 4.5 tonnes to a semi trailer or combination vehicle

Location/Road	Description of PAO purpose	Status
Canterbury Road between Burke Road and Warrigal Road	Road widening	VicRoads current intention is to retain this PAO.
Asquith Street	Road widening	VicRoads current intention is to retain this PAO.
Barkers Road and Power Street intersection	Intersection capacity improvements	VicRoads current intention is to retain this PAO.

Table 19 Public Acquisition Overlays (PAO) to allow for road improvements

These PAOs have been in place in the Boroondara Planning Scheme for a long period of time. Acquiring land, particularly residential land, is not widely acceptable, particularly in Boroondara where the consultation associated with the My Neighbourhood Strategy (draft) highlighted residents' strong views on maintaining high amenity levels.

Whilst Canterbury Road does carry considerable proportions of through traffic (up to 40% (over 2,000 vehicles) in the AM peak), increasing midblock capacity without necessarily increasing the throughput capacity of intersections at either end would be ineffective.

The Barkers Road and Power Street intersection has a high casualty crash record (14 crashes over the five year period) but the MITM model outputs do not suggest that it is experiencing capacity issues during the AM peak.

The Asquith Street road reservation has allowed for road widening. However the abutting residential land use combined with the fact that traffic modelling does not confirm that there are congestion issues during the weekday morning peak, does not call for this project to be pursued at present.

At this point in time VicRoads intention is to retain these overlays.

Other road projects outside Boroondara will influence travel patterns and include the Eastlink project, a 39 km tollway from Mitcham to Frankston.

7 Cycling

Relatively few trips from Boroondara to the CBD and surrounding municipalities are made by cycling or walking. However these modes will play an increasingly vital role as we move towards reduced dependence on private vehicle travel.

New electronic traffic counting stations were installed at strategic locations within the metropolitan shared path network by VicRoads, including locations in Boroondara at the end of 2005.

The counting stations have the ability to collect data that is very comprehensive and provide a good representation of cyclists using the shared path network on an ongoing basis.

Results for early 2006 show that the Gardiners Creek Trail (west of Glenferrie Road) averages in excess of 1600 cyclists per weekday, the Anniversary Trail (south of Whitehorse Road) in the order of 240 and the Koonung Creek Trail (near Doncaster Road) in excess of 500. Definite peaks are experienced during both the morning and afternoon periods which reflect the use of the paths for commuting purposes.

The section below outlines the existing and proposed cycling network in Boroondara and discusses the key issues which need to be overcome in order to increase the proportion of people cycling in Boroondara.

7.1 Cycling Provision

Cycling provision consists of wide kerbside lanes, on road shared bike/parking lanes, on road exclusive bike lanes, footpaths and off road shared paths. The current network, in addition to proposed extensions as part of the Principal Bicycle Network (PBN), is presented in Figure 20 below. Most of the existing network consists of on road routes. The strategic off road network comprises the Anniversary Trail, Main Yarra Trail, Koonung Creek Trail, Gardiner's Creek Trail, Outer Circle Linear Park Trail and Victoria Park to Hyde Park Pathway. This is supplemented by a series of local off road paths, most of which are located in reserves and parks. The existing strategic off road network facilitates predominantly north-south travel through Boroondara (via the Outer Circle and Anniversary trails). There is no centrally located east-west off road path stretching from the eastern boundary to the western boundary of the Boroondara. The Main Yarra Trail and Gardiner's Creek Trail run east-west along the northern and south-eastern boundaries of Boroondara. The Balwyn and Surrey Hills areas are not well served by any off road shared paths. The PBN focuses on providing on road lanes, usually on arterial roads, rather than off road paths. As shown on Figure 20 the on road bicycle network is largely developed west of Burke Road but limited provision exists along and east of Burke Road. Most on road cycling facilities are in the form of wide kerbside lanes.

A summary of the key issues raised in relation to cycling during consultation undertaken in preparation of this strategy is contained in Appendix A and Appendix B and briefly summarised below:

- Conflict on shared paths (between cyclists, pedestrians, and dogs).
- Conflict between traffic and cyclists on road (eg Belmore Road, Balwyn Road).
- Barriers/obstructions affecting movement along shared paths.
- Poor connections to the north of Boroondara.

- Gaps in bicycle network: Gardiner's Ck between Malvern Valley golf course and Warrigal Rd, Darebin Ck to Main Yarra Trail.
- Barriers to cycling – rivers, freeways, major roads, railways, steep grades.
- Inadequate directional signage and poor signage on shared paths.
- Lack of end of trip facilities.
- Poor lighting.

The existing draft Boroondara bicycle strategy also nominated a number of programs/actions to address behavioural issues and encourage cycling.

An existing shared pathways map produced by Council identifies the off road shared paths though does not identify those on road bicycle paths on arterial or local roads, which make up a significant proportion of the cycling network. Existing shared pathway routes are somewhat disjointed: existing cyclists have preferred routes between shared pathways or from the shared pathways to facilities, such as the Balwyn leisure centre and Kew library, but these are not shown or promoted.

7.2 Cycling to schools

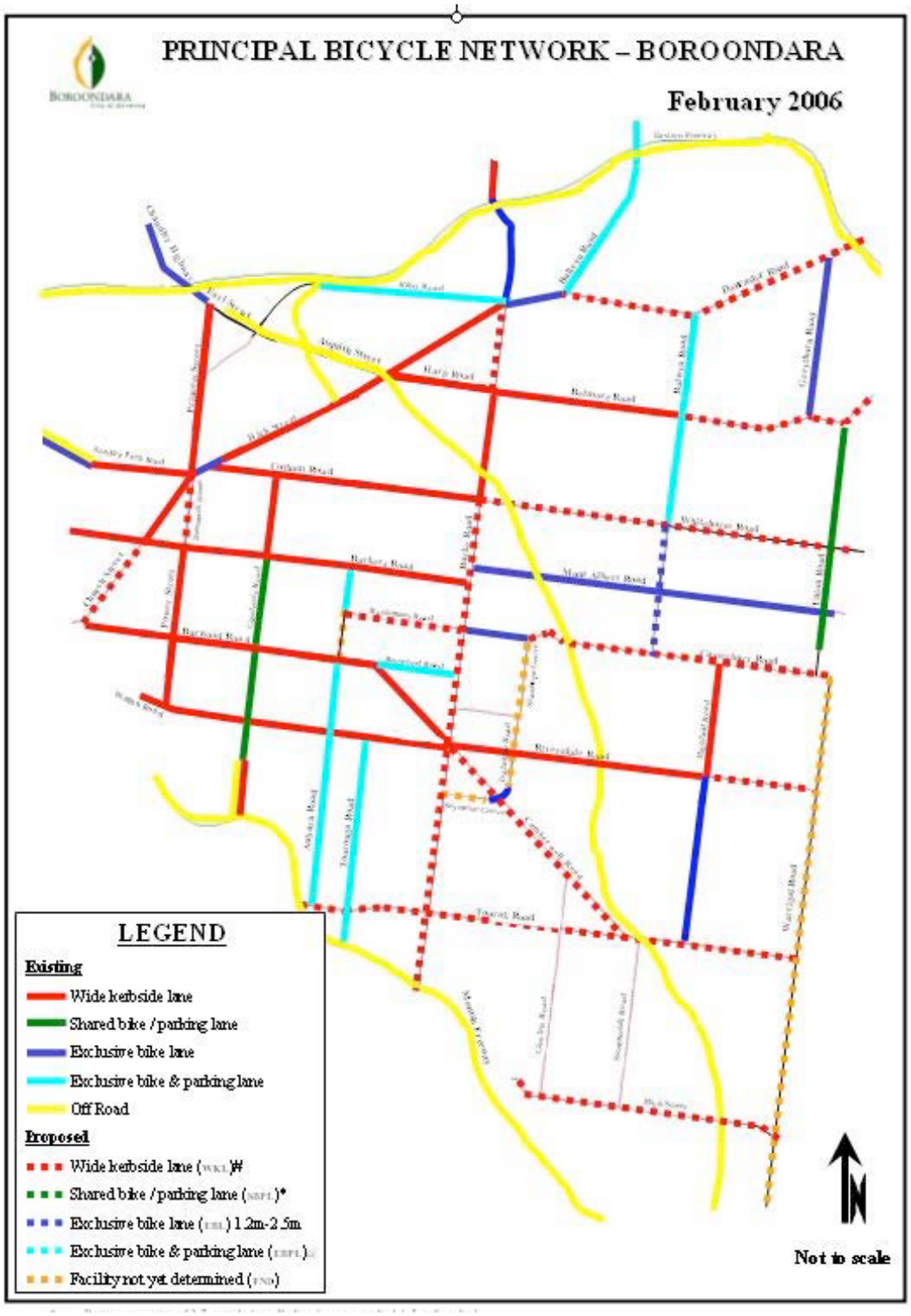
Traffic associated with travel to schools generates a significant proportion of traffic on Boroondara's roads and encouraging cycling to schools should be a priority to reduce traffic levels as well as for other health and social benefits. Children 12 years of age or younger are allowed to legally cycle on footpaths. The school surveys conducted for this strategy identified factors which inhibit students cycling to school. These factors include:

- Student attitudes/peer group pressure (cycling is not considered an attractive option);
- Heavy school bags;
- Convenient for parents to drive/pick up students en route to work;
- Time constraints - parents do not have time to walk their children to school;
- Lack of bicycle storage facilities at schools;
- Distance required to travel; and
- Age of students (too young to travel independently).

Recommendations made by schools to encourage students to cycle to school are most notably:

- Reducing perceived and actual danger of cycling on major roads;
- Promoting the benefits of cycling and walking to change students' negative attitude towards these modes;
- Educating parents about the benefits of walking and cycling;
- Educating parents regarding safe driving around schools; and
- Eliminating obstructions on footpaths.

Figure 20 Principal Bicycle Network



7.3 Cycling Activity

As presented in Section 4 of this strategy, fewer than 5% of trips to surrounding municipalities and the City of Melbourne are made by walking/cycling however 28% of trips within Boroondara are made by cycling and walking.

Four percent of students cycle to primary school while only 2% of secondary students cycle to school. The decline in cycling when students reach secondary school is likely to be associated with the fact that students travel longer distances to secondary schools and the image of cycling amongst older children.

There is minimal information available regarding usage of on road and off road cycle routes in Boroondara and as such it is difficult to ascertain which routes cyclists are using or are most popular.

Surveys undertaken in the early 1990's by the former Cities of Camberwell, Hawthorn and Kew highlighted the following trends regarding cycling:

- On average, approximately 15% of secondary students cycle to school. This is much higher than the figure obtained from the school questionnaire undertaken in early 2004.
- More than 80% of secondary students own a bicycle which provides an opportunity for more students to cycle to school.
- High proportions (70-77%) of secondary student cyclists ride on footpaths. This indicates that students find it safer to ride on footpaths than on road. Most secondary school aged children are not permitted to legally cycle on footpaths.
- The number of cyclists per household was greatest in the City of Kew (1.4%), followed by Hawthorn (1.0%) and Camberwell (0.7%).
- A greater ratio of male to female cyclists. This may be partially attributable to the poor lighting of shared pathways.
- A far higher proportion of cyclists cycled for recreation (average of 72% of cyclists across the three Cities) than for commuting (average of 7% of cyclists across the three Cities).
- The highest proportion of commuter cyclists resided in the City of Kew. Kew is generally well served by shared pathways compared to the rest of Boroondara.

7.3.1 Barriers to cycling

Whilst weather conditions can be a deterrent to cycling, there are numerous physical barriers to cycling in Boroondara. These are principally the Eastern and Monash Freeways, Alamein train line, Lilydale/Belgrave train lines, Yarra River and Gardiner's Creek. Safety is another barrier. In particular, most of the shared paths in Boroondara are not lit at night. Security at bicycle storage areas is also important. Bicycle storage areas need to be placed to enable good levels of passive surveillance and should be well lit. Community consultation raised a number of issues in relation to insufficient provision of bicycle storage facilities in Boroondara. Currently there are no statutory requirements for bicycle storage facilities to be provided at new developments.

As well as those barriers to cycling and walking identified in the school questionnaire, a survey of cyclists in Boroondara undertaken in the 1990s identified that key barriers to cycling and walking are conflict with traffic, a lack of bicycle routes and poor road surfaces.

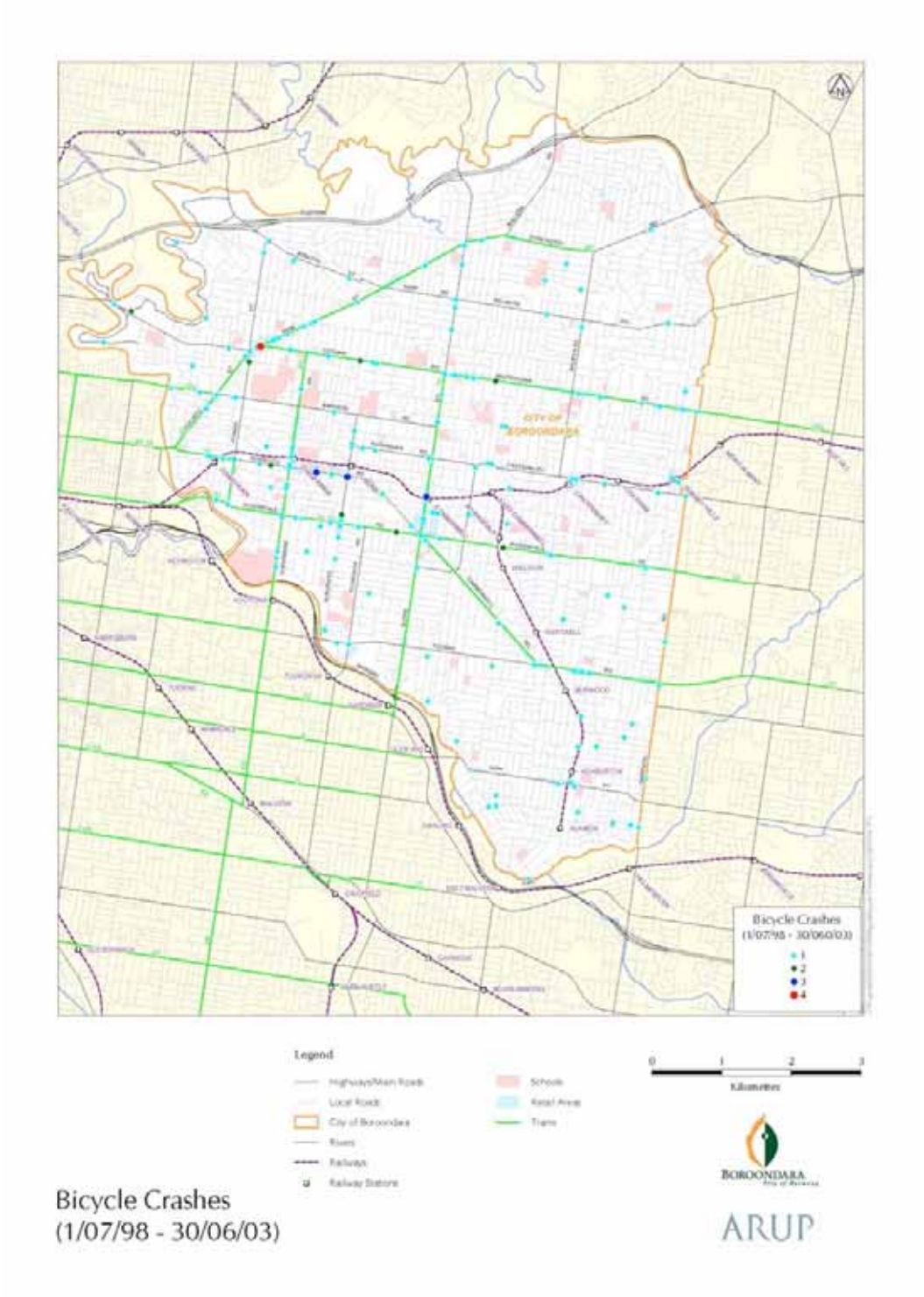
7.4 Cycling Casualty Crash Locations

Below is an overview of crash statistics involving cyclists in Boroondara. These results are drawn from the VicRoads CRASHSTATS database. It is worth noting that the Boroondara Road Safety Strategy provided a thorough assessment of safety issues for cyclists in Boroondara.

