

CHAPEL STREET ACTIVITY CENTRE

CHAPEL reVISION

SUB CONSULTANTS
REPORTS

Chapel reVision Transport Strategy

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1 Chapel reVision

1.1 Context

The City of Stonnington is conducting a review of the Chapel Vision Structure Plan for the Chapel Street Activity Centre and its immediate surrounds. Chapel reVision will guide the development of this area and shape the future of the Chapel Street precinct for the next 20 years. GTA Consultants have been commissioned by the City of Stonnington to prepare a transport strategy for the Chapel reVision plan to provide a number of transport projects to be implemented along with the proposed development in the precinct.

1.2 Vision Statements

The Chapel Vision Structure Plan was prepared by the City of Stonnington and adopted in December 2007 to guide the future development within the Prahran/South Yarra Principal Activity Centre and immediately adjacent precincts.

Chapel Vision outlines six key visions to guide future development:

- i ensuring a sustainable economic future for the Activity Centre

- ii maintaining the unique and valuable character of the Activity Centre and its environs
- iii accommodating housing growth and diversity
- iv improving the quality, extent and interconnectivity of public spaces, parks and pedestrian networks
- v improving the quality of public transport modal integration, access, amenities and services and the development of a Sustainable Transport Plan
- vi enhancing the liveability of the Study Area.

1.3 Purpose of Transport Strategy

The purpose of this report is to provide a dedicated transport strategy for the Chapel Vision precinct and to build on the plans determined in the initial Chapel Vision Structure Plan. The Chapel Vision Structure Plan contained land use and urban design plans for the precinct into the future, identifying specific areas to be targeted for urban renewal and enhancement.

This report aims to build on the recommendations presented in Chapel Vision, with a focus on the transport issues and opportunities within the area. Specifically, the Transport Strategy aims to identify key projects and locations for specific actions to improve the quality and performance of the entire transport network. This strategy will ultimately provide a list of

projects and works proposed that will provide a real benefit for residents and visitors to the Chapel Street precinct.

1.4 Transport Strategy

The works and projects proposed in this Transport Strategy have been planned and designed in accordance with the previous work completed in the Chapel Vision Structure Plan, Network Priorities as outlined earlier, as well as various state and local government planning policies and documents relevant to the study area. The strategy will outline projects to help deliver improved transport options and function within the precinct.

1.5 Transport Network Objectives

- i Establish an integrated transport network that prioritises walking, cycling and public transport use.
- ii Develop a safe and highly accessible transport network that has high quality new and improved infrastructure appropriate to service predicted growth.
- iii Establish a local access street hierarchy that provides safe, direct and attractive pedestrian, cyclist and local vehicle links to key nodes and open space.
- iv Prioritise the growth of sustainable transport modes and contain vehicular access and parking provision within that context

- v Move freight efficiently to and through the area.
- vi Maintain access for private vehicles to residential streets within the area.

2 Chapel Street Precinct

2.1 Transport Network

The existing transport network in the Chapel Street Precinct is described below.

Chapel Street

Chapel Street is a Council controlled local road with a 40 km/h speed limit from Dandenong Road to Toorak Road. Chapel Street from Toorak Road to Alexandra Avenue is controlled by VicRoads. Kerbside parking is permitted on both sides of the carriageway, subject to time restrictions throughout and clearway times north of Toorak Road and south of Vine Street. A dedicated bicycle lane is provided in both directions on the inside of the parking lane. The central traffic lanes are shared with trams.

Chapel Street functions as the primary north-south link through the Prahran/South Yarra Activity Centre, running from the Church Street Bridge over the Yarra River from Richmond in the north, to its continuation into St Kilda across Dandenong Road in the south. Along this length, it intersects with key east-west arterial roads Alexandra Avenue, Toorak Road, Commercial Road/Malvern Road and High Street.

Priorities along Chapel Street are somewhat complicated and unclear. Chapel Street currently provides for large volumes of pedestrians, a high number of cyclists, high demands for on-street parking, the 78/79 tram route that runs along the length of the street, as well as providing a major north-south route for traffic.

It is evident that Chapel Street is intended as a functional road space for all users but due to limitations in size and capacity cannot function appropriately as such. The result is a sub-optimal environment for many users where pedestrian footpaths have become overcrowded, parking is scarce, the cycling environment could be improved and trams and vehicles are often delayed by heavy congestion.

Toorak Road/Commercial Road

Toorak Road and Commercial Road function as primary arterial roads. They run in an east-west direction and have 40 km/h speed limits throughout the study area. Kerbside parking is permitted, subject to time and clearway restrictions. A wide kerbside bicycle lane is provided along Toorak Road. The central traffic lanes are shared with trams.

Toorak Road suffers from severe traffic congestion, both at weekday and weekend peak times. Large traffic volumes utilise Toorak Road to the east, as it is the last untolled exit for westbound traffic off the Monash Freeway. This traffic use

conflicts with the strip-shopping areas within the Chapel reVision study area where pedestrian priority is required. In addition, these large volumes of traffic impair the function of the public transport services along the corridor, and make for an unpleasant and unsafe cycling environment.

Commercial Road suffers from congestion, particularly around the Chapel Street and Izett Street intersections. This affects not only traffic, but the tram and bus services that operate in the area. It is also a busy pedestrian environment, particularly west of Chapel Street near the Prahran Market, which conflicts with traffic.

High Street

High Street functions as a primary arterial road. It runs in an east-west direction and has a 60 km/h speed limit. Kerbside parking is permitted, subject to time and clearway restrictions. Bicycle facilities on High Street are limited, with no on-road bicycle lanes provided. The central traffic lanes are shared with trams.

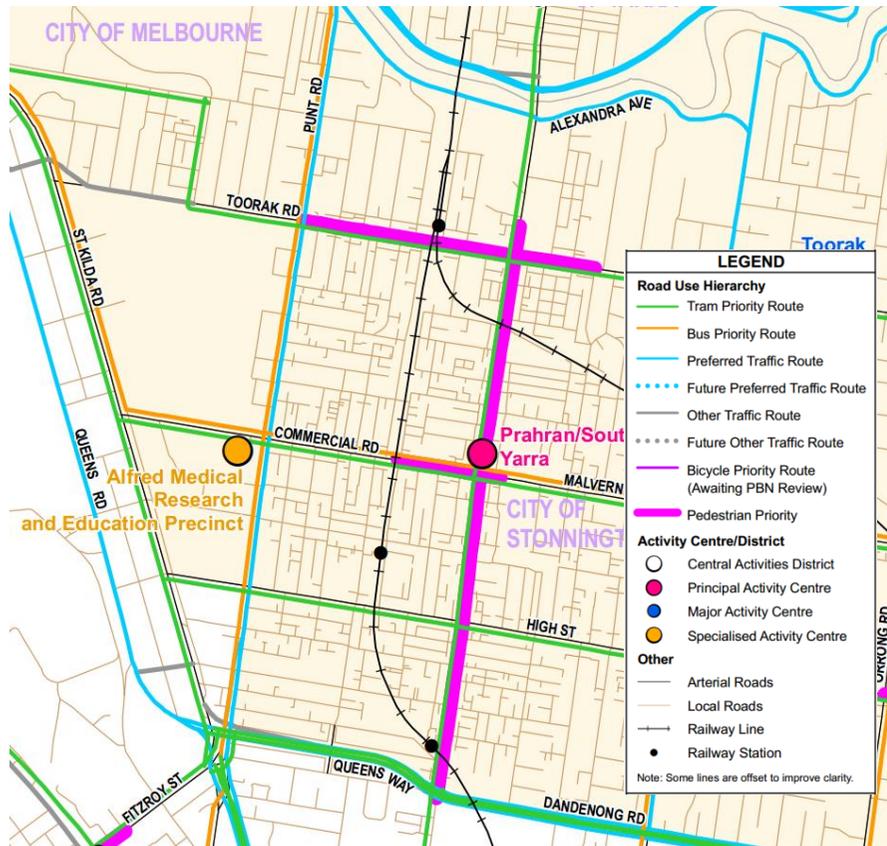
High Street suffers from localised congestion, particularly around the Chapel Street intersection. This affects the performance of not only traffic but the tram services that run along the corridor. Tram priority is present on High Street east of Williams Road, but not within the study area. In addition, the traffic needs for High Street as an arterial road conflict with the

pedestrian and tram needs at Chapel Street, resulting in delays for all users.

2.2 Network Priority

The network priority for Chapel Street and other roads within the area is determined by the VicRoads “SmartRoads” Network Operating Plans. These plans were devised to determine the functional roles and priorities of all major roads in Melbourne and allow planning for future development of these priority modes. The SmartRoads Network Operating Plan for the study area is shown in Figure 2.1.

Figure 2.1: VicRoads SmartRoads Network Operating Plan for the Chapel Vision Study Area



As the figure shows, Chapel Street is a designated tram priority route for its entire length and has pedestrian priority for the length between Daly Street and Dandenong Road. In addition, while not shown on the SmartRoads map, Chapel Street is listed as a bicycle priority route.

The roads intersecting Chapel Street have varying priorities. High Street is a tram priority route, Commercial and Malvern Roads are tram and bus priority routes with pedestrian priority between Osborne Street and Bray Street, Toorak Road is a tram priority route with pedestrian priority between Punt Road and Rockley Road, while Alexandra Avenue is listed as a preferred traffic route.

It is noted that the study area is largely circled by preferred traffic routes, while none of the major roads within it are designated for traffic priority. Punt Road, Dandenong Road, Williams Road and Alexandra Avenue form a perimeter around the greater study area, while Chapel Street, Toorak Road, Commercial Road/Malvern Road and High Street are not designated as preferred traffic routes. This ensures that the planning focus for the precinct is to encourage through traffic onto the roads that effectively bypass the area, while encouraging other modal priorities within it.

2.3 Approach

The approach of this study is to identify and address the issues relating to all modes of transport within the study area, namely public transport, pedestrians, cycling, traffic and parking, building on the work previously conducted as part of the Chapel Vision Structure Plan in 2007.

This document has also been prepared as a consequence of the 2012 Chapel reVision report, in response to the additional demand for all modes of travel and car parking that will result from the significant levels of new development envisaged over the next 20 years.

For each mode of transport, objectives and visions will be identified for that mode going forward. The existing conditions will be analysed, with issues pertaining to that mode and their cause clearly identified. From there, a set of projects will be identified and split in to short-term (deliverable within 2 years), medium-term (2-5 years) and long-term (5+ years). This will primarily aim to address the key issues identified in the existing conditions analysis and provide a realistic and achievable timeframe for these projects to be completed into the future.

3 Pedestrians

3.1 Objectives

The primary objectives for the development of pedestrian networks revolve around providing priority for pedestrians wherever possible. Historically, pedestrian access and planning was viewed as an afterthought, particularly on streets, to promoting improved traffic flow. These dynamics have changed significantly over time to embrace the pedestrian as a primary road user and to prioritise their needs accordingly, with respect to the demands for each mode at the given time of day.

For the Chapel reVision study area, given the prominence of Chapel Street, Toorak Road and Commercial Road as pedestrian precincts, the promotion of pedestrian priority is seen as key to the future of the transport network. The creation of key corridors that provide pedestrian access between residential and commercial land uses, open space, community facilities and transport nodes is a key future direction for any enhancements to be promoted in these areas. As all journeys begin and end as pedestrian journeys, any works that promote pedestrian movement have the unique ability to benefit all people using the precinct.

Based on the above, the pedestrian objectives are as follows:

- Provide pedestrian priority on identified corridors within the Chapel Street precinct.
- Provide high quality pedestrian links between key locations.
- Provide a safe and accessible pedestrian environment for all users.

VicRoads Pedestrian Priority Actions

VicRoads has an active program of initiatives designed to increase safety and access for pedestrians. These initiatives include lower speeds in strip shopping centres and school zones, the provision of pedestrian crossings and improving access for people with disabilities.

Priority actions for pedestrians include:

- introducing more appropriate speed limits in shopping strips
- encouraging through-traffic to avoid shopping strips and to use alternative routes where feasible
- improving the amenity of areas of intense pedestrian activity alongside arterial roads
- improving pedestrian safety near schools located on arterial roads through a State-wide program of school speed limits

- improving safety and provide more equitable access for pedestrians in high-use areas via the Walk Safe Program and other innovative and cost-effective measures
- establishing a program to provide greater priority for pedestrian crossings across busy arterial roads to reconnect communities.

Facilities for pedestrians

Pedestrian facilities are provided in different forms to manage the interaction between vehicular traffic and pedestrians. These facilities divide into three categories:

- segregation - where there is a spatial separation of vehicular traffic and pedestrians, e.g. pedestrian malls, pedestrian overpasses or underpasses
- integration - where both pedestrians and vehicular traffic mix, but pedestrians are given priority, e.g. shared zones
- separation - where there is a time separation between when vehicular traffic and pedestrians for use of the same road space e.g.: pedestrian operated signals.

