

Client
City of Port Phillip

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Planning

Transport

Urban Design

Waste Management

South Melbourne: Transport, Movement & Place Study

Transport Assessment and Recommendations



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Project
South Melbourne Structure Plan:
Transport, Movement & Place Study
Transport Assessment and
Recommendations

Prepared for
City of Port Phillip
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1. Introduction

1.1. Introduction

The City of Port Phillip ('Council') is in the process of preparing the South Melbourne Structure Plan (the 'Structure Plan'). The Structure Plan is being informed by a range of work including built form, public realm, economics and transport studies.

Ratio Consultants has been engaged to undertake a Transport, Movement & Place Study to inform the preparation of the Structure Plan, including an assessment of the transport implications of the Built Form Review and Public Realm recommendations.

1.2. Purpose of this report

The purpose of this **Stage 2** report is to:

- Further progress the findings and recommendations of the South Melbourne Transport and Movement Study Stage 1 report prepared by Ratio Consultants;
- Identify movement, transport and public realm opportunities that support the function of the Activity Centre / Enterprise Precinct;
- Align all findings and recommendations with the Built Form Review and Public Realm Framework analysis prepared by others; and
- Identify how transport can support the future land uses, populations and streets / places within the Study Area, including any mitigating works or recommendations to support the anticipated growth.

This **Stage 2** report is intended to follow the **Stage 1** report, referred to above and throughout this section.

1.3. Methodology

The South Melbourne Transport, Movement & Place Study was developed in collaboration with City of Port Phillip and other consultants engaged to provide input into the South Melbourne Structure Plan.

The overall project was separated into two distinct parts, including:

Stage 1: Review of background and existing conditions, and development of issues and opportunities for the Study Area.

Stage 2: Provision of input into the development of the public realm framework and built form framework, undertake transport analysis and make recommendations to support future land uses and populations.

The study was developed through a range of workshop discussions, on-site investigations, background review, research, and data collection and analysis.

A brief overview of the approach taken to develop the study is shown in Figure 1.1.

Figure 1.1 South Melbourne Transport Movement & Place Study

Detailed Background Review (Stage 1 Report)

- Background document review
- Site observations
- Data collation and review

Issues and Opportunities (Stage 1 Report)

- Existing conditions
- Issues, gaps and constraints
- Identify potential opportunities

Future Conditions

- Built form framework
- Public realm framework
- Additional residential dwellings, commercial and retail floor space

Transport Implications

- Mode splits, trip generation and modal demands
- Traffic generation and distribution

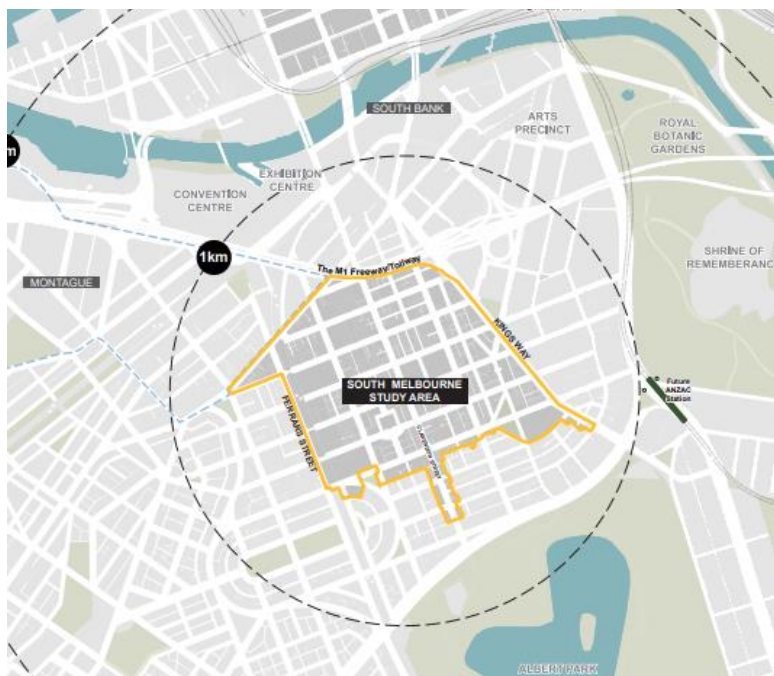
Findings and Recommendations

- Supporting networks, infrastructure, and transport and parking policy
- Transport and car parking recommendations

1.4. The Transport, Movement & Place Study Area

The Study Area for this report including all analysis and recommendations shown in Figure 1.2.

Figure 1.2 Study Area



Source: City of Port Phillip – South Melbourne Urban Design Framework Stage 1

1.5. References

In undertaking this study and preparing this report, a number of documents and sources of information were relied upon, including but not limited to:

- South Melbourne Transport, Movement & Place Study Stage 1 report prepared by Ratio Consultants (19856TG-REP01-D02, dated 30 August 2023);
- South Melbourne Built Form Report, prepared by Hodyl & Co for the City of Port Phillip, June 2023;
- South Melbourne Public Realm Framework, prepare by the City of Port Phillip,
- South Melbourne Structure Plan Discussion Paper, prepared by the City of Port Phillip, August 2022,
- Relevant State government and local City of Port Phillip strategies, plans and policies, as referred to throughout this document;
- ABS Census and VISTA data;
- Historic aerial imagery using Nearmap;
- On site observations (across a range of times and dates between 2021 and 2023);
- Meetings and workshops with Council officers and other consultants involved in the preparation of the South Melbourne Structure Plan; and
- Other documents and referenced throughout this report.

2. Stage 1 Report Findings

2.1. Overview

The **Stage 1** report for the South Melbourne Transport, Movement & Place study established a significant base of background review and data relating to transport and demographics within the precinct.

The following outlines the key findings as they relate to the:

– **Background review:**

- a detailed review of State and Local policy, plans and known projects to understand the strategic context and broader objectives as they relate to the South Melbourne Study Area;

– **Movement & Place review:**

- A review of the current Movement & Place aspirations (classifications) for the precinct and the street typologies for key streets to guide the development of issues & opportunities.

– **Issues and Opportunities: Recommendations**

- Short (0-5 year), medium (5-10 year), and long term (10+ year) movement recommendations were formulated to inform the development of the structure plan.
- These recommendations are based on the existing conditions, background context and movement & place aspirations for the precinct.

2.2. Background Context

Both State and Local Policy and Strategy documents support a shift towards the use of sustainable transport modes (walking, cycling and public transport) and recognise that streets have multiple functions, transport links not only move people and goods but they also serve as destinations in their own right.

The COPP's Move, Connect, Live Integrated Transport Strategy 2018-2028 envisages a 0% net increase in private vehicle trips between 2016 and 2028 and an increase in sustainable travel trips. To meet the 2028 mode share targets, the private vehicle mode share for South Melbourne needs to reduce by some 14%, and the walking and cycling modes shares also need to rise to achieve an overall sustainable mode share target of 71% in 2028. This mode shift to more sustainable modes can be encouraged by prioritising road space and infrastructure for sustainable travel modes and decreasing the attractiveness of travel by private motor vehicle.

2.3. Movement & Place Review

The Department of Transport and Planning's (DTP's) Movement and Place Framework sets out to address Victoria's strong population growth which continues to place pressure on the transport system.

A guiding principle of Movement and Place thinking is that streets and roads are for everyone, they carry people and goods, are multi-modal, and can change with time. Streets are the sum of many elements working well together. Their fundamental purpose to varying degrees is to facilitate movement, enhance place, ensure safety, and prioritise health and well-being, and the environment.

Several streets within the Study Area are Activity Streets and provide access to shops and services by multiple movement modes. These streets have a high demand for movement as well as place with a need to balance different demands within the available road space.

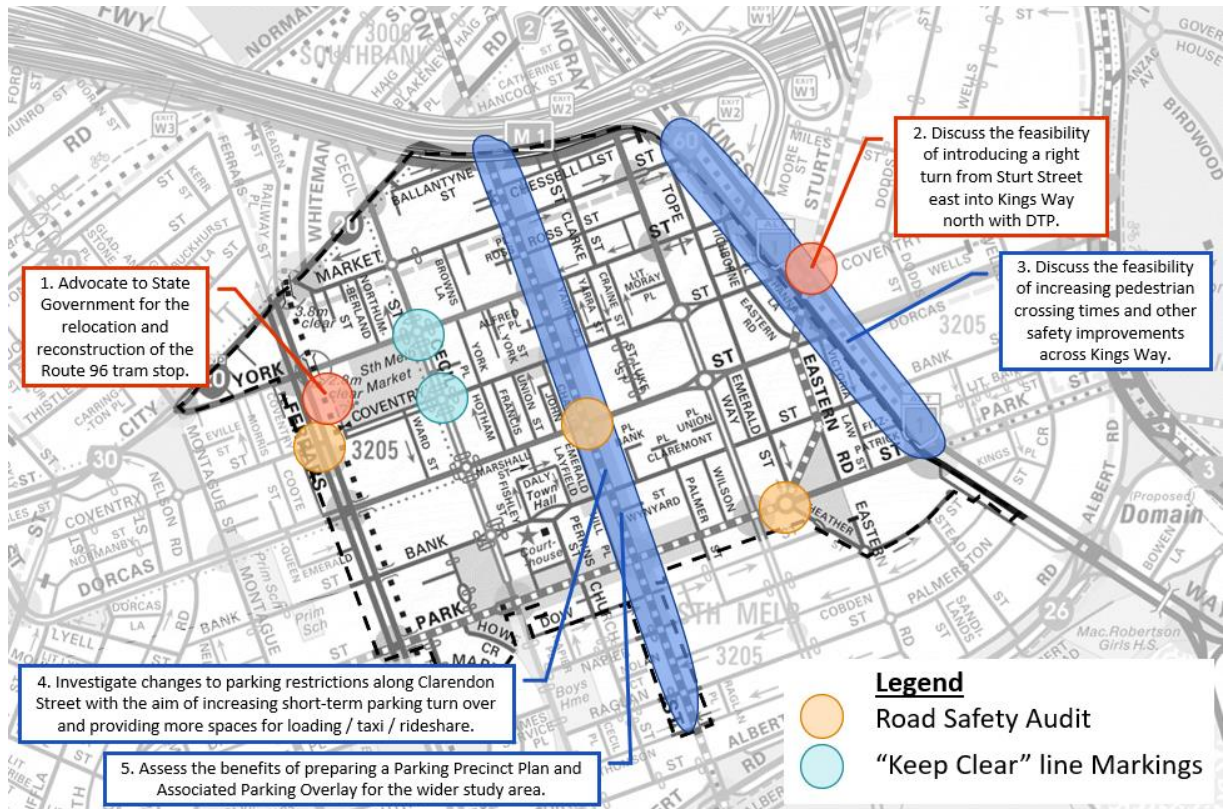
Clarendon Street, a High Activity Street, is a multi-modal, major destination for people to visit, work and live. It plays a central role for the community, supporting a concentration of commercial, residential civic and community land use. High Activity Streets, where possible, should include wide footpaths and crossing opportunities for pedestrians, enable safe cycle access, reduced traffic speeds, and provide access to off-street parking.

Mixed Activity Streets are secondary, mixed-use corridors. They support the local community to access goods and services. Candidate Mixed Activity Streets within the Study Area include **Coventry Street** (west of Clarendon Street), **Cecil Street** (in the vicinity of South Melbourne Market) and **Sturt Street** (emerging). Mixed Activity Streets, where possible, should include wide footpaths and crossing opportunities for pedestrians, enable safe cycling connections, reduced traffic speeds, some parking / loading spaces to serve local land uses.

2.4. Key Recommendations

Short (0-5 year), medium (5-10 year), and long term (10+ year) movement recommendations were formulated to inform the development of the SMSP. These recommendations are summarised in Figure 2.1, Figure 2.2, and Figure 2.3.

Figure 2.1 Short Term (0-5 year) Recommendations

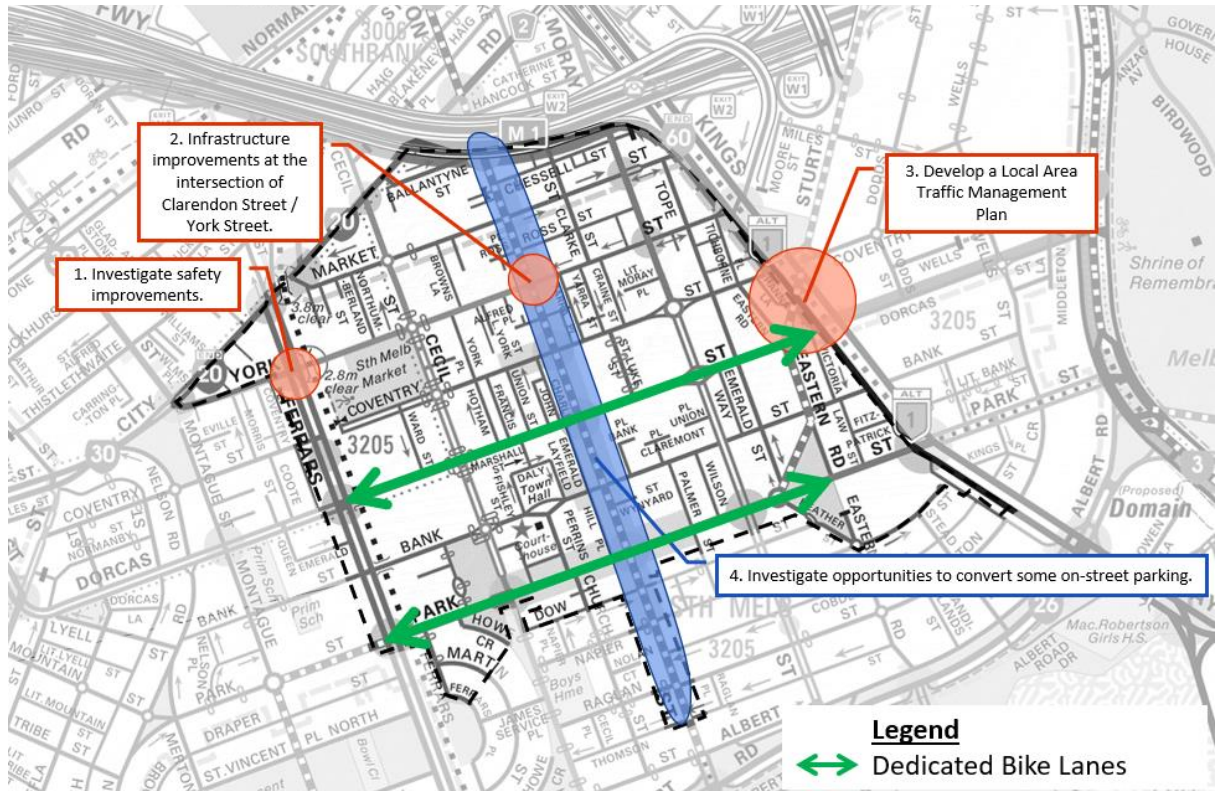


Car parking management has the potential to play a key role in influencing mode shift over the long term. Consideration should be given to the development of Parking Precinct Plan for the study area, separately to this study. The Plan would enable the development of a strategy for managing car parking, including the key objective of meeting the CoPP's sustainable mode share targets.

Furthermore, it is recommended that changes to parking restrictions along Clarendon Street, with the aim of increasing short-term parking turn over and providing more spaces for loading / taxis / rideshares, be investigated. Currently there is a high demand for parking along Clarendon Street, sometimes over 100%, as a result of vehicles parked in no parking areas.