Crashes involving cyclists on Boroondara's roads between July 1998 and July 2003 are presented in Figure 21. Some key trends and observations are as follows:

- There are four bicycle blackspots in Boroondara (with three of more crashes recorded over the five year period);
- There is a concentration of crashes at and within the 1km radius of Kew junction. Four crashes have occurred in one location at the junction;
- There is a concentration of crashes on roads carrying trams;
- Many of the casualty crashes occur on arterial roads which form part of the PBN. The high occurrence of crashes on Burke Road highlights the need for the introduction of an on road bicycle lane along its length; and
- Quite a few crashes have taken place on the local road network. It is expected that since the introduction of the 50km/h speed limits on local residential roads a decrease will have resulted in the occurrence of cyclist crashes in these areas.

Figure 21 Bicycle Crashes (1 July 1998 to 30 June 2003)



7.5 Planned Provision

7.5.1 Principle Bicycle Network

The State Government allocated $3.84M for bicycle projects in the 2005/06 State Budget to create 52 km of new bicycle paths and lanes in Victoria.

In Boroondara, provision was made for four projects, namely:

- Canterbury Road between Burke Road and Stanhope Grove - exclusive bike lanes (parking permitted).
- Belmore Road between Burke Road and Balwyn Road - wide kerbside lanes.
- Doncaster Road between Burke Road and Bulleen Road - exclusive bike lanes (parking permitted).
- Yarra Boulevard south of Wiltshire Boulevard – advisory bicycle lane symbols and better line marking to clearly separate the bicycle lanes from the roadway.

These projects were completed in September 2005.

7.5.2 Draft Boroondara Bicycle Strategy

The Draft Boroondara Bicycle Strategy prepared in 1996 recommended $4.68M in capital works including:

- Off road paths.
- On road paths on both arterial and local roads.
- Other works including pedestrian signals, widening existing pathways, signage, bicycle parking facilities, lighting etc.

Whilst the projects were to be staged over five years, implementation of such an extensive scheme was fairly ambitious and relied heavily on sufficient funds being made available by VicRoads and Council.

VicRoads will only consider funding applications for bicycle facilities on the PBN for on road paths or off road paths within the road reservation of a freeway, highway, tourist road or main roads on the PBN, subject to the following:

- Off road bicycle paths are usually constructed when it is not feasible to provide on road facilities, and the off road path will deliver a level of service equal to what would have been provided on road.
- The local council actively implementing a bicycle strategy.
- Proposals that propose extensions to local bicycle paths and on road bicycle lanes that connect to the PBN.
- Incorporation of shared bicycle/pedestrian paths in new suburban developments and whenever major road upgrading or freeway construction works occur.

Funding for projects that do not meet the above criteria would be assessed on their merits.

The City of Stonnington is currently preparing a bicycle strategy which will include new on and off road bicycle/shared paths. On road bicycle lanes in the vicinity of Boroondara on Kooyong Road, Glenferrie Road, Burke Road, Malvern Road and Warrigal Road are included, in addition to an easterly extension of the Gardiner's Creek Trail (beyond the Anniversary Trail) and crossings of the Monash Freeway

at Tooronga Road and Burke Road. It is important for proposed cycling paths in Boroondara to fit in with the provisions of neighbouring municipalities to achieve continuity in the network for both the on and off road components.

A new Boroondara Bicycle Strategy is proposed to be undertaken during the 2006/2007 financial year.

7.5.3 Victorian Planning Provisions (Clause 52.34)

Provisions for the supply of bicycle facilities were incorporated into the Victorian Planning Provisions (Clause 52.34) on 6 October 2004.

The purpose of the bicycle facilities provisions is to:

- ∞ Facilitate bicycle use as a mode of transport.
- ∞ Provide accessible, secure and identifiable bicycle parking with appropriate signage, storage and associated shower and change facilities.
- ∞ Provide bicycle facilities that respond to the number of people on the land and their length of stay.

In essence, the provision of end of trip facilities for bicycles is now required for large new commercial and residential buildings. Space for bicycle parking as well as showers, lockers and change rooms will be required for new buildings larger than 1000 square metres. The regulations will also apply to buildings undergoing a change of use or extensions.

The provisions make a distinction between the requirements for employees/residents, generally long stay, and the short term requirements for visitors/shoppers/students.

Details on number of bicycle spaces per land use, showers, change rooms, the design of bicycle spaces, bicycle rails, compounds and lockers and signage are also included.

The provisions are detailed in Appendix G.

8 Walking

Walking and cycling are both forms of active transport. Given that 53 percent of all trips that are less than or equal to two kilometres are made by car as a driver and 17 percent as a passenger, walking has the potential to be a realistic modal choice for short trips. Walking to school or to the local store rather than driving to the shopping centre would help to reduce the number of short trips made by motor vehicle in Boroondara.

This section outlines the key issues which need to be overcome in order to increase the proportion of people walking in Boroondara.

Walking provision consists of footpaths and off road shared paths.

Key walking issues raised during consultation comprise:

- Conflict on shared paths (between cyclists, pedestrians and dogs);
- Vegetation overhanging footpaths;
- Misuse of footpaths (i.e. scooters and cyclists);
- Poor lighting, especially down local roads with dense tree canopies;
- Poor maintenance of footpaths;
- Significant delays to pedestrians when crossing arterial roads at signals; and
- Crossings not conspicuous enough to motorists.

Boroondara's residential areas are long established with a grid road network. A grid network facilitates direct pedestrian movements but can encourage a high speed traffic environment which is not conducive to walking. Consultation also highlighted the need for additional or improved pedestrian crossings/signals across busy arterial roads. Two pedestrian signals of the seven locations recommended in Council's Draft Bicycle Strategy (1996) have been introduced.

8.1 Walking Activity

As presented in Section 4 of this strategy, fewer than 5% of trips to surrounding municipalities and the City of Melbourne are made by walking/cycling however 28% of trips within Boroondara are made by cycling and walking.

The school survey results suggested that around 30% of students at primary schools and 21% of students at secondary schools walk to school.

8.2 Travel to schools

Traffic associated with travel to schools generates a significant proportion of traffic on Boroondara's roads and encouraging walking to schools should be a priority to reduce traffic levels as well as for other health and social benefits. The school surveys conducted for this strategy identified the factors which inhibit students walking or cycling to school. These factors include:

- Heavy school bags;
- Parent anxiety/attitudes about safety and reducing the distance children need to walk;
- Convenient for parents to drive/pick up students en route to work;

- ∞ Time constraints – parents do not have time to walk their children to school;
- ∞ Lack of safe pedestrian crossing points;
- ∞ Distance required to travel; and
- ∞ Age of students (too young to travel independently).

Recommendations made by schools to encourage students to walk to school are most notably:

- ∞ Introduction of Walking School Bus.
- ∞ Participation in the Environmental Programs, for example Smogbusters – Way to School project, and the TravelSMART Education: Congestion Precinct Pilot Program.
- ∞ Promoting the benefits of cycling and walking to change students' negative attitude towards these modes.
- ∞ Educating parents about the benefits of walking and cycling.
- ∞ Educating parents regarding safe driving around schools.
- ∞ Eliminating obstructions on footpaths.

8.2.1 Walking School Bus

The Walking School Bus program is an initiative of VicHealth to encourage primary aged school children to walk to school rather than being driven by parents.

A Walking School Bus is a school bus powered by legs. It is a safe, healthy and convenient way for children to travel to and from school.

A Walking School Bus is made up of two adult volunteers (a 'driver' and a 'conductor') and up to sixteen children (1:8 ratio)

Each Walking School Bus walks along a set route picking up children at designated 'bus stops' according to the timetable.

It is free to join and children can use it whenever it suits them and their family.

The aims of the program include to:

- ∞ Reduce traffic congestion and emissions by cutting out short trips to school in the family car
- ∞ Establishing a sense of community as neighbours and families get to know each other
- ∞ Improve fitness of children and adults alike as they make walking part of their daily activities
- ∞ Provide an opportunity for children to learn and practice road safety skills

Boroondara has prepared a Walking School Bus Strategy Plan, an action plan and prepared a promotional campaign to encourage schools to get involved in the program.

VicHealth funding to implement the Walking School Bus (WSB) Program over two years was received in September 2004.

A part time project officer was appointed and over the past year the following has been achieved:

- 5 schools have active Walking School (Balwyn, Camberwell, Camberwell South, Hartwell, and St Bede's Primary Schools)
- 3 new schools recruited from late 2005 onwards (Boroondara Park, Deepdene and Glenferrie Primary Schools)
- 10 bus routes are in operation
- 109 children are registered in the program
- Average length of bus route = 1187.3 metres
- Average number of bus journeys per week = 2.1 (range 1-4)
- Total bus trips completed by children in the week = 172
- Average walking time = 19.75 minutes

(Data collected in November 2005 during VicHealth Snapshot Evaluation Week)

Data from Walking School Buses is also being used by The International Council for Local Environmental Initiatives (ICLEI) under the Cities for Climate Protection Program (CCP).

8.3 Walking Casualty Crash Locations

Below is an overview of crash statistics involving pedestrians in Boroondara. These results are drawn from the VicRoads CRASHSTATS database. It is worth noting that the Boroondara Road safety strategy provided a thorough assessment of safety issues for pedestrians in Boroondara.

Crashes involving pedestrians on Boroondara's roads between July 1998 and July 2003 are presented in Figure 22 and those crashes involving school aged children are shown in Figure 23. Some key trends and observations are as follows:

- There are nine pedestrian blackspots in Boroondara (with three or more crashes recorded over the five year period).
- There is a concentration of crashes occurring on arterial roads at strip shopping precincts, most notably at Burke Road (Camberwell junction), Glenferrie Road, High Street (Kew junction), Whitehorse Road Balwyn and Riversdale Road near Riversdale Park.
- A high proportion of crashes take place on roads carrying trams which may be associated with pedestrian boarding and alighting movements.
- Few crashes have taken place on the local road network.
- Crashes involving school aged children generally occur on arterial roads carrying trams with a concentration occurring near Riversdale Park (Riversdale Road), near Camberwell Girls Grammar Schools (Burke Road) and Burke Road between Toorak Road and Riversdale Road.

Figure 22 Pedestrian Crashes (1 July 1998 to 30 June 2003)