There is scope for the adoption of a range of pedestrian measures from each of these categories to enhance

pedestrian safety and accessibility within the Chapel reVision area.

3.2 Existing Conditions and Issues

While pedestrian movement is currently provided for by an extensive network of footpaths along almost all roads within the study area, these facilities are limited in capacity and amenity. At key points, particularly along Chapel Street and Toorak Road, large numbers of pedestrians cause congestion, impairing through movement. Specific examples of this occur at South Yarra station on Toorak Road, on Greville Street between Chapel Street and Prahran station, and at localised points on Chapel Street.

In many locations, through movement is further obstructed by the presence of alfresco dining, street trading, roadside fencing and other street furniture. While these features all have valid reasons for being located on footpaths, their presence does decrease the already limited capacity of the pedestrian network.

In addition, it is noted that pedestrian facilities are minimal or lacking in certain areas where high demand exists. Access to Prahran Station, Prahran Market and around Windsor Station, for instance, is provided only by narrow paths or footpaths despite the high levels of pedestrian traffic generated by these

facilities. Thus the pedestrian infrastructure is inadequate for the demand created, as well as creating a poor environment for people accessing these locations. Particular focus should be given to improve key pedestrian links leading to railway stations, such as Lovers Walk and the existing path along the Sandringham Railway line from Union Street to Windsor Station and Maddock Street.

The road network itself presents a major barrier to pedestrian travel as well as being a safety issue. Chapel Street, Toorak Road, Commercial Road and High Street are all wide streets that carry large volumes of traffic, and pedestrian crossing points are limited. This results in either significant delays for pedestrians to access and wait at the signalised crossing points, or in many cases pedestrians risking their own safety by crossing at other locations along the road.

Previous remedies have been implemented in certain areas in order to overcome this barrier effect, such as the “WalkSafe” median treatments. These treatments provide a delineated median storage area for pedestrians to allow staged crossing of major roads. These measures have seen some success in improving the pedestrian environment on these busy roads.

Many of these issues largely stem from the previous ideals of planning for traffic flow above pedestrians, as discussed earlier. Cars have almost absolute priority on these main roads

through the area, particularly during peak periods, with pedestrians being directed to cross only at a set few points and being forced to wait for cars to pass and signals to change.

3.3 Proposed Projects

Having considered the issues identified above, the following projects are proposed to achieve pedestrian objectives in the study area.

Short-Term

It is recommended that:

- i Barnes’ Dance crossings, which stop traffic on all approaches and allow pedestrians to cross in all directions (including diagonally), are introduced at the intersections of Toorak Road, Commercial Road and High Street with Chapel Street. This will address issues surrounding pedestrian priority at intersections as well as footpath capacity.
- ii The pedestrian crossing on Toorak Road at South Yarra station is extended to include Osborne and Yarra Streets in a similar Lovers’ Walk and pathways to Windsor Station are upgraded to include implementation of public safety infrastructure, such as public realm improvements. This upgrade could include

additional lighting and improved amenity such as wayfinding signage to direct pedestrians via these paths.

- iii Ongoing implementation of pedestrian links as identified in the Chapel reVision Neighbourhood Framework Plans

Medium-Term

i Shared Spaces

A number of shared spaces are proposed to be implemented on key pedestrian routes within the precinct. Shared spaces are mixed zones where cars are slowed to 10 km/h and pedestrians are given the space of the whole road reserve to use. Shared spaces will create a more pedestrian-friendly environment and provide enhanced access to key destinations within the precinct.

The locations proposed for this treatment are as follows:

- Claremont Street, South Yarra
- Daly Street, South Yarra
- Unnamed lane, South Yarra – between Yarra Street and Claremont Street.
- Chapel Street, South Yarra – between Fitzgerald Street and the railway line (in front of the Jam Factory) and including a small section of Arthur Street.
- Elizabeth Street, Prahran – between Chapel Street and Prahran Market
- Izett Street, Prahran – between Commercial Road and Greville Street
- Cato Street, Prahran – between Wattle Street and Chatham Street
- Wattle Street, Prahran – between Izett Street and Chapel Street
- Chatham Street, Prahran – between Izett Street and Chapel Street
- Carlton Street, Prahran
- Walker Street, Prahran
- Princes Close, Prahran - between Chapel Street and Little Chapel Street
- Greville Street, Prahran – between Chapel Street and Prahran Station Porter Street, Prahran – between Greville Street and Prahran Station.
- King Street, Prahran – between Chapel Street and Little Chapel Street
- Clifton Street, Prahran – between King Street and High Street
- Mount Street, Prahran – between King Street and High Street
- Regent Street, Prahran - between King Street and High Street

- St John Street, Windsor – between Thomas Street and Chapel Street
- Maddock Street, Windsor – between Chapel Street and Windsor Station
- Bowling Green Street and Artists Lane – between Green Street and Windsor Station.
- Albert Street and Peel Street, Windsor – abutting Windsor Station.
- Rear laneway access to properties on west side of Chapel Street between Green Street and Union Street
- Rear laneway access to properties on east side of Chapel Street between Earl Street and to the end of Windsor Place

These locations were chosen to provide connectivity between key locations and are currently utilised by large volumes of pedestrians.

ii. New pedestrian links

New pedestrian links are proposed throughout the Activity Centre. These links aim to improve north-south and east-west connectivity and movement, provide a safer and more engaging pedestrian environment and provide enhanced access to key destinations within the precinct. In particular locations, the pedestrian links can be achieved by laneway

widening, such as along Artists Lane and to properties on the east side of Chapel Street between Earl Street and to the end of Windsor Place.

The pedestrian environment can be further enhanced through the removal of conflict frontages (vehicular crossovers) to improve the pedestrian environment along key pedestrian links and in shared spaces.

Key locations for the removal of conflict frontages to improve the pedestrian environment are:

- Garden Street, South Yarra – between Chapel Street and Palfreyman Street.
- Izett Street, Prahran – east and west sides between Chatham Street and Commercial Road.
- Grattan Street, Prahran – west side between Greville Street and Commercial Road.
- Chatham Street, Prahran – south side, between Izett Street and Cato Street.
- Regent Street, Prahran – east side, between King Street and High Street.
- High Street, Prahran – north side, between Porter Street and Chapel Street.
- High Street, Windsor – south side, between St John Street and 138 High Street.

- Maddock Street, Windsor.

Ongoing implementation of key pedestrian links as identified as part of the Neighbourhood Framework Plans.

Long-Term

A proposed route providing connectivity between the Cremorne Rail Bridge at the river and Windsor Station is proposed. Whilst primarily a cycling route, this route could also provide an alternative pedestrian link that bypasses Chapel Street, loosely following the Sandringham Railway Line and/or adjacent streets. The alignment of this path and enhancements required are detailed further in Figure 3.1

Ongoing implementation of key pedestrian links as identified as part of the Neighbourhood Framework Plans, to improve connectivity within the activity centre and encourage sustainable forms of movement.

Pedestrian Upgrades



- Short term projects (1-2 years)
- Medium term projects (2-5 years)
- Long term projects (5 years +)

- Pedestrian path upgrade
- Proposed Barnes dance crossing
- Future through road restrictions
- Shared space (medium term)
- Shared space (long term)
- Future through traffic restrictions

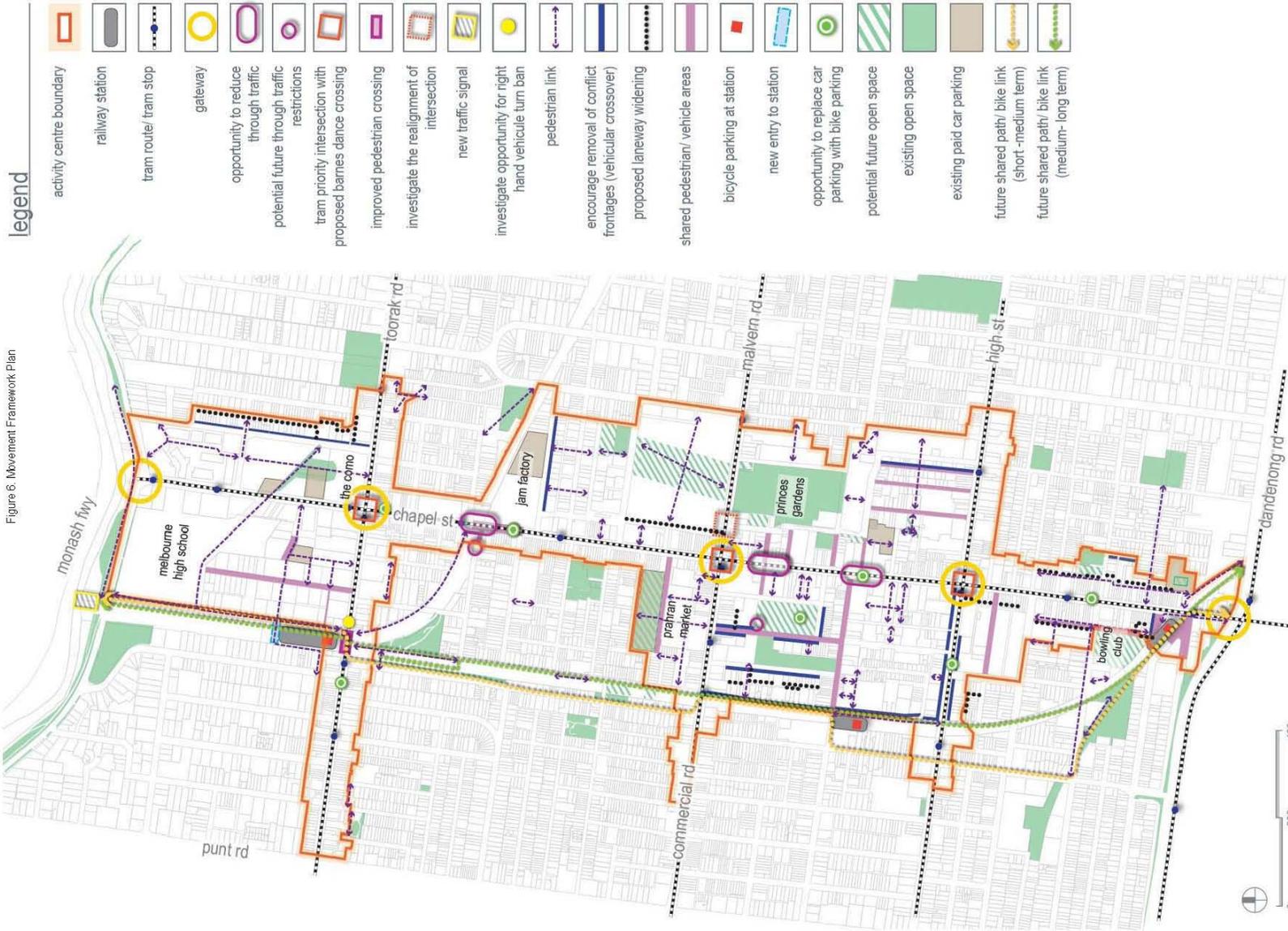


Figure 3.2: Pedestrian links to improve connectivity and encourage sustainable forms of movement in the Chapel Street Activity Centre and Environs

Figure 3.2: Pedestrian links to improve connectivity and encourage sustainable forms of movement in the Chapel Street Activity Centre and Environs

4 Cycling

4.1 Objectives

It is noted in the Chapel reVision Structure Plan that cycling is an underused mode of transport within the precinct. Strong support exists for the provision of improved bicycle links between the Chapel reVision Study Area and many other parts of inner Melbourne. In addition, the provision of localised facilities to allow for short distance trips within the area is recommended for greater promotion. The requirements of facilities for these riders as opposed to commuter cyclists riding over greater distances should be considered.

Having regard for the above, the following is a list of objectives for cycling in the precinct:

- Promote and encourage cycling as a mode of transport to, from and within the precinct.
- Provide adequate and convenient cycling facilities to facilitate this.
- Provide a safe and efficient commuter cycling route through the precinct.
- Create a safe and enjoyable cycling environment within the precinct.

4.2 Existing Situation and Issues

Whilst Chapel Street provides a direct north-south cycling route and has cycling lanes and head start boxes well marked-out, safety for cyclists riding along this route is a concern. The existing cycling lanes are inadequate in their current form for the number of cyclists using the route, as well as the conflicts with other modes that occurs along Chapel Street.