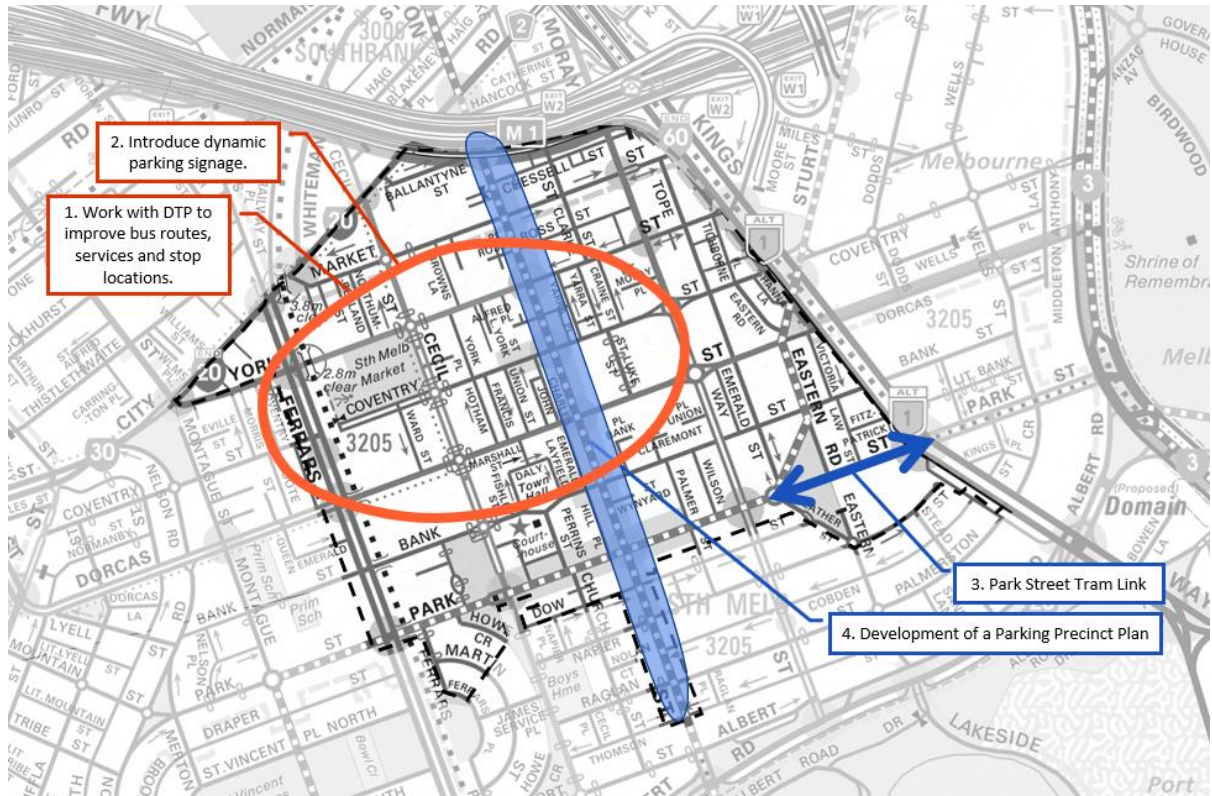
Changes to the existing parking restrictions warrant further investigation, as part of future studies, to ensure that parking is managed in accordance with the CoPP Parking Policy Parking Availability Targets. In addition, the provision of open space, greening and cooling initiatives should be investigated.

Figure 2.2 Medium Term (5-10 year) Recommendations



A key medium term recommendation is the further investigation of provision of dedicated cycle lanes along Dorcas Street and Park Street. Dedicated cycle lanes on both streets would allow for the safe movement of cyclists to/from/within the study area. The Dorcas Street lanes would provide a direct link to the heart of the South Melbourne Activity area, whilst the lanes on Park Street would for a convenient link between ANZAC Station to areas to the west of the study area.

Figure 2.3 Long Term (10 year +) Recommendations



A key long term recommendation is that bus network and service improvements be investigated to enhance local public transport accessibility and connectivity. There is potential to improve bus routing to better suit user needs and provide improvements to the bus network infrastructure and stop locations as a means of increasing bus patronage.

3. Future Conditions

3.1. Summary of Key Assumptions

The assumptions that underpin the analysis into the future transport conditions of the Study Area were developed with Council and include work from other consultants involved in the preparation of the Structure Plan background documents.

A high-level overview of these assumptions is presented as follows.

Future Mode Splits and Transport Trends

The City of Port Phillip 'Move, Connect, Live' Integrated Transport Strategy 2018-2028 highlights the importance of improved sustainable transport use throughout the municipality into the future. This includes a 36% and 151% increase in walking and cycling trips respectively, by the year 2028.

To achieve higher levels of sustainable transport, in particular cycling, existing mode share splits from the City of Yarra were adopted for future analysis. These assumptions, based on 2016 Australian Bureau of Statistics (ABS) Journey to Work (JTW) data, were further validated using empirical trip generation data.

A comparison between 2016 and 2021 ABS and data collected by the Victorian Integrated Survey of Transport Activity (VISTA), found that the effects of Covid in 2021 resulted in an unrealistic representation of typical travel patterns. February 2020 VISTA data showed similar travel behaviour trends to pre covid data, which indicated that 2016 Journey to Work data would be sufficient to analyse future travel behaviour.

Built Form Review

The scale of development and access arrangements for proposed built forms in the existing commercial areas within South Melbourne are taken from the South Melbourne Built Form Review (BFR) prepared by Hodyl & Co.

The BFR identifies where new developments are proposed, along with vehicular and pedestrian access requirements.

These future assumptions reflect a scenario that anticipates the capacity of built form within the area, with no timeline or horizon on when this could be realised.

Population, Growth, Density and Location

Population growth was derived using a combination of ABS existing and future predicted population growth, and data provided by Hodyl & Co within the BFR.

Details of the location, size and type of future expected dwellings were provided as part of the BFR and confirmed with Council. The level of detail provided included a high-level zone assessment of the net increase in dwellings.

Retail and Commercial Land Uses

Details and assumptions of the future uplift in retail and commercial floor areas were provided by Hodyl & Co for the four (4) key precincts: Clarendon, Market, East and West.

The total uplift in retail and commercial floor areas were apportioned across each of the transport zones using additional assumptions provided by Council along with the BFR area produced from the Hodyl & Co site capacity assessment.

Public Realm Propositions

Public Realm propositions were provided by Council, including a number of streetscape improvements and new / improved public open space that seek to improve the amenity, experience and connectivity to, from and within the precinct.

These propositions were developed having input from Ratio's Urban Design and Transport teams through a range of analysis, review and workshops.

Car Parking Policy and Management

Car parking for future developments has been assessed in accordance with the Port Phillip Planning Scheme.

Empirical car parking data has been used to determine appropriate car parking rates for the area.

Public parking will be managed in accordance with the Port Phillip Parking Management Policy.

The following sections outline the key background information and reports that have been used as inputs into the assessment, including purpose and key objectives / outcomes.

3.2. Built Form Review

Overview

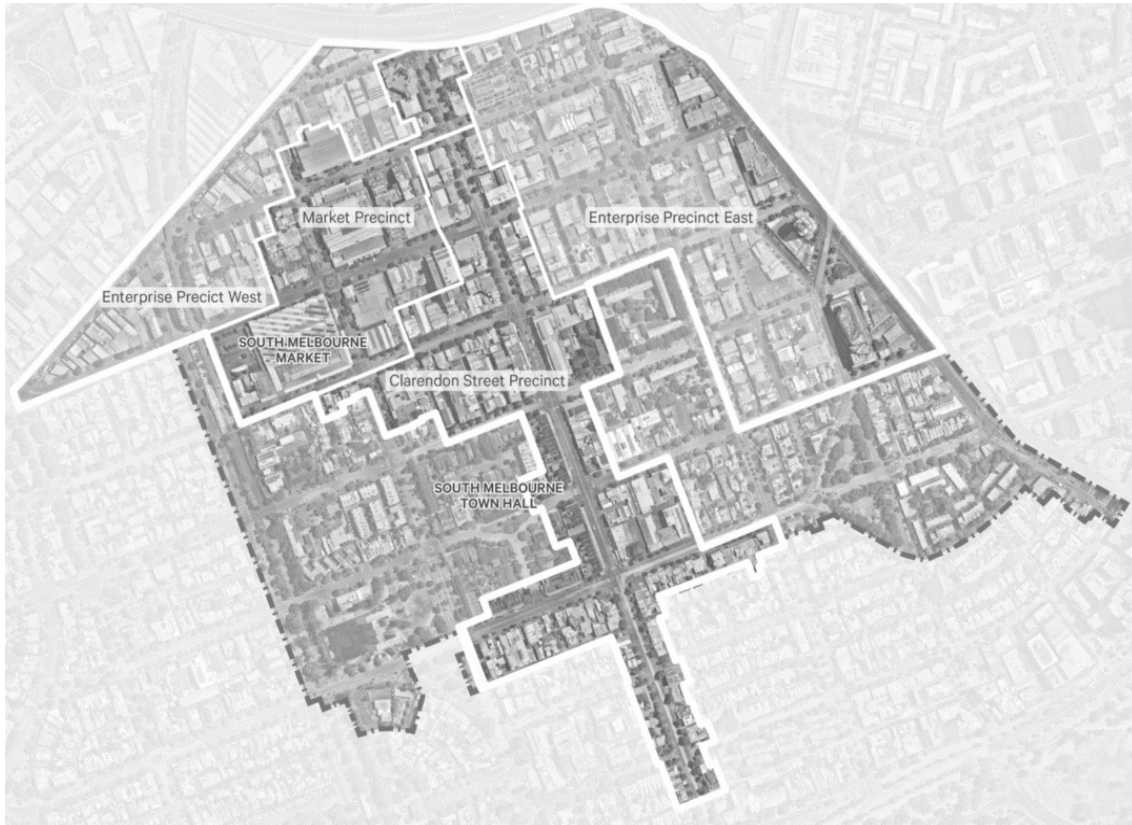
The Built Form Review (BFR) produced by Hodyl & Co sets out the location and potential scale of future development within the South Melbourne precinct, through the recommendation of built form controls.

The BFR includes details such as preferred frontages, heights and access arrangements for all future developments in the Study Area.

The BFR is generally limited to the core existing commercial areas either side of Clarendon Street, on the northern side of the Study Area. In this regard, the BFR is split into four sub precincts, as listed below and shown in Figure 3.1:

- Enterprise Precinct West (West)
- Market Precinct
- Clarendon Precinct
- Enterprise Precinct East (East)

Figure 3.1 BFR Sub-Precincts



Source: Hodyl & Co Built Form Review Report

Vision

The BFR sets out a robust vision which will underpin the future planning of South Melbourne. As it relates to the transport study, a key section of the vision is outlined as follows:

'The network of walkable, green streets and comfortable public spaces, combined with valued heritage places and attractive buildings, provide a variety of memorable destinations, productive businesses, creative industries and local services.'

Design Objectives

The BFR includes the preparation of built form design objectives which will best position South Melbourne for a sustainable future. The four design objectives underpinned the built form analysis of the existing context and contemporary best practice.

The four design objectives are listed below and include recommendations as they relate to transport within the Study Area:

1. *Ensure development is responsive to the local context and builds on its character,*
 - Ensure development response to the valued attributes of South Melbourne and contributes positively to the existing and future character within each precinct.
 - Enable simple and legible building forms and efficient floor plates by avoiding multiple setbacks above street wall.
2. *Contribute to engaging and walkable precincts,*

- Reduce the impact of servicing on the public realm by minimising the number of vehicle crossovers required and removing vehicle crossovers where appropriate.
 - Ensure the location of vehicle entries does not undermine the attractiveness, experience and safety of the public realm.
 - Minimise the extent of servicing located on main street frontages and other key pedestrian routes, carefully integrating the design of servicing into the overall design of the ground floor.
 - Encourage new developments to include splayed corners which are a prominent urban and architectural feature of the area.
3. *Provide high-amenity housing and workplaces,*
- Ensure universal design principles are achieved to provide equitable and dignified access for all.
4. *Integrate climate responsive design.*
- Provide carefully considered design solutions for buildings in flood affected areas, particularly in the transition from the building to the public realm to ensure that building entries and frontages are accessible and active.

3.3. Public Realm Framework

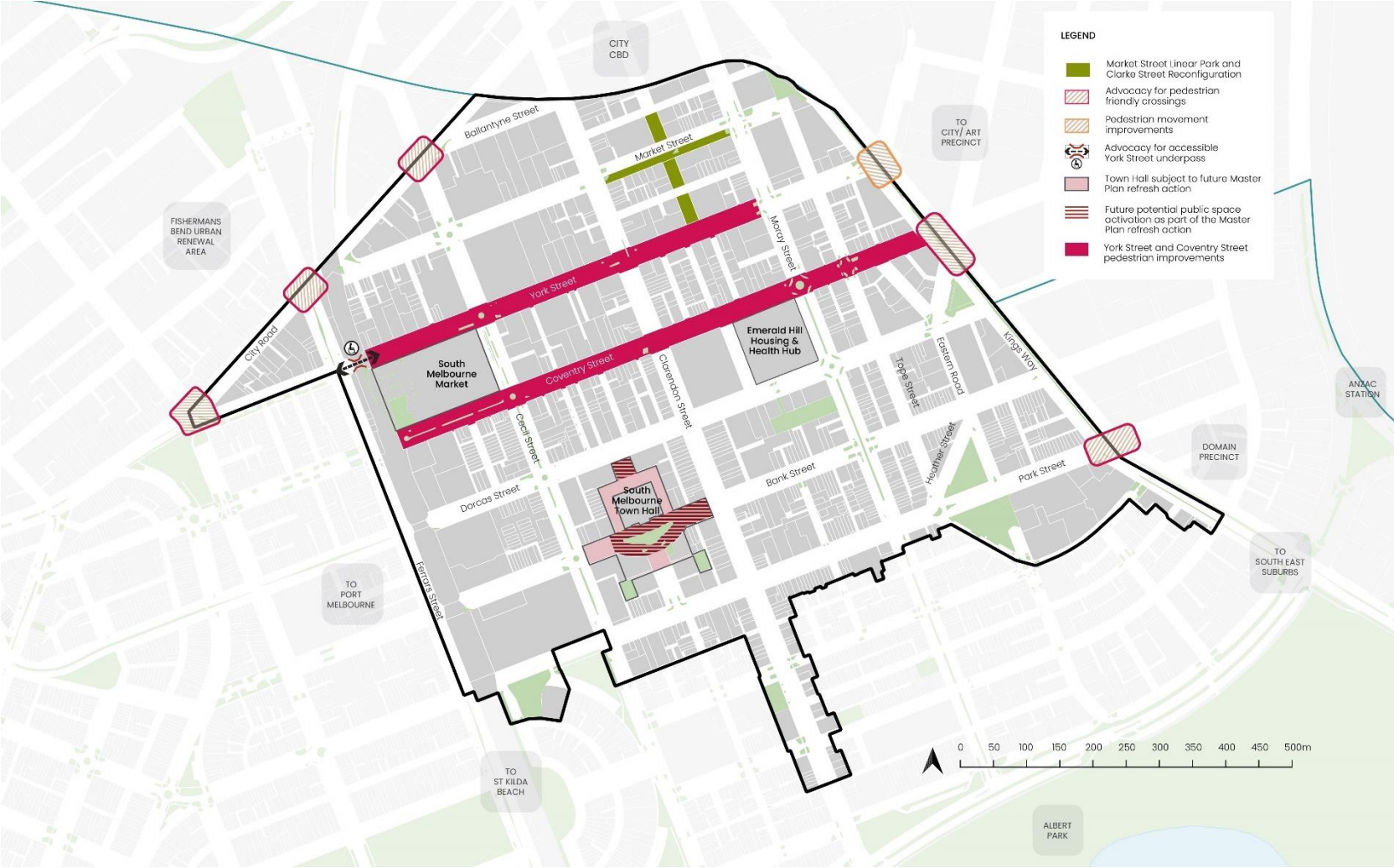
A key input into the transport study is the Public Realm Framework (PRF) prepared by Council. The preparation of the PRF including input from Ratio's Transport and Urban Design teams, considering:

- a) Movement & place considerations within the Study Area, including how people move to, through and within the precinct; and
- b) Transport engineering review against relevant standards and guidelines, including against the data, issues and opportunities from the Stage 1 report.