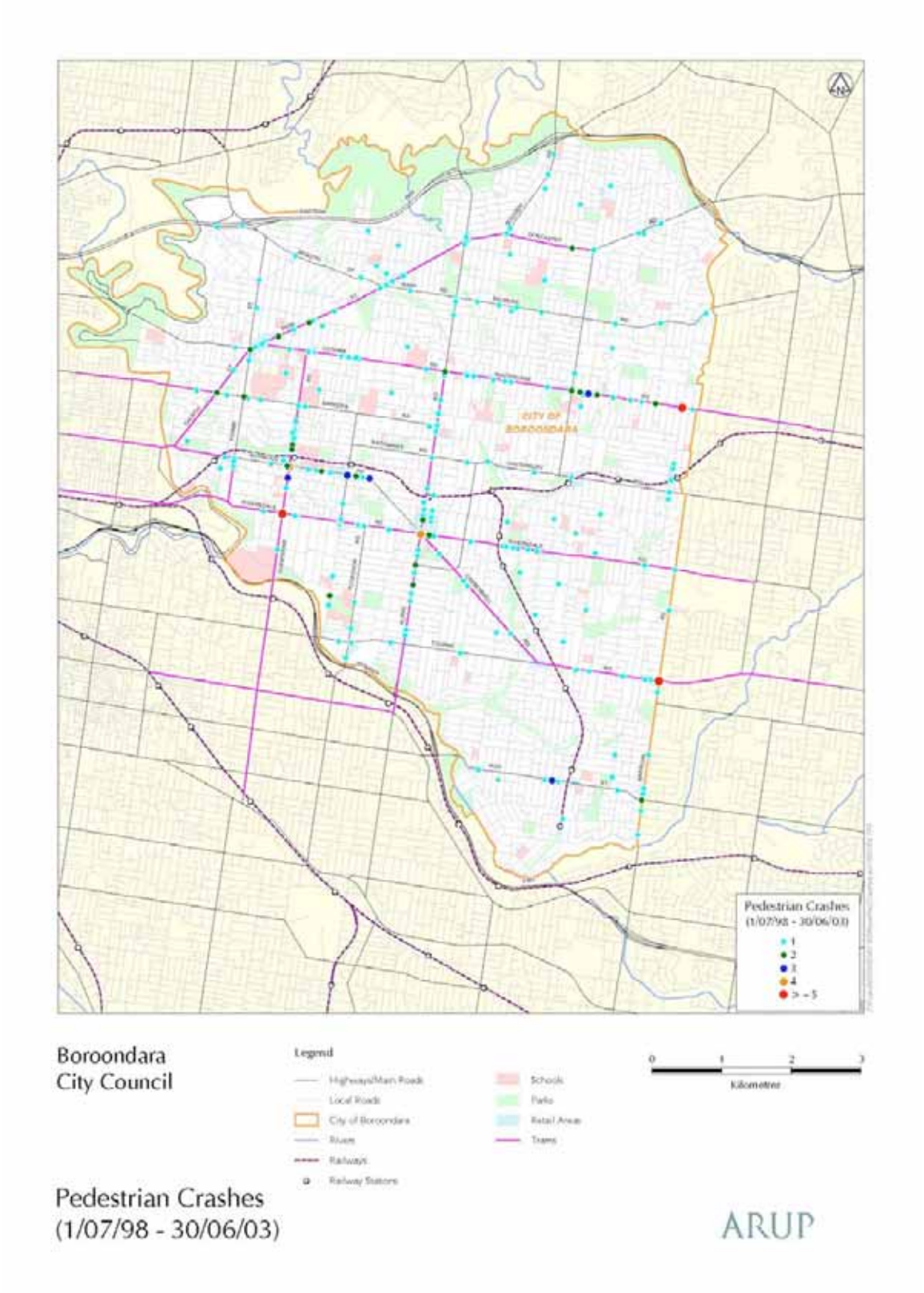
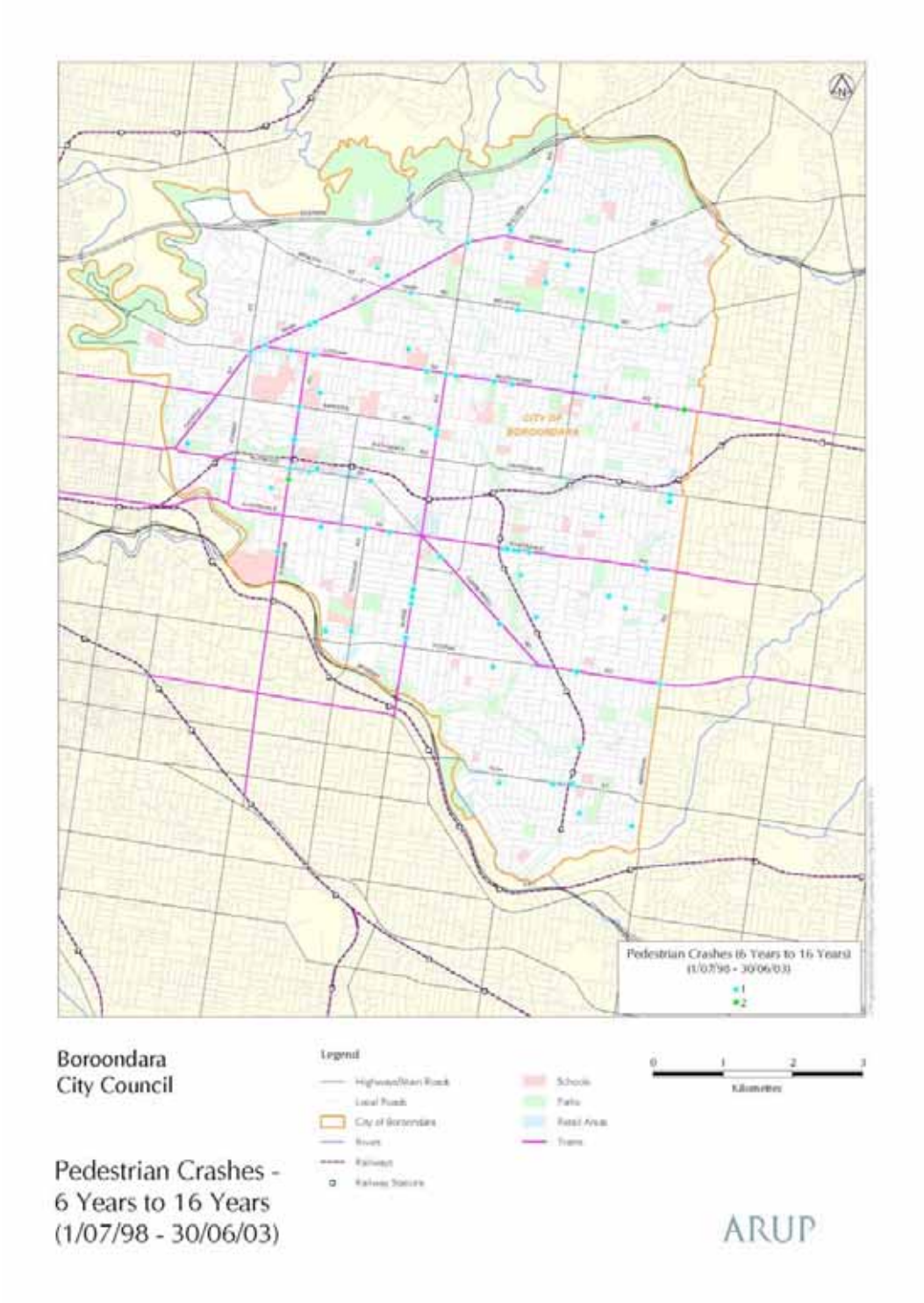


Figure 23 Pedestrian Crashes school aged children (6 to 16 years of age) (1 July 1998 to 30 June 2003)



9 Car Parking

Boroondara experiences parking pressures at activity centres, schools and community facilities. Parking demand at these locations can exceed parking supply leading to parking overspilling into nearby areas which are generally residential in nature. Therefore there are significant impacts on parking availability for residents which becomes particularly problematic if no on site parking is provided at these properties. Parking in residential streets also affects amenity and can create potential safety issues (eg limiting sight lines).

Parking at schools and at strip shopping precincts on arterial roads is a particular issue for Boroondara. In the latter case, parking can impede traffic flows, particularly during peaks periods which are frustrating for all road users including public transport users, cyclists and pedestrians.

The supply and location of car parking at centres plays an important role in their overall commercial viability. Parking availability, location of parking areas (safety and convenience) and the provision of parking for all vehicle types and users (eg loading zones, parking for people with disabilities, etc) all affect the functionality of a centre. Limiting the supply of car parking can also be a travel demand management tool as increasing the need and demand for effective public transport provision.

9.1 Current and Planned Provision

9.1.1 Parking Provision at key trip attractors

The largest parking demand areas in Boroondara are at the Principal and Major Activity Centres, namely Camberwell Junction, Kew Junction and Glenferrie Road. Other locations of high demand include Swinburne University, train stations, schools, health and community centres. These non-residential uses are close to residential areas and consequently where there is a shortfall in parking supply; parking can overspill into those areas, affecting availability of parking for residents.

Most commercial centres have off street parking, usually at supermarkets or at the rear of shops. This is supplemented by some on street parking on side streets and often along strip shop frontages, commonly on arterial roads. Whilst parking located along strip shop frontages is convenient, it creates conflict with passing vehicles and can impede traffic flow. Parked vehicles on arterial roads obstruct sight distances at intersections with side streets which are usually unsignalised. VicRoads' CRASHSTATS database indicates a high occurrence of crashes on arterial roads at strip shopping locations. A common cause is pedestrians crossing roads from between parked vehicles.

However parked cars can buffer footpaths making people feel safer whilst walking along roads. On-road parking is also convenient for minor purchases. Delivery access while not ideal on arterial roads is a necessity in many urban centres.

Parking (multi-bay) meters have been installed at Camberwell Junction. The parking meters enable more efficient enforcement of restrictions which in turn encourages greater turnover of spaces and improved space availability. Ticket machines have also been installed in the Glenferrie Road area to ensure efficient use of parking spaces and to discourage student long term parking. The introduction of parking fees can be an important travel demand management tool to increase the costs associated with using a car and therefore encourage the use of alternative methods of travel.

Council has developed plans to introduce a parking guidance system in Boroondara, similar to that operating in the CBD and Carlton. The intention of the parking guidance system is to:

- Increase awareness of off street parking areas thereby reducing the demand for on street parking.
- Address the current imbalance in parking demand at Camberwell junction. Demand is currently greatest on the western side of Burke Road during the evenings.
- Reduce the occurrence of vehicles circulating in the busy retail centre and nearby residential streets searching for car parking spaces.

Feedback from school principals highlighted car parking around many schools as an issue. This problem is exacerbated by the fact that many parents prefer to drive their children to school and may be reluctant to allow their children to walk, cycle or catch public transport to and from school. Conditions around schools are perceived as unsafe by parents because of traffic levels. Whilst almost half the schools in Boroondara have masterplans, most schools do not provide parking pursuant to the requirements of Clause 22.03 of the Boroondara Planning scheme.

9.1.2 Railway Station Parking

Car parking is provided at ten of the fourteen railway stations in Boroondara. They are:

- Hawthorn;
- Camberwell;
- East Camberwell;
- Canterbury;
- Chatham ;
- Surrey Hills;
- Riversdale;
- Willison;
- Burwood; and
- Ashburton.

Parking is not available at the following stations:

- Glenferrie;
- Auburn;
- Hartwell; and
- Alamein.

However the number of parking spaces varies widely between stations. Whilst car parking is identified and promoted at all of the above, stations such as Chatham have only few spaces. Parking supply is greatest at Surrey Hills, Riversdale, Canterbury, Burwood and Ashburton Stations.

Car parking at these stations is understood to be at or near capacity on weekdays. Utilisation of the car parks is dominated by commuters, including commuters from outer areas (zones 2 and 3) who prefer to park within the "zone 1" car parks and receive the benefit of a lower public transport fee.

There is also a degree of non commuter parking at selected stations which may be attributed to traders, employees and shoppers. Train operators have acknowledged the issue and are currently in the process of investigating methods to reduce the incidence of non commuter parking within station car parks.

Due to the built up environment around some of these stations, there is also limited scope to increase the level of parking provision. The creation of underground parking at stations may offer an alternative and this could be an advocacy position to the State Government.

Despite relatively high use of these car parks there are often perceived safety issues associated with station car parks and routes between station car parks and platforms.

9.1.3 Clearways

Clearways are in place on some of the major east-west arterial roads in Boroondara. Clearways ban kerbside parking to create an extra traffic lane on roads during the peak periods. They usually apply between 7am and 9am Monday to Friday (for city-bound traffic) and between 4:30pm and 6:30pm Monday to Friday (outbound from the city). On all clearways, with the exception of one tow-away zone, motorists are fined for parking in a clearway during its operation.

Removal of parking along strip shopping precincts, particularly during the afternoon (PM) peak period to improve traffic flows is extremely contentious. An effort to establish clearway conditions along Burke Road was met with significant opposition from local traders and was consequently not introduced. However traffic congestion near retail precincts makes them difficult to access by car.

At most, if not all, strips shopping precincts in Boroondara on street parking is supplemented by off street parking. The location of these off street parking areas needs to be promoted to encourage greater use and therefore reduce demand for on street parking.

9.1.4 Loading and Unloading

The ability to load and unload vehicles in commercial areas is critical to traders operations. Loading/unloading should preferably take place off street, although this is not always possible due to rear access not being available. Many established businesses in Boroondara do not have drop off facilities and use on street loading zones. In addition, access to off street loading zones is often difficult or inconvenient for larger commercial vehicles. Significant levels of unauthorised use of loading zones are known to occur in Boroondara.[5]

Unauthorised use of loading zones can force commercial vehicles to double park or park illegally in order to pick up or make deliveries. This usually disrupts traffic flow increasing congestion on busy streets.

9.2 Council's Parking Policies

Existing Council parking policy, prepared in 1998, provides guidance for the parking sections of the planning scheme and other actions relating to car parking.

[5] Council surveys in High Street Ashburton highlighted this.

The policy predates critical strategies such as My Neighbourhood (draft) and Melbourne 2030.

A draft Parking Management Policy for on street parking is currently on exhibition for public comment and is scheduled to be adopted by Council in June 2006.

Council has two sets of parking provision rates with one set of rates applying to an area around Camberwell Junction and a separate set applying to the remainder of Boroondara.[6] Neither table lists a comprehensive list of land – uses. Greater distinction between uses under the current categories is required. For uses not listed under the tables, the generic parking provision rates contained in Clause 52.06 of the planning scheme (which apply to uses across Victoria) are used. These are generally conservative due to their wide application. The local policies need to reflect the greater distinction in parking demand at locations in Boroondara outside Camberwell Junction.

Clause 22.03 lists criteria for the provision of parking at reduced rates to provide a consistent basis for granting dispensations.

As further development occurs at Activity Centres the provision of car parking will become an increasing issue. Specific local policies will need to be developed to guide decision making regarding parking requirements at developments in Activity Centres where the use of public transport, cycling and walking transport modes are key aspects of urban design. More site specific parking provision rates pursuant to the objectives of the Melbourne 2030 strategy are required to ensure parking at these centres which are well served by public transport, is not over supplied.

9.3 Parking Permit Scheme

Council has a parking permit scheme in place in locations where there is a significant demand and where overspill parking from non-residential uses into residential areas limits the availability of on street parking for residents. This is particularly important on streets where residential properties do not have on site car parking, and where residents are therefore reliant on on-street parking.

Each residence is entitled to up to four permits and these can be permanent or visitor permits. A permanent permit applies to one particular vehicle with the registration number of that vehicle printed on the permit. A visitor permit is not assigned to a particular vehicle. The permits exempt the resident/visitor from time restrictions otherwise applying to a street. The permits are currently free of charge and approximately 4,800 residents receive a permit. The number of permits issued in an area is irrespective of the number of parking spaces available in that area. The fact that the permits are free of charge increases the demand for the permits and hence the number of permits supplied outweighs the number of available spaces. A permit does not guarantee a parking space will be available but purely provides an exemption from the time restrictions.

The current permit scheme is not consistent with Council's aim to encourage greater use of sustainable travel modes as the permits are provided free of charge and up to four permits available per residence. Census data indicates that only 12.4% of households own three or more cars. This scheme allows higher car ownership rates. This scheme is also inconsistent with policies which aim to protect the amenity of residential areas as it allows residents/visitors to use on street parking even if off street parking is available (particularly if off street

[6] Set out in Boroondara Planning Scheme Clause 22.03

parking is less convenient to access eg. rights of way/laneways located at the rear of properties).

With the current scheme allowing large numbers of visitor permits available at no cost, there is opportunity for permits to be misused eg loaned to those living outside Boroondara but travel to Boroondara on a regular basis, usually for work. The scheme could therefore be facilitating more people to travel to Boroondara by private car than use alternative travel modes.

A resident permit scheme is important to manage parking and could potentially be extended to more areas particularly to those areas in close proximity to new developments such as the Victoria Gardens shopping centre (in neighbouring City of Yarra), however fees should be charged for permits and/or the number of permits per residence reduced to restrict demand. Estimates indicate that given account production, administration and enforcement costs, the cost to Council is around $30 per permit. Charging residents for permits is common practice in inner Melbourne municipalities.

A structured fee system where the first permit is free but subsequent permits are available for a fee is commonplace and equitable as at least one vehicle can be parked on street, free of charge.

The provision of on-site parking at residences is not considered as part of the parking permit application process. To introduce this element into the process (eg residents without on site parking are eligible for cheaper permits) may involve Council staff making site inspections or the use of aerial photographs. The former would increase the administrative costs associated with the scheme.

However other municipalities such as Melbourne consider on site parking in their permit process. Trader and Commercial parking permit schemes are also worth investigating to resolve conflict between employee and customer parking.

The current scheme has been reviewed by Council and a new scheme is to be introduced on 1 July 2006

The changes come following a review of the current system that found there was insufficient space in residential streets for four parking permits per household. It also found that up to 2000 motorists were fined each year for failing to properly display the parking permit and that some permit holders were undertaking illegal practices such as the selling of visitor permits.

Under the new scheme, there are two types of permits available, a resident permit and a visitor permit. A maximum of three permits will be issued per residence of which no more than two can be visitor permits.

No charge is applicable for the permits.

10 Action Plan

The following table identifies the actions for achieving improved transport and access in Boroondara.