The following issues currently combine to create a hazardous environment for cyclists:

- large volumes of traffic
- on-street car parking and associated risk of “car-dooring”
- the number of busy intersections
- high levels of pedestrian activity on and around Chapel Street

This issue is exacerbated by the lack of alternative routes to Chapel Street. The Capital City Trail to the north is a very popular cycling route as it provides a direct link between the north of the study area and the City along the Yarra River. However, access to this path from the south is not available via any route other than Chapel Street, thus forcing cyclists to negotiate the issues described above.

In addition, aside from Chapel Street and the Capital City Trail, there is a lack of continuous bicycle routes throughout the precinct. Cyclists travelling east-west through the precinct are required to negotiate busy arterial roads due to a lack of alternatives. Much like Chapel Street, this poses a safety risk for cyclists due to the conflict between vehicles, parked cars and cyclists.

A current issue also exists with the provision of end-of-trip facilities at railway stations and other key locations within the precinct.

4.3 Proposed Projects

Short-Term

i Bicycle Parking Facilities

The City of Stonnington prepared a Bicycle Parking Report in 2010 to guide the planning and investment in bicycle facilities across the municipality. The report revealed the following issues:

- There is a shortage of bicycle parking in most strip shopping centres.
- The demand for short term parking is highest near cafes, take away food outlets, post offices and convenience stores.

- Unsecured bicycles add to footpath congestion and present a hazard for pedestrians.
- Inconsistency in the style of bicycle parking reduces quick recognition by cyclists and detracts from the streetscape.

The key recommendations of the Bicycle Parking Report were to:

- Install “Bicycle Parking” signage along main thoroughfares to aid quick recognition of bicycle parking facilities and to reduce illegal parking.
- Discourage the use of Walksafe fencing as bicycle parking to reduce footpath congestion (except outside Prahran Market in Commercial Road, where space exists to install hitching rails).
- Consider creating bicycle parking islands in busy shopping precincts with limited footpath space. This would involve converting 2-3 kerbside parking bays into a bicycle island to accommodate 16-24 bicycles).
- Adopt a standard for bicycle parking to enhance cyclist recognition and streetscape aesthetics. This would involve developing a suite of parking options - post rails, hoops and racks – to take into consideration the availability of footpath space within the precinct.

It is recommended that the findings of the report be implemented at the locations suggested in the Bicycle Routes and Facilities map. The installation of these facilities could be performed in conjunction with pedestrian footpath improvements so as to not interfere with the performance of the pedestrian network. This allows a greater provision of visitor bicycle parking without the negative impacts of clutter from bicycles on pedestrian footpaths. Examples of bicycle parking provision in Brunswick and Yarraville are shown in Figure 4.1 and Figure 4.2.

Figure 4.1: On-Road Bicycle Loop in Brunswick (from Bicycle Network website)



Figure 4.2: On-Road Bicycle Loop in Yarraville (from Bicycle Network website)



This arrangement has the benefit of increasing the number of people transported per parking space, as in excess of 10 people can park their bicycles in the same space as one car would occupy.

ii. Regional Shared Trail: North-south bicycle route

As a short-medium term solution to address the north-south connectivity issue is to use the existing space along sections of the railway corridor and adjoining streets. The route would begin at the north end of Chapel Street forming a connection to the City of Yarra over the Yarra River, then follow alongside the railway corridor on the east side to Toorak Road. Further south, it continues along Osborne Street to Commercial Road, and then rejoins the railway corridor on the west side until Greville Street. It continues south, passing over High Street

along Upton Road, turning east at Union Street and passing through Windsor Siding to Windsor Station. After Windsor Station, it rejoins Chapel Street continuing south.

Medium-Term

- i Advocate for bicycle facilities at rail stations

A project for implementation in the medium-term is the improvement and additional provision of end-of-trip facilities for cyclists at railway stations. Current bicycle parking facilities for commuter parking are lacking. The provision of secure bicycle parking facilities at South Yarra, Prahran and Windsor stations would address this issue, and provide better facilities for cyclists and public transport users alike.

Ultimate responsibility for the provision of bicycle parking at railway stations lies with the Department of Transport, Planning and Local Infrastructure. As such, Council would only have an advocacy role in seeking the provision of the end-of-trip facilities proposed.

Long-Term

A long-term solution to address the north-south connectivity issue is to look at constructing a bicycle/shared path route that bypasses most of Chapel Street to provide access to the Capital City Trail. The proposed alternative route would diverge from Chapel Street at Windsor Station and roughly follow the

alignment of the Sandringham Railway Line north to Alexandra Avenue. This proposed alignment is shown in the Bicycle Routes and Facilities map. Whilst it is noted that space constraints exist on this route, particularly north of Toorak Road and south of Prahran Station, it is considered that this route provides the most direct and amenable path through the study area and onto other locations.

As part of this proposed upgrade, the existing layout of Yarra Street would be required to be altered. In addition, the signalisation of the intersection of Yarra Street and Alexandra Avenue allows cyclists to cross Alexandra Avenue and access the trail on the northern side of the road.

It is noted that Bicycle Victoria has expressed support for a route that utilises the railway reserve with grade-separated crossing points. However, acknowledging the capacity and cost restraints associated, it is believed that the proposed on-road route provides adequate and safe connectivity whilst maintaining functional and cost effectiveness.

Further south, the bicycle route would travel on-road along Charles Street and Upton Road to join the proposed path along the Osborne Street reserve to the Windsor Siding path. Crossing points at Commercial Road and High Street would also need to be considered.

It is noted that this route has also been identified and further assessed in the *Regional Shared Trail: Cremorne to St Kilda East Strategy Report*, prepared for VicRoads Metro South East by Traffix Group October 2010.

Bicycle Routes and Facilities



- Short term projects (1-3 years)
- Medium term projects (4-7 years)
- Long term projects (8 years +)

- ▬ Indicative future commuter route
- P Replace car parking space with bike parking
- P Bicycle parking at station
- X Barnes crossing and bicycle priority measures at intersection
- Tram priority intersection (Medium term)

exist, which are explored further in the following sections of this report.

5.2 Objectives

While it is acknowledged that improvements to public transport are generally not under the control of local government, Council has an important role to play in advocating for specific improvements to public transport services, as well as providing facilities near stations (though not within the stations themselves) and other public transport facilities.

Bearing this in mind, the following is a list of public transport objectives for the Chapel Street precinct:

- Promote the role of public transport in the precinct.
- Encourage public transport usage with new development.
- Advocate for improved public transport services in the area.
- Provide high-quality interchange facilities between modes.

Issues and opportunities specific to each mode of public transport are discussed in the following sections.

5.3 Rail

Routes Servicing Area

The study area is serviced by railway stations at South Yarra, Prahran and Windsor. All three stations are on the Sandringham line, while South Yarra is at the junction of the Sandringham, Frankston and Pakenham/Cranbourne lines and is serviced by all three routes. In addition, Hawksburn station, on the Frankston and Pakenham/Cranbourne lines is located to the east of the study area.

Existing situation and issues

The precinct is very well served by rail infrastructure, having three railway stations located adjacent to the Chapel Street corridor and another to the east at Hawksburn. However, capacity issues are a limitation on the capability of the rail network to provide for growing numbers of passengers into the future. In addition, whilst all express services stop at South Yarra station, express services often bypass Hawksburn station.

Proposed Actions

The potential for improvement works by Council pertaining to rail services is limited as the management of the rail network is not controlled nor funded at a local government level. Council can and should continue to advocate for improved services on

the rail corridors that service the precinct in order to further improve capacity and provide for future development.

Improvements in terms to of access to and facilities near railway stations have been proposed in the relevant sections of this report.

5.4 Tram

Routes Servicing Area

The tram routes servicing the precinct are listed below in Table 5.1.

Table 5.1: Tram Routes within Study Area

Route Number	Route Description	Key Destinations	External Destinations	Corridor Serviced
78/79	North Richmond – Prahran / St Kilda Beach	Victoria Bridge Street, Swan Street, Richmond Station, St Kilda	Street, Road, East	Chapel Street
8	Moreland - Toorak	Lygon Street, CBD, Village	Street, Toorak	Toorak Road

72	Melbourne University - Camberwell	CBD, Station, Camberwell Junction	Toorak	Commercial Road / Malvern Road
6	Melbourne University - Glen Iris	CBD, Station, Road	Armadale, Glenferrie	High Street

Existing Situation and Issues

The most prevalent issue pertaining to trams within the study area is slow speeds of travel. Trams are held up by traffic along Chapel Street, as well as Toorak Road, Commercial Road and High Street, and as such travel times are very long and late-running of services is increasingly common. As kerbside parking is permitted on both sides of Chapel Street trams are frequently delayed by high traffic volumes.

Further to this, a lack of priority measures or treatments for trams on Chapel Street results in further delays to tram services. A lack of dedicated tram lanes or priority signals for trams at many intersections results in significant delays being incurred on tram trips, due to large volumes of through and right-turning vehicles that delay trams.

Tram stop locations are at times inconsistent with key destinations and/or pedestrian links in the area. For instance, no tram stop exists at Prahran Town Hall / Greville Street on Chapel Street despite its obvious roles as a key link to Prahran Railway Station. In addition, a number of tram stops are located away from mid-block pedestrian crossings, making access to both sides of the road unnecessarily difficult.

Other issues to affect tram travel include accessibility and Disability Discrimination Act (1992) (DDA) compliance. Currently, no tram stop in the study area is accessible and low-floor trams are not frequently run on tram routes 78/79, 8, 72 or 6. As such, the present infrastructure prevents these services from being accessible to people with disabilities.

The above factors greatly impact on tram performance and attractiveness as a mode of transport.

Proposed Projects

Short Term

Actions proposed for immediate pursuance regarding tram priority include the installation of tram priority signals at all intersections on or with Chapel Street. This would speed up trams at intersections throughout the precinct and improve travel time reliability.

Measures to address the issue of traffic slowing tram speeds could include the banning of right turns at locations that interfere with tram thoroughfare, including along Chapel Street, Toorak Road, Commercial Road and High Street. This is explored further in Section 7.3.

Medium Term

Explore opportunities to improve disability access to public transport within the Centre. Areas for improvement could include:

- Greville Street (Prahran Town Hall) / Chapel Street, Prahran
- Windsor Station / Chapel Street, Windsor
- South Yarra Station / Toorak Road, South Yarra
- Prahran Market / Commercial Road, Prahran.
- Little Chapel Street (adjacent to Public Housing complex) / Malvern Road, South Yarra
- Swinburne University / High Street, Prahran
- Clara Street / Toorak Road, South Yarra.

An investigation could be undertaken to determine opportunities to co-locate trams stops with pedestrian facilities such as signalised crossings and/or links to key pedestrian routes. Such projects would require

coordination with the relevant authorities such as VicRoads, Yarra Trams and Public Transport Victoria.

Long-Term

Longer-term measures could include the introduction of part-time or full-time dedicated tram lanes along Chapel Street and other tram routes in the area. This would need to be considered in the context of all modes of transport, as dedicated tram lanes would require the removal of parking and consequences for traffic and cycling.

A full-time tram lane would provide an interrupted path from trams down Chapel Street, and would greatly improve travel times, but would require the removal of kerbside parking for the street segments where these measures would be implemented. A part-time tram lane would only operate during defined peak periods (for example, 7am-9am and 4pm-7pm Monday to Friday), and would require the introduction of a clearway to prevent kerbside parking during these periods. However, this option would allow parking during off-peak and inter-peak periods when traffic volumes are lower and less delays are likely to be experienced by trams.

These issues would need to be explored further before a decision to pursue this particular option.

5.5 Bus

Routes Servicing Area

Access to buses within the precinct is limited with only four bus routes servicing the area (excluding NightRider). These bus routes are detailed in Table 5.2.

Table 5.2: Bus Routes within Study Area

Route Number	Route Description	Key External Destinations	Corridor Serviced
216/ 219 combined	Caroline Springs/ Sunshine Park – Brighton Beach/ Gardenvale	Sunshine Station, Footscray Station, North Melbourne Station, CBD, Elsternwick Station	Commercial Road / Malvern Road
220	Sunshine - Gardenvale	Sunshine Station, Footscray Station, Queen Victoria Market, CBD, Elsternwick Station	Commercial Road / Malvern Road
605	Gardenvale – City via Kooyong Road	CBD, Toorak Village, Caulfield	Alexandra Avenue

Existing Situation and Issues

Despite the bus routes servicing the precinct being of high quality, buses are treated very much secondary to trains and trams within the precinct. The network only serves a limited portion of the study area despite it providing access to locations not easily reachable by other forms of public transport. Integration of bus routes with railway stations is poor within the precinct due to the location of the bus routes.

There is an absence of bus priority measures within the precinct, and as such bus speeds suffer from traffic congestion much like trams do. In addition, bus stopping facilities are limited, with the exception of the indented bus bay adjacent to the Prahran Market entrance on Commercial Road.