The outcome is a PRF outlines a range of areas of change within the Study Area, which include a range of projects that have movement and access considerations.

The PRF propositions, prepared by Council are mapped and reproduced in Figure 3.2 below.

Figure 3.2 Public Realm Propositions



Source: City of Port Phillip

Of key relevance to this study and assessment of the proposed built form controls are the following Public Realm propositions, outlined in Table 3.1.

Table 3.1 Public Realm Framework Propositions - Study Considerations

Type of Proposition	Location/s	Movement & Access Considerations
Market Street Linear Park and Clarke Street Reconfiguration	Market Street between Clarendon Street and Moray Street, Clarke Street – between Chessell Street and York Street	<p>Creation of a linear park will provide new public space that people can use to stop, dwell, or move along.</p> <p>To support these new spaces, the existing cross section would be required to be reallocated to increase the amount of public space, which would ultimately be taken directly from existing on-street parking, thus no impacts to vehicle carrying capacity of any of the streets.</p> <p>Parking configuration may be required to accommodate the works and may ultimately reduce the attractiveness of driving to the precinct.</p>
Advocacy for pedestrian friendly crossings	Multiple (along City Road and Kings Way)	<p>Improvements to pedestrian movements across key intersections will facilitate improved access into and out of the precinct for all users.</p> <p>It is however noted that any improvement to non-vehicular modes may reduce the through vehicle capacity along key vehicle movement corridors.</p>
Pedestrian movement improvements	Kings Way / York Street	<p>The current arrangement at the signalised intersection limits pedestrian movements across the intersection and into the Study Area.</p> <p>Improvements will improve pedestrian safety, comfort and efficiency, thus resulting in more pedestrians using the intersection.</p> <p>It is however noted that any improvement to non-vehicular modes may reduce the through vehicle capacity along Kings Way.</p>
Advocacy for accessible York Street underpass	Ferrars Street / York Street	<p>The existing underpass provides a large physical barrier that needs to be better improved for pedestrian movement.</p> <p>Enhanced pedestrian priority may increase congestion on York Street however not unreasonable, and justified from a pedestrian safety perspective.</p>

Type of Proposition	Location/s	Movement & Access Considerations
Focus Area	South Melbourne Town Hall subject to future master plan refresh action	<p>The areas that could be impacted include Bank Street between Cecil Street and Clarendon Street inclusive of surrounding local streets.</p> <p>Overall, improvements to the public realm around South Melbourne Town Hall will make it a more accessible and comfortable space for people to dwell and enjoy. As such, pedestrian connectivity and safety should be prioritised.</p>
Future potential public space activation	South Melbourne Town Hall and Bank Street - as part of the Master Plan refresh action	Changes to the road network may include reducing numbers of lanes, or other traffic management improvements. Any impacts would largely be confined to the local road network.
Pedestrian Experience Improvement	York Street – between Ferrars Street and Moray Street	<p>Improvements to pedestrian experience would support additional pedestrian movements and uptake in active transport for shorter trips.</p> <p>To facilitate the improvements, changes to the existing cross section may be required, which would reduce its traffic carrying capacity, a loss of car parking, or less space / poorer conditions for cyclists.</p>
	Coventry Street – between Ferrars Street and Kings Way	Improvements to pedestrian safety and connectivity along the southern side of Coventry Street will need to include priority intersection treatments. These treatments will reinforce existing road rules which require motorists to give way to pedestrians when turning from an adjacent road and therefore will have no impact on vehicular traffic.

The above Public Realm propositions will be considered in the analysis and subsequent recommendations of this Study.

3.4. Population and Demographics

Summary of Key Assumptions

To better understand the future uplift in land use and demand on the transport network, a range of population and demographic predictions were sourced and analysed. A combination of data, including existing floor areas associated with each land use (as provided by Council) were used along with predictions from Hodyl & Co as part of the BFR. The assumptions used and their sources are listed below in Table 3.2.

Table 3.2 Population and Demographic Assumptions

Assumption	Value	Source
Average Trips per person per day	2.9 trips	Victorian Integrated Survey of Travel and Activity – Port Phillip LGA for data up to February 2020
Average people per Dwelling	1.9 persons	Hodyl & Co – South Melbourne Built Form Review - 2023
Average Dwelling Size	80 sqm	
Uplift in Dwellings ¹	2,264 dwellings	
Uplift in Employment Land Area	336,624 sqm	

Potential Uplift

The future floor areas within the Hodyl & Co report represent the total future dwellings and employment land use expected as a result of the proposed changes to the built form controls. These future floor area values include both the existing site floor areas plus potential uplift (e.g. by adding new floors or increasing the overall floor area). To not overestimate the future transport generation by including existing transport trips which can be attributed to existing land uses which may be redeveloped, the potential uplift was derived.

Based on the assumption that 80% of residential land area is developable and applying the average dwelling size of 80 sqm, the potential uplift in dwellings was determined.

To get the uplift in employment floor area, information provided for the existing employment areas was deducted from the total future employment area estimates. Where this resulted in a negative value (which occurred in the Market and Clarendon precincts), no change was assumed for the purposes of a conservative assessment, by not subtracting existing trips from the network.

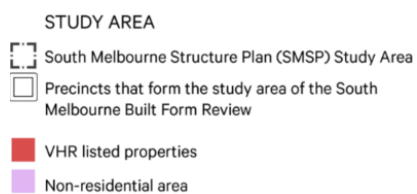
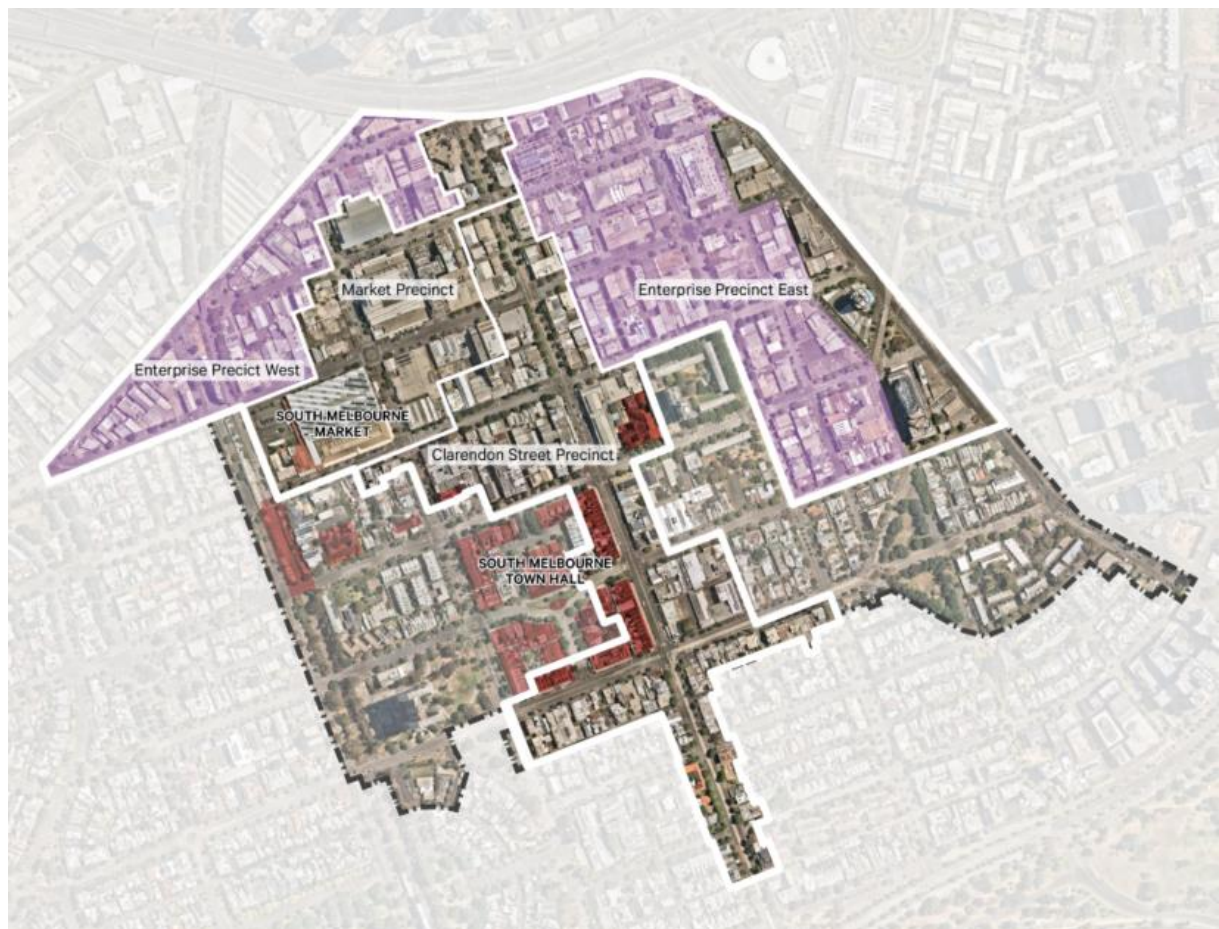
Where existing permits and soon to be constructed land uses existed, these sites were also deducted from the employment floor area to not overstate the overall uplift.

Uplift Distribution

The BFR observed four key precincts across the Study Area: Clarendon, Market, West and East. Each precinct was observed for the likely uplift across each site and the potential future density. These precincts provided the basis for distributing future uplift in dwellings and floor areas within new developments across the wider transport network, as reproduced in Figure 3.3.

¹ All uplift values based on the proposed changes to the built form control, and the capacity that this would allow for from a built form perspective having regard to the existing scale of development.

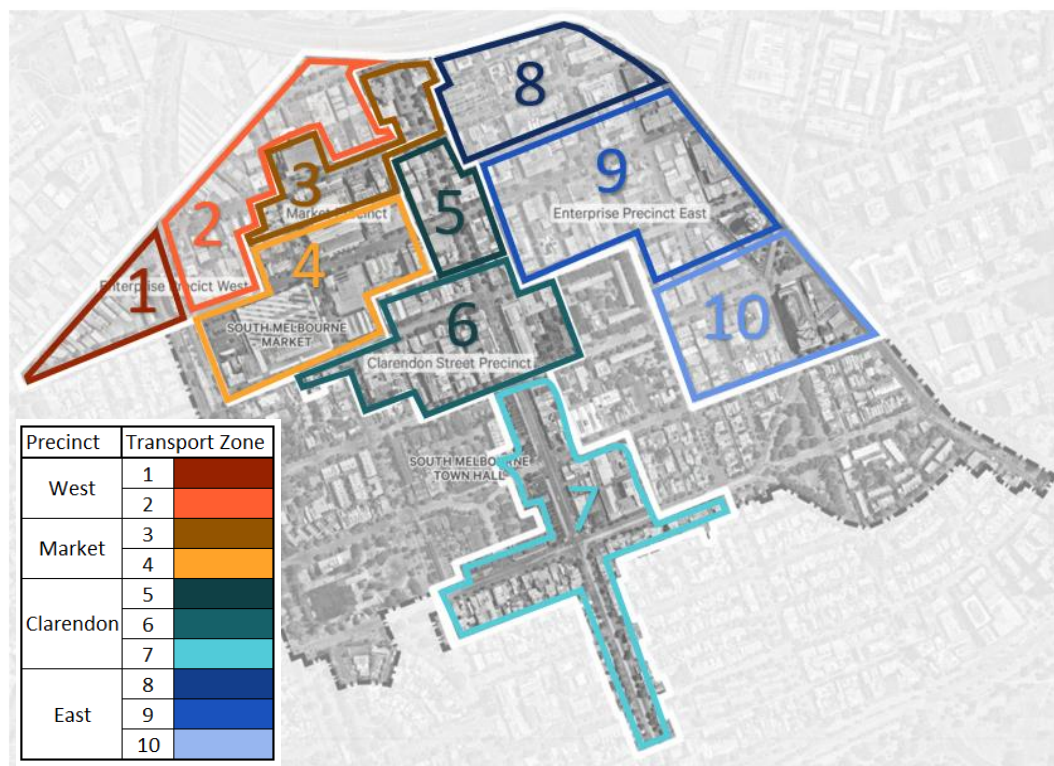
Figure 3.3 Built Form Review Zones and Future Building Height



Source: Hodyl & Co Built Form Review Report

To calculate the expected additional trips generated by the potential uplift, including by transport mode, the Study Area was broken up into ten (10) transport zones as shown below. The high level-structure of these ones was established based on the four (4) BFR precincts and the key road network and allows distribution of trips at an appropriate level for this type of assessment.

Figure 3.4 Transport Zones



Based on Figure 3.3 and Figure 3.4 the location of potential uplift, increases in dwellings, office and retail land uses were distributed across each transport zone, with the breakout of each land use uplift shown in Table 3.3.

Table 3.3 Uplift in land use per Transport Zone

Precinct	Transport Zone	Net Increase Residential Dwellings	Net Increase Retail Floor Area (sqm)	Net Increase Office Floor Area (sqm)
West	1	4	7,765	15,242
	2	14	31,060	60,969
Market	3	176	0	0
	4	176	0	0
Clarendon	5	355	0	0
	6	710	0	0
	7	710	0	0
East	8	23	11,250	33,068
	9	48	22,499	66,136
	10	48	22,499	66,136

The amount of additional retail and commercial floor space used in this assessment was determined based on employment land area from the BFR and existing land use data provided by Council. The floor areas for each sub-precinct were apportioned across each transport zone based the existing floor areas within each transport zone provided by Council. Existing approved permits and soon to be constructed development were removed from the assessment as to not overstate the future potential uplift within the study area.