Fit with ITS Strategic Objectives	Action Number	INITIATIVE, PROPOSAL OR PROJECT	Timescale Short Medium or Long Term	Proponent Stakeholders
	1.0	**Public Transport & Community Transport Promotion and Improvements**		*Council to work with operators to promote and make it easier to use public transport in the short term and improve services in the long term.*
SO1, SO2, SO3, SO4, SO5	**1.1**	**Investigate Train, Tram and Bus Integration** Government's Metlink initiative promotes the integration of the three forms of public transport, but these need to be supported by: ∞ Improving physical integration to facilitate pedestrian linkages e.g. better/safer road crossings, ensuring transport interchanges are highly visible and seamless, developing new interchange locations, and moving bus and tram stops to facilitate interchange. Physical integration improvements to include: o Transport interchange audit and review. o Transport signage review and upgrade. ∞ Improve timetable integration between modes e.g. provide real time travel information between modes at all interchanges between tram, train and bus and improved service co-ordination. ∞ Improve signage at stops and between modes through the State's Metlink Wayfinding Project. ∞ Assess location of stops and improve linkages - examine location, distance, crossing facilities, operational and safety issues.	Ongoing	Council, DOI, Public Transport Operators and Relevant Landowners including VicTrack. Advocacy role for Council. Facilitate rollout of real time passenger information displays.
SO1, SO5, SO6	**1.2**	**Investigate Changes to Public Transport Links** Co-ordinate feasibility study into new or developed links focusing on: ∞ Cross-municipality (north-south) links including Kew to Camberwell, Barkers Rd, and Burwood Rd. ∞ Links to Monash University, Caulfield and Latrobe University, Swinburne University. ∞ Improved provision to areas in the north of Boroondara and north of this area (eg Austin Hospital).	Short	Council to co-ordinate feasibility study. Implementation will be by DOI and operators.
SO1, SO4, SO5, SO6	**1.3**	**Investigate Additional Park and Ride Services** This should be in addition to park and ride provision in neighbouring outer suburban municipalities to encourage local park and ride use, rather than additional traffic movement to access park and ride. Applies predominantly to trains and buses. ∞ Assess need for additional facilities. ∞ Identify suitable locations. ∞ Upgrade/extend existing park and ride facilities to encourage further use i.e. Burwood and Riversdale Railway Station car parks. ∞ Examine possibility of restricting park and ride facilities to Boroondara community to minimise non local traffic associated with use from outer municipalities. ∞ Develop synergies with other municipalities including co-ordinated approach. ∞ Determine if focus for park and ride should be restricted to trains or extended to include tram and bus services.	Short-Medium	DOI, Council, Public Transport Operators, VicRoads and Relevant Landowners including VicTrack. Council assistance in identification and assessment of suitable locations.
SO1, SO4, SO5	**1.4**	**Advocate Improved Local Public Transport Ticketing** Initiate a review of the significance of short trip tickets in encouraging local short trips	Short-Medium	Council (advocacy role), DOI, public transport operators

SO1, SO5	**1.5**	**Improve Provision for Elderly** Given Boroondara's significant and growing elderly population include: ∞ The need for more bus routes. ∞ Better public transport facilities provision such as shelters, seating, toilets and DDA compliance. ∞ Discounted fares for the elderly.	Short-Medium	Council (advocacy role), DOI, public transport operators
SO1, SO2	**1.6**	**Commonwealth Disability Discrimination Act (DDA) 1992**. ∞ Implementation of measures to achieve DDA compliance for all public transport services by 2032. ∞ Adoption of the centre platform tram stop design, including associated streetscape improvements for the Tram 109 project.	Ongoing	DOI, public transport operators, VicRoads, Council.
SO1, SO5	**1.7**	**Improve Community Transport and Access** ∞ Implement Council's Community Transport Review recommendations (2003). ∞ Ascertain needs and expectations of a municipal community transport service and the community transport requirements of transport disadvantaged people throughout the municipality. ∞ Advocate and develop public transport access so that more people with restricted mobility are able to use public transport services. This will include DDA compliance at tram and bus stops. ∞ Assess trial of B-Link, a Sunday service with flexibility of door to door pick up/drop off, which commenced in November 2005. ∞ Review current community bus services and assess: o Effectiveness of community buses. o Need for more point to point transport i.e. for medical appointments. o How best do we cater for specific isolated groups ? ∞ Actively market services.	Short-Medium Medium-Long Short Medium	Council, community transport operators, public transport operators. DOI, VicRoads, public transport operators, Council. Council and Community Transport providers.
SO1, SO5, SO6	**1.8**	**Investigate Franchise Agreement Issues** Route changes / developments, which may be in the interests of passengers, and in the provision of an integrated transport system, are sometimes obscured by existing franchise agreement issues (which seek to avoid competition between public transport modes/services). Areas affected by franchise agreement issues include: ∞ Competition between modes (e.g. buses/trams on High Street and Doncaster Road where buses are restricted to drop off only – no pick up). ∞ Penalties for late/early running of services which may cause drivers to speed. ∞ Integration between modes. ∞ Ability to change services and run new services. ∞ Franchise area boundaries. ∞ Overlap between services.	Ongoing	DOI, Public Transport Operators. Council advocacy role.
SO3, SO4, SO5	**1.9**	**Promote Public Transport** ∞ Support initiatives such as TravelSMART (building on the success of TravelSMART on the Alamein railway line). ∞ Council to consider innovative methods to encourage and promote public transport e.g. a car free day once a year along selected strip shopping centres, cycling awareness campaigns. ∞ Support public transport improvement projects in principle.	Short-Medium	Council, DOI, VicRoads, and public transport operators.
SO3, SO5	**1.10**	**Taxi Ranks** Investigate improvements to taxi ranks at all key destinations to ensure siting and facilities are appropriate. This includes ensuring ranks are in the most appropriate, accessible and visible location in urban centres and ensuring provision of adequate facilities such as signage, seating and queuing procedures. Cleaner taxis - improvements to fuel efficiency etc	Short-Medium	Council with Victorian Taxi Association

	2.0	**Trams**		*Council to advocate to and work with the Department of Infrastructure and Yarra Trams to improve the overall tram network within Boroondara.*
SO1, SO4, SO5, SO6	**2.1**	**Advocate Improved Service Frequencies** Particularly evening services, but also weekend services.	Short	DOI and Yarra Trams. Council advocacy role.
SO1, SO2, SO3 and SO5	**2.2**	**Tram Stop Facilities** Improve tram stop facilities with measures including better timetable information, more seating and shelter, real time travel information, DDA compliance, lighting, information about connecting public transport services (bus and train) and improving safety associated with boarding and alighting.	Ongoing	Council, VicRoads, Yarra Trams, DOI
SO1, SO4, SO5	**2.3**	**Tram 109** Adoption and implementation of the centre platform tram stop design, including associated streetscape improvements for the Tram 109 project.	Short-Medium	State Government, VicRoads and Council.
SO1, SO5,	**2.4**	**Tram Attendants** Advocate an increase in the presence of Tram Attendants	Short-Medium	Council, VicRoads, Yarra Trams
SO1, SO4, SO6	**2.5**	**Introduction of New Tram Route Extensions** ∞ Route 48 along Doncaster Road to Shoppingtown – approx. 3.7km. ∞ Route 72 along Burke Road to Doncaster Road and Princes Highway – approx. 1.9km. ∞ Route 8 along Toorak Road to Camberwell Road – approx. 1.9km. ∞ Route 6 along High Street to Ashburton – approx. 2.4km. ∞ Route 75 along Burwood Road to Camberwell Junction – approx. 3km.	Medium-Long	DOI, VicRoads, Yarra Trams, Council. PTUA advocacy role.
SO4, SO5, SO6	**2.6**	**Increase Driver Awareness of Tram "Road Rules"** ∞ Increase compliance by on road traffic to reduce tram delays. ∞ Improve visibility at tram stops. ∞ Educate community to allow a better understanding and compliance with fairways, greater awareness of tram users (e.g. road markings indicating tram boarding zones) and general road rules relating to trams).	Medium	Council, VicRoads, Yarra Trams, Victoria Police (enforcement), DOI
SO4, SO5	**2.7**	**Tram Delays** ∞ Support initiatives to reduce tram delays at intersections. ∞ Improve tram reliability and travel times through effective traffic signal priority and tram only lanes at strategic locations.	Ongoing	Council, VicRoads, Yarra Trams
SO4, SO5	**2.8**	**Safety** Introduce safety measures to reduce accidents on tram routes, in particular routes 75 and 70 through the following: ∞ Investigate accident locations and undertake safety audits. ∞ Coordinate Implementation of audit recommendations with VicRoads and Yarra Trams.	Short-Medium	Council, VicRoads, Yarra Trams

	3.0	**Buses**		*Council to advocate to and work with the Department of Infrastructure and Bus Operators to improve the overall bus network within Boroondara.*
SO1, SO2, SO3, SO4, SO5, SO6	**3.1**	**Improve Connections** Investigate opportunities to improve public transport connections using buses at identified gaps in the existing public transport network, given that buses provide the most flexible low cost option. Possible developments include: ∞ An extension to route 624 northwards ∞ Introduction of a route along Toorak Road to fill existing gap between Glenferrie and Camberwell Roads. ∞ School links and increasing provision to other high trip generating centres.	Short-Medium	Council, DOI (under Metro Travel Plan), all bus operators
SO1, SO4, SO5, SO6	**3.2**	**Investigate Current Bus Service Provision Issues** Examine: ∞ Location of pick up and set down points or lack of these e.g. along routes such as 684, 201 and 207. ∞ Service frequencies, particularly for certain residential areas with very limited routes. ∞ Limitations/ variations to route destinations on some services.	Short-Medium	Council, DOI (under Metro Travel Plan), all bus operators, other public transport operators
SO1, SO4, SO5, SO6	**3.3**	**Advocate Improved Service Frequencies** Particularly for evening and weekend services.	Short-Medium	DOI and Bus Operators. Council advocacy role.
SO1, SO5, SO6	**3.4**	**Reduce Route Circuitousness** Develop more direct routes, where possible (e.g. possibly for 285 and 612).	Short-Medium	Council, DOI, all bus operators
SO1, SO5	**3.5**	**Improve Bus Priority** ∞ Investigate bus route 'pinch points' and identify ways to relieve such pinch points e.g. through signal prioritisation to assist access onto arterial roads. ∞ Support bus priority measures. ∞ Support SmartBus Program.	Short-Medium	Council, public transport operators, VicRoads, DoI
SO1, SO3, SO5	**3.6**	**Improve Bus Stop Facilities** Include more seating and shelter, better timetable information, street lighting, disabled access and where possible real-time travel information.	Short	DOI, bus operators. Council advocacy role.
SO1, SO2, SO5	**3.7**	**Investigate Integration of Cycling and Bus Travel** ∞ Consider provision of bicycle racks on buses. ∞ Review existing provision and implement bicycle storage facilities at popular bus stops.	Short-Medium	Council, DOI and bus operators, Bicycle Victoria.
SO1, SO5	**3.8**	**Investigate incentives to encourage bus operators to choose more efficient alternative fuels eg biodiesel where appropriate.** Promote use of alternative bus fuels. Consider the use of alternative bus fuels eg compressed natural gas (CNG) or biodiesel. Biodiesel process uses oil seed crops (eg canola oil) or animal fat (eg tallow). A simple chemical reaction converts the oil or fat into biodiesel. Research shows that B20 (20% biodiesel blended with 80% conventional diesel fuel) reduced total hydrocarbons by up to 30%, carbon monoxide up to 20%, and total particulate matter up to 15%. Biodiesel production and use, in comparison to petroleum diesel, produces 78.5% less CO_2 emissions.	Medium	Bus Operators and DOI. Council advocacy role.

SO5, SO6	**3.9**	**Instigate Route Provision Improvements** Provide improved access through residential streets e.g. through: ∞ Use of smaller buses for local routes even though this may be operationally and economically less advantageous. ∞ Reducing parking e.g. removing on one side of street. ∞ Modifying traffic management measures.	Short-Medium	Council, DOI, all bus operators

	4.0	**Trains**		*Council to advocate to and work with the Department of Infrastructure and Connex to improve the overall train network within Boroondara.*
SO1, SO4, SO5	**4.1**	**Work with State Government to Address Service Frequency Gaps** Investigate these for all travel periods and stations including peak travel times as well as off-peak and premium stations in addition to less well-used stations. Focus on stations with: ∞ Good interchange with other public transport services or scope for improvement. ∞ Significant parking, or where there is scope to increase park and ride provision. ∞ High levels of use (e.g. possibly Auburn and Hawthorn) and therefore likely to benefit from increased service frequencies.	Medium	Council, Connex and DOI
SO1, SO4, SO5	**4.2**	**Work with State Government to Improve Evening and Weekend Services** Aim for 15 minute frequencies from premium stations	Short-Medium	Council, Connex and DOI
SO1, SO4, SO5	**4.3**	**Improve Alamein Line Services** Work with State Government to improve frequency of day, weekend and weekday evening (after 7.30pm) services, e.g. increase number of direct services from the City to Alamein.	Medium	Council, Connex and DOI
SO1, SO2, SO4, SO5, SO6	**4.4**	**Work with Connex and DOI to Improve Station Facilities** ∞ Increase station passenger capacity at well-used stations. ∞ Improve pedestrian and cycle provision around stations and access to stations, giving adequate priority over vehicular movements. Conduct audit of pedestrian access at stations. ∞ Improve disabled access, toilets, staffing and ticket machines. ∞ Audit and improve signage to and within stations, particularly routes to stations and at night. ∞ Increase availability of parking spaces, to facilitate park and ride. Work with adjacent businesses to ensure station car parking is not used by employees of those businesses.	Short-Medium	Council, VicTrack, Connex and DOI
SO2, SO3, SO5,	**4.5**	**Improve Safety and Security of Stations and Approach Routes** Improving safety and security particularly pedestrian and cycle access including energy efficient lighting, access routes/ramps (DDA access), visibility, CCTV and station staffing ∞ Council to review access to stations during the day and at night ∞ Grade separation of level crossings.	Short-Medium	Council with VicTrack and Connex, DOI, VicRoads.