Proposed Projects

It is noted that there are only a narrow range of projects considered given the limited bus services that run within the precinct. Notwithstanding, initiatives can be pursued to improve the function and attractiveness of bus travel within the precinct.

Bus priority at intersections, most notably the Commercial Road / Chapel Street and Alexandra Avenue / Chapel Street intersections, could have great benefits on the existing bus services within the area. The potential for bus queue-jump lanes is also worth considering.

In addition to the above, Council advocacy for improvements to existing bus routes or the broadening of the bus network through the precinct is recommended as an ongoing measure.

5.6 Forecast Increase in PT Demand

Growth projections for the Chapel Revision area have been prepared by SGS and are summarised in Table 5.3 below.

Table 5.3: Chapel Street Activity Centre Growth Forecasts

Sector		2011	2021	2031	Change 2011-2031	
Employment	Retail	2,100	2,600	2,800	+700	+33%
	Commercial	4,800	7,900	10,500	+5,700	+118%
	Hospitality	2,100	3,800	4,900	+2,800	+133%
Population		17,000	21,000	23,000	+6,000	+35%

As shown in the above table, it is anticipated in the 20 years to 2031, the Chapel Street Activity Centre will experience growth in the order of 9,200 jobs (an increase of 102%) and 6,000 residents (an increase of 35%) within the next 20 years. This

will in turn result in an increased demand for transport within the activity centre.

ABS Journey to Work Data

As demonstrated in Table 5.5 below, the 2006 ABS Journey to Work Data for the suburbs of Prahran and Windsor indicated that 29.9% of trips to work were made by public transport. This figure increased to over 30.4% in the 2011 ABS Census.

Table 5.4: ABS Journey to Work Data for Prahran and Windsor combined

Method	2001		2006			2011		
	Number	%	Number	%	Change	Number	%	Change
Train	1202	15.6	1336	16.7	+1.1	1352	15.3	-1.3
Tram	936	12.2	903	11.3	-0.9	1193	13.5	+2.2
Bus	205	2.7	149	1.9	-0.8	145	1.6	-0.3
Taxi	55	0.7	30	0.4	-0.3	49	0.6	+0.2
Car - driver	3996	51.9	3909	49.1	-2.8	4174	47.4	-1.7
Car - pass	338	4.4	276	3.5	-0.9	313	3.6	+0.1
Truck	24	0.3	14	0.2	-0.1	24	0.3	+0.1
Motorbike	45	0.6	55	0.7	+0.1	65	0.7	-
Bicycle	201	2.6	285	3.6	+1.0	443	5.0	+1.4
Walked only	640	8.3	874	11.0	+2.7	978	11.1	+0.1

Other	61	0.8	134	1.7	+0.9	71	0.8	-0.9
TOTAL	7703		7965		+3.4	8807		+10.9

If an assumption was made that the trends observed in this data were likely to continue, it may be anticipated that by the year 2031, up to 40% of trips to work would be conducted by public transport within the Chapel Street precinct. However, this is dependent upon the level of investment in public transport infrastructure and available capacity on the network. The rail and tram network is currently considered to be operating at close to capacity during peak AM and PM periods, which limits the potential for further growth without the necessary investment in infrastructure and new services.

However, in the hypothetical situation of continued levels of existing growth, using the derived mode shares and factoring this to the projected increase in residential population (+35%) within the area, it is anticipated that there will be demand for an additional 2000 trips on public transport in a typical peak period by 2031. While it is acknowledged that this assumption is conservative as it does not account for a certain proportion of trips that will originate and terminate locally (i.e. new residents employed in the local area), the figures still represent a significant increase in transport demand generated by the additional employment and residences in the area.

It is noted that similar increases in pedestrian and cycling trips are anticipated within the same forecast period, and as such a similar increase in demand for pedestrian and cycling infrastructure is anticipated. However, the number of additional vehicle trips is not likely to increase substantially due to the key road corridors in the area being at capacity during peak periods (namely Chapel Street, Toorak Road, Commercial Road and High Street). As such, private vehicle mode share is anticipated to decrease as a percentage of all journeys to work.

Adequacy of Public Transport Services

It is noted that train and tram services within the precinct are currently observed to be at or near capacity during peak periods. As such, the increases in population and anticipated travel behaviour within the area are likely to exceed the capacity of the existing public transport network in the area.

Based upon the growth projections shown in Table 5.3, by 2021 an additional 500 train and 450 tram trips for journeys to work are anticipated within the Chapel Street precinct. These figures increase to an additional 1000 train and 900 tram journeys within the precinct by 2031.

Having regard for the typical passenger capacities of Melbourne trains and trams, it is anticipated that capacity equivalent of one full six car train (789 passengers maximum

capacity¹ and four trams (130 passengers maximum capacity² will be required to meet passenger demand generated in Chapel Street precinct in 2021, and an additional two six-car trains and eight trams will be required to meet additional passenger demand generated from the Chapel Street precinct in 2031.

Potential Council Actions

While it is noted that Council has no direct role in the provision of additional public transport services, Council has an important advocacy role to play with state government to secure the provision of the additional services required. The following timetable is proposed for the provision of additional train and tram services that service the Chapel Street precinct.

Table 5.4: Public Transport Service Demand generated in Chapel Street precinct

Mode	Additional Passenger Demand	New Services
Required by 2021		

¹ State Government (PTV) load standards = 798 passenger for six-car Comeng/Siemens train. Anything over this is considered to be above capacity.

² New 5 section C2 Citadis non-CBD capacity = 130 passengers

Train	500 additional passengers during peak hour	One full six car train
Tram	450 additional passengers during peak hour	Four full trams
Bus		
Required by 2031		
Train	1000 additional passengers during peak hour	Two full trains
Tram	900 additional passengers during peak hour	Seven full trams
Bus		

It is anticipated that the service delivery timeframe as outlined above would be sufficient to meet the needs of the population growth within the Chapel Street precinct. External population increases have not been factored into this assumption.

6 Car Parking

6.1 Principles

In establishing objectives and strategies to manage car parking it is appropriate to consider the underlying principles.

Car Parking provides an end of trip facility for users of a private motor vehicle. As such the provision of car parking has a role in determining the mode of transport that will be used to undertake trips whether by restricting parking supply or pricing parking.

Although motorists prefer unpaid parking, the space, infrastructure and maintenance of parking areas all come at a cost. The choice is between users paying for parking directly or indirectly and whether the cost of parking should be shared by all, or just those who use the parking facilities.

Furthermore, the cost of parking is not restricted to the physical construction and maintenance of the car spaces, but the requirement to provide additional capacity within the surrounding road network to connect users between their trip origins and destinations. Without the provision of additional network capacity there is a travel time cost through increased congestion and delays, and with increased development and population density, the allocation of land to accommodate

additional road network capacity and parking becomes more difficult to justify and more expensive.

A successful urban environment will provide a balance between an accessible, effective transport network and appropriate distribution of the costs of such a network.

6.2 Objectives

Having regard for the above, the following objectives have been developed to guide the management of car parking:

- i Create a parking system which is fair and equitable for all users of the transport network.
- ii Maximise the use of existing car parking facilities.
- iii Minimise road network circulation trying to find car parking.
- iv Consider parking as a tool to achieve a shift of 'trips' towards sustainable transport modes.

6.3 Existing situation and issues

Issues in relation to car parking within the Chapel reVision precinct include:

- Demand for on-street car parking near and on Chapel Street is very high.

- Surveys undertaken by GTA Consultants during peak demand times in December 2012 (Attached as Appendix A) indicate surplus capacity within dedicated off-street car parking facilities. This is considered due in some part to on-street parking being free, while charges apply to a majority of parking within public and private off-street car parks. Restriction of on-street car parking generally ends at 6:00pm, meaning that evening users have the opportunity to park free for unrestricted periods on-street (it is however noted that enforcement of illegal parking occurs until 2.30am on Friday and Saturday nights). As such, visitors to the area seek to utilise the on-street car parking first, generating high parking demand and additional circulating traffic trying to locate vacant spaces.
- The capacity observed in the off-street car parking areas indicates that while localised areas of high demand for on-street parking exist, car parking is not at capacity within the wider commercial precinct.
- On-street parking on Chapel Street is extremely sought after at all times, with high occupancy rates (93% or higher) and a low number of vacancies at all times.
- On-street parking in areas other than Chapel Street are subject to moderate to reasonably high occupancy levels, with a minimum occupancy of 63% occurring on a Saturday morning, and a maximum parking utilisation of 82% occurring on a Friday evening and Saturday afternoon.
- The publicly available off-street car parking areas are currently underutilised, with a maximum recorded weekday occupancy of 48% and a maximum recorded weekend occupancy of 56%.

As background, former parking surveys undertaken by GTA Consultants as part of Chapel Street Parking Study in South Yarra (November 2003) indicated:

These former surveys could provide a base to compare results which indicated that while on-street car parking was highly utilised in the area, there was more than adequate capacity for car parking in publicly available off-street areas. These results implied that there is not an overall under supply of car parking at the time which was creating difficulties and that perhaps a better management of the available car parking supply would have helped to alleviate the on-street car parking congestion.

Although, it is noted that this data was collected in August 2003 and as such is deemed out of date, More detailed data collection and analysis would could be performed to compare

trends and assess if a similar situation occurs some ten years later.

6.4 Proposed projects

Short Term

- i Introduce short term parking restrictions within Chapel Street (and surrounding areas) during evening periods (after 6.00pm).
 - Parking restrictions represent the first level of control in allocating car parking to various user groups and identifying the priority which should be allocated to certain users.
 - Encourages parking turnover of spaces during evening periods to occur and subsequently enables the use of spaces by multiple users (given current restriction cease at 6:00pm).
 - Turnover of parking will create parking opportunities lessening the circulation of vehicles trying to find a car parking space.
 - Evening parking restrictions will assist to direct longer term parking to more appropriate peripheral or off-street areas.

- ii Develop a car parking strategy / policy to guide the provision of car parking associated with new development proposals that:

- aligns the expectations of Council Officers / Councillors, Developers and the wider community in respect of the provision of parking
- ensures that the provision of parking works toward achieving the transport network objectives, which seek to encourage and promote walking, cycling and public transport use.
- provides a car parking policy setting which reflects the unique elements of the Chapel Street area and addresses the specific issues which are faced by the area.

Such a strategy / policy should include consideration of the following elements:

- the determination of car parking rates to be applied to new development proposals
- the consideration of appropriate mechanisms to provide flexibility in the change of land use on a site without introducing onerous car parking requirements that cannot be provided on-site and which may otherwise restrict such change of use (this issue has

been contemplated within Clause 52.06 of the Planning Scheme 'Column B' rates which identifies the same rate for a number of land uses enabling a change of land use with no change to parking requirements).

- the potential future car parking demands of future land use development.
- whether such demands could be reasonably accommodated on site or if consolidated shared parking facilities may need to be developed by Council.
- mechanisms to fund such shared parking facilities (such as cash in lieu schemes) should they be determined to be required.
- such a strategy / policy would be expected to be incorporated into the Planning Scheme via a Parking Overlay at Clause 45.09 of the scheme.

Medium Term

- i Introduce a dynamic parking signage system to highlight locations of available off-street car parking vacancies. Such a system shows current occupancy levels and spare capacity via a series of digital signage displays at key locations on and around the on-street parking network.
 - Highlights to drivers where car parking vacancies exist (not just the supply of parking) to assist to minimise circulating traffic trying to find a parking space, noting that up to 30% of traffic within a city centre can be attributed to circulating traffic attempting to find a car parking space³.
 - Dynamic parking signage can assist to make best use of existing parking facilities given that as parking approaches capacity drivers are unable to locate where parking vacancies remain.
- ii Introduce paid on-street parking along Chapel Street and surrounds.
 - Parking pricing acts as a demand management tool which can act to reduce parking demands and relocate parking demands to alternate areas.
 - Given the overall parking quantum is sufficient to accommodate demands, the aim of demand management in this instance is to minimise the amount of time vehicles spend circulating the area in search of vacant parking spaces. Subsequent shifts in travel modes would further assist in reducing traffic congestion.

³ Austroads, Guide to Traffic Management Part 11: Parking, 2008

- Parking pricing should be set to achieve an 85% on-street occupancy, which provides a balance of appropriate use of public parking resources and provides sufficient vacancies on-street to minimise excessive road network traffic circulation.
- Parking pricing should also be set such that it encourages the use of peripheral off-street parking areas (and subsequent short walking journeys) ahead of more proximate on-street parking.

Based on the value of surrounding off-street parking areas within the Chapel Street precinct (Jam Factory \$2.00 per hour, Elizabeth Street \$2.50 per hour, Cato Street \$1.40) an approximate rate of \$3.00 could be contemplated.