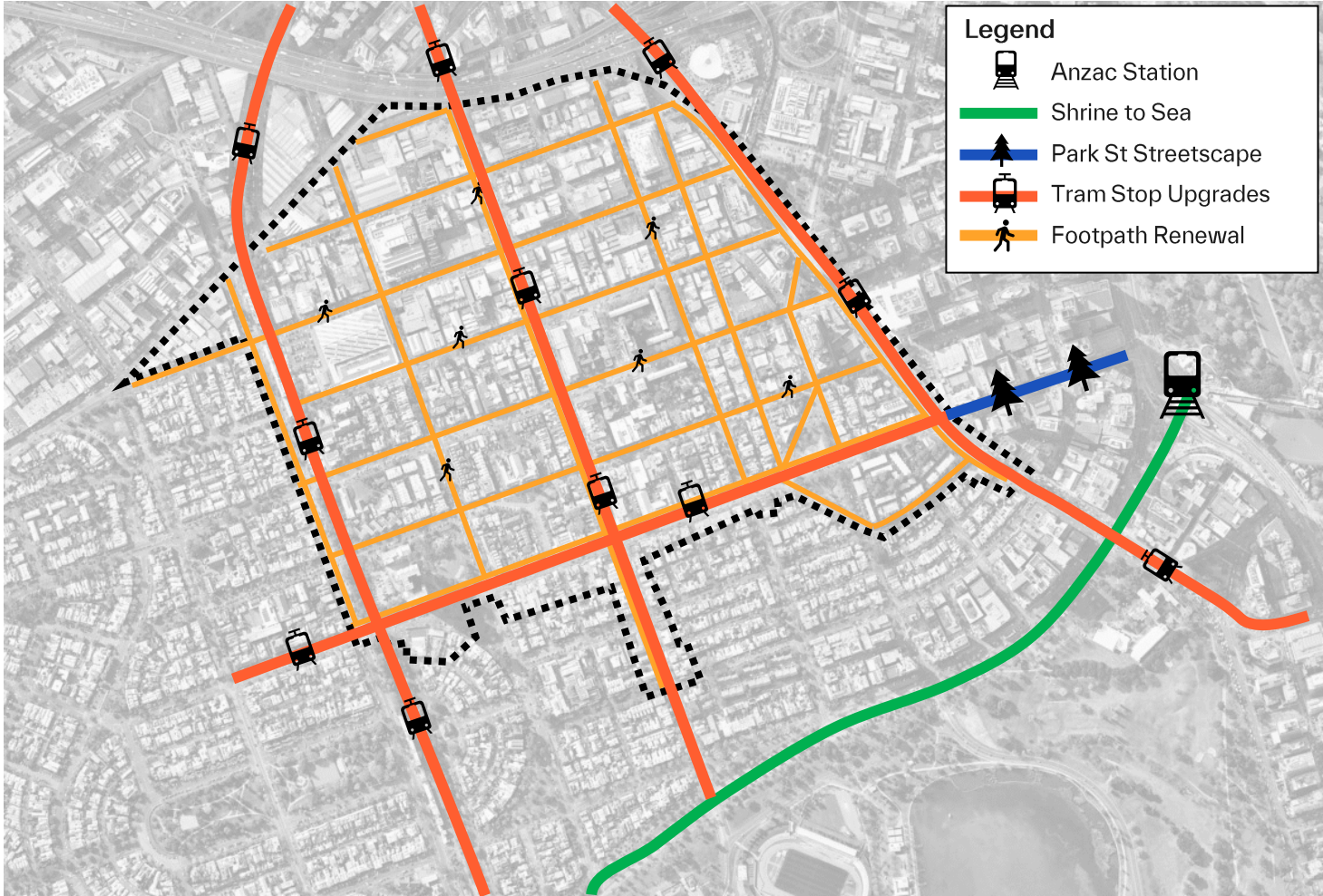
3.5. Known Planned or Proposed Transport Projects

A number of key current and future transport projects were provided by Council which have the potential to impact mode shift aspirations within the Study Area. These projects are listed below in Table 3.4 with a high level description of the project and how it relates to the transport network and further in illustrated in Table 3.4.

Table 3.4 Known Planned or Proposed Transport Projects

Project	Lead Agency	Relevance
Anzac Train Station	Rail Projects Victoria	A new metro station and tram interchange will be located on St Kilda Road, approximately 350m east of the Study Area boundary. The new station and tram interchange will provide a train link to the South Melbourne precinct and improve the existing public transport opportunity.
Shrine to Sea	Department of Energy, Environment and Climate Action	A green boulevard is proposed to run along Kerferd Road and Albert Road, approximately 250m to the south of the Study Area boundary. The new green link will offer safer and clearer links and connections for walking and cycling.
Park Street Streetscape Improvements	Rail Projects Victoria	Improved pedestrian and cycling connections along with increased greenery between St Kilda Road and Kings Way will offer an improved active transport link east-west toward the southern boundary of the South Melbourne precinct.
Tram Stop Upgrades	Department of Transport and Planning & Yarra Trams	To reach the goal of all DDA compliant tram routes within Melbourne, investigations are underway for the redesign and improvement of tram stops along Park Street, Clarendon Street, Kings Way and at the South Melbourne Market.
Footpath Renewal Project	City of Port Phillip	Footpath upgrades as part of yearly maintenance and improvements, will aim to introduce green areas and improve accessibility along footpaths within the precinct

Figure 3.5 Committed Transport Projects within the Study Area

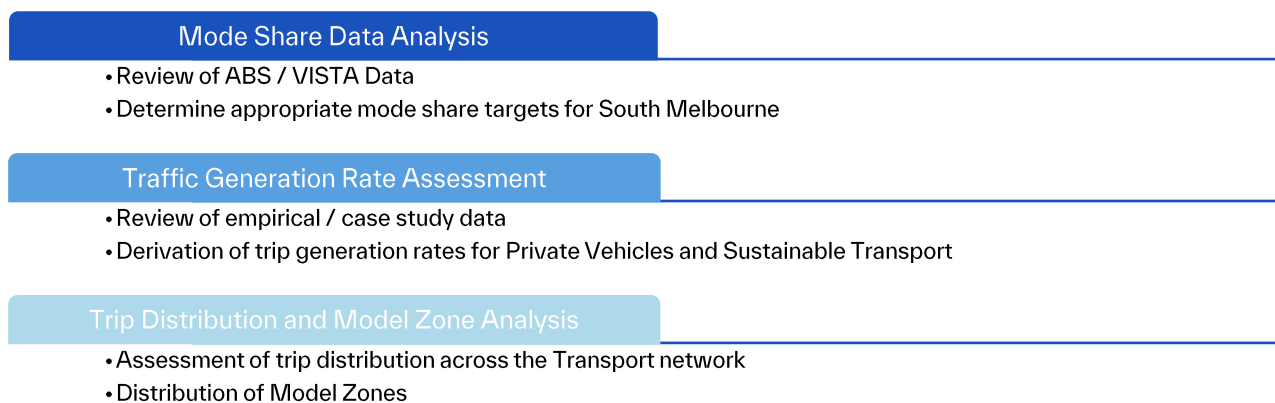


4. Future Trip Generation

4.1. Overview

This section outlines the mode share and future transport generations rates used to understand the trip distribution throughout the study area. Figure 4.1 provides a high-level overview of how the trip generation characteristics were developed.

Figure 4.1 Trip Generation Derivation Methodology

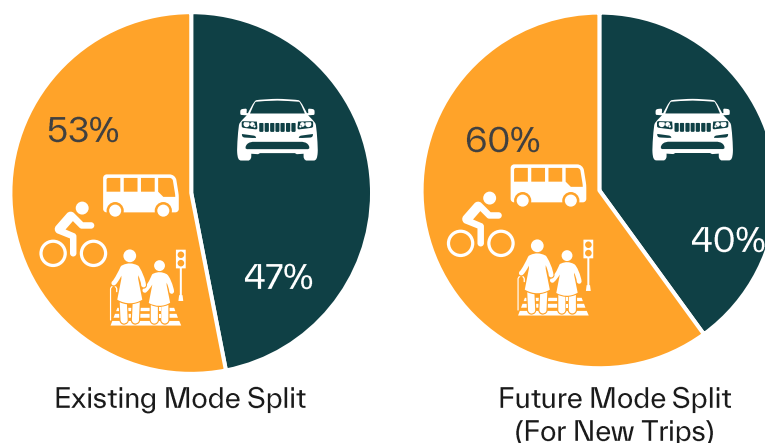


4.2. Mode Splits

The mode split of future trips to and within the area were guided by a combination of council vision, policy and available data. Mode share data from the Australian Bureau of Statistics (ABS) and Victorian Integrated Survey of Travel and Activity (VISTA) was used to determine a realistic mode share target for the South Melbourne Area. These targets include approximately 40% private vehicle and 60% sustainable transport modes.

The mode splits adopted for this assessment, including comparison to existing conditions are illustrated at a high level in Figure 4.2.

Figure 4.2 Existing and Future Mode Split Aspirations for South Melbourne



4.3. Trip Generation Rates

Trip generation rates for three (3) key land use types were determined using a combination of available mode, trip and case study data: *Residential, Office and Retail*.

Residential Use Trip Generation

A review of the 2016 ABS and 2020 VISTA data has been undertaken, which indicates that people undertake **2.9 trips per day** on average within South Melbourne. This can then be combined with the expected person per dwelling, with an average of **1.9 people per dwelling** in South Melbourne.

This combination results in a daily residential trip generation rate of approximately 5.5 trips per household (all modes) for the suburb of South Melbourne under future conditions. This daily rate of 5.5 trips per household was applied to the target mode split, as shown in Figure 4.2, and has been shown in Table 4.1.

Table 4.1 Proposed Residential Trip Generation Rates South Melbourne

Mode	Rate (trips per household)		
	Daily	AM Peak ^[1]	PM Peak ^[1]
Private Vehicles	2.24	0.22	0.22
Sustainable Transport ^[2]	3.27	0.31	0.31
<i>Total</i>	<i>5.51</i>	<i>0.54</i>	<i>0.54</i>

[1] Accepted peak hour rate is 10% of the daily rate based on 2022 survey data from the Ratio Consultants Stage 1 report.

[2] Sustainable transport defines all non-private vehicle modes inclusive of public transport, walking, cycling and other micromobility, and 'other' modes such as car share. Note, these trips may be 'linked' meaning they include two or more sustainable transport modes.

The above rates were validated against a variety of empirical data sources for medium and high-density residential developments, including recent approved developments within the City of Port Phillip.

Empirical data indicates potential residential trip rates which are similar to empirical data collected by Ratio Consultants in areas of inner city around Melbourne. These areas demonstrate rates in order of 1.2-3.0 vehicles trips per household per day.

The lower trip generation rate of 2.24 vehicle trips per dwelling is also reflective of car ownership rates for higher density residential developments in South Melbourne. Car ownership in developments of four (4) stories or more currently sits at 0.86 cars per dwelling.

Based on the above, the proposed future residential trip generation rates are considered appropriate for the study.

Office Use Trip Generation

Clause 52.06 of the Port Phillip Planning Scheme sets a Column B minimum car parking rate of 3 car parking spaces per 100sqm of net floor area. It is noted that these rates are still considered conservative when compared to recent developments within South Melbourne

and the immediate area. Case Study data shows car parking rates as low as 1 car parking spaces per 100sqm have been provided, which results in fewer vehicles in and out of sites.

A review of similar office based developments suggested a reduction in car parking spaces by two thirds (66%) to 1 car parking space per 100 sqm of net floor area. This empirical data collected by Ratio and used in expert evidence at VCAT suggests that office developments in inner Melbourne typically generate in the order of 2 vehicle trips per parking space per day, and 0.5 movements per space during the peak commuter periods.

As such, the vehicle traffic generation rate for office land use is based on the above empirical data and assessment.

When observing all transport modes, using the assumption of an average office floor area density of 10 people per 100sqm, a total of 20 trips per day could be assumed. On this basis, 18 trips per day would be associated with sustainable transport.

The resulting traffic generation rates for the office use are outlined below in Table 4.2.

Table 4.2 Proposed Office Trip Generation Rates South Melbourne

Mode	Rate (trips per 100sqm)		
	Daily	AM Peak ^[1]	PM Peak ^[1]
Private Vehicles	2.0	0.5	0.5
Sustainable Transport	18.0	4.5	4.5
<i>Total</i>	<i>20</i>	<i>5</i>	<i>5</i>

Retail Use Trip Generation

To assess the likely traffic generation of the retail land uses, reference has been made to the NSW Roads & Maritime Services (RMS) Guide to Traffic Generating Developments updated traffic surveys from August 2013. It is assumed that the retail land uses within the Study Area will act as a 'shopping precinct', with users concentrated around Clarendon Street and nearby retail services. As such, consideration has been given to similar inner city shopping centres and precincts with a concentration of retail land uses such as South Melbourne.

The empirical data suggests that for retail precincts in locations similar to South Melbourne, an average of 86 person trips per 100sqm in activity centres, with 31% of trips being vehicle based. This equates to 27 vehicle trips per 100sqm per day. The data also suggests peak hour (which occurs in the afternoon) trips to be approximately 10% of daily trips equating 2.7 vehicle trips per peak hour per 100sqm. The NSW RMS guide does not suggest a trip rate for the AM peak period. For the purpose of this assessment, it has been assumed that the AM peak trip will be 10% of the PM peak trip rate (i.e. 0.27 trips per 100sqm) to account for staff and servicing activities.

The proposed retail traffic generation rates assume the above outlined daily and peak hour rates and are presented in Table 4.3.

Table 4.3 Proposed Retail Trip Generation Rates South Melbourne

Mode	Rate (trips per 100sqm)		
	Daily	AM Peak ^[1]	PM Peak ^[1]
Private Vehicles	27	0.27	2.7
Sustainable Transport	59	0.59	5.9
<i>Total</i>	<i>86</i>	<i>0.86</i>	<i>8.6</i>

4.4. Additional Trips by Precinct

Based on the above trip generation rates for the three (3) key land uses, the following overall trips generated by the future land uses is outlined in Table 4.4, Table 4.5, and Table 4.6.

Table 4.4 Additional Residential Trip Generation

Mode	Future Trip Generation Rate (per household / day)	Additional Dwellings	Additional Daily Trips
Private Vehicles	2.239		5,070 / day
Sustainable Transport	3.145	+2,264 dwellings	7,121 / day
<i>Total Trips</i>	<i>5.384</i>		<i>12,191 / day</i>

Table 4.5 Additional Office Trip Generation

Mode	Future Trip Generation Rate (per 100sqm / day)	Additional Office Floor Space	Additional Daily Trips
Private Vehicles	2.055		4,964 / day
Sustainable Transport	17.945	+241,552 sqm	43,346 / day
<i>Total Trips</i>	<i>20.000</i>		<i>48,310 / day</i>

Table 4.6 Additional Retail Trip Generation

Mode	Future Trip Generation Rate (per 100sqm / day)	Additional Retail Floor Space	Additional Daily Trips
Private Vehicles	27.152		25,814 / day
Sustainable Transport	59.048	+95,072 sqm	56,139 / day
<i>Total Trips</i>	<i>86.200</i>		<i>81,952 / day</i>

4.5. Internal Trips

It is noted that multiple trips within the Study Area may be classified as internally generated trips. This includes trips which generate and end within the Study Area, and trips that remain within individual precincts and do not traverse the wider Study Area.

VISTA data was interrogated to understand how internal trips currently operate. Trips of less than 800 metres (based on a 10-minute walking distance or the approximate diameter of the Study Area) were found to be nearly entirely done by active transport modes, with a small portion of users using private vehicles. As such, it is noted the active transport trips categorised as sustainable transport trips in the above tables may be overstating the expected trip generation into, out of and through the Study Area.

5. Traffic Impacts

5.1. Overview

The following section outlines the traffic impacts within the Study Area based on the proposed built form controls outlined in the Built Form Review. The future traffic trip generation estimates were added to the existing estimated traffic volumes and distributed using a detailed spreadsheet-based traffic model developed by Ratio Consultants.

The purpose of this assessment is to understand:

- What capacity exists within the current road network,
- The capacity within the future road network to accommodate additional development generated traffic volumes,
- What capacity exists within the future road network to support any additional future potential road network changes,
- What road network hierarchy changes may be required; and
- The supporting infrastructure and / or interventions to facilitate the expected level of development within the BFR precincts.

5.2. Modelling Assumptions

The assumptions adopted for this assessment and the spreadsheet modelling exercise are outlined in Table 5.1.