	5.0	**Cycling**		*Council to work with the stakeholders to improve infrastructure and facilities, with the overall goal of achieving an increase in cycling*
SO2, SO3	**5.1**	**Develop and adopt a Boroondara Bicycle Strategy** Include: ∞ Regional routes (on-street and off street). ∞ Local routes. ∞ Off street paths. ∞ Off-street path lighting. ∞ Action plan for future works. The strategy should consider developments to the cycling network in surrounding municipalities to ensure that a continuous network is developed. Electronic mapping of facilities including access via web site.	Short	Council with VicRoads, Bicycle Victoria and BBUG. Adjoining municipalities and Parks Victoria, where appropriate.
SO2, SO5	**5.2**	**Develop, display and make available a TravelSMART map.** Develop a TravelSMART map focusing on public transport, cycling and walking routes. Map should show all on and off road paths and bicycle facilities and be updated when changes/improvements to the network are made. Consider displaying large versions of the map at key locations such as recreation centres, along shared paths (particularly junctions of shared paths), universities, Council offices etc. Copies to be made available at Council venues. Map to also be made available on Council's web site. Update map annually or as required.	Short	DOI, Council, Bicycle Victoria, BBUG.
SO2, SO3, SO4, SO5	**5.3**	**Promote and Encourage Cycling** ∞ Provide support to cyclist organisations and promote cycling. ∞ Develop bicycle strategy and action plan – (on road network and shared path network) - what have we done, what are we doing, what will we do. ∞ Expand bike network (on road and off road) and improve facilities. ∞ Encourage cycling to and from schools. ∞ Promote and provide assistance for Bike Ed programs at schools. ∞ Support and promote bicycle education programs. ∞ Maintain and enhance working relationships with Bicycle Victoria and BBUG through the formation of a Bicycle Advisory Committee.	Ongoing Short	Council, Bicycle Victoria, BBUG, Schools, DSE. Council, BBUG, Bicycle Victoria.
SO2	**5.4**	**Regional Bicycle Routes** ∞ Improve regional bicycle routes - include connections to surrounding municipalities of Banyule, Manningham, Stonnington and Monash. ∞ Continue Implementation of Principal Bicycle Network - the priority routes should be those connecting to schools, universities, urban centres and shared pathways and routes where there is a high occurrence of casualty crashes involving cyclists ∞ Provide new shared path linking Anniversary Trail to Warrigal Road through Markham Reserve. Develop proposal for underpass at Warrigal Road. Link in to Gardiners Creek Trail in City of Monash (east end) and City of Stonnington (west end). ∞ Continue to investigate and develop additional on and off road bicycle routes.	Ongoing	Council with BBUG, Bicycle Victoria and surrounding municipalities

SO2, SO3	**5.5**	**Develop Local Cycle Routes** Develop routes on local roads which complement the PBN and existing shared paths, as outlined in the Boroondara Bicycle Strategy. Routes which provide good, direct connectivity between schools, universities, activity centres and shared pathways should be prioritised in addition to routes which would provide an alternative to an arterial road route which has a high cyclist casualty crash record.	Long	Council with VicRoads, Bicycle Victoria and BBUG.
SO2, SO3	**5.6**	**Investigate Cyclist Crash Locations for Improved Safety** ∞ Identify cyclist crash locations and develop measures to improve safety. Apply for blackspot funding, where appropriate. ∞ Assess and examine the Kew Junction Precinct (four crashes involving cyclists at the junction and 14 crashes within 1km of the junction).	Short	Council with VicRoads.
SO2, SO3	**5.7**	**Investigate Measures to Improve Intersection Safety for Cyclists** Extend on-road bicycle lane provision to intersections. Work with VicRoads to ensure that all on road markings extend up to and through intersections and are clearly visible (where possible). Introduce 'Head Start' boxes for cyclists on roads with, as far a possible, 'Head Start' Signals at locations which have been proposed at intersections on the PBN (both existing and proposed PBN). These signals, as well as making cyclists more visible to motorists, give them the opportunity to safely cross the intersection ahead of vehicles. The headstart time set should be based on the time required for a cyclist to cross the intersection. Possible locations for 'head start' storage boxes and signals should include: ∞ Where there is heavy left turning traffic and the bicycle lane is located to the left of the left turn lane ∞ Where there are downstream pinch points (e.g. traffic lane narrows or there is no bicycle lane provision) ∞ Where there are high cyclist volumes.	Ongoing	Council, VicRoads, Bicycle Victoria, BBUG.
SO2, SO3	**5.8**	**Improve Maintenance of Cycling and Pedestrian Infrastructure** Council to review its footpath maintenance program to ensure that poor maintenance of pathways is not a deterrent to people cycling/walking. Increase community awareness regarding the raising of issues, potential hazards through Council's web site, Boroondara Bulletin, Bicycle Victoria and BBUG. Conduct audits of the shared path network at 3 year intervals.	Short Ongoing Ongoing	Council Council, BBUG, Bicycle Victoria Council
SO2, SO3	**5.9**	**Ensure LATM's Cater Adequately for Cyclists** Implement procedures to ensure the preparation of LATM's are designed to give adequate consideration to cyclists' needs. (Refer to Bicycle Victoria guidance notes on this topic).	Short	Council with Bicycle Victoria
SO2	**5.10**	**Develop Priorities for Off Road Path Development** Prioritise collectively the outstanding treatments from audits of the shared path network (Anniversary Trail, Gardiner's Creek Trail, Main Yarra Trail and Koonung Creek Trail). Main actions to include: ∞ Widening of shared paths to a minimum width of 2.5m. ∞ Centreline marking and stop lines at crossings. ∞ Centreline marking at bends and where visibility is restricted. ∞ Line marking where paths meet to clearly define which path has priority. ∞ Installation of holding rails at intersections. ∞ Modification of chicanes. ∞ Removal / relocation of bollards. ∞ Upgrade signage including installation of new signs. ∞ Confine garden beds clear of path to avoid debris spilling onto path.	Short–Medium	Council with BBUG and Bicycle Victoria. VicRoads, where appropriate (arterial road crossings etc).

		∞ Crossing facilities at main roads. ∞ Trimming of overhanging branches/shrubs. ∞ Need for regular maintenance – routine sweeping. ∞ Regular clearing/trimming of shrubs.		
SO2	**5.11**	**Introduce Shared Path Centre Line Marking and User Conduct** ∞ Introduce centre line marking and signage for all shared pathways to reduce conflict between cyclists and pedestrians. ∞ Increase awareness and understanding between users of shared paths by providing Shared Path User Codes notices.	Short	Council
SO2, SO3	**5.12**	**Consider Lighting Shared Paths Used by Commuters** Investigate costs associated with installing lights and light timers on those shared paths used for commuting. Given the high costs associated with lighting, Council should consider in the shorter term placing lights at selected locations along shared paths such as intersections, curved alignments, steep grades, particularly dark sections, obstructions or where the path narrows.	Ongoing	Council with BBUG and Bicycle Victoria
SO5	**5.13**	**Increase Bike Ed Provision** ∞ Work with all primary schools to ensure that bicycle education (Bike Ed) is part of the curriculum. Over half of Boroondara's primary schools do not run Bike Ed courses. ∞ Explore possibility of co-ordinated approach with BBUG and Bicycle Victoria to assist in the introduction of the Bike Ed program at schools.	Short	Council with schools, BBUG and Bicycle Victoria
SO2, SO3, SO5	**5.14**	**Improve Bicycle End of Trip Facilities** ∞ Assess bicycle end-of-trip provision (bicycle racks, showers, seating etc.) at all Council run/owned facilities such as parks, ovals, libraries etc. ∞ Council should also assess the existing provision of communal bicycle storage facilities at shopping centres and investigate the need for increased provision. ∞ Apply new planning scheme requirement for provision of end of trip facilities for cyclists.	Short-Medium	Council
SO1, SO5	**5.15**	**Explore Viability of Bicycles on Trams** Discuss the viability of allowing bicycles to be carried on trams in off peak periods	Short	Council with Yarra Trams, other councils, DOI
SO2, SO4, SO5	**5.16**	**Review Cycle and Pedestrian Routes across the Monash and Eastern Freeways** Undertake investigations as to how these routes should be improved or introduced particularly to access railway stations on the Glen Waverley line.	Medium	Council, VicRoads, Connex, VicTrack, Bicycle Victoria

	6.0	**Walking**		*Council to work with the stakeholders to improve infrastructure and facilities, with the overall goal of achieving an increase in walking and safety*
SO2, SO3, SO4, SO5	**6.1**	**Improve Footpath Provision and Condition** ∞ Continue to address the footpath condition issues raised in the Boroondara wide footpath audit. Priority locations should be around schools, universities, activity centres, elderly citizen centres, retirement villages etc. ∞ Undertake pedestrian connectivity studies in heavily pedestrianised areas to develop an action plan for improving footpaths, pram crossings and provision of new footpath connections and crossing facilities. ∞ Audit pram crossings and develop priority action plan, including provision for DDA compliance. ∞ Expand and improve shared path network.	Short–Medium	Council
SO3	**6.2**	**Improve Vegetation Maintenance** ∞ Encourage private property owners to maintain vegetation near pathways so that footpaths are clear of obstructions. Inform owners through advertisements in local paper or the Boroondara Bulletin. ∞ Audit major centres for compliance and initiate remedial action where necessary.	Ongoing	Council and property owners.
SO5	**6.3**	**Walking School Bus Program** ∞ Continue, promote and expand Walking School Bus Program at primary schools and other walk to school initiatives. ∞ Continue with 'Safe Routes to Schools' program and associated engineering component.	Ongoing	Council with VicHealth Council
SO5	**6.4**	**Promote / Encourage Walking** ∞ Develop a walking action plan for Boroondara to encourage walking as a mode of transport. ∞ Implement better pedestrian facilities to improve safety and facilitate pedestrian movement such as medians/ pedestrian refuges, more pedestrian crossings at key activity centres and other high use areas, provide or upgrade lighting, identify possible linkages, and identify impediments e.g. Safe Routes to Shops and Stations. ∞ Provide better signage – directional signage and distance indicators. ∞ Distribute shared path network plans to community groups and medical practitioners. Improve streetscapes.	Short	Council, VicHealth and VicTrack (railway stations).

	7.0	**Roads and Traffic**		*Council to work with VicRoads and other stakeholders to ease and minimise the impact of congestion on Boroondara streets*
SO1, SO5, SO4, SO6	**7.1**	**Prepare a Regional Integrated Transport Strategy** Develop strategy in conjunction with surrounding municipalities (eg Manningham, Whitehorse, Monash) to investigate and consider regional road and public transport movements (including through traffic issues) (based on Metropolitan Transport Plan). As part of this strategy, work with Neighbouring Municipalities to reduce through traffic and congestion in Boroondara by encouraging greater public transport use e.g. through park and ride from those municipalities. Specifically examine causes and locations of congestion.	Medium	Council, Neighbouring Councils especially Monash, Glen Eira, Whitehorse, Manningham, VicTrack, DOI, VicRoads, Public Transport Operators
SO1	**7.2**	**Continue Implementation of Road Safety Strategy**	Ongoing	Council with VicRoads
SO3, SO4, SO6	**7.3**	**Clearways** ∞ Investigate effectiveness of existing clearways taking into account ways to improve public transport flow. ∞ Identify benefits that might be associated with increasing clearway operational times, introducing new clearways and introducing tow away zones on some existing clearways (e.g. sections of Burke Road, Riversdale Road east of Burke Road, Glenferrie Road and Camberwell Road). Council to survey the demand for on street parking at these locations during the peak periods and the availability of off street parking which can service the parking generators during peak times.	Short-Medium	VicRoads with Council input.
SO4, SO5, SO6	**7.4**	**Address Blackspots** Continue to address blackspots, focussing on: ∞ Specific sites with a high casualty crash record ∞ Sections of road with a large number of crash sites close together (e.g. Kew junction and approaches to this intersection, Warrigal Road/Toorak Road intersection, Auburn Road between Burwood Road and Riversdale Road etc). ∞ Establish road user priorities and investigate signal coordination improvements accordingly. ∞ Identify accident blackspot locations, develop solutions, source funding and implement. ∞ Continue with action items identified in Road Safety Strategy.	Ongoing	VicRoads on declared road network. Council to also lodge blackspot applications for VicRoads' consideration on declared road network. Council on local road network.
SO5	**7.5**	**Review Long Standing Public Acquisition Overlays** Investigate the relevance of public acquisition overlays which allow for road capacity improvements and consider withdrawing those no longer needed.	Medium	VicRoads – Council to raise issue of review
SO6	**7.6**	**Freight** Consider, identify and promote certain arterial roads for freight use (associated with deliveries to retail and office uses) to maintain and encourage use of the Eastern Freeway (northern boundary) and Monash Freeway (southern boundary).	Short-Medium	Council with adjacent Councils, VicRoads, DOI
SO6	**7.7**	**Major Road Developments outside Boroondara** Ensure Council is informed about the planning and progress of potential major road projects outside of Boroondara and is active in identifying any implications for Boroondara, particularly any potential increases in through traffic	Ongoing	Council, DOI, VicRoads
SO4	**7.8**	**Speed Signs** Audit speed signs for visibility. Ensure speed signs are in locations that allow them to be as prominent and visible as possible.	Short	VicRoads and Council
SO4, SO5, SO6	**7.9**	**Road Management Responsibility** Review road responsibility as part of Road Management Act.	Medium	VicRoads and Council

SO4, SO6	**7.10**	**Reduce Traffic Congestion** ∞ Introduce multiple occupancy express lanes and bus lanes on Freeways (Monash) and other arterial roads. ∞ Reduce dependency on motor vehicle by providing good alternative modes of transport i.e. tram, bus and train services including cycling and walking.	Medium-Long	Council, VicRoads, public transport operators, DoI.
SO4, SO6	**7.11**	**Traffic Policy** Develop and adopt a traffic policy to define the processes, procedures and criteria for improving traffic issues through the reduction in traffic volumes and/or vehicle speeds and potential for an accident via education, enforcement and, if required, physical measures.	Short	Council
SO1, SO2, SO4	**7.12**	**Improve Safety at Schools** ∞ Improve parking facilities, develop traffic strategies and provide for bicycle facilities in school master plans. ∞ Improve school transport – can Kew School Bus Services be further rolled out to include more schools. Possible partnerships with adjoining municipalities i.e. Stonnington? ∞ Recommend staggered start and finishing times to reduce peak traffic and parking levels. ∞ Continue upgrade of school crossings in line with audit recommendations. ∞ Review of school parking and traffic strategies. ∞ Encourage walking to school.	Ongoing	Council, Schools, DOI and Private Bus Companies. Adjoining Councils where appropriate.
SO4, SO6	**7.13**	**LATM Schemes** Review previous LATM schemes to determine the need for outstanding treatments based on accident history, speed and volume characteristics to provide a framework for the future implementation of traffic treatments. Provide flexibility within framework to include additional individual locations where accident or other criteria have been met. Upgrade lighting at existing traffic management treatments in accordance with standards. Maintain traffic management treatments to standards.	Short Ongoing Ongoing	Council Council Council
SO4,SO6	**7.14**	**Review Parking at Intersections** Review parking provisions at signalised intersections to ensure that existing legal parking is not limiting traffic flows at intersections. Assess intersections on main arterial roads to ensure that current statutory limits apply. Explore and implement, where appropriate, the suitability of amending parking restrictions to significantly improve traffic flow.	Ongoing	VicRoads and Council