Multiple pricing bands could be contemplated to reflect the convenience of prime parking locations and priority allocation:

- Band 1: Chapel Street – \$3.00 per hour
- Band 2: On-street (side streets) - \$2.00 – \$2.50 per hour
- Band 3: Off-street – \$1.40 – \$2.00 per hour.

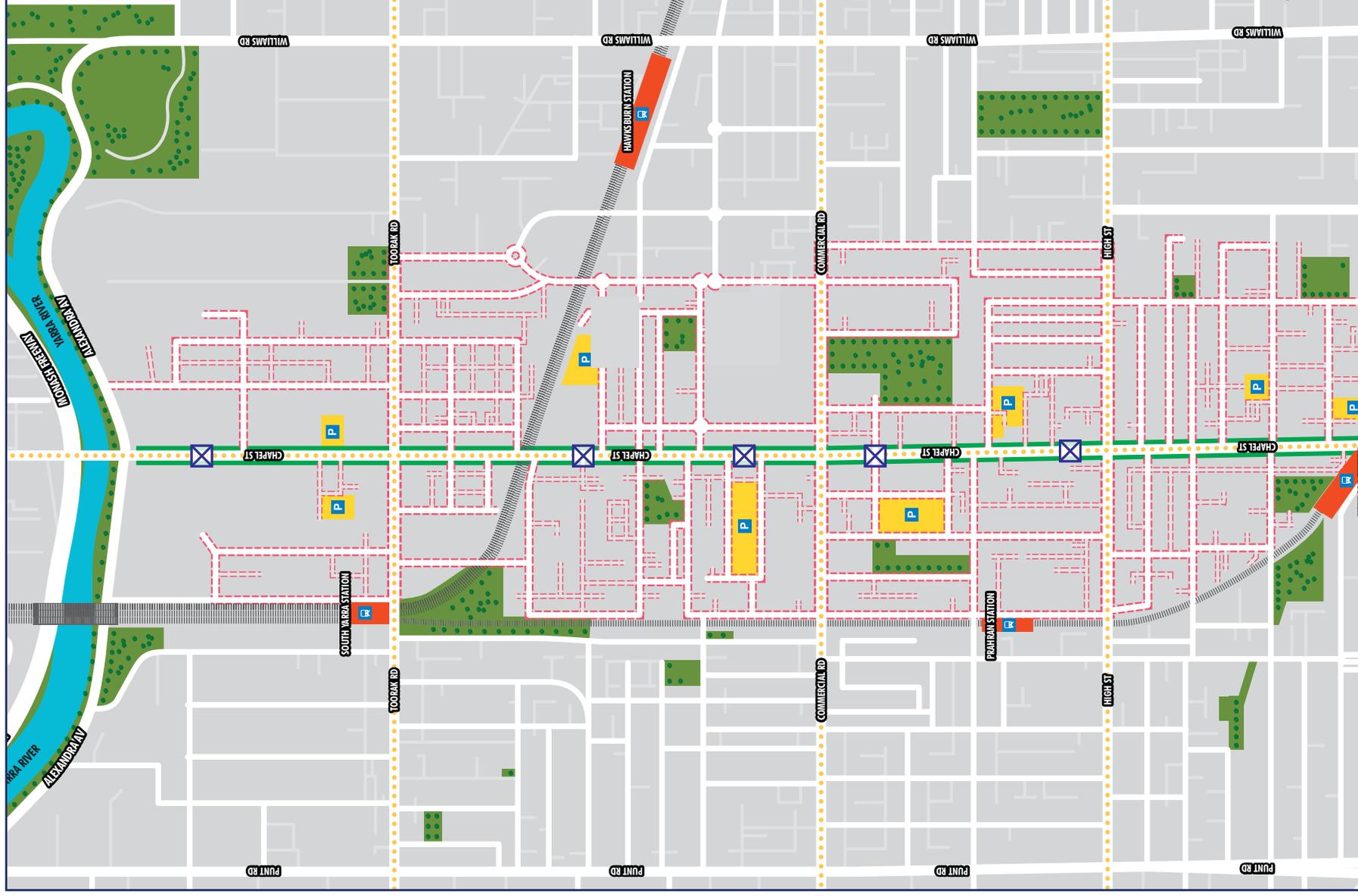
The measure to introduce paid parking in Band 2 areas is recommended for consideration in the long term to manage and mitigate any spill-over effect of the introduction of paid

parking on Chapel Street into local residential streets. In the instance where surrounding local streets provide free or unrestricted parking, it is anticipated that to avoid paying for parking in the proposed Band 1 and Band 3 areas (as shown in Figure 4.1) visitors to the area may take advantage of the residential street capacity.

A charging system on these streets may be necessary and we would recommend a charge of \$2.00 per hour with resident exemption.

It is recommended that funds from paid parking be reinvested into the transport and urban realm to improve access to preferred parking locations and to provide a greater incentive to choose more sustainable transport modes.

Parking



— Paid parking BAND 1

- - - Paid parking BAND 2

⋯ Paid parking BAND 3

⊗ Dynamic parking signage

7 Traffic

7.1 Objectives

Access to Chapel Street

Access to Chapel Street is well-provided for, with a network of arterial roads providing good connectivity. Car parking facilities are provided at locations in the north, east, west and south of the precinct, allowing for easy access from all directions. These facilities and the access routes to them are shown in the Local Access and Alternate Traffic Network map.

Alternate Traffic Routes for through traffic

Network Priority and SmartRoads System

As mentioned in Section 2.2, whilst none of the roads internal to the precinct are designated for traffic priority, a perimeter is formed around the wider area by Punt Road to the west, Dandenong Road to the south, Williams Road to the east and Alexandra Avenue to the north. This creates the opportunity to provide a bypass around the area from all approaches and to prioritise other modes away from traffic.

7.2 Existing Situation and Issues

Traffic congestion is the biggest issue within the precinct, with all major roads suffering from severe congestion and delays.

The east-west arterials of Toorak Road, Commercial Road / Malvern Road and High Street all carry significant traffic volumes. Chapel Street carries volumes of traffic equivalent to and functions as an arterial road, which impacts its performance. As such, the intersections between Chapel Street and the east-west arterial roads are at capacity, which affects the performance of the network throughout the area.

The present congestion has an impact on a number of different modes and road users. In addition to slowing traffic speeds, tram speeds are also slowed and impacts on the safety of cyclists and pedestrians are felt. In addition, local businesses are impacted as it becomes more difficult to be serviced, as well as the deterrent that congestion is for potential visitors and customers to the area.

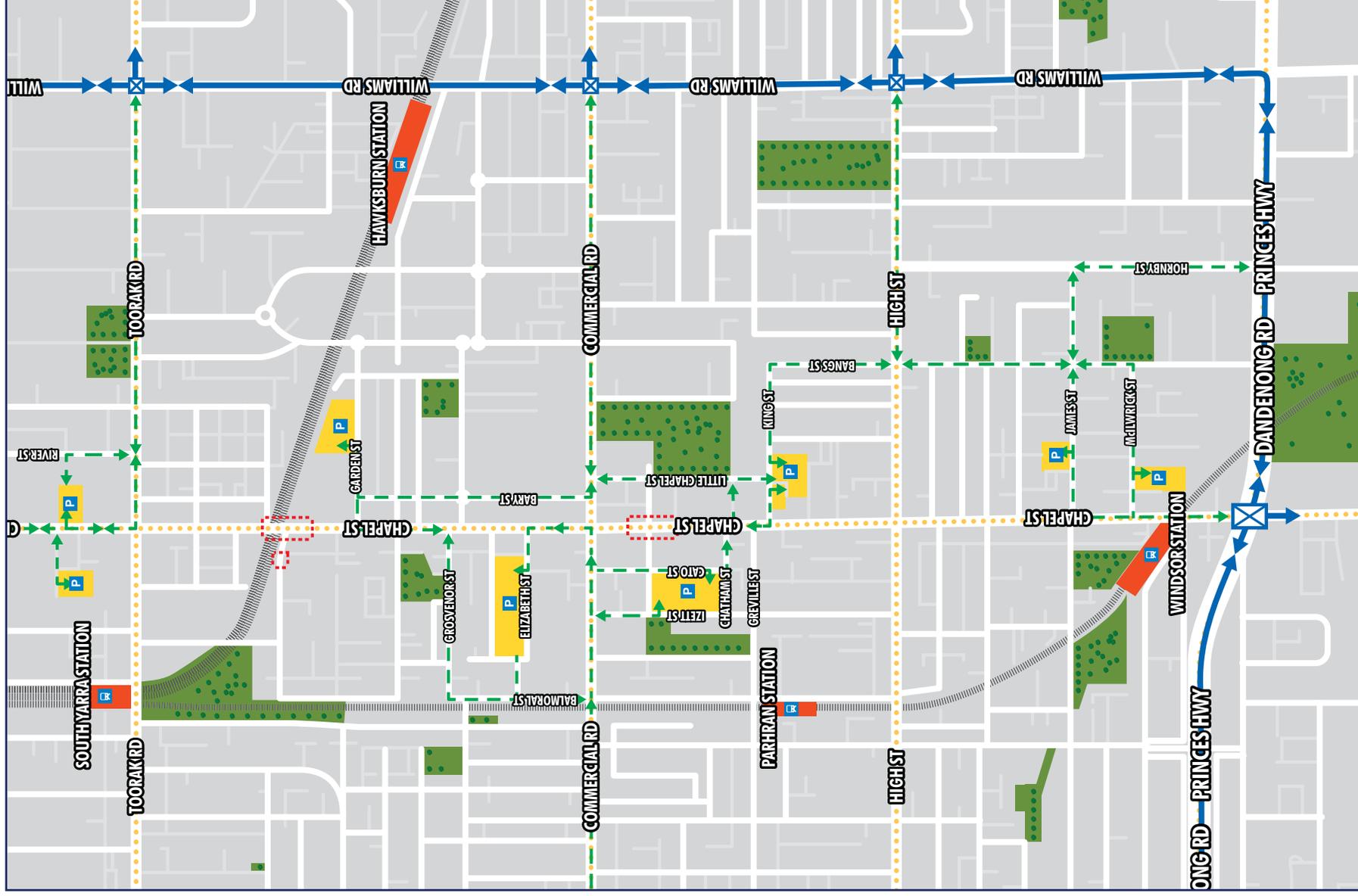
7.3 Proposed Projects

Short-Term Projects

In the short-term, projects such as right- turn bans at key intersections can improve the performance of intersection for traffic and public transport alike. Whilst it is noted that some bans do already exist at some intersections for specific movements at certain times of the day, there is an opportunity to extend these bans over greater time periods and introduce them at other locations.

This has previously been implemented successfully at the Toorak Road / Chapel Street intersection, where right turns are banned at the intersection from the east approach, but an alternative route via River Street and Malcolm Street has been implemented (complete with signalised intersections to both major roads) to allow for this traffic to still reach its desired destination.

Local Access and Alternate Traffic Network



- Preferred major traffic routes
- Local access routes
- Altered signal priority
- Potential through traffic restriction

8 Site Access and Amenity

8.1 Context

Consideration has been given within the Chapel reVision transport strategy to potential treatment of 'Traffic Conflict Frontages' within the area. Such a conflict frontage occurs where driveway access is sought onto a site via a footpath crossover in an area of high pedestrian activity and amenity. Strong urban design principles are built around a continuous building frontage and a strong interface between built form and street activity.

In an area experiencing conflict between site access via an active street frontage, it is recommended that, where possible, alternative forms of vehicle and servicing access are investigated and promoted, including rear laneway access.

The Chapel reVision strategy has identified several areas where traffic conflict frontages may occur and potential exists to actively encourage alternative access including:

- High Street – north side between Porter Street and Chapel Street
- High Street – south side between Porter Street and Macquarie Street
- Porter Street – between Commercial Road and High Street
- Regent Street – between King Street and High Street
- Izett Street – west side between Commercial Street and Chatham Street
- Izett Street – east side between Commercial Street and Safeway rooftop car park access
- Chatham Street – south side between Izett Street and Cato Street.

Whilst crossover site access on active frontages has potential to create conflict frontages, it must also be recognised that a level of site servicing activity (for example, shop/business deliveries) often must take place via an active street frontage. This servicing activity that takes place from a street-based loading zone is not considered to contribute to conflict frontages, but placement and operation of loading zones along busy pedestrian areas must be carefully planned.

8.2 Objectives

Identifying and addressing potential conflict frontages will enable Council to improve the amenity of these areas and recognise the following objectives and benefits:

- To promote pedestrian flow, safety and amenity.