Table 5.1 Summary of Traffic Impact Analysis and Model Assumptions

Assumption	Description
Trip Generation	Additional daily and peak hour traffic generation by future land uses, as outlined in Section 4.
Distribution of trip Directions	The daily % distribution of trip directions generated by the Study Area to outside the Study Area, e.g. north, east, south, west (See Section 5.3)
Road Network Layout	<p>The spreadsheet model has adopted the existing road network layout. As none of the public realm propositions are proposed to alter the operation of the road network, no changes to the existing road network were included.</p> <p><i>Notwithstanding, the results of the analysis may present an opportunity to utilise the capacity that is available in the 'future scenario'. This capacity could be utilised to reduce traffic lanes or road carriageway areas to facilitate improvements to public space, and pedestrian or cyclist infrastructure.</i></p>

5.3. Directional Trip Distribution

The likely distribution of trip directions was based on the location of South Melbourne within the broader Melbourne context and surrounding key land uses, and available directional distribution data.

Journey to Work data for the 2016 census was analysed to provide a basis of the distribution of vehicles onto the wider road network. This data was supported by case study data from sites within Port Phillip and close proximity to the Study Area.

The resulting directional splits made by private vehicles are presented below. It should be noted that these are approximate distribution.

Table 5.2 Anticipated Trip Directional Distribution

Direction Travelled to/from South Melbourne	Direction Split %
North	15%
North-East	7%
East	21%
South-East	17%
South	13%
South-West	0%
West	16%
North-West	11%
<i>Total</i>	<i>100%</i>

Based on the above, vehicle trips could be distributed onto the wider road network, into and out of the Study Area. The distribution of traffic was concentrated onto the key arterial road network, with additional traffic dispersed onto the next best road based on the road classifications set out in the City of Port Phillip road register.

The trip directional distribution is shown spatially in Table 5.1.

Figure 5.1 Distribution of Vehicle Traffic into and out of the Study Area



Future Mid-Block Traffic Volumes

Incorporating the above assumptions including trip generation rates established for private vehicles in Section 4, a spreadsheet model was developed to distribute the additional vehicles trips onto the surrounding road network and added onto the existing estimated traffic volumes.

The estimated future daily vehicle trips on key roads within the Study Area, including their difference from estimated existing volumes is presented in Figure 5.2. The existing road classifications are summarised in Table 5.3.

Figure 5.2 Future Mid-Block Traffic Volumes (Post Development)



Table 5.3 Existing Road Classification

Classification	Description
Secondary State Arterial	A road which provides the principal route for movement of people and goods and is managed by DTP.
Major Road	A road which provides a high level of route for movement of people and goods and is managed by Port Phillip
Connector Street	A road which provides connection between arterial or major roads and is managed by Port Phillip
Access Street	A road which provides local access to people and goods and is managed by Port Phillip.

Where there was no data for existing traffic volumes, the above figure shows only the increase in brackets.

The analysis shows that Clarendon Street, Park Street and Ferrars Street will continue to facilitate most vehicle movements through the Study Area. Dorcas Street and Moray Street support traffic movements through the centre of the Study Area.

5.4. Traffic Capacity Assessment

Overview

Based on the spreadsheet modelling and analysis results presented above, a number of key impacts and findings were identified as it relates to the existing Planning Scheme definitions for indicative maximum daily traffic volumes. **It is noted that these definitions are not representative of a roads traffic carrying capacity, but rather have consideration of a range of amenity, geometrical and environmental factors.**

In addition, a road capacity assessment based on the Austroads Guide to Traffic Management (*AGTM03-20 Part 3, Transport Study and Analysis Methods*) was undertaken to further check the mid-block capacity of each road.

The following Table 5.4 and Table 5.5 summarise the values used within the capacity assessment.

Table 5.4 Clause 56.06 Indicative Maximum Traffic Volumes

Relevant Road Type	Indicative Maximum Vehicles per Day
Access Street – Level 1	3,000 vpd
Connector Street – Level 2	7,000 vpd
Arterial Road	Greater than 7,000 vpd

Table 5.5 Austroads Midblock Capacity

Relevant Lane Type	Midblock Traffic Carrying Capacity
Occasional Parked Vehicle	600 vph per lane
Adjacent to Parking Lane	900 vph per lane
Clearway Conditions	900 vph per lane
Divided Road	900 vph per lane

Findings

The findings and subsequent description of potential changes or future considerations are presented in Table 5.6.

Table 5.6 Future Road Capacity Recommendations

Road Network	Existing Planning Scheme Definitions	Estimated Future Daily Traffic Volumes (+ Difference from Existing)	Description of Potential Change
Market Street – Between City Road and Clarendon Street	Local Road / Access Street (1,000 – 3,000 vpd),	4,259 vpd (+1,575 vpd)	<p>Market Street between City Road and Clarendon Street is expected to carry daily traffic volumes which are reflective of a Connector Street rather than that of a local access road. This may be attributed to the direct east-west connection Market Street provides between City Road and Clarendon Street.</p> <p>The street is currently one way between City Road and Cecil Street but offers two-way traffic flow between Cecil Street and Clarendon Street.</p> <p>Any future changes to the street cross section that may impact its capacity, should consider its local street typology. There may be a need to change its classification as traffic volumes exceed 3000 vpd, to ensure that the road is maintained in accordance with any policies that refer to its classification as a local street.</p>
York Street – between City Road and Ferrars Street	Major Road / Arterial Road (>7,000 vpd) or Austroads (≤ 27,000 vpd)	28,327 vpd (+1,129 vpd)	<p>York Street is classified as an arterial road between City Road and Ferrars Street.</p> <p>Under future conditions, York Street in this section is expected to exceed the Austroads capacity assessment for urban roads with uninterrupted flow with lanes adjacent to parking lanes.</p> <p>It is noted that York Street is above the Austroads capacity limit under existing conditions, suggesting the section of road is unable to accommodate the existing level of traffic volume.</p> <p>The capacity can be improved by some of the following recommendations:</p> <ul style="list-style-type: none"> • Removal or consolidation of crossovers where possible • Removal of car parking on northern side of the road to improve storage and intersection operations • Require any new significant developments to have left in / left out access

Road Network	Existing Planning Scheme Definitions	Estimated Future Daily Traffic Volumes (+ Difference from Existing)	Description of Potential Change
			<ul style="list-style-type: none"> Improved co-ordination of traffic signals
York Street – between Ferrars Street and Cecil Street	Collector Road / Connector Street (3,000 – 7,000 vpd),	8,013 vpd (+2,322 vpd)	<p>Future traffic volumes on York Street between Ferrars Street and Cecil Street are expected to exceed the current environmental capacity limit as a Collector Road / Connector Street.</p> <p>Additional changes could be made including:</p> <ul style="list-style-type: none"> Removal or consolidation of crossovers where possible Consider opportunities to remove mid-block righthand turning movements
York Street – between Clarendon Street and Moray Street	Local Road / Access Street (1,000 – 3,000 vpd),	4,259 vpd (+2,322 vpd)	<p>Future traffic volumes on York Street between Clarendon Street and Moray Street are expected to exceed its environmental capacity as a Local Road / Access Street. This section of York Street currently operates as a one-way road westbound.</p> <p>Any future changes to the street cross section that may impact its capacity, should consider its local street typology. There may be a need to change its classification as traffic volumes exceed 3000 vpd, to ensure that the road is maintained in accordance with any policies that refer to its classification as a local street.</p>
Coventry Street – between Tram route 98 and Kings Way	Local Road / Access Street (1,000 – 3,000 vpd),	3,986 vpd to 6,071 vpd (+65 vpd to +2,180 vpd)	<p>Coventry Street recorded volumes above its environmental capacity based on the Port Phillip Planning Scheme under both existing and future conditions.</p> <p>It was noted that the volumes under future conditions exceeded 3000 vehicles per day between the Tram Line (South Melbourne Market) and Kings Way. Traffic volumes were highest at the western end, near the market (approx. 6,071 vpd) and reduced further to the east near Kings Ways (approx. 3,986 vpd.)</p> <p>Any future changes to the street cross section that may impact its capacity, should consider its local street typology. There may be a need to change its classification as traffic volumes exceed 3000 vpd, to ensure that the road is maintained in accordance with any policies that refer to its classification as a local street.</p>

Road Network	Existing Planning Scheme Definitions	Estimated Future Daily Traffic Volumes (+ Difference from Existing)	Description of Potential Change
Park Street – between Moray Street and Kings Ways	Arterial Road ² / Major Road (7,000+ vpd),	29,763 vpd (+6,816 vpd)	<p>Park Street is classified as an “arterial road” between Moray Street and Kings Way per Clause 56.06 of the Planning Scheme based on its Major Road definition and existing traffic volumes.</p> <p>Under future conditions, Park Street in this section is expected to exceed the Austroads capacity assessment for urban roads with uninterrupted flow with lanes adjacent to parking lanes.</p> <p>It is noted that Park Street is above the Austroads capacity limit under existing conditions, suggesting the section of road is unable to accommodate the existing level of traffic volume.</p> <p>The capacity can be improved by some of the following recommendations:</p> <ul style="list-style-type: none"> • Removal of parking • Removal of any mid-block right turning movements • Improved co-ordination of traffic signals. <p>Without improvements in this area of road, existing traffic will redirect their routes once it reaches absolute capacity. When this occurs, traffic may divert onto local streets where through traffic is discouraged.</p> <p>A local area traffic management should be considered in the surrounding area to minimise these impacts. Treatments may include traffic calming, movement restrictions, and other place making initiatives.</p>

² Arterial Road managed by City of Port Phillip based on the definitions outlined in Clause 56.06 of the Port Phillip Planning Scheme

5.5. Laneway Network

Existing Characteristics

The existing laneway network within the Study Area is presented in Figure 5.3 below.

Figure 5.3 Existing Study Area Laneway Network (shown in blue)



Source: Hodyl and Co

Laneways within the Study Area are more often than not providing access only to abutting properties, typically supporting rear access. These laneways also provide access to multiple developments.

In most areas, they terminate without connecting between streets, which reduces their capacity and also accessibility for waste and loading type movements.

Access Opportunities

The Built Form Review broadly talks to the recommended approach for access to new developments being provided away from key street frontages and high pedestrian areas. In many instances, the opportunity for access presented is from side or rear laneways. Minimising driveways to named roads in areas such as South Melbourne improves pedestrian safety as well as the efficiency of the local road network by consolidating access points.

Access to new developments should therefore be encouraged where possible from laneways. This is current practice within many new developments throughout both South Melbourne and inner-city Melbourne.

Traffic and Other Modal Generation in Laneways

Based on our understanding of the uplift in land use types within South Melbourne and the preferred approach to access, both traffic and pedestrian volumes are anticipated to increase within laneways in the Study Area.

In understanding future laneway traffic volumes, consideration can also be given to the reduction in traffic volumes due to change in use. Additionally, existing uses of laneways such as waste collection could potentially decrease or be moved on-site.

Interim conditions may represent a challenge where existing use of laneways for servicing or loading conflicts with residential / mixed use development car park access.

New dwellings and businesses will generate traffic onto laneways based on their estimated traffic generation rates which are presented within Section 4 of this report. The level of traffic generated onto a laneway is linked to the type of use and also car parking supply. Car parking provisions in new developments will therefore play a pivotal role in the capacity of laneways.

For the purposes of this section of the report, the following peak hourly generation rates are presented in Table 5.7.

Table 5.7 Indicative Laneway Traffic Generation for New and Existing Developments

Lane Use Type	AM Peak Hour	PM Peak Hour
Residential	0.22 vehicles per dwelling (with car parking) / hour	
Retail	0.27 vehicles per 100 sqm / hour	2.7 vehicles per 100 sqm / hour
Commercial	0.5 vehicles per 100 sqm / hour	

Theoretical and Environmental Capacity in Laneways

The main constraint with providing access to laneways is their geometric size including width and any 'intersections' or 'bends' that limit the size of vehicle and sight distance around corners.

For the purposes of understanding the theoretical and environmental capacities of laneways in South Melbourne, the following analysis demonstrates the estimated maximum number of dwellings which could be reasonably provided with access from a laneway based on width.

The analysis considers the presence of pedestrian access also being supported therefore effectively creating shared use for both pedestrians and vehicles in all instances (regardless of if one should have priority over the other).

The high-level assessment is presented in Table 5.8.

Table 5.8 Indicative Residential Car Parking Capacity

Laneway Width	Planning Scheme (Clause 56.06)	Other Guidance	Estimated Residential Car Parking Capacity [1]
<5.5 metres (minimum 3.0 metres)	N/A	30 vehicles per hour (AS2890.1)	Approx. 136 dwellings (with car parking)
>5.5 metres	300 vehicles per day	1,000 vehicles per day (VicRoads, Shared Zones)	Approx. 136 to 455 dwellings (with car parking)

[1] Provided as an example only, and does not include existing dwelling or other uses, such as retail / commercial, and associated service vehicles.

As it relates to other land use types including commercial developments, the intensity of traffic generation would be similar in nature to residential. For retail developments, this would largely be the same as commercial, given most car parking access via laneways would be for staff only.

The above should be used as a guide only, and not replace fine grain analysis required for each new development, which should be done at the time of the planning permit application and also rely on collecting existing traffic volume data.

Laneway Access and Traffic Management Considerations

The following sets out a list of considerations and strategies which are relevant to the provisions of access and traffic management in the laneways within the Study Area to support the Built Form Review and proposed built form controls.

LANEWAY WIDTHS

- Laneways less than 5.5 metres wide can accommodate up to approx. 300 vehicles per day, equating to approx. 136 dwellings with car parking. This number of dwellings would reduce based on the presence of other traffic generating developments (e.g. retail / commercial development with car parking).
- Where laneways are expected to exceed 300 vehicles per day at any point / location, and spatial constraints exist, consideration may include changing operation to one-way flow, with all traffic travelling in one direction (if connections are possible to more than a single street).
- In shorter laneways with only a single access point to the nearest street, other measures considered may include signaling systems and passing areas at the boundary (provided within the development).
- Consideration can also be given to widening usable laneway widths in new developments by increasing building setbacks at the ground level to enable vehicle passing areas, and hence improving capacity.

ACCESS POINTS

- Access to public off-street car parking should be provided from named street frontages (minor local roads, not Clarendon Street or other streets identified as key pedestrian routes).
- Where possible, vehicular access to private development off-street car parking will be via laneways.

PEDESTRIAN SAFETY AND ACCESS

- Where separate pedestrian paths cannot be provided in rear laneways, appropriate shared zone signage and / or line marking should be considered.
- The speed in laneways should be restricted to 10-20km/h and this may be done with traffic calming, ensuring a smooth and continuous path is provided for DDA access.
- Property access points to laneways must provide adequate pedestrian sight triangles to ensure visibility and safety of pedestrians.
- The requirements for pedestrian sight lines should be further enhanced at the intersection with adjacent streets, with high pedestrian volumes crossing near the threshold. Pedestrian priorities at intersections should be clear.
- Any upgraded or new laneways should be smooth and continuous to ensure DDA accessibility as well as comfort for cyclists.
- Laneway activation and improvements can improve the overall amenity and safety of laneways for pedestrians, however, should carefully consider the impacts to property access by vehicles.

EXISTING CONSTRAINTS

- Existing issues in laneways restricting capacity, such as bins and loading vehicles should be managed through existing Local Laws and other relevant policies.

DEVELOPMENT APPLICATIONS

Development applications must have consideration to the current capacity of the laneway and future potential constraints, such as adjacent potential development yields.

Summary of Findings

Overall, based on the scale of proposed development throughout the individual transport zones (presented in Section 3), access will be possible from rear / side laneways to new developments.