	8.0	**Parking**		*Management and operation of parking on Boroondara streets*
SO1, SO3, SO4	**8.1**	**Structure Plans** Develop Structure Plans to consider movement and access. Structure Plans should consider vehicular access, quality of parking areas, pedestrian and cycling linkages and overall supply, public transport provision and access.	Short-Medium	Council + many
SO1, SO5	**8.2**	**Improve Security/Safety at Train Station Car Parks** Improve through CCTV cameras, staffing of stations, improved lighting on approaches to stations and maintenance of vegetation.	Medium	Council with VicTrack and Connex
SO2, SO3	**8.3**	**Improve Disabled Parking Provision** Develop a disability parking policy. Ensure that the number of disabled parking spaces provided is in accordance with the rates in the Building Code of Australia (part D3.5) and/or rates specified in Australian Standard AS2190.1 - 1993. Consider increasing disabled parking above these rates at certain locations, given the significant and growing proportion of elderly people in Boroondara and in accordance with needs identified in Council investigations into community transport requirements.	Short–Medium	Council, key disability groups.
SO4	**8.4**	**Parking Signage** Audit directional parking signage at strip shopping precincts. Audit should identify potential signage improvements for off street parking locations and side streets (non-residential). Priority locations should include: ∞ Camberwell (Consider implementation of Parking Guidance System) ∞ Glenferrie ∞ Kew Junction ∞ Balwyn (Whitehorse Road) ∞ Harp Village ∞ Burwood Village (Toorak Road) ∞ Ashburton. Audit on street and off street parking signage for compliance. Review parking restrictions in activity centres.	Short-Medium	Council
SO4, SO6	**8.5**	**On Street Parking** Review on street parking in strip shopping centres on arterial/busy roads and investigate additional parking provision on side streets or through car parks behind strip shopping centres. The latter is particularly significant where this provides the opportunity to reduce on street provision alongside strip shopping therefore providing the opportunity to develop these locations as more pedestrian friendly environments. For example, indented parking with wider footpaths as part of a Movement and Access Strategy in Structure Plans.	Medium-Long	Council with VicRoads, public transport operators, DSE, trader associations
SO4	**8.6**	**Increase Loading Zones Enforcement** Increase enforcement, particularly at Principal/Major Activity Centres to reduce the occurrence of unauthorised parking.	Short	Council
SO4	**8.7**	**Increase Parking Restrictions/ Enforcement Around Schools** Emphasis on improving safety by reduce incidence of double parking and illegal parking. Consider extending drop off / pick up zones further from schools to distribute parking load over a greater area.	Short	Council
SO4	**8.8**	**Parking Management** ∞ Develop and adopt a parking policy to define processes, procedures and criteria for improving the availability and effectiveness of parking for targeted groups (residents, shoppers, etc) through the introduction of parking controls. ∞ Review trader permit scheme. ∞ Review resident parking permit scheme. ∞ Examine feasibility of parking permit scheme tailored to precincts.	Short–Medium	Council

	9.0	**Planning and Land Use**		*Council to work with the State Government to provide a framework for improving Boroondara*
SO1, SO3, SO4, SO5	**9.1**	**School Master Plans** Advocate and encourage public schools to develop school master plans to address parking, bus parking, walking and cycling needs in the immediate area. ∞ Develop a traffic management plan for around schools, focusing on access by public transport, school buses, cycling and walking ∞ Advocate for the introduction of bicycle end of trips facilities for both students and staff.	Medium-Long	Council, Education Department and Schools, Victoria Police and public transport operators
SO2, SO3	**9.2**	**Developer Contribution Policy** Investigate the use of a Developer Contribution Policy with the aim of encouraging increased public transport use, walking and cycling and related access provision as part of new development.	Long	Council with DSE
SO2, SO3, SO4, SO5	**9.3**	**Movement and Access Studies** Implement Movement and Access Studies by updating Council Parking Policy and controls. ∞ Review Resident Permit Scheme. Changes should aim to reduce demand for permits, achieve a better balance between parking supply/demand and to recoup the administrative costs of the scheme through: ○ Introducing a structured fee system where the first permit is free (or low cost) but any additional permits have a higher cost. ○ Abolishing or limiting (eg to one permit per household) visitor permits. ○ Limiting the number of permits available to households which have on site parking. ∞ Consider policy directions from Melbourne 2030 and My Neighbourhood ∞ Ensure greater emphasis on the role of car parking as a travel management tool ∞ Develop a map of all parking available in Boroondara. ∞ Introduce more specific car parking provision rates for the three major/principal activity centres in Boroondara (Camberwell Junction, Kew, Junction and Glenferrie) which reflect characteristics of the centres such as proximity to public transport and the sharing of parking between uses (possible outcome of Structure Planning). ∞ Conduct a study in order to review the general Boroondara car parking provision rates, including transferring the requirements within Table 1 of Clause 22.03 of the Boroondara Planning Scheme into a schedule to Clause 52.06 of the Boroondara Planning Scheme, and develop Parking Precinct Plans to be incorporated into the Boroondara Planning Scheme. ∞ Consider reducing car parking rates for developments located in close proximity to public transport services, particularly in cases where developers commit to green travel plans to encourage travel change behaviour away from motor vehicles.	Short-Medium	Council
SO2, SO3	**9.4**	**Travel Plans** ∞ Travel plans to be required for new developments of a particular size, which outline the provision and use of: ○ Bicycle facilities eg end of trips facilities in accordance with the Victorian Planning Provisions (Clause 52.34 Bicycle Facilities and Signage). ○ Public transport access. ○ Car pooling. ○ Pedestrian connectivity. ○ Road access and parking.	Ongoing	Council, VicRoads, DoI and other State Government departments.

		○ Open space. ∞ Implementation of work TravelSMART programs (Council and other organisations). ∞ Development of shopping travel plan including home deliveries (co-ordinated by Trader Associations). ∞ Recreational centre travel plan. ∞ Sustainable transport training for staff. ∞ Lobby State government to rebate payroll tax to employers with accredited schemes.		Council, Trader Associations
SO3, SO4	**9.5**	**Develop Structure Plans** Undertake Movement and Access Studies as part of Structure Plans which create more friendly environments for walking, cycling and public transport (Camberwell, Glenferrie, Kew, Balwyn and others). Movement and Access Studies should incorporate the following: ∞ Road vehicle access and parking provision will largely need to be maintained but on road provision should be reduced where possible with new provision e.g. behind strip shopping centres or on-site at schools ∞ Encouragement to developers to incorporate pedestrian friendly treatments such as benches / ledges and verandahs in their developments within urban centres. ∞ Traffic management measures such as LATMs, to not displace adverse congestion problems elsewhere.	Ongoing	Council, VicRoads and Centre Associations

	10.0	**Safe and Effective Transport System**		*Council to work the local community to ensure a sustainable community*
SO1, SO2, SO3, SO4, SO5	**10.1**	**Establish an Integrated Transport Strategy Advisory Committee** Include representatives from across Council, Bicycle Victoria, Boroondara Bicycle User Group (BBUG), PTUA, disability groups and community etc. The committee should oversee the implementation of the Boroondara Bicycle Strategy and cycling/waking actions from the ITS. Encourage greater involvement of community and increased awareness of transport issues.	Short	Council with members
SO2, SO4	**10.2**	**Develop Travel Solutions for Shopping Travel** For major strip shopping centres, including consideration of buying on line and delivery of goods and strategies to encourage walking, cycling and use of public transport for shopping.	Short-Medium	Council with shopping centre associations, major employers.
SO2, SO3, SO6	**10.3**	**Implement Road and Footpath Hazards Reporting Procedures** Implement formal procedures at Council for reporting and addressing hazards for all road and path users. Ensure all roadworks and path works are completed to a suitable standard for cyclists and walkers.	Short	Council
SO4, SO5	**10.4**	**Review Work Travel Patterns** Develop solutions for commuters based on major trip origins and destinations (eg from City of Whitehorse to Camberwell Junction and Hawthorn). Possible solutions might include car pooling programs, and investigating and demonstrating the benefit of living close to work.	Short	Council with City of Whitehorse
SO4, SO5	**10.5**	**Major School Precincts** Develop travel solutions for major school precincts (eg shuttle buses to stations, school bus services, walking, cycling, car pooling).	Short-Medium	Council, public transport operators, schools
SO4, SO5	**10.6**	**Implement Recommendations of Travel Solutions**	Long	
SO5	**10.7**	**Develop Travel Solutions for users of Recreation Centres**	Short-Medium	Council with recreation centres, sporting groups,

	11.0	**Education, Publicity, Promotion and Behaviour Change**		*Council to work the State Government and local businesses and community to encourage sustainable travel patterns are followed to work, school and recreational trips'*
SO5, SO3	**11.1**	**Conduct Training in Sustainable Transport and Planning.** Conduct training for Council Staff and Councillors in planning for and encouraging sustainable transport within the context of overall development and planning in Boroondara. Extend Program to the wider community	Short-Medium	Council and DSE, DOI, Monash Uni
SO5	**11.2**	**Participate in Smogbusters Way to School Program**	Ongoing	Council and DSE
SO5	**11.3**	**Instigate Green Travel Plans** ∞ Encourage preparation and implementation of Green Travel Plans by schools and major employers in Boroondara. ∞ Council to adopt green travel plans developed for the Camberwell and Hawthorn offices to encourage staff to use public transport, cycle or walk to work. This should also include a review of the Council vehicle fleet and assess options for alternative fuelled vehicles (such as LPG and dual fuel). These draft plans to include: ○ Promotion of behaviour change eg promote benefits of walking and cycling in Boroondara Bulletin and through Ride and Walk to Work Days ○ The choice of smaller, more efficient and alternative fuel vehicles (LPG and duel fuel) where appropriate. ○ Interest free loans for bicycles ○ Interest free loans for public transport ○ Encouraging car pooling. ○ Continue provision of Met tickets for work travel. In addition, promotion of some of the above could constitute promotion of green travel to the wider community. ∞ Council should also support the development of Green Travel Plans or Access Plans for schools and employers.	Short–Medium	Council with DOI and possibly VicHealth
SO5	**11.4**	**Incentives for Sustainable Travel Behaviour** Investigate the use of incentives to encourage sustainable travel behaviour.	Short-Medium	Council with local businesses and residents

	STRATEGIC OBJECTIVES
SO 1	To facilitate improvements to and better integration of all forms of public transport.
SO 2	To improve provision for cycling and walking, particularly in activity nodes, strip shopping centres and schools and in order to improve access to public transport.
SO 3	To create more pedestrian friendly street environments and high quality urban centres which are less car-dominated.
SO 4	To introduce measures to better manage traffic, public transport, cycling and walking on congested roads and particularly in urban centres.
SO 5	To promote safe and secure alternative forms of travel to the car and to increase the attractiveness and use of these (through travel demand management).
SO 6	To introduce measures to better manage through traffic in Boroondara to minimise its impact on amenity.

Appendix A

Public Consultation Findings

Youth Workshop 20 April 2004

Boroondara Youth Resource Centre

Attendees: Julia, James, Ros, Josh, Joe, Jenna, Kim, Maddy and Ariel

General

Get around by train, tram and bus or driven by girlfriend or parents. No one in the group has a driver's licence.

Travel to school – bus, tram, train some parents drive.

Concerns about transport:

Cost especially now that you can't buy a short trip ticket. If want to go 5 stops have to fork out for full ticket or walk. Tram machines don't take notes.

Need to pay $120 per year for a tertiary student concession card. (Metcard Website says $146 less a Govt rebate which brings it back to $87)

Short trip ticket was 90c 2 hour ticket is $1.70 and daily ticket is $3.

It costs about $7.15 for a secondary concession card (Actual cost $8.00). Why can't a Health Care Card be used to buy concession tickets? (Health care cards for people on Youth Allowance (YA Card only), Sickness Allowance, Newstart Allowance, Widow Allowance and Special Benefits can be used to obtain concession tickets. Holders of Health Care Cards with payment code LI are not entitled to public transport concession fares (payment codes appear on the top left hand corner of the Health Care Card). In other words some Health care cards are enough but not all.)

Make weekly, yearly and half yearly tickets cheaper to encourage people to travel with tickets

Why not allow people to pay in instalments for half yearly or yearly tickets. Yearly ticket $360 saves $40 from buying weekly tickets.

Ticket machines have lost money for State if tickets are cheaper would make more money for the State as there would be less evasion.

Public transport doesn't run late enough eg last tram leaves the city at 12.05am. Often these trams don't follow timetables as they run early.

Lack of communication about public transport changes.

Run public transport all night eg every 20 minutes until 2 am then hourly to 5 am then every 20 mins again. This would also help people who have early classes or meetings.

Why do you need to have a ticket for zone 2 if you're not getting off the train there.

Zones are confusing. Why have zones? It's very expensive for a zone 3 ticket penalise people who live further from the city who are generally poorer than those who live closer to the city.

V Line trains are different to Connex trains so travelling to the country is more confusing.

To encourage public transport use why not make tickets cheaper in the peak

Have events and prizes etc to make public transport use fun.

New public transport ads are a bit weird (singing on the train).

Spent Govt funds on public transport not tanks.

Larger businesses and workplaces can have public transport to work days or ride to work days more often. Council could talk to Unions about this too.

Weird to catch public transport on school excursions with big groups.

Safety

Safety from weirdos – partly real and partly imagined fear eg parents concerned that it's unsafe to travel by train at night. Maybe train companies could advertise their improved safety.

Station bums begging at station.

Why not play classical music to keep drunks off trams.

Buses

Don't trust the bus as don't know where it goes.

Buses stop running after 6pm and don't run on Sundays

Hard to get from Camberwell to Doncaster.

Buses are too packed after school.

Angry bus drivers aren't very helpful. They sometimes miss stops even while people are waiting.

More buses and clearer routes eg have a central bus spot in the CBD where everyone know to catch buses i.e. all trains go to Flinders St.

Need more frequent morning buses to Camberwell from Doncaster i.e. currently 30 mins apart.

Better promotion of Night Rider bus. Also more frequent runs. Cheaper would be good too.

Trams

Inspectors on trams use excessive force to get people off trams i.e. if don't have a ticket.

Hard for people who don't speak English. Need more tolerance and training of inspectors.

Sometimes inspectors are nice. Conductors were better than inspectors.
Dealing with delays caused by crashes eg Elizabeth St Royal Parade Roundabout.

Safety hazard of falling over on trams.

Anchor handles on trams are hard to hold on to. Leaning rails on these trams are too high for your backside.

New trams don't have enough seating. Wasted space with bucket seats and single seats.

Trains

Creepy being on trains and trams late at night although the new Safe Travel Team helps this.

Nothing to hold onto if trains are full but otherwise there's plenty of seats.

Express trains miss Chatham Station and most don't stop at Surrey Hills – big gap between Camberwell and Box Hill too far to walk.

Flagstaff Station is closed on Sundays. Why?

Walking

Have to walk if can't afford a ticket.

Prepared to walk for up to an hour to visit friends if not near public transport.

Warrigal Rd Northern end is hard for public transport.

Surrey Hills is hard to get to by public transport and steep for walking.

Cycling

Most of the group don't cycle regularly.
Studley Park Rd Bridge is dangerous on a bike.

Why have bike lanes parallel to train tracks? Scenic tracks through parks are better than between fences.