- To improve opportunities for the enhancement of roads for pedestrian use by discouraging further access to off-street car parking across traffic conflict frontages.
 - To minimise conflict between pedestrians and vehicles on footpaths.
 - To ensure ground-floor frontages are pedestrian oriented and add interest and vitality to city streets.
 - To facilitate pedestrian and cycling movement along key pedestrian and cycling routes.
 - To prioritise pedestrian and cyclist amenity and safety and access over private motor vehicle use along key pedestrian and cycling routes.
 - To promote positive and active street frontages to all street boundaries.
- Vehicular ingress or egress points, excluding loading and unloading bays, must not be constructed on an identified traffic conflict frontage, or in a lane leading off an identified traffic conflict frontage.

It is noted a similar approach to the issue of traffic conflict frontages has been adopted by the City of Melbourne to guide development in Southbank.

8.3 Recommendations

It is recommended that in addressing conflict frontage areas, the following principles be adopted to provide guidance to Council decisions:

- Vehicular ingress or egress points, excluding loading and unloading bays, should not be constructed on a key pedestrian and cycling route or in a lane leading off a key pedestrian and cycling route.

9 Future Transport Priorities

9.1 Context

As discussed earlier, it is considered that a number of initiatives should be pursued for Chapel Street to safely and effectively fulfil the range of functions currently expected of it. Each transport mode is compromised to an extent, with congestion caused by both local and through traffic slowing public transport services (buses and in particular trams) and adversely affecting public amenity and access to the area. The level of traffic congestion also has implications for the safety and uptake of active transport modes (walking and cycling), servicing of local businesses and the attractiveness of the area as a premier shopping and entertainment destination.

Priorities for the use of road and public space and an effective access and movement strategy need to be determined to enable the transport network to support the realisation of the vision for the Chapel Street precinct.

9.2 Objectives

Chapel reVision carries forward six key principles to guide future development:

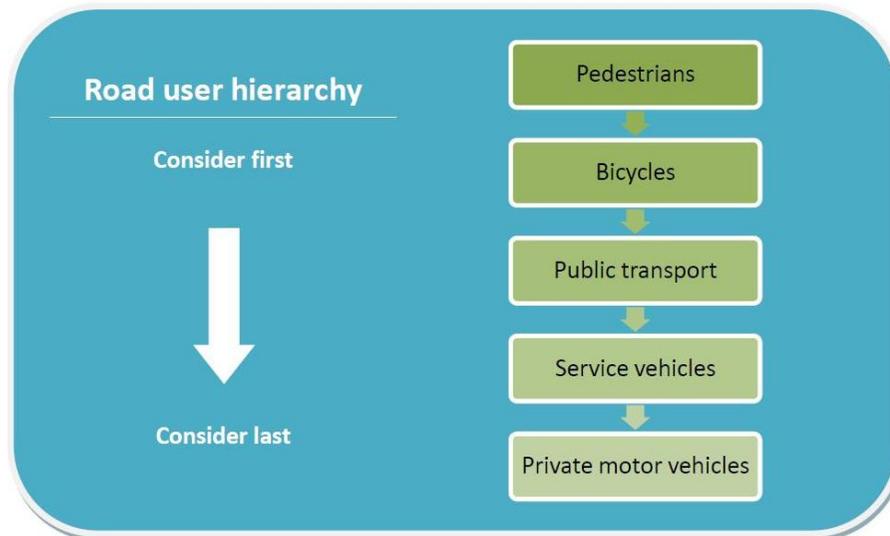
- i ensuring a sustainable economic future for the Activity Centre

- ii maintaining the unique and valuable character of the Activity Centre and its environs
- iii accommodating housing growth and diversity
- iv improving the quality, extent and interconnectivity of public spaces, parks and pedestrian networks
- v improving the quality of public transport modal integration, access, amenities and services and the development of a Sustainable Transport Plan
- vi enhancing the liveability of the Study Area

The transport strategy aims to formulate and propose actions to support the Chapel reVision objectives. These objectives clearly prioritise liveability, public amenity, interconnectivity, public transport and integration of land use with a sustainable transport network.

It is considered that the most appropriate approach to achieving these objectives is through the adoption of the road user hierarchy set out in Figure 9.1 below:

Figure 9.1: Road User Hierarchy



Source: Premier's Council for Active Living NSW (2010) adopted from Dept for Transport UK (2007), Manual for Streets'

This hierarchy can act as an effective guide for determining priority projects and treatments that achieve the Chapel reVision objectives.

9.3 Proposals

In order to prioritise public transport (tram and possibly bus in future), local cycling and walking access and enhancement of the public realm, restriction of through vehicle traffic on Chapel Street is proposed.

Given the significant delays incurred to public transport passengers and motorists as a result of the high volume of traffic using Chapel Street, restrictions on through traffic would force north-south through traffic to find an alternate route either within the area or on the primary arterial routes of Punt Road and Williams Road. Chapel Street would be reprioritised as a through route for trams, cyclists and pedestrians only.

It is recommended that the restrictions be complemented by the establishment of 'shared spaces' in the immediate vicinity. This would have the effect of providing a transition area from a vehicle priority road carriageway environment into a shared public realm before the restriction point. This is addressed further below.

It is anticipated that restrictions to through traffic and associated lower traffic levels on Chapel Street would have the following benefits:

- Improve network function and reduce travel times for trams.
- Provide a safer and more accessible pedestrian environment.
- Provide a safer passage for local access and commuter cyclists.
- Improve access for local traffic.

- Provide the opportunity to establish a high quality public space and improve local amenity.

The traffic restrictions would not be expected to have an adverse effect upon servicing access for local businesses nor for access to residential areas in the vicinity of Chapel Street. This is discussed in more detail below.

It is anticipated that in the longer term these traffic restriction points could lead to permanent closure of Chapel Street to through traffic.

9.4 Shared Spaces

It is proposed to implement a 'shared space' treatment for a length of street within the vicinity of the closure point that allows for limited vehicle movement and access and shared priority between pedestrians, cyclists and traffic. The concept of a shared space takes priority away from vehicles by significantly reducing the speed limit and allowing for pedestrian and cyclist thoroughfare over the entire width of the road reserve. This is often achieved with the assistance of treatments such as textured and raised pavements, consistent surface treatments and a flat profile across the road reserve.

Shared spaces are increasingly being recognised as a means to provide a high amenity environment that encourages low speed mixing of traffic modes and benefits to pedestrians and

cyclists in particular. Shared spaces are usually implemented in relatively small areas and a vehicle speed limit of 10kph is recommended to ensure a safe, low speed environment is created.

A local example of a successful shared space with trams and pedestrians in a retail area is the Bourke Street Mall in Central Melbourne. Example shared spaces are shown in Figure 9.2.

Figure 9.2: Shared Space Examples







It is considered the closure of Chapel Street to through traffic and establishment of shared spaces would be consistent with VicRoads guidelines for pedestrian priority and integration as outlined in Chapter 3.

9.5 Decreasing Through Traffic

Traffic volumes from December 2012 obtained by GTA Consultants indicate that Chapel Street carries approximately 12,000 vehicles per day at its intersection with Toorak Road and approximately 15,000 vehicles per day at its intersection with Chatham Street (full traffic volume information for these two sites is included as Appendix B to this report). This demonstrates that Chapel Street is functioning as an arterial road, carrying significant volumes of through traffic. As such, the relocation of this volume of traffic must be a serious consideration in any proposal to restrict through movement.

In this regard, alternative proposed routes directing traffic away from Chapel Street have been prepared to plan for the future distribution of traffic that is no longer able to utilise Chapel Street as a through route. These routes have been prepared in accordance with VicRoads SmartRoads Network Operating Plans to direct traffic onto declared 'Preferred Traffic Routes'. The proposed traffic routes around Chapel Street post-restriction are shown in the Traffic Management map at the end of this chapter.

As shown in the Local Access Map traffic approaching from all directions that does not have a destination within the Chapel reVision area will be diverted onto a ring of surrounding arterial roads. This allows through traffic to bypass the Chapel Street Precinct and as such removes additional conflict between vehicles and other transport modes.

North and southbound traffic is able to bypass the precinct via Punt Road to the west and Williams Road to the east. River crossings on this route are provided by the Hoddle and MacRobertson Bridges, respectively. It is proposed that east and westbound traffic would bypass the Precinct via Dandenong Road to the south and Alexandra Avenue to the north.

It is noted that in order to accommodate these wide-area diversions, alterations would be required to the signal phasing and turning arrangements at intersections on these roads. Most specifically, the intersections of Chapel Street / Alexandra Avenue and Chapel Street / Dandenong Road would require alterations to accommodate the increased numbers of vehicles turning to avoid Chapel Street.

Should this option be considered for implementation, a detailed traffic study would be required to be conducted in order to assess the impacts of the proposed restrictions on the wider traffic network.

Precinct Access

Internal access into the precinct and the car parking areas would be retained whilst attempting to minimise the traffic distributed onto Chapel Street. The Precinct is well-positioned to reduce traffic circulation within its centre due to the presence of car parking stations at both ends of Chapel Street. These car parking stations serve a “catchment” from these directions, providing a location at the edge of the precinct where vehicle trips from the north and south can terminate and become pedestrian journeys into the precinct centre.

Traffic generated from the east and the west can also be captured with minimal requirement for access via Chapel Street. The car parking stations on King Street and at the Jam Factory can provide for traffic originating from the east, whilst the car parking areas at Cato Street and Elizabeth Street (Prahran Market) can capture traffic from the west.

These arrangements are shown in the Traffic Management maps at the end of this chapter.

Implementation Options

The restriction of through traffic on Chapel Street may be achieved in a number of ways, such as:

- Altering signal priority at key intersections (Chapel/Toorak, Chapel/Commercial, Chapel/High) to reduce volume of traffic able to access Chapel Street
- Implementation of traffic control measures such as kerb build-outs that create pinch points, or sections of one-way only traffic
- Signage and signals to discourage drivers to use Chapel St as a through route and highlight alternative routes
- Physical barriers to enforce closure to private vehicles (such as drop bollards which allow tram and emergency vehicle access only)
- Pedestrian priority areas, crossing points and shared zones to slow traffic

The traffic restrictions could include a range or mix of the above, with implementation staged over a period of time. For example, Council may start with peak hour only 'soft measures' such as signage and signal reprioritisation and move through to hard infrastructure such as shared spaces and physical closures over a period of time. It is recommended a further detailed study be undertaken to address the potential traffic restrictions and management.

It is recommended that the Chapel Street traffic restriction measures are initially trialled for a period of six months in order

to determine both positive and negative impacts of the proposal in relation to:

- public transport servicing
- pedestrian access and movement
- cycle access and movement
- public realm and shared space
- servicing of local businesses
- levels of traffic on both Chapel Street within the local area.

Trials would allow public feedback upon the proposals and may provide a method to alleviate any concerns or perceived negative impact raised by local residents and business owners. A further benefit of a trial period would be that if Council then decided to seek a permanent closure, any further stakeholder consultation or approvals (for example from VicRoads) could be sought during the trial restriction period.

In order to allow vehicles to exit without travelling through the restricted area, it is proposed to provide a court-bowl style turning area to either side of the restriction point. This would necessitate the removal of 2-3 kerbside car parking spaces on either side of Chapel Street on both sides of the restriction point. This should allow all vehicles to complete a U-turn and

continue in the opposite direction. This arrangement would need to be explored in further detail prior to implementation.

Outcomes

Whilst it is considered that the traffic restrictions on Chapel Street will offer significant benefits in terms of elevated priority to public transport users, pedestrians, cyclists and local business owners through public realm improvements, there may be some compromises to local vehicular access. The anticipated pros and cons of the proposal are set out in Table 9.1.

Table 9.1: Pros and Cons of Proposed Restrictions

Pros	Cons
Less through traffic on Chapel St = faster tram travel	A level of traffic displaced onto local streets
Safer environment for cyclists	Potential for increase in 'rat-running' through local streets
Public open space and amenity benefits	Some loss of on-street parking on Chapel Street
Retains access for servicing vehicles	Change to servicing access arrangements

Less unnecessary local traffic circulation	Less options for access to local residential streets
Improved pedestrian environment	

9.6 Commercial Road to Toorak Road

Proposal

It is proposed to restrict Chapel Street to through traffic in the vicinity of Palermo Street (at the railway overpass), and combine this with a shared space to operate in this area between Palermo Street and Garden Street. It is intended to retain through movement for cyclists and trams, and to rationalise car parking and prioritise on-street parking for loading vehicles. Vehicle access within this shared space will still be permitted for local access (including servicing), but will otherwise be discouraged.

To allow for through traffic to avoid the area, turn around or seek an alternate route upon encountering the restrictions, there will be signage combined with driver education through public information campaigns.