In many instances however, there a range of size and layout constraints that will need to be considered further through the design of new developments. This may include localised widening along development frontages at ground level, ensuring that there is 4 metre clearance for service and FRV vehicles.

Laneways will also provide an important role in waste collection and other loading, removing these functions from named road frontage.

A key consideration in any new laneway access are the impacts on pedestrians, including where they will share the carriageway, or at the threshold to the street frontage often where site distance is poor.

Detailed analysis and design considerations, as outlined in this section should be considered as part of any new application.

5.6. Traffic and Road Network Recommendations

A range of interventions and mitigations recommendations for the road network and traffic volumes have been prepared to support the above analysis and findings.

Overall, the analysis shows that the current road network will be able to accommodate the uplift in dwellings and other commercial / retail and employment generating land uses, along with the additional vehicle trips that come with it.

These findings however, are based on the assumption that other sustainable transport improvements will be implemented hand-in-hand, to ensure that vehicle trip generation is suppressed through the active uptake in walking and cycling, and public transport. **These improvements are outlined within Section 6 this report.**

These recommendations are summarised below in Table 5.9, along with location-based items derived from Section 5.3 illustrated in Figure 5.4

Table 5.9 Future Traffic and Road Recommendations

No.	Recommendation	Description
1	Increased Mode Shift toward sustainable transport	<p>Further encouragement of mode shift from private vehicles to sustainable transport modes may reduce the dependence on car use and aid in keeping increases in vehicle volumes to a minimum.</p> <p>In addition, mode shift will aid in maintain intersection capacities within acceptable limits not requiring intersection capacity improvements.</p>
2	Investigate the implementation of parking bans and other capacity improvements on Key Traffic Routes.	<p>Capacity assessment of the existing road network highlighted sections of key road infrastructure currently operating over capacity: Park Street between Kings Way and Moray Street, and York Street between City Road and Ferrars Street, and Ferrars Street to Cecil Street.</p> <p>Investigate parking bans to improve traffic flow through sections of road which are over capacity to aid in the flow of vehicles into and out of the Study Area, away from preferred sustainable transport routes. Other capacity improvements may include banning right turn movements, consolidating access points.</p> <p>All improvements however should not impact public space or pedestrian safety / amenity. In this regard, road widening should not be considered.</p>
3	Advocate for improvements to existing signalised intersections at the gateways to the South Melbourne Precinct.	<p>Investigate and advocate to DTP for improvements to existing signalised intersections along Kings Way, City Road and Ferrars Street, to improve capacity and performance into and out of the Study Area.</p> <p>The nature of the South Melbourne Study Area means intersections are constraints from a geometric perspective, with the number of lanes and widths restricted.</p>

No.	Recommendation	Description
		As such, improvements may involve changes to signal phasing and times, turn lane lengths and changes to parking bans on approaches.
4	Investigate the re-installation of Right Hand Turns from Sturt Street into Kings Way.	<p>The current arrangement of the Sturt Street / Kings Way / Coventry Street intersection sees right turn movements from Sturt Street on the north-east banned.</p> <p>This ban results in vehicles performing a short loop between Sturt Street and Dorcas Street to reinter Kings Way northbound traffic.</p> <p>Investigate the opportunity to re-instate the right turn movement from Sturt Street into Kings Way to remove the necessity of looping vehicles along Dorcas Street.</p>
5	Investigate improved charging facilities for Electric vehicle use.	<p>With the shift toward sustainable transport options and need to reduce the impact of transport on the climate, there are increases in electric vehicle ownership and use.</p> <p>Seek to improve the availability of electric vehicle charging to encourage uptake in sustainable transport within the South Melbourne study area.</p>

Figure 5.4 Recommended Future Traffic and Road Network and Improvements



6. Sustainable Transport

6.1. Overview

The following section outlines the sustainable transport considerations and recommendations for the South Melbourne Structure Plan.

The section identifies what walking, cycling and public transport infrastructure and treatments could be implemented to achieve the goals of the *Port Phillip Move, Connect, Live: Integrated Transport Strategy*, as well as achieving the overarching objectives and future built form controls from within the Built Form Review.

6.2. Sustainable Transport Trip Generation

To gain a general understanding of the future additional increases in sustainable transport modes which may be experienced within the Study Area, the trip generation rates for sustainable transport were further broken down by mode. This included the following:

- Public Transport (Bus, Tram, Train and Combined Active Transport and Public Transport)
- Pedestrian Only Trips
- Cycling Only Trips
- Other Trips (Including Micromobility Options)

As outlined within Section 4.2, the mode split for Sustainable Transport Trips to and within the Study Area was guided by the Port Phillip Move, Connect, Live Integrated Transport Strategy which strives for increased use of walking, biking and public transport for future mode choice within the Study Area.

In this regard, the following assumptions regarding the future mode share for additional sustainable transport trips are outlined in Table 6.1.

Table 6.1 Sustainable Transport Future Additional Trips Mode Splits

Trip Type / Mode		Percentage of total Additional Trips
Public Transport	Including Pedestrian movements to and from Public Transport Stops	13.5%
	Including Cycling to and from Public Transport Stops	2.5%
Pedestrian Only		34%
Cycling Only		7%
Other (includes Micromobility)		2%
<i>Total Sustainable Transport</i>		<i>59%</i>

Future Additional Sustainable Trip Generation

Based on the expected trip generation rates set out in Section 4.4, the future increase in dwellings and floor areas, as per the Hodyl & Co Built Form Review, could be expected to generate the following approximate additional sustainable transport trips shown in Figure 6.2.

Table 6.2 Approximate Future Additional Sustainable Transport Trips

Type / Mode	Residential	Office	Retail	Additional Trips
	<i>(trips per day)</i>			
Public Transport	+ 2,041	+ 18,905	+ 24,484	+ 45,430
Pedestrian	+ 4,194	+ 19,378	+25,096	+ 48,668
Cycling	+886	+5,064	+6,558	+ 12,508
<i>Total</i>	<i>+ 7,121</i>	<i>+ 43,346</i>	<i>+ 56,139</i>	<i>+ 106,606</i>

The above shows that there could be an additional approx. 106,000 sustainable transport trips, based on the proposed built form controls outlined in the Built Form Review.

As outlined in Section 4.5, there is high a proportion of local trips that will be both generated and terminating in the precinct that are undertaken by walking or cycling (for example: from workplace to shops, or from home to shops), and as such, some trips are likely to be double counted in the above table.

The following sections outline what is required from a sustainable transport perspective to support the future trips that could be generated by the precinct.

In this regard, it is highlighted that these recommendations will need to be implemented to ensure there is adequate options for people to use sustainable transport as opposed to the private motor vehicles.

6.3. Pedestrians

Overview

The walkability of the Study Area in the future will be largely constrained by the existing road network within the Transport Study Area. In this regard, the Study Area is already served well with a network of footpaths on both side of streets, extensive pedestrian crossings opportunities and amenity.

The key areas of focus include Clarendon Street, Market Street, York Street and Coventry Street. These key roads provide pedestrian thoroughfares between existing and potential future development. In contrast, the existing light rail corridor running adjacent to Ferrars Street, City Road and Kings Way provide major barriers to pedestrian movement.

Other key considerations include the movement to and from the South Melbourne Market on both weekdays and weekends, and any pedestrian movements between the future Anzac metro train station and the Study Area.

As identified in the previous sections, increased sustainable transport use for future users will be important in supporting the land use vision outlines in the Built Form Review.

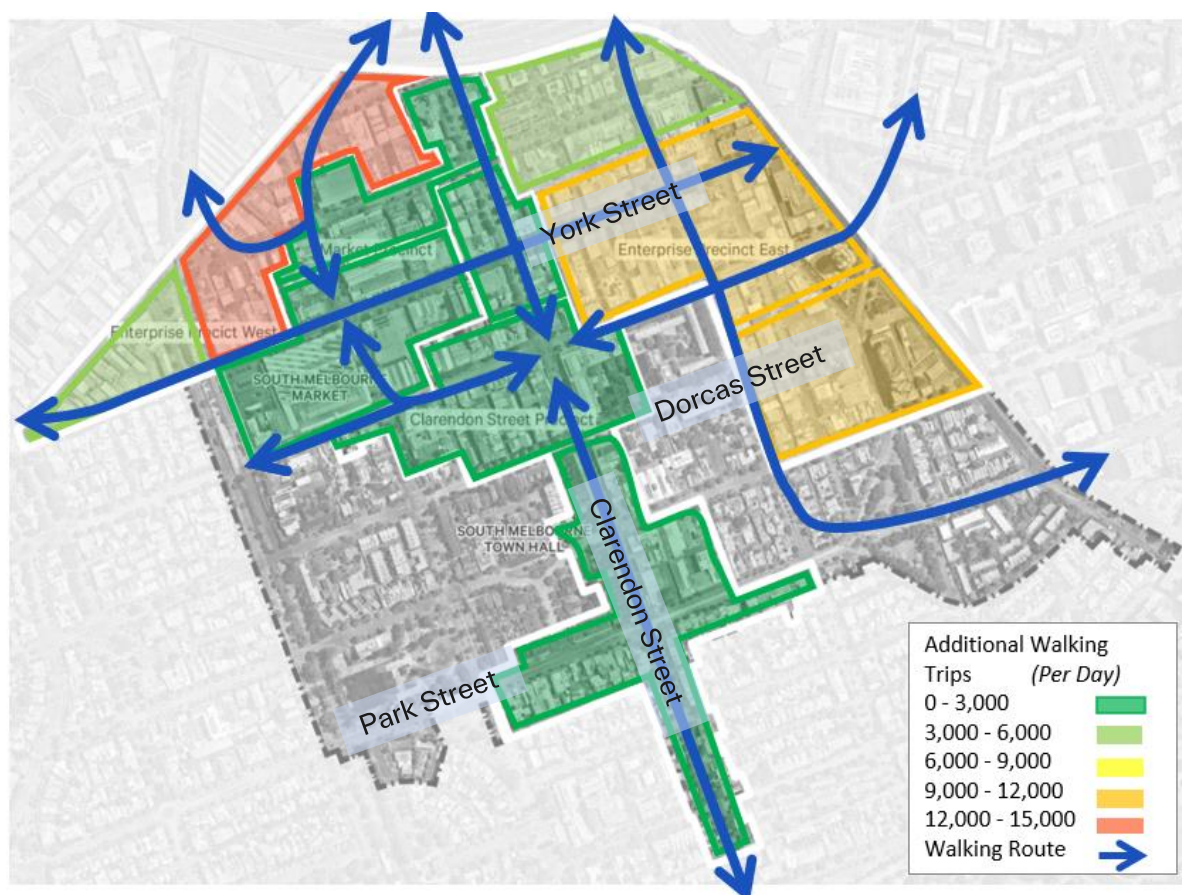
Future Additional Pedestrian Trip Generation

The future additional pedestrian, or Pedestrian trips as outlined in Table 6.2, were plotted based on their relative BRF precinct and Transport Zone. The analysis showed that the majority of future additional pedestrian trips would originate and terminate in zones 2, 9 and 10 (West and East precincts).

The key pedestrian corridors throughout the Study Area were then overlayed to further understand which pedestrian routes may attract the additional trips, as shown in Figure 6.1.

From this, it can be assumed that Clarendon Street, Coventry Street and Cecil Street will most likely accommodate a large portion of future Pedestrian trips. This will be supported by the western section of Market Street and the eastern side of Dorcas Street.

Figure 6.1 Additional Pedestrian Trips and Transport Zone Uplift



Pedestrian Network Recommendations

Based on the future land uses, the Built Form Review, and the potential additional Pedestrian trips, a network of supporting key pedestrian recommendations and improvements has been identified. This includes any relevant supporting treatments and infrastructure.

The following Table 6.3 details each recommendation, with location-based items illustrated in Figure 6.2.

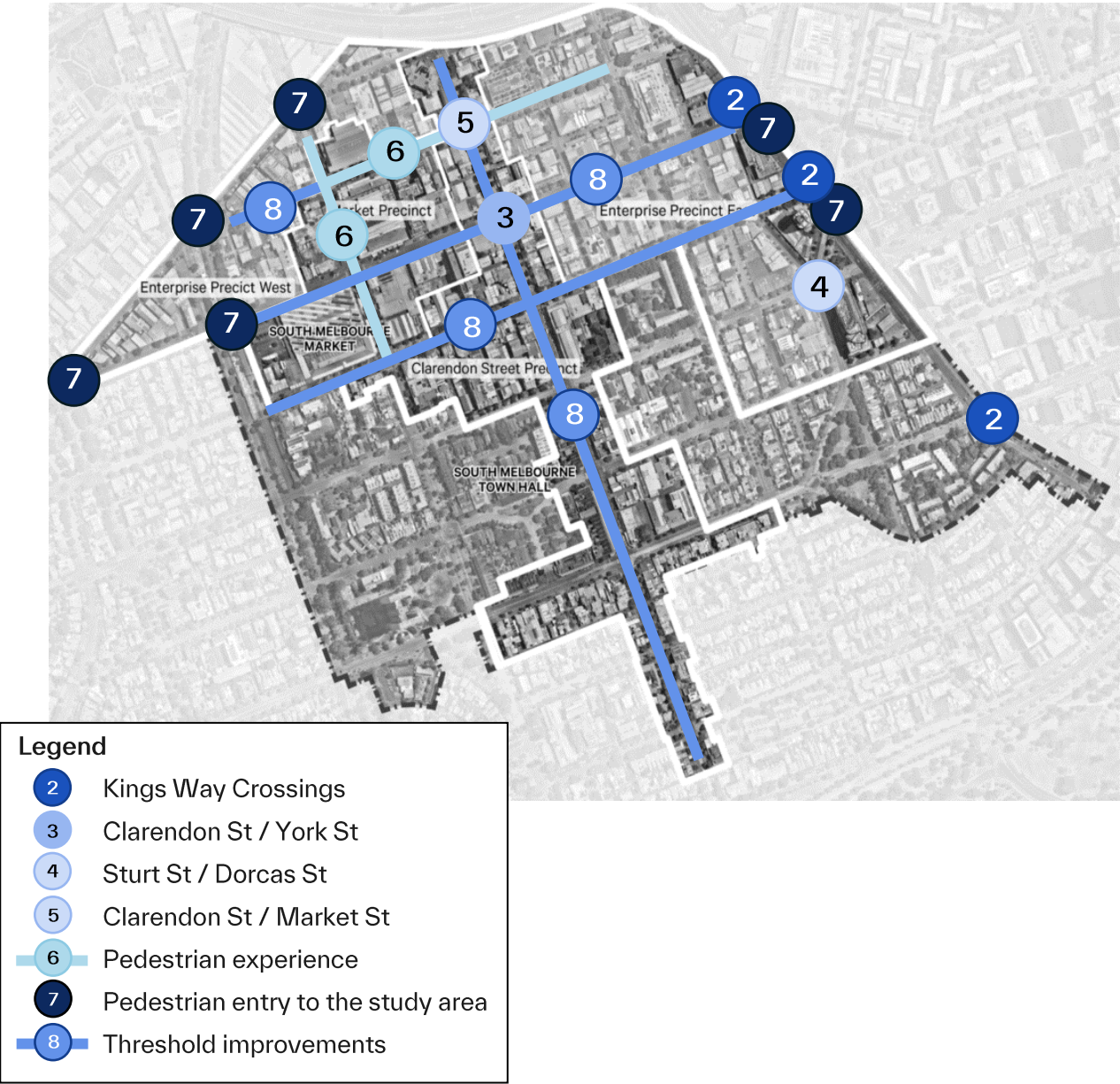
Table 6.3 Future Pedestrian Network Recommendations