Appendix B

Stakeholder Consultation Findings

Stakeholder Workshop 1

Notes of group discussion

Bus station in East Kew for routes to Box Hill and Doncaster but not many buses in the area.

TDM as one heading in the strategy to group initiatives

East-west public transport is good but need to link north south better eg by extending tram route along Burke Rd.

Also need better links between Kew and Camberwell.

Free public transport

Employers to provide free public transport to employees.

Need to consider desire locations i.e. where are people wanting to go? Need to look at the degree of attraction of the different shopping centres.

Large proportion of older residents east of Burke Rd, where public transport is less available and also a large proportion of over 85 year olds. This number will increase to 40,000 by 2021.

There are also a considerable number of people with a disability.

Council's community bus service meets demand (possibly over service in Kew) but can't meet demand in Ashburton and North Balwyn. These issues are compounded by hills in these areas.

Need to link Toorak / Glenferrie Rd tram terminus with Camberwell Rd at Toorak Rd.

Size of streets – is it an issue? Do buses fit? Medium and small buses fit most places but these are not low floor vehicles.

Freight Origin and Destination – need to cater for legitimate delivery an appropriate access. Concern about trucks cutting down Princes St to avoid tolls on Citylink. Shopping centre operating hours restrict available times for delivery of goods.

City of Stonnington has an issue with the infiltration of Boroondara residents from Great Valley Rd, Winton Rd and Moyra St. Traffic flow on Malvern. Stonnington have installed a Pedestrian Operated Signal to create gaps to allow side street traffic to get out.

Toll avoidance at Burke Rd is an issue in Stonnington.

Rat running is an issue especially diagonally across the municipality i.e. it is much quicker to use local roads to get from Clifton Hill to Ashburton.

Freeways, rivers and train lines constrain the municipality.

How many residents work within Boroondara? What proportion of total trips to work are made within Boroondara?

Park and rides – need to review parking. Provision of parking encourages driving as does provision of parking in residential areas. Refer to City of Port Phillip for a good parking study.

Late night access for young people. Buses sit in depots after last run. To extend operating hours would only require running costs.

Connectivity between trams and buses. Tram and bus companies would prefer far side stops so that they can tell if connecting vehicle is coming.

Locate stops in the right places.

Level crossing at Glenferrie Rd stops the route 69 trams from running long and low floor trams. Need to use Z-Class here. There are other constraints further south on the route that means it will never have low floor buses.

Do changes to train stations to make them the stop for an express train impact on car parking? Not really, Surrey Hills didn't change. Many people will walk further for an express train eg up to 1 km. Some people drive to the next zone but not many. By increasing express trains and staffing the station, patronage at Surrey Hills increased.

There isn't much scope to increase parking at stations on lines through Boroondara.

Council could encourage walking to stations, facilitate drop off and pick up (similar number as drive to train and park), link bus to train better eg timetables need to coincide and people need to be able to see where to go and where buses go. Help people to get from bus or tram to train.

Walk links from Camberwell Market to the train could be improved and better lighting installed. People generally walk forward along the line.

Pedestrian audit at interchanges eg start with main ones.

Frequency of service tram = 6-7 minutes, bus is 30 minutes.

High fences make people feel unsafe walking.

Tram ticket machines don't take notes or credit card.

Pick up and drop off around schools is a big issue.

Bus stops need to be okay places to wait, as you need to wait up to 30 minutes. Bowen St, Nettleton Ave and Toorak Rd, shelters have been moved/ removed by Council.

Why not share bus and tram shelters?

On time running is very important for buses. Temporary traffic treatment at Auburn Rd has slowed traffic but can result in buses becoming 15 minutes behind i.e. 10 minutes late towards Carey Grammar and 5 in the return direction. This treatment is soon to be made permanent.

Stonnington has done road safety audits around schools to identify issues and needs. These cost around $2000 / school but enable Council to schedule works at schools. This addresses problem and manages residents' expectations.

Private schools are often too far from home for students to walk.

Would it be possible to give bus priority somehow on Auburn Rd where it is reduced to one lane? eg on approach to intersections. Otherwise it's an impediment to public transport.

Improve information about the bypass system so that it is explained to people.

Land development – Council's strategy should give cues to development about what's needed i.e. integrated transport strategy for each development, requiring bicycle parking, end of trip facilities and access for everyone. Could even include things like a shuttle bus to the train station from a company.

Bicycles are now free for travel on trains.

What about bike racks on buses? Removed in Perth after an accident.

Tooronga Rd has a shared bike and bus lane. Could we try more of these? Buses are happy to go slower eg 25 km/h if it means they don't have to stop and start.

Could we consider creating bus priority lanes in clearways?

U turns and trams don't mix well. Consider banning these.

Need to show public transport provision at night and on weekends to get a true picture of provision in Boroondara.

Pedestrian safety is obviously an issue at activity centres. Need to address traffic in these areas.

Reinstate the feeder bus to Glen Iris Station.

Need to coordinate future land use planning with traffic and transport. Changes to planning scheme.

Consider transit-oriented development at stations.

Appendix C

School Questionnaire Survey Summary

School Survey Summary Report

32 schools responded to the survey and 35 Childcare Centres and Kindergartens.

This is slightly less than 50% response.

18 school surveys were sent to High Schools

47 Surveys were sent to Primary Schools or schools which cover prep to year 12. They were accompanied by the Walking School Bus Guide.

68 surveys were sent to kindergartens, preschools and childcare centres. The surveys were personalised with the school name and were altered so that childcare and kindergarten surveys had different questions to the ones sent to schools.

Due to a mix up in the posting some of the childcare and kindergarten surveys were sent to the wrong centres. Several centres corrected their surveys but for the others some assumptions were made to assist in compiling the results. Where more than one response appeared to have been received from a centre, the incorrect centre was changed to the one following it on the list. Where only one response was received and no location data was indicated in the responses, the survey was assumed to have been sent to the correct centre. Fax headers confirmed this in some cases.

This represents over 15,000 students and 2500 kindergarten, preschool and childcare children.

School responses

The schools that responded ranged in size from 18 students at Andale School to 2130 at Methodist Ladies College. 2 schools didn't provide student numbers. The average number of students was 531 and the median was 410.

14 of the schools indicated that less than 25% of students lived within 1km of the school. 5 had 26-50% within 1 km and 5 had 51-75%. 5 schools had 76-100% of students living within 1km of the school.

The predominant mode of travel across the surveyed schools was by parents driving. The average percentage of children driven by parents was 50%. The median was 52.5%.

Only 6 schools used school buses, Ashwood Specialist School (in City of Monash), Belmore School, Burwood East Special Developmental School, Princess Elizabeth Junior School for Deaf Children, St Paul's School and Kew Primary School. 5 of these schools are small schools for children with disabilities or special needs.

Hawthorn Secondary College, Xavier College Senior School and Camberwell Grammar School had the highest proportion of students travelling by tram with 28, 20 and 15%. Balwyn High had 10% of students travelling by tram.

Chatham Primary School had the largest proportion of students cycling to school with 12%. Most schools had low proportions of students cycling, the average was 2.4% and the median 2%.

Canterbury Girls Secondary College, Hawthorn Secondary College and Xavier College Senior Campus had the largest proportion of students travelling by train with 30, 30 and 28% respectively.

St Cecilia's Primary School had the largest proportion of students walking to school with 70%. The next highest were Boroondara Park Primary School, Canterbury Primary School and Hartwell Primary School all with 50% walking.

Of the primary and secondary schools with 76-100% of their students living within 1km of the school, 2 indicated that over 90% of children were driven to school by parents. These are Our Lady of Victories School at Camberwell and All Hallows Catholic Primary in Balwyn. They are both small Catholic Schools with 114 and 100 pupils respectively.

St Dominic's Primary School with 309 students was another school with a large proportion of students living close to the school (76-100) and 70% being driven to school by parents.

Our Lady of Victories is located adjacent Camberwell Primary School which has 440 students, 70% of which are driven to school by their parents. 51-75% of pupils live within 1 km of the school.

Our Lady of Good Counsel and Mont Albert Primary School (in City of Whitehorse) are both located near Whitehorse Rd with 51-75 of students living within 1km but 80% being driven to school.

Most schools include road safety in the curriculum while approximately half have Bike Education.

The most common unresolved road safety issues related to crossing points, 12 schools mentioned this. Traffic speed was an unresolved road safety issue for 7 of the schools.

The main obstacles to walking and cycling were considered to be *parents driving children to schoo*l, *too dangerous* and *parent's not permitting children to walk* or cycle. *Distance* was less of a concern along with *student's don't want* to and *no/poor bike storage.*

Improved paths and improved crossing facilities were considered to be the best ways to encourage students to walk or cycle to school.

Kindergarten, Childcare and Preschool Responses

In the case of Childcare and Kindergartens the distance considered close to the school was 500m.

Of the Kindergartens only Glenferrie and West Hawthorn Early Childhood Centres indicated that 76-100 % of children lived within 500m of the centre,.

Three of the centres did not complete the numerical sections of the questionnaire.

Glenferrie Early Childhood Centre had the highest proportion of children walking to childcare with 60%. Deepdene Preschool Centre had the second highest proportion of children walking with 50%.

All other centres had less than 30% of children walking, with most (18 out of 30) having less than 10%.

It appears that some centres misunderstood the intent of the survey as they responded that the children were too young to travel on their own.

25 of 30 responses showed that road safety was included in the curriculum in some form.

Traffic speed was considered to be the major unresolved traffic issue and improving this was considered to be the best way to encourage more walking and cycling.

Other obstacles were the need for parents to take other children to school which is further away or the fact that they are pressed for time when taking children to childcare on the way to work.

Staff Responses

Most of the staff at the schools that responded travel to school by driving alone.

11 schools showed some staff cycling but it was a very small proportion. Belmore School and Camberwell Grammar School had 4%, St Paul's School 3% and Balwyn 2% with the remaining 7 indicating 1% of staff cycling to work.

This was also not seen to be easy to change with 27 *no* responses from the childcare centres of 31 responses to this question. For the schools, there were 26 *no* responses out of 29 responses.

Obstacles to staff changing modes included heavy bags to carry, long or varying hours of work and children to drop off or pick up on the way to and from work.

Only 2 schools All Hallows Catholic Primary and Camberwell Primary School had more than 75% of staff within 5km of the school.

Xavier College Junior School had the highest proportion of staff travelling as or with a passenger, 24%. Princess Elizabeth Junior School for Deaf Children, Camberwell Grammar School, Boroondara Park Primary School and Kew Primary School had 12, 10 and 8% of staff sharing or riding. All other schools had 5% or less.

St Paul's School had 10% of staff travelling to work by bus.

Belmore School and All Hallows Catholic Primary had 10% of staff walking to school.

Cycling was a relatively minor mode of travel to work with 4% being the highest proportion of staff cycling to Belmore School and Camberwell Grammar School.

For the Kindergartens, Preschools and Childcare Centres there were 27 "no" responses of 31 responses.

Four of the centres that had more than 75% of staff within 5km of their workplace. Deepdene Playgroup, Rowen St Kindergarten, Preshil Kindergarten, Glenferrie Early Childhood Centre. Of these Glenferrie Early Childhood Centre had 40% of staff walking, Preshil had 50 of staff travelling by tram and Glenferrie had 20% of staff travelling by bus. All of these are based on small numbers of staff at these centres (i.e. slightly smaller than the average of the responding centres.)

Trinity Grammar Early Childhood Centre had the highest number of staff travelling as / with a passenger with 28%, Church of Christ Camberwell had 25%, while Ashburton Child Care Centre and Kindergarten had 10% and West Hawthorn Preschool 5%.

No Kinder staff cycled to work.

Bus use was higher for kinder and childcare staff than school teachers with Ashburton Child Care Centre having 20%, Glenferrie Early Childhood Centre 20%, Balwyn East 20%, Through Rd Childcare Centre 15% and Greythorn Early Childhood Centre 2%.

Tiggers Child Care Centre had 30% of staff catching train, tram and walking while Swinburne Community Childcare Coop had 12% travel by train and West Hawthorn 10%.

2 centres had significant proportions of tram use, Preshil and West Hawthorn Early Childhood Centre with 50 and 20%. Tiggers staff use several modes as mentioned above.

Several centres had significant numbers of staff walking i.e. Glenferrie Early Childhood 40%, Swinburne, Little Ruyton and Deepdene 25% and Balwyn East, Bellevue and St Dunstan's 20%.

Appendix D

References

D1 References

The following references were used in the preparation of the strategy:

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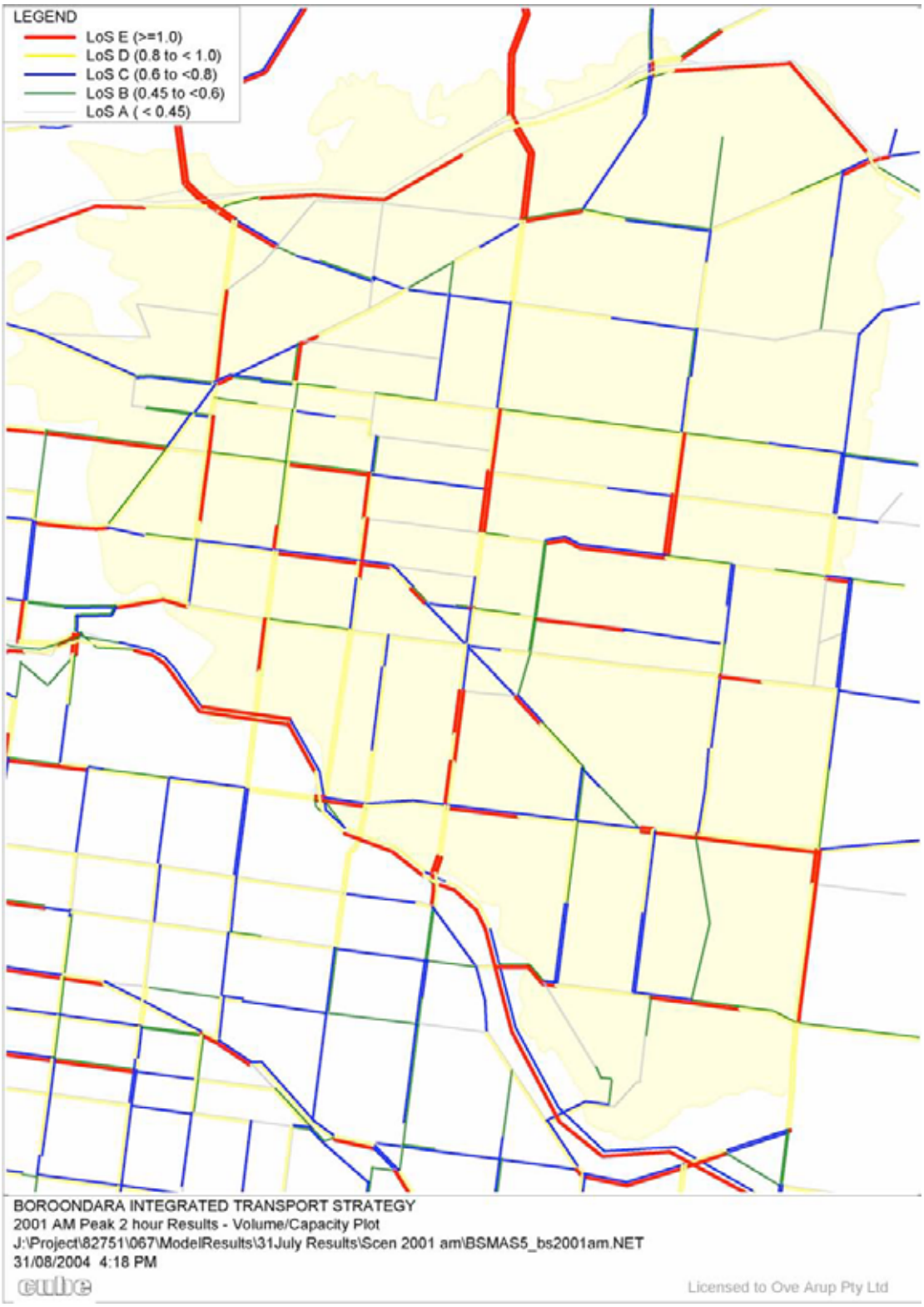
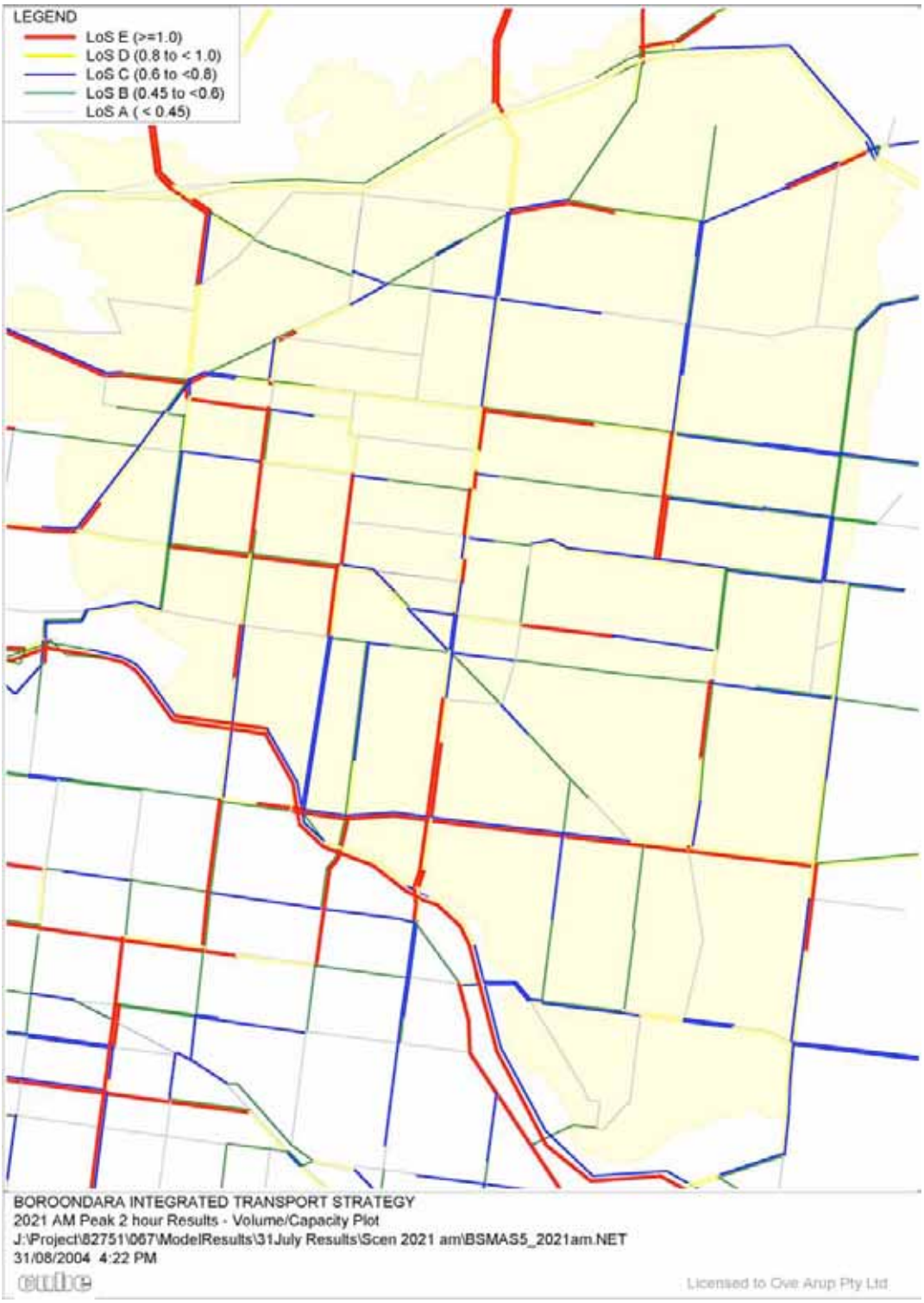
Appendix E

Boroondara Road Volume to Capacity Ratios

Volume to Capacity Ratios – 2001 AM Peak



Volume to Capacity Ratios – 2021 AM Peak



Appendix F

Planned Road Projects In Boroondara

Appendix F

2006/2007 VICROADS APPLICATIONS

The following applications have been submitted to VicRoads for funding consideration for the 2006/2007 financial year.

A decision on whether the applications have been successful is expected by the end of June 2006.

VicRoads Traffic and Transport Integration Program - Council Applications	
Location	**Description**
Wellington Street Between Denmark Street and Glenferrie Road	Shared bike/parking lanes
Balwyn Road Between Whitehorse Road and Canterbury Road	Exclusive bike lanes (parking permitted)
Markham Reserve Between Anniversary Trail and Warrigal Road Deferred to 2007/2008 Joint funding proposed between VicRoads and Council	Shared path – 3m width
Toorak Road / Summerhill Road	DDA compliance
Belmore Road North east of Union Road	Signal hardware upgrade
Doncaster Road East of Bulleen Road	Convert to Puffin operation and new signal hardware
High Street At Kew Recreation Centre	Traffic Signals
Princess Street South of Wills Street	Convert to Puffin operation and new signal hardware
Camberwell Road Near Evans Place Approved Construction scheduled between July-Oct 2006	Pedestrian signals

VicRoads Statewide Blackspot Program - Council Applications	
Location	**Description**
Auburn Road At Auburn Railway Station	Pedestrian signals
Barkers Road / Auburn Road / Wrixon Street	Skid resistant pavement east approach
Belmore Road / Union Road / Kalonga Road	Redesign of roundabout west approach
Burke Road / Argyle Road	Various options
Camberwell Road / Monteath Road / Redfern Road	Traffic signals
Chandler Highway / Earl Street / Princess Street	Various Options
Glenferrie Road South of Barkers Road	Convert zebra signals to pedestrian signals
Riversdale Road / Havelock Road / Redfern Road	Traffic signals
Whitehorse Road / Union Road	Various options
High Street / Warner Avenue	Traffic signals
Glenferrie Road / Manningtree Road	Kerb outstands

VicRoads Statewide Blackspot Program - VicRoads Applications	
Location	**Description**
Burwood Road / Barkers Road	Traffic Signal Improvements
Camberwell Road / Seymour Grove	Traffic Signal Improvements
Burwood Road / William Street	Traffic Signal Improvements
Toorak Road / Auburn Road	Traffic Signal Improvements
High Street / Harp Road	Traffic Signal Improvements
Warrigal Road / High Street	Traffic Signal Improvements
Burke Road / Seymour Grove	Traffic Signal Improvements
Rathmines Road / Auburn Road	Traffic Signal Improvements
High Street / Marquis Street	Raised threshold treatment
Riversdale Road / Trafalgar Road	Traffic Signal Improvements
Burwood Road/Glenferrie Road	Traffic Signal Improvements
High Street / Studley Park Road (Kew Junction)	Traffic Signal Improvements
Whitehorse Road / Talbot Avenue Implemented	Short length of parking removal
High Street / Burke Road / Doncaster Road / Kilby Road	Traffic Signal Improvements
Bulleen Road / Hillview Road	Traffic Signals

Appendix G

Clause 52.34
Bicycle Facilities

Appendix G

Clause 52.34 BICYCLE FACILITIES

52.34 BICYCLE FACILITIES

19/01/2006
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Purpose

To encourage cycling as a mode of transport.

To provide secure, accessible and convenient bicycle parking spaces and associated shower and change facilities.

52.34-1 Provision of bicycle facilities

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A new use must not commence or the floor area of an existing use must not be increased until the required bicycle facilities and associated signage has been provided on the land.

Where the floor area occupied by an existing use is increased, the requirement for bicycle facilities only applies to the increased floor area of the use.

52.34-2 Permit requirement

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A permit may be granted to vary, reduce or waive any requirement of Clause 52.34-3 and Clause 52.34-4.

Exemption from notice and review

An application is exempt from the notice requirements of Section 52(1)(a), (b) and (d), the decision requirements of Section 64(1), (2) and (3) and the review rights of Section 82(1) of the Act.

Decision guidelines

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- Whether the proposed number, location and design of bicycle facilities meets the purpose of this clause.
- The location of the proposed land use and the distance a cyclist would need to travel to reach the land.
- The users of the land and their opportunities for bicycle travel.
- Whether showers and change rooms provided on the land for users other than cyclists are available to cyclists.
- The opportunities for sharing of bicycle facilities by multiple uses, either because of variation of bicycle parking demand over time or because of efficiencies gained from the consolidation of shared bicycle facilities.
- Australian Standard AS 2890.3 1993 Parking facilities Part 3: Bicycle parking facilities.
- Any relevant bicycle parking strategy or equivalent.

52.34-3 Required bicycle facilities

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Tables 1, 2 and 3 to this clause set out the number and type of bicycle facilities required. Bicycle facilities are required if the use is listed in column 1 of the table. The number of bicycle facilities required for a use is the sum of columns 2 and 3 of the tables.

If in calculating the number of bicycle facilities the result is not a whole number, the required number of bicycle facilities is the nearest whole number. If the fraction is one-half, the requirement is the next whole number.

A bicycle space for an employee or resident must be provided either in a bicycle locker or at a bicycle rail in a lockable compound.

A bicycle space for a visitor, shopper or student must be provided at a bicycle rail.

Table 1 to Clause 52.34-3 – Bicycle spaces

USE	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Amusement parlour	None	2 plus 1 to each 50 sq m of net floor area
Convenience restaurant	1 to each 25 sq m of floor area available to the public	2
Dwelling	In developments of four or more storeys, 1 to each 5 dwellings	In developments of four or more storeys, 1 to each 10 dwellings
Education centre other than specified in this table	1 to each 20 employees	1 to each 20 full-time students
Hospital	1 to each 15 beds	1 to each 30 beds
Hotel	1 to each 25 sq m of bar floor area available to the public, plus 1 to each 100 sq m of lounge floor area available to the public	1 to each 25 sq m of bar floor area available to the public, plus 1 to each 100 sq m of lounge floor area available to the public
Industry other than specified in this table	1 to each 1000 sq m of net floor area	None
Library	1 to each 500 sq m of net floor area	4 plus 2 to each 200 sq m of net floor area
Major sports and recreation facility	1 to each 1500 spectator places	1 to each 250 spectator places
Market	1 to each 50 stalls	1 to each 10 stalls
Medical centre	1 to each 8 practitioners	1 to each 4 practitioners
Minor sports and recreation facility	1 per 4 employees	1 to each 200 sq m of net floor area
Motel	1 to each 40 rooms	None
Nursing home	1 to each 7 beds	1 to each 60 beds
Office other than specified in this table	1 to each 300 sq m of net floor area if the net floor area exceeds 1000 sq m	1 to each 1000 sq m of net floor area if the net floor area exceeds 1000 sq m
Place of assembly other than specified in this table	1 to each 1500 sq m of net floor area	2 plus 1 to each 1500 sq m of net floor area
Primary school	1 to each 20 employees	1 to each 5 pupils over year 4
Residential building other than specified in this table	In developments of four or more storeys, 1 to each 10 lodging rooms	In developments of four or more storeys, 1 to each 10 lodging rooms

USE	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Restaurant	1 to each 100 sq m of floor area available to the public	2 plus 1 to each 200 sq m of floor area available to the public if the floor area available to the public exceeds 400 sq m.
Retail premises other than specified in this table	1 to each 300 sq m of leasable floor area	1 to each 500 sq m of leasable floor area
Secondary school	1 to each 20 employees	1 to each 5 pupils
Service industry	1 to each 800 sq m of net floor area	None
Shop	1 to each 600 sq m of leasable floor area if the leasable floor area exceeds 1000 sq metres	1 to each 500 sq m of leasable floor area if the leasable floor area exceeds 1000 sq metres
Take-away food premises	1 to each 100 sq m of net floor area	1 to each 50 sq m of net floor area

Table 2 to Clause 52.34-3 – Showers

USE	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Any use listed in Table 1	If 5 or more employee bicycle spaces are required, 1 shower for the first 5 employee bicycle spaces, plus 1 to each 10 employee bicycle spaces thereafter.	None

Table 3 to Clause 52.34-3 – Change rooms

USE	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Any use listed in Table 1	1 change room or direct access to a communal change room to each shower. The change room may be a combined shower and change room.	None

52.34-4 Design of bicycle spaces

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Bicycle spaces should:

- Provide a space for a bicycle of minimum dimensions of 1.7 metres in length, 1.2 metres in height and 0.7 metres in width at the handlebars.
- Be located to allow a bicycle to be ridden to within 30 metres of the bicycle parking space.
- Be located to provide convenient access from surrounding bicycle routes and main building entrances.
- Not interfere with reasonable access to doorways, loading areas, access covers, furniture, services and infrastructure.
- Not cause a hazard.
- Be adequately lit during periods of use.

Bicycle rails

A bicycle rail must:

- Be securely fixed to a wall or to the floor or ground.
- Be in a highly visible location for bicycle security (when not in a compound).
- Be of a shape that allows a cyclist to easily lock the bicycle frame and wheels.
- Be located to allow easy access to park, lock and remove the bicycle.

Bicycle compounds and lockers

A bicycle compound or a bicycle locker must:

- Be located to provide convenient access to other bicycle facilities including showers and change rooms.
- Be fully enclosed.
- Be able to be locked.
- If outside, provide weather protection for the bicycle.

A bicycle locker must provide a bicycle parking space for at least one bicycle.

A bicycle compound must:

- Include wall or floor rails for bicycle parking.
- Provide an internal access path of at least 1.5 metres in width.

52.34-5 Bicycle signage

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If bicycle facilities are required by this clause, bicycle signage that directs the cyclists to the bicycle facilities must be provided to the satisfaction of the responsible authority.

Bicycle signage should:

- Be at least 0.3 metres wide and 0.45 metres high.
- Display a white bicycle on a blue background on the top half of the sign.
- Display information about the direction of facilities on the bottom half of the sign.