The proposed restrictions and shared space location is outlined on the Traffic Management maps.

Local Access

Access to residences on both sides of the Chapel Street restriction points must be considered. The affected streets and any traffic alterations proposed are listed in Table 9.2

Table 9.2: Local Streets in Vicinity of Northern Chapel Street Restrictions

Street Name	Current Conditions	Proposed Alterations
Arthur Street	Two-way	Closed west of Davison Place
Fitzgerald Street (east of closure)	Two-way	None
Cliff Street	One-way (westbound)	None
Grosvenor Street	One-way (eastbound)	None

It is noted that the shared space proposal requires minimal changes to the existing road layout. The notable exception is an extension of the restriction into Arthur Street, which would be required to prevent rat-running around the proposed Chapel Street measures. It is proposed to restrict or close Arthur Street immediately west of Davison Place, as this allows

vehicles that currently utilise the laneway to service the Chapel Street businesses that back onto it continued access. This arrangement is envisaged to resemble that that has been implemented in the closure of Fitzgerald Street to the south, as shown in Figure 9.3. It also separates the predominantly commercial traffic that utilises Davison Place from the residential traffic to the west.

Access for the residences to the west is still provided via the road network in the vicinity. William Street provides direct access to Toorak Road, whilst Commercial Road and Chapel Street (south of the restrictions) are accessible via Portland Place and Grosvenor Street. Whilst it is noted that these streets provide local access only, as part of the proposed measures an upgrade could be pursued to allow the streets to function at an improved level. As such, access to the residential properties is not anticipated to be compromised by this proposal.

Figure 9.3: Existing Mid-Block Closure of Fitzgerald Street



Servicing

Servicing is proposed to be retained as per current arrangements. For the businesses immediately south of the restriction point, access to Davison Place from Chapel Street will remain unchanged. Chapel Street will still be accessible up to Arthur Street from the south, and as far as Palermo Street from the north. It is also noted that on-street loading zones are to be provided throughout the proposed shared space area.

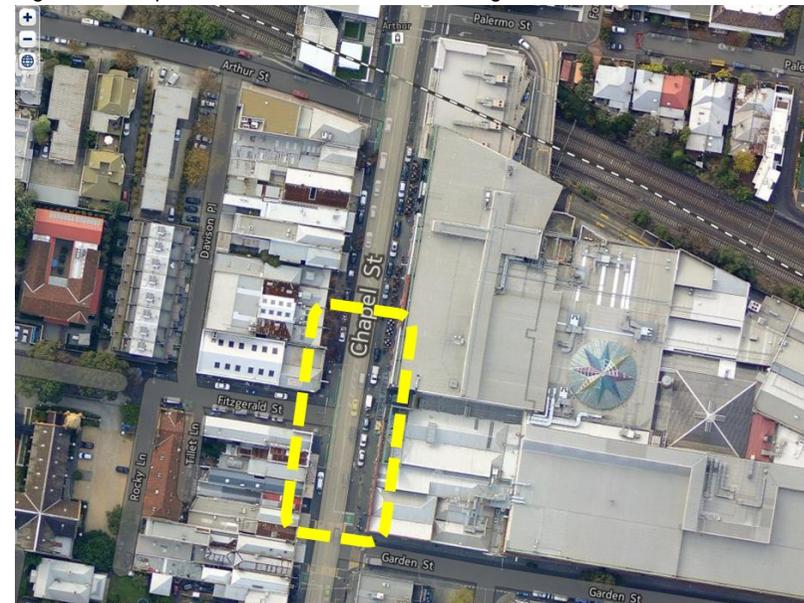
Car Parking

As a result of the proposed restrictions and shared space, kerbside car parking supply on Chapel Street is likely to be reduced. It is noted that there are currently approximately 31 on-street car parking spaces within the proposed shared space area between Palermo and Garden Streets. As a result of these proposed works, whilst some on-street car parking and

loading areas would be retained, supply would be reduced in the order of approximately 50% (i.e. about 16 spaces would be affected). It is noted, however, that vacancies well in excess of this number were observed in the Jam Factory car park immediately to the east of this shared space area.

Figure 9.4 illustrates the proposed area where car parking would be affected.

Figure 9.4: Proposed area of On-Street Car Parking Reduction



9.7 High Street to Commercial Road

Proposal

It is proposed to restrict Chapel Street to through traffic immediately north of Wattle Street and combine this measure with a shared space to operate to the south of this point to the intersection with Walker Street. This shared space could then link with the proposed shared space network through Wattle Street into the new public open space in the current Cato Street car parking area and Izett Street.

It is intended to retain unrestricted through movement for cyclists and trams, and to rationalise car parking and prioritise on-street parking for loading vehicles. Vehicle access within this shared space will still be permitted for local access (including servicing), but will otherwise be discouraged.

The proposed restriction point and shared space is shown in the Traffic Management map.

Local Access

Access to residences on both sides of the Chapel Street restrictions must be considered. The affected streets and any traffic alterations proposed are listed in Table 9.3.

Table 9.3: Streets Affected by Southern Chapel Street Restrictions

Street Name	Current Conditions	Proposed Alterations
Carlton Street	Two-way	Converted to shared space
Wattle Street	Part two-way	Converted to shared space

It is noted that the shared space proposal requires minimal changes to the existing road layout. The notable exception is the conversion of Greville Street into a Shared space between Chapel Street and Prahran Station. This area is a busy pedestrian environment due to its location as a key link between the station and the Chapel Street precinct, as well as being lined by a number of retail and entertainment land uses. Prioritising pedestrians over vehicles along Greville Street will provide a safer and more amenable environment for its users.

Access for the land uses to both sides of the southern Chapel Street restriction is to be retained in its existing form, as no alterations to any roads off Chapel Street are proposed. It is noted that Cato Street and Little Chapel Street would remain open and provide service access and some alternate traffic access to Chapel Street. It is recommended that local area

traffic management measures, such as one way only operation onto Chapel Street and right turn bans off Commercial Road into these streets be implemented to avoid motorists rat-running to avoid the Chapel Street restriction point.

Servicing

Having regard for the retention of the existing access arrangements, it is anticipated that servicing could be maintained in its existing form. The restrictions would result in access to shops only being possible from the north or south rather than both directions as it had been, but would not physically prevent servicing occurring.

Car Parking

As noted with the northern proposals, kerbside car parking supply on Chapel Street is likely to be reduced within the proposed shared space. As a result of these proposed works, whilst some on-street car parking and loading areas would be retained, supply would be reduced in the order of approximately six spaces to the north of the Wattle Street intersection to allow for the traffic management measures and associated turnaround area and shared space. It is noted, however, that vacancies well in excess of this number were observed in the adjacent Cato Street car park, located approximately 80 metres to the west of the intersection. Figure

9.5 below shows the proposed area of car parking which would be affected.

Figure 9.5: Proposed area of On-Street Car Parking Reduction



9.8 Cato Street Car Park Redevelopment

Proposed Short Term Arrangement

It is proposed to relocate the existing Cato Street off-street car park underground and develop a new public space at ground level. The access to the car park is proposed to be rationalised, with access available via Izett Street at the north-west and Chatham Street to the south in the short term. These access arrangements will enable the provision of a public shared space along Izett Street between the car park access and Chatham Street, which will provide a pedestrian friendly environment, as well as integrating the new public space with

the Grattan Gardens and existing buildings to the west of Izett Street.

Street Function

Izett Street

Izett Street is to function as an access road between Commercial Road and the access to the proposed underground car park. South of this access point, it is proposed to convert Izett Street into a shared space. South of Chatham Street, Izett Street will function as a main access for the off-street car park, providing a connection between the car park and High Street to the south.

Options to provide improved pedestrian access between the public space/underground car park and Commercial Road could then be considered. These would include the widening of the existing footpaths north of Wattle Street, potentially at the expense of the on-street car parking located in the area.

Wattle Street

Wattle Street is proposed to be closed between Cato Street and Izett Street, and will cease to function as an access to the car park as it currently does. It is anticipated that this area will be incorporated into the public space proposed for the existing car park area. Wattle Street will provide service access between Chapel Street and Cato Street.

Cato Street

A shared space is proposed to be provided on Cato Street to provide pedestrian connectivity between the rear frontages of the shops along it and the proposed public space immediately to the west. However, vehicle access on Cato Street is to be retained in order to maintain service access to these shops from the rear.

Furthermore, in light of the proposed restrictions to through traffic on Chapel Street, it is proposed to ban right turns during peak times into Cato Street from Commercial Road in order to prevent a potential rat running between Commercial Road and Chapel Street along Cato Street and Wattle Street.

Chatham Street

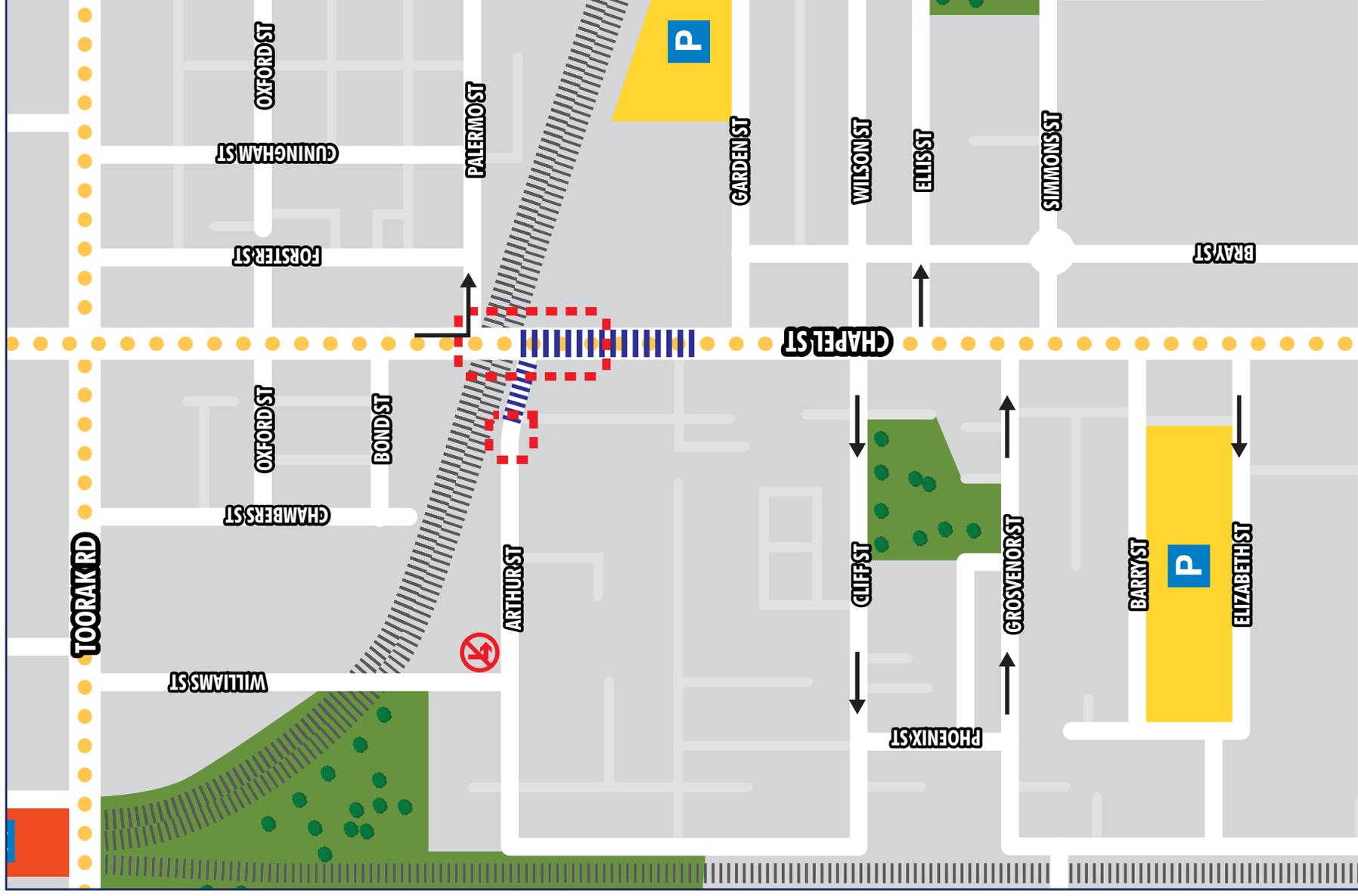
A shared space is proposed for Chatham Street immediately south of the redeveloped public space, between the proposed access point to the underground car park. This will enhance the pedestrian environment in the area and complement the active frontages of the existing land uses in the area. Chatham Street will still function as an access to the car park to the east of Cato Street, as well as providing access for service vehicles loading on Cato Street.