No.	Recommendation	Description
1	Pedestrian Safety and Access for All	<p>Pedestrian safety and design for people with disabilities should be at the forefront of all planning and design, and is imperative to ensure the Study Area is accessible for all.</p> <p>Investigations should be made to enhance pedestrian protection at all intersections and road thresholds. In addition, any on-street parking should be designed in a way which safely separate pedestrians and vehicles where possible.</p>

No.	Recommendation	Description
2	Advocate for Improved Crossing Opportunities along Kings Way	<p>Advocate to DTP to improve pedestrian crossing opportunities along Kings Way to increase pedestrian crossing time and movements to accommodate the increase in future pedestrian movements.</p> <p>This may include pedestrian head-starts at intersection, LED signage and increased allocated green time for crossing.</p>
3	Improve crossing facilities at the Clarendon Street / York Street intersection.	<p>The Clarendon Street / York Street intersection services pedestrian movements travelling north-south and east-west. This is expected to increase in the future with Clarendon Street expecting in the order of an additional 3,000 additional pedestrian movements a day.</p> <p>The existing infrastructure at the intersection is poorly designed for those travelling in an east-west direction, with push buttons set back from waiting areas. Other issues include the design of 'kerb outstands' which are not designed continuous from the adjacent footpath.</p> <p>Improvements are required to create an intersection which is user friendly for pedestrians with mobility issues, and can accommodate all users under future conditions.</p>
4	Improvements to pedestrian Infrastructure at the Sturt Street / Dorcas Street intersection.	<p>Existing infrastructure at the Sturt Street / Dorcas Street intersection provides pedestrian kerbing and storage medians on the East and West Approach.</p> <p>Intersection upgrades are required to create a safe crossing environment for pedestrians crossing in an East-West direction. This may include raised pedestrian thresholds, wombat crossings or pedestrian operated traffic signals.</p>
5	Introduce pedestrian crossing facilities at the Clarendon Street / Market Street Intersection.	<p>Market Street currently offers a safe and efficient pedestrian route between both office and retail land uses. The current volume of pedestrian is expected to increase with the future uplift in floor area.</p> <p>To properly facilitate pedestrian movements in an east-west direction over Clarendon Street, a formalised pedestrian crossing is recommended in the form of a fully signalised intersection of Pedestrian Operated Signals (POS). This should be integrated with the Market Street streetscape improvements and future open space.</p>
6	Pedestrian Experience along Market Street between Ferrars St and Clarendon St and Cecil Street. Between City Rd and Coventry St.	<p>Improved pedestrian infrastructure and amenity along Market Street and Cecil Street is required to accommodate the anticipated future pedestrian movements through the site. This should include, where possible, widened footpaths.</p>

No.	Recommendation	Description
		In addition, increasing the availability of pedestrian amenity with seating, lighting, shade etc. will aid in encouraging pedestrian movements to and from nearby land uses.
7	Safe and Efficient Pedestrian Entry to the Study Area	<p>To encourage pedestrian movements into and out of the Study Area, investigations should be made to improve the current pedestrian crossing arrangements at the following key locations. Locations are shown based on priority of works.</p> <ol style="list-style-type: none"> 1. Kings Way / Coventry Street 2. Kings Way / York Street 3. City Road / Montague Street 4. City Road / Ferrars Street / Market Street 5. City Road / Cecil Street 6. Ferrars Street / York Street <p>Coloured pavement treatment, raised crossings over slip lanes, raised intersection, way finding, appropriate signage, lighting and amenity can be used to guide pedestrians in and out of the Study Area.</p>
8	Pedestrian Threshold Improvements	<p>Implement pedestrian threshold treatments along key pedestrian movement corridors, including the following:</p> <ul style="list-style-type: none"> - Clarendon Street - York Street - Coventry Street - Market Street <p>Where possible, narrow crossing distances for pedestrians, having consideration to heavy vehicle turning movements. In these instances, consider opportunities for landscaping / WSUD, or increased footpath space for outdoor dining and street trading.</p> <p>Threshold treatments should be raised where possible, with the potential to include wombat type treatments (subject to DTP approval) to increase priority of vulnerable user groups.</p>
9	Improved Wayfinding and Signage	To further encourage and aid with pedestrian movements throughout the study area and the wider network, improved wayfinding and signage should be implemented. This should include clear and concise directions to key public transport hubs, key active transport routes, land uses and open space.

Figure 6.2 Recommended Future Pedestrian Network and Improvements



6.4. Cycling

Overview

Cycling is currently the least used sustainable transport mode within Port Phillip, making up only 6% of existing transport movements³. Based on the Port Phillip Move, Connect, Live Integrated Transport Strategy, the City of Port Phillip is looking to significantly increase cycling movements by suing such places to action.

It is expected that proportion of cycling trips generated from future land uses will be distributed to and from the Melbourne CBD, just over a kilometre away from the Study Area. This is consistent with existing data for commuter cycling counts which shows a large proportion of commuters cycling within the Study Area.

The large proportion of cycling trips will be either internal to the Study Area for employment, retail and land uses such as the South Melbourne Market and Clarendon Street precinct, to and from existing public transport services, for social reasons and to nearby schools. In addition, trips can be expected to nearby recreational destinations both inside and outside of the Study Area. In this regard, there is a range of potential cycling routes in and around the Study Area.

Future Additional Cycling Trips Generation

The future additional cycling trips as outlined in Table 6.2, were plotted based on their relative BRF precinct and Transport Zone. The analysis showed that the majority of future cycle trips would originate and terminate in zones 2, 9 and 10 (West and East precincts). This correlates to the large uplift in office and retail land use.

The key cycle corridors including existing Strategic Cycling Corridors, and other key cycling routes throughout the Study Area were then overlayed to further understand which cycle routes may attract the additional trips, as shown in Figure 6.3.

The figure shows that Clarendon Street, Dorcas Street, Cecil Street and Moray Street will most likely accommodate a large portion of future cycling trips. This will be supported by the York Street, Market Street and Park Street as major east-west connections.

³ 2020 VISTA Data for Port Phillip

Figure 6.3 Additional Cycling Trips and Transport Zone Uplift



Cycling Network Recommendations and Improvements

Based on the future land uses, the Built Form Review, and the potential additional cycling trips, a network of supporting key cycling recommendations and improvements have been identified. This includes any relevant supporting treatments and infrastructure. The following Table 6.4 details each recommendation, with location-based items illustrated in Figure 6.4.

Table 6.4 Future Bicycle Network Recommendations

No.	Recommendation	Description
1	Design for cycling access and safety for everyone who wants to ride.	<p>Cycling safety should be a key element of all planning and design of new developments and is imperative to ensure the Study Area is accessible for cyclists of all ages and abilities, not just experienced or the 'strong and fearless'.</p> <p>Investigations should be made to enhance cycling protection at all intersections and along key cycling routes within the Study Area. In addition, any on-street parking should be designed in a way which upholds the safety of cycling users. Implementing parallel parking with a protected cycling lane between the parking and pedestrian area with a physical separation of 1.0m is ideal to ensure cycling safety.</p>

No.	Recommendation	Description
2	Park Street Cycling Infrastructure extension	<p>Upgraded cycling infrastructure along Park Street between Kings Way and Moray Street was introduced in 2022. Separated bike lanes were provided with appropriate separation between vehicles and cyclists.</p> <p>It is recommended to extend cycling infrastructure along Park Street to the west to encourage cycling use to and from the Study Area. This will also aid in provided an appropriate network of cycling infrastructure from the future ANZAC station to key land uses within the Study Area.</p>
3	Cycling Infrastructure along Clarendon Street.	<p>The introduction of cycling infrastructure along Clarendon Street will aid in facilitating safe cycling movements. The introduction of line marked lanes, green paint treatment, and head start / storage boxes can improve the visibility of those on cyclists or other micro mobility.</p> <p>Notable similar corridors such as High Street, Northcote and Glenferrie Road, Hawthorn have introduced painted treatments along corridors with both parking and trams to further improve the cycling network.</p> <p>In addition, fully separated cycling lanes would improve the safety of cyclists and encourage the uptake of cycling within the corridor and study area.</p>
4	On-Road cycling Infrastructure along Dorcas Street.	<p>Dorcas Street between Ferrars Street and Moray Street is currently listed as part of the Strategic Cycling corridor within Melbourne. In order to facilitate and encourage increased bicycle movements, on-road infrastructure should be provided.</p> <p>Treatments may include line marked lanes, full separated lanes, green paint treatment, and head start / storage boxes at signalised intersections.</p>
5	Additional cycling crossing opportunities across Kings Way	<p>Advocate to DTP for an additional cycling crossing location at intersections along Kings Way. Additional crossings will facilitate safe and efficient cycling movements east-west across Kings Way, further connecting the existing strategic cycling corridors and the nearby ANZAC station.</p>
6	Integrate on road cycling infrastructure within roundabouts	<p>Integrate and improve existing cycling infrastructure to and from round-abouts within the Study Area. This includes existing cyclist protected roundabouts along Moray Street.</p> <p>This may include the use of on-road painted warning of bicycles within the area, on-road painted cycling lanes or fully separated cycling infrastructure.</p>
7	Integrate improved cycling infrastructure at key developments	<p>Work to integrate cycling amicro mobility infrastructure at key public transport stops and at key land uses within the Study Area.</p>

No.	Recommendation	Description
		<p>This may include the installation of bicycle hoops, micro mobility charging stations, cycling repair kit stations, and improve storage and parking. The following locations are recommended as high priority sites:</p> <ul style="list-style-type: none"> - South Melbourne Market - South Melbourne market Light Rail Tram Stop - Woolworths and Aldi Market Street precinct - Clarendon Street at the Clarendon Centre
8	End-of-trip facilities and cycling / micro mobility infrastructure for all new developments.	<p>Investigate opportunities to improve end-of-trip facilities for all new developments, to encourage cycling and micro mobility movements and support a mode shift away from private motor vehicles for all short trips.</p> <p>It is recommended that bicycle and further micromobility parking is provided in line with industry best practice which is to provide 1 space per dwelling for residents and an additional 1 space per 4 dwellings for visitors. In addition, appropriate end-of-trip facilities should be provided along with a Green Travel Plan for all large new developments.</p>
9	Plan for the uptake of electronic micro mobility devices.	<p>Continue to facilitate the use of E-Scooters and E-Bikes within the South Melbourne Study Area to provide alternative transport modes.</p> <p>Ensure all future road network and intersection design includes e-bike and e-scooters as road users, as we do for cyclists and pedestrians.</p>

Figure 6.4 Recommended Future Cycling Network and Improvements



6.5. Public Transport

Overview

The South Melbourne Study Area is currently serviced by a public transport network providing access to multiple tram and bus services. Railway services are provided to the north at Flinders Street Station and Southern Cross Station, approximately 2 kilometres and 1.5 kilometres from the centre of the Study Area respectively. The future Anzac Station is currently under construction, located approximately 1.5 kilometres from the centre of the Study Area to the east.

The Study Area is largely serviced by the existing tram routes, with major connections running in a north-south direction between the Study Area and Melbourne CBD.

The existing public transport services operate in such a way that all areas within the Study Area fall within a reasonable walking distance of public transport services, with all areas of the Built Form Review within reasonable walking distance of the major tram routes.

Future Additional Public Transport Trip Generation

The proposed uplift in public transport trips of approximately 45,000 trips per day as outlined in Table 6.2, is assumed to be distributed across the entire transport network.

With the addition of Anzac metro station, approximately 1.2 kilometres to the east of the Study Area on St Kilda Road, it can be expected that a large portion of public transport trips generated from the southern and eastern parts of the precinct will seek to use rail services, with connecting trips made by walking or cycling.

These trips will be supported by tram movements to and from railway stations along Clarendon Street, Kings Way and Sturt Street. By extending the existing Park Street Tram from Heather Street to Kings Way there is opportunity to encourage further public transport trips to and from Anzac Station in the east.

The existing bus network is poor, with only two services available within the Study Area. Trips into, out of and within the Study Area are more likely to be walking and bicycle based trips rather than bus use.

Public Transport Network Recommendations and Improvements

Based on the above, a network of supporting key public transport recommendations and improvements have been identified. This includes any relevant supporting treatments and infrastructure. The following Table 6.4 details each recommendation, with location-based items illustrated in Figure 6.5.

Table 6.5 Future Public Transport Network Recommendations

No.	Recommendation	Description
1	DDA Compliance and Appropriate Infrastructure	<p>The majority of tram and bus stops within the South Melbourne Study Area and surrounding streets are accessed via kerbside boarding.</p> <p>It is noted that DTP is currently working to ensure all public transport stops are DDA complaint. It is recommended that council work with DTP to fast track and aid in the upgrade of all public transport stops which are currently non-compliant.</p>

No.	Recommendation	Description
		In addition, investigations to support the upgrade of all remaining tram and bus stops to ensure all stops have appropriate furnishings is encouraged. This includes shelters, particularly at stops within proximity to schools, town hall, library and key community land uses.
2	Advocate to realign the Route 96 South Melbourne Market Tram Stop	<p>The current grade separated tram stop between Coventry Street and York Street results in long and indirect DDA access. The stop also includes stair access to the South Melbourne Market.</p> <p>Advocate to relocate the tram stop closer to York Street to overcome the grade separation issues at the current locations.</p> <p>In addition, it is recommended that investigations be made into the existing footbridge to improve access and movement for all users across the route 96 tram line.</p>
3	Advocate to extend the existing Park Street Tram route between Kings Way and Heather Street	<p>Park Street services the Route 1 tram between Heather Street and Ferrars Street on the western boundary of the Study Area. A short section of Park Street between Heather Street and Kings Way on the eastern boundary of the Study Area is void of tram access.</p> <p>Advocate for the extension of tram access along Park Street to enable future tram services to run from St Kilda Road (and the future ANZAC Station) to South Melbourne and the CBD via South Melbourne. This will encourage public transport use and further connect train services to alternative public transport services.</p>
4	Advocate for increased Bus Service Frequency and Coverage	<p>Currently two bus services from within the Study Area operating every 10-minutes to 40-minutes, where 10-minute services occur during the peak period.</p> <p>Increases to bus frequency and coverage at peak times will aid in assisting increased bus patronage and provide alternative transport modes for users travelling to the East and West of the South Melbourne Study Area.</p> <p>In addition, there is potential to improve bus routing to better suit user needs. Improvements to the bus networking including improved stop infrastructure and location and further improve bus patronage to accommodate future public transport trips.</p>

Figure 6.5 Recommended Future Public Transport Network and Improvements



The rates set out in 'Column B' are generally lower than Column A on the basis that they have better access to public transport, supporting reduced reliance on ownership or travel by private vehicles.

As it relates to some of the types of land uses present in the Study Area currently, Table 7.1 shows the respective Column A and B rates of Table 1 in Clause 52.06-5.

Table 7.1 Typical South Melbourne Land Use Parking Requirements

Use ^[1]	<i>Column A (not applicable to South Melbourne)</i>	Column B	Measure
Dwelling	1	1	To each one or two bedroom dwelling
	2	2	To each dwelling with 3+ bedrooms
	1	0	For visitors to every 5 dwellings for developments with 5+ dwellings.
Food and Drink	4	3.5	To each 100sqm of leasable floor area
Office	3.5	3	To each 100sqm of net floor area
Shop	4	3.5	To each 100sqm of leasable floor area
Supermarket	5	5	To each 100sqm of leasable floor area

[1] This is not an exhaustive list of current land use types within the precinct, which is presented in Table 1 of Clause 52.06-5 of the Port Phillip Planning Scheme

Providing Fewer Spaces

Where the statutory requirements for car parking cannot be met in new developments, Council as the responsible authority can grant a planning permit to provide fewer spaces.