Proposed Long Term Arrangements

It is envisaged that in the longer term, and upon further development of the land immediately to the north of the Cato Street carpark, Izett Street will potentially be made into a pedestrian-only zone with access to the underground car park provided via Grattan Street and a new access point through the northern portion of the Grattan Gardens. This proposal would allow for improved pedestrian priority along Izett Street, further completing it as a primary pedestrian link between the proposed public space and Prahran Market.

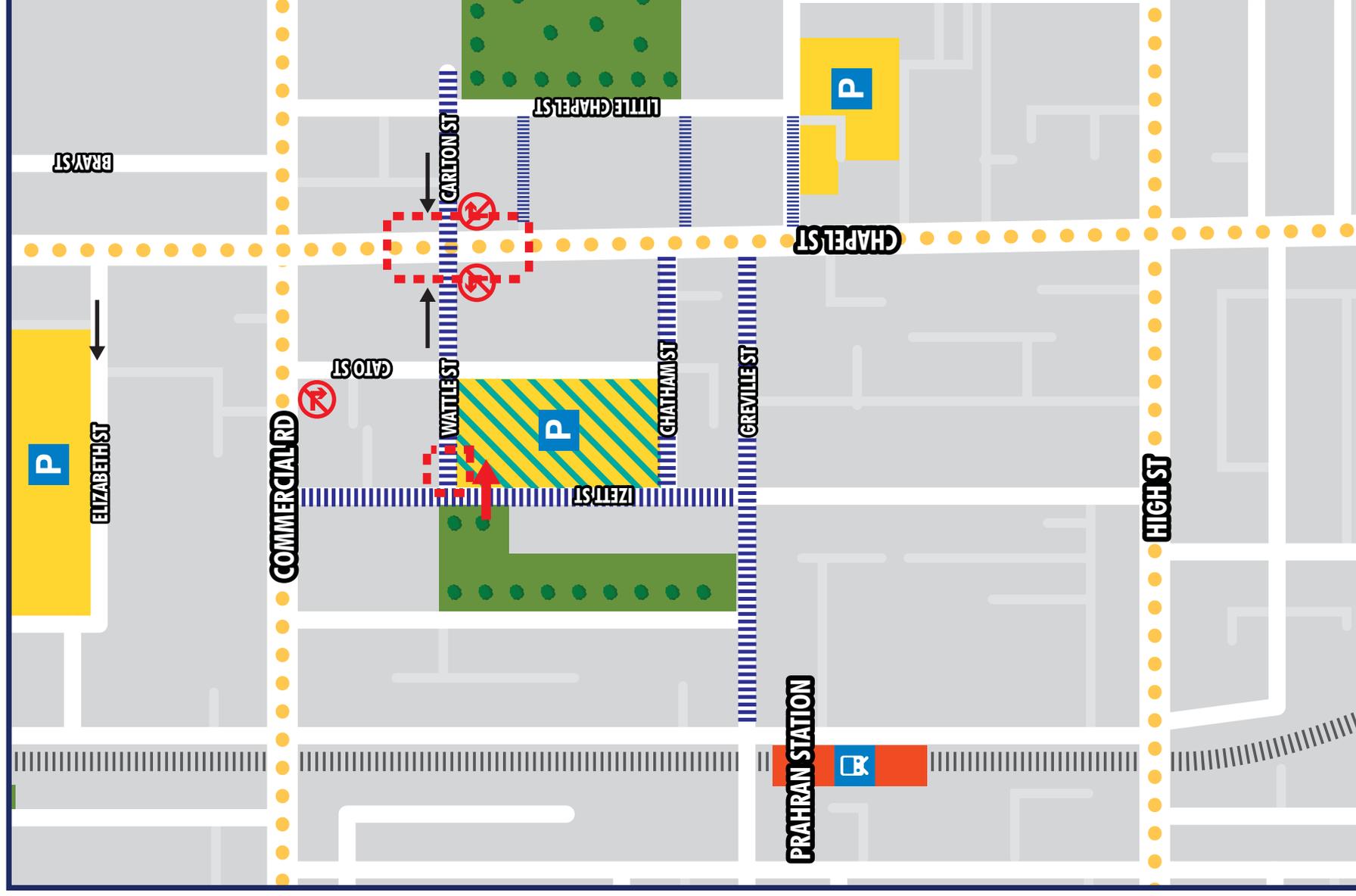
However, should this option be pursued, consideration would need to be given to signalling the intersection of Grattan Street and Commercial Road due to the additional traffic that would be generated along this street. It is noted that signalisation of this intersection would be subject to approval from VicRoads, which may be difficult to obtain given the close proximity of other signalised intersections at Balmoral Street, Izett Street and Chapel Street. In addition, given the requirement to retain access to the existing Safeway rooftop car park, it is anticipated that Izett Street would still be utilised by a number of vehicles destined for this car park, and as such the provision of a shared space may prove difficult.

Traffic Management



- Shared space
- Potential through traffic restriction
- Peak-time traffic turn ban
- One-way traffic direction
- To be converted to public open space
- carpark underground

Traffic Management



- Shared space
- Potential through traffic restriction
- Peak-time traffic turn ban
- One-way traffic direction
- To be converted to public open space carpark underground
- Future carpark entrance

10 Implementation

10.1 Short term (1-3 yrs)

Project	Description	Responsibility	Advocacy Agency?	Cost Level
Pedestrian				
Pedestrian Priority	Implement Barnes crossings points (full pedestrian phase) at 5 key locations (Chapel and Toorak/Commercial/High Streets, Commercial Rd at Prahran Market and Toorak Rd at South Yarra Station)	VicRoads	Yes	M
	New crossing point on Alexandra Avenue at Yarra Street (underway)	Council/VicRoads		H
Access Routes	Lovers Walk upgrade – new lighting, wayfinding signage and surface treatment	Council		L-M
	Audit of pavement conditions and hazards on local access routes between public open space and Chapel Street	Council		L
	Continuation of policy of clearing Chapel Street footpaths of unnecessary signage, clutter and obstacles			
	Ongoing implementation of pedestrian links as identified in the Neighbourhood Framework Plans	Council/Developers /VicRoads/ VicTrack/DHS	Yes	H
	Undertake the strategic planning required to secure the future establishment of the east-west pedestrian link between Clifton Street to Bang Street	Council	Yes	H
Cycling				
Commuters	Identification and promotion of alternate commuter routes to Chapel Street	Council		L
Local Access	Removal of car parking spaces at 7 key locations to provide bicycle facilities and parking	Council		M
	Bicycle priority measures at intersections – signal priority, line and road marking, cycle boxes	Council/VicRoads		M
Public Transport				
Tram Priority	Right turn ban at Chapel Street intersections with arterial roads (Route 78,79)	Council/VicRoads		L
	Real time information at tram stops	PTV/Yarra Trams	Yes	H
Parking				
Paid Parking	Planning and advocacy for paid parking system in Chapel Precinct	Council		L
Through traffic restriction - Shared Space				

Restrictions Stage 1	-	6 month trial of options to limit through traffic on Chapel Street between Arthur and Palermo Streets	Council/VicRoads	Yes	M
Restrictions Stage 1	-	6 month trial of options to limit through traffic on Chapel Street between Road and Wattle Street			
Traffic Network					
Alternatives to Chapel Street		Implement measures (signal priority, turn bans, awareness) to promote alternate traffic routes that avoid Chapel Street	Council/VicRoads	Yes	M
		Intersection treatment and signal priority at Williams Road and Malvern/Commercial/Toorak	VicRoads	Yes	H
		Promote use of identified local access (shopper) routes to car parking facilities	Council		M

Cost levels: (L) < \$100,000, (M) \$100,000 - \$500,000, (H) \$500,000+

10.2 Medium term (4-7 years)

Project	Description	Responsibility	Advocacy	Cost Level
Pedestrian and Shared Spaces				
Pedestrian Environment and Streetscape	Introduce Chapel St shared zone between Arthur Street and Garden Streets to complement traffic restrictions	Council/VicRoads	Yes	H
	Introduce Chapel Street shared zone between Princes Close and Town Hall/King Street to complement restrictions			
	Introduce shared spaces Greville Street, Wattle Street, Izett Street and Carlton Street			
	Footpath widening to allow on-street activity in high demand areas. Replacement of car parking with kerb outstands	Council		M
	Ongoing implementation of pedestrian links as identified in the Neighbourhood Framework Plans	Council/Developers /VicRoads/ VicTrack/DHS	Yes	H
Cycling				
Commuter	Planning of infrastructure required for alternate commuter path, including crossing points	Council		M
Local Access	Secure bicycle parking facilities at South Yarra, Prahran and Windsor Stations	DOT/PTV	Yes	L
	Improved paths, linkages and crossing points at train stations	Council/DOT/PTV	Yes	M
Public Transport				
Service improvement	Implement Tram priority measures at Chapel St intersection with Toorak/Commercial/High Sts for all services	Council/VicRoads	Yes	H
	Chapel Street traffic restrictions to through traffic to improve running time and priority for R78, 79			
	Explore opportunities to improve disability access to public transport within the Centre	Council/PTV/Yarra Trams	Yes	H
Station upgrades	Footpath widening, Barnes Crossing and works to improve pedestrian access and flow at South Yarra Station	DOT/Council	Yes	H
Parking				
Paid Parking	Implementation of paid parking on Chapel Street – Band 1, Band 2 and Band 3	Council		H
	Dynamic Parking System and signage	Council		M
Through traffic restrictions - Shared Space				
Restrictions	- Permanent implementation of restrictions on Chapel Street between Garden Street and Palermo Street	Council/VicRoads	Yes	H

Stage 2	Permanent implementation of restrictions on Chapel Street between Commercial Road and Wattle Street			
	Permanent implementation of restrictions on Arthur Street to complement Chapel St measures			
Traffic Network				
Alternate Routes	Implement measures (signal priority, turn bans, awareness) to promote alternate traffic routes that avoid Chapel Street	Council/VicRoads		H
	Intersection treatment and signal priority at Williams Road and Malvern/Commercial/Toorak	VicRoads	Yes	H
Local Access	Monitor impact of Chapel Street traffic restrictions. Local area traffic management measures to address any adverse impacts	Council		M

Cost levels: (L) < \$100,000, (M) \$100,000 - \$500,000, (H) \$500,000+

10.3 Long Term (8yrs+)

Project	Description	Responsibility	Advocacy	Cost Level
Pedestrian				
Pedestrian Environment and Streetscape	Establish shared space on Greville Street	Council/VicRoads	Yes	H
	Establish Elizabeth Street shared space to improve pedestrian links to Prahran Market and public parking area			
	Establish shared space Wattle Street, Izett Street and Carlton Street			
	Ongoing implementation of pedestrian links as identified in the Neighbourhood Framework Plans	Council/Developers/VicRoads/VicTrack/DHS	Yes	H
Access Routes	Shared path link from Windsor Station to Dandenong Road adjacent to rail line	Council		M
Cycling				
Commuter	Delivery of infrastructure required for alternate commuter path, including crossing points on Commercial Rd, High St.	Council/VicRoads		M
Local Access	Ongoing promotion of cycle mode for local access, including wayfinding, review of cycle facilities and public surveys	Council		L
Public Transport				
Tram Priority	Installation of upgraded tram stops in shared space areas	DOT/Yarra Trams	Yes	H
Tram Services	Advocacy and provision of infrastructure for introduction of low floor, high capacity trams on local routes			
Rail Services	Advocacy to State Government DOT and PTV for upgraded services and infrastructure necessary to support demand projections based on anticipated employment and population growth.	DOT/PTV	yes	H
Bus Services	Identify potential for local feeder bus routes to rail and tram infrastructure, provide bus priority at key intersections	PTV/DOT	Yes	H
	Identify potential for bus services to complement N-S tram service on Chapel Street through traffic restriction points			M
Traffic restrictions				
Restrictions – Stage 3	Implement potential closure of Chapel Street to through traffic at two locations and Local Area Traffic Management as necessary	Council		
Traffic Network				
Alternate Access	Ongoing monitoring and assessment of signal priority and potential to reinforce SmartRoads traffic network	Council/VicRoads		L

Cost levels: (L) < \$100,000, (M) \$100,000 - \$500,000, (H) \$500,000+

Project Implementation



- Short term projects (1-3 years)
- Medium term projects (4-7 years)
- Long term projects (8 years +)

- Indicative direction of future commuter route (Refer to Figure 3.2)
- Bicycle parking at station
- Replace car parking space with bike parking
- Pedestrian path upgrade
- Proposed Barnes dance crossing

- Future through traffic restrictions
- Tram priority intersection (medium term)
- Future bicycle crossing point
- To be converted to public open space carpark underground
- Shared space (medium term)
- Shared space (long term)