Based on our review of recently approved planning permit applications and in alignment with other inner urban activity centres, we understand that permits have been approved for a range of parking waivers, including residential and office developments.

When considering applications for waivers, Council requires a Car Parking Demand Assessment which sets out a range of considerations including but not limited to locality of the land, access to sustainable transport options, and an assessment of the likely demands to be generated and the impact (if any) on the public car parking supply.

7.3. Estimated Car Parking Requirements for New Developments

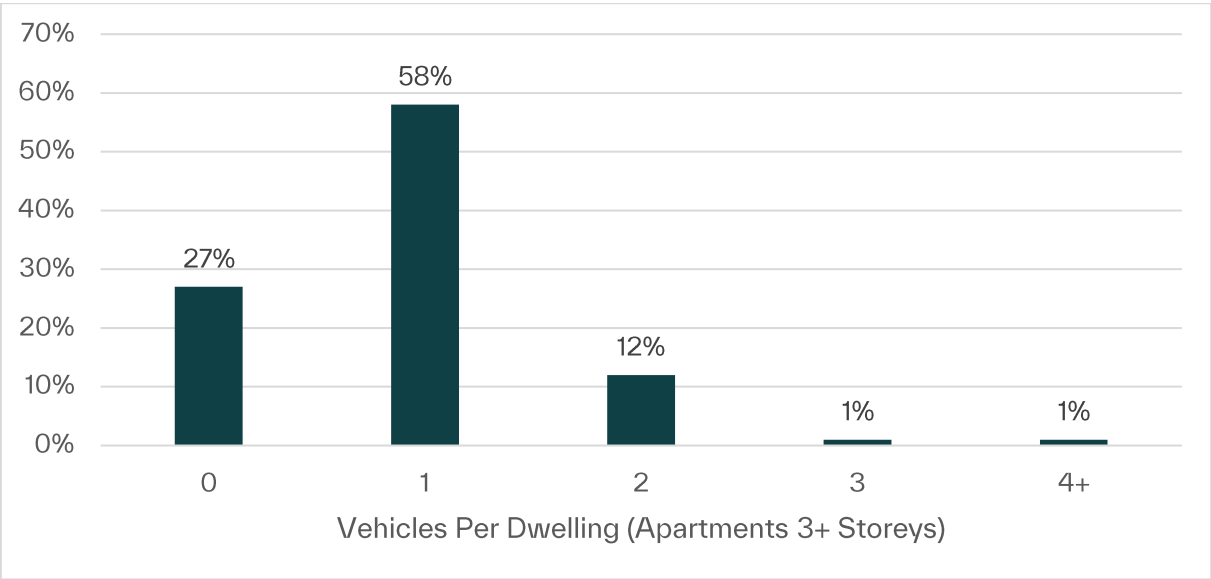
Resident Parking Demands

ABS Census (2021) data was analysed for vehicle ownership within the Study Area (South Melbourne SA2) to understand vehicle ownership trends. As most new residential developments will be in multi-storey apartment dwellings, data was only observed for Apartments in buildings more than 3+ storeys. This analysis yielded a sample size of 3,193 responses.

The data shown in Figure 7.2 showed that 27% of all apartments in 3+ storey buildings within South Melbourne do not own a vehicle, with a further 58% of residents owning one vehicle.

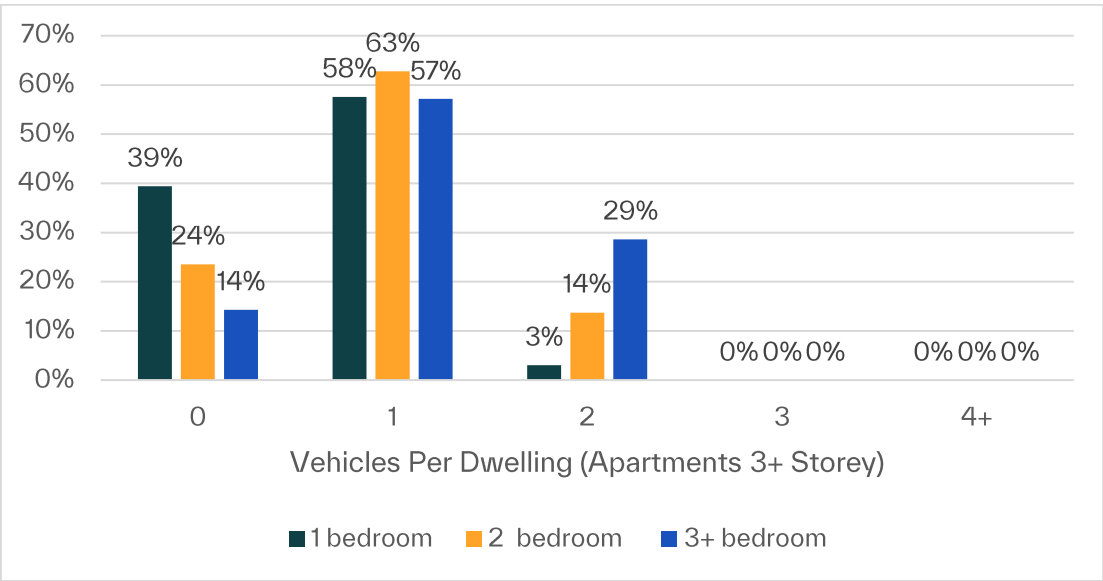
Together, 85% of all apartment dwellings in 3+ storey buildings in South Melbourne own one or zero vehicles.

Figure 7.2 South Melbourne (SA2) Vehicle Ownership (All Dwellings)



The data was further analysed to observe vehicle ownership in higher density development (e.g. apartments with 3+ storeys) by the number of bedrooms. The data (shown in Figure 7.3) showed that vehicle ownership reduces with the number of bedrooms.

Figure 7.3 South Melbourne Vehicle Ownership (Apartments, 3+ storeys, by number of bedrooms)



Car parking rates for residential developments consistent with those applicable to Fishermans Bend (via Schedule 1 to the Parking Overlay) would be appropriate for South Melbourne. The current Parking Overlay applicable in Fishermans Bend borders the Study Area on the north western boundary, is shown in Figure 7.4.

Figure 7.4 Parking Overlays (Melbourne and Port Phillip)



Source: Landchecker

The Parking Overlay referenced above limits new developments (listed in the table) to provide car parking spaces on site at a maximum rate, presented in the *Table 1: Maximum car parking spaces*. Where the use doesn't exist in this table, the maximum number of spaces is to be provided per Column B rates identified earlier in this section. An excerpt of the table is shown below in Figure 7.5.

Figure 7.5 Car Parking Maximums in adjacent Fishermans Bend

Table 1: Maximum car parking spaces		
Use	Rate	Measure
Dwelling	0.5	To each 1 or 2 bedroom dwelling
	1	To each 3 or more bedroom dwelling
Industry	1	To each 150 sq m of gross floor area
Office	1	To each 100 sq m of gross floor area
Place of assembly	1	To each 100 sq m of gross floor area
Residential Village, Retirement Village	0.5	To each dwelling
Restricted retail premises	1	To each 100 sq m of gross floor area
Retail premises	1	To each 100 sq m of gross floor area
Supermarket	2	To each 100 sq m of gross floor area

The provision of maximum parking rates that align with current vehicle ownerships will ensure the most efficient use of new car parking built in new developments and would be unlikely to result in any material impact to car parking in surrounding on-street areas.

Based on the data and analysis presented above, the following suggested parking rates in Table 7.2 have been determined for new residential developments in the Study Area (with the higher and upper values aligning with the ABS Census analysis and Fishermans Bend Parking Overlay respectively).

Table 7.2 Suggested Parking Maximum Rates (South Melbourne)

Number of bedrooms	Current Minimum Statutory Rate (Column B) (spaces per dwelling)	Current Effective Rate based on 2021 ABS Census Data ^[1] (spaces per dwelling)	Suggested Maximum Parking Rate (spaces per dwelling)
1 bedroom dwellings	1	0.61	0.5 - 0.61
2 bedroom dwellings	1	0.76	0.5 - 0.76
3+ bedroom dwellings	2	1.15	1 - 1.15

[1] Based on the assumption that each dwelling has a maximum of the current statutory rate (e.g. 1 vehicle for 1-2 bedroom, and 2 for 3+ bedroom)

Visitor Parking Demands

New residential developments within the Study Area are currently not required to provide for visitor car parking. Visitors arriving by car will either use unutilised on-site car parking belonging to the resident they are visiting, or on-street car parking.

This approach is considered acceptable, as reducing the number of car parking spaces within the Study Area will reduce vehicle trips, and further encourage sustainable transport trips, subject to the necessary infrastructure being in place.

Further, it is acknowledged that the peak for visitor parking demands occurs outside of peak parking occupancy times (e.g. on weekends and evenings). As such, availability of car parking for visitors will be higher when the demand is at its highest.

Non-Residential Developments

Future new retail and commercial developments are likely to service a high number of existing users and the future residents of the Activity Centre. As such, a large portion of future car parking demands will be linked to existing trips, but also from additional demands generated from new or standalone trips.

Car parking associated with new retail and commercial developments is currently provided in line with Column B of Table 1 in Clause 52.06, as outlined in Section 7.2. These rates are in many instances significantly higher than what has previously been approved within South Melbourne and elsewhere within inner city Melbourne.

The estimated car parking demands associated with new developments will vary substantially based on the exact use of the land including how the business operates. Further, the proportion of employee generated demands versus visitor demands will vary based on the use.

For future retail and commercial land use developments, the reduction of car parking requirements against the statutory rates will require a Car Parking Demand Assessment. In these instances, noting the location of future development in context of public transport availability and the likelihood of multi-purpose trips the appropriateness of lower than statutory rates will continue to be appropriate.

While this will be subject to review and decision by Council on an application-by-application basis, consideration should also be given to the appropriateness of providing for visitor / customer demands off-site, including public off-street parking areas.

Overall, it is suggested that a similar approach to what has been demonstrated for residential parking requirements earlier in this section be adopted. This approach would set maximum car parking rates for non-residential land uses in the precinct in a similar way to what has been done in the adjacent Fishermans Bend Precinct.

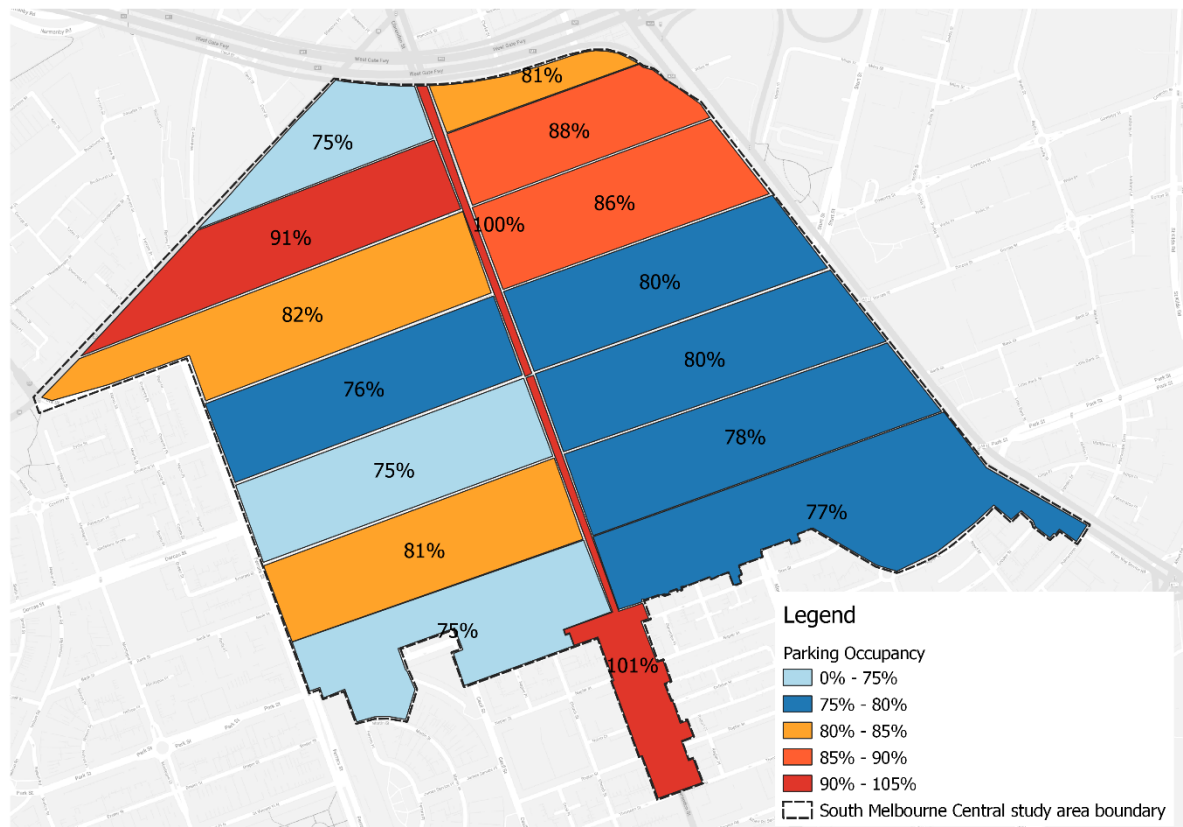
The exact rates and uses that should be included in the Parking Overlay, as opposed to remaining in Table 1 of Clause 52.06-5, would be subject to further investigation via a Parking Precinct Plan.

7.4. Future On-Street Parking Demands

Current Public Parking Availability

Existing car parking occupancy rates by sub precinct on a typical weekday have been replicated from the *Stage 1: Background Issues and Opportunities Paper* in Figure 7.6.

Figure 7.6 Existing Car Parking Occupancies (Typical Market Weekday)



The above shows that at the weekday peak period, there is car parking available on-street within the Study Area.

The most occupied areas including Clarendon Street (100%) and surrounding the market (82% and 91% occupancy west of Clarendon Street between Coventry Street and York Street, and York Street and Market Street respectively).

Future On-Street Parking Demands

On-street car parking is a finite resource that is widely managed through parking restrictions and paid parking within the Study Area, and its supply cannot, and should not, be increased.

As both the number of dwellings and businesses increase within the Study Area, there will be natural tendency for people without off-street car parking to seek on-street car parking.

Car parking reaches its effective capacity when it approaches 85% occupied, meaning that as parking increases over this %, finding a car park becomes exponentially more difficult.

Given the location of the precinct in its context to the Melbourne CBD, it is increasingly difficult to access inner city areas such as South Melbourne via car.

Future car parking demands will be managed within the existing parking management policy framework. The policy implements a range of parking management measures, listed below from most restrictive to least for people driving to the area and parking on-street:

- Resident only permit parking;
- Paid Parking;
- Timed restrictions (resident permits exempt);
- Other time restricted car parking (short term restrictions such as 15 minutes); and
- Unrestricted car parking.

As demand for on-street car parking increases, Council's car parking management policy will be implemented to ensure that car parking is managed in the most efficient and equitable manner.

7.5. Appropriateness of a Parking Precinct Plan and Parking Overlay

The practice note provided by DTP for Parking Overlays (Practice note 57), outlines the objectives and processes for developing and implementing a Parking Overlay. The practice note states that before implementing a Parking Overlay, it is necessary to prepare a Parking Precinct Plan. A Parking Precinct Plan would identify car parking needs and issues for, in this case, South Melbourne, and set objectives and development strategies to manage parking at an activity centre wide basis.

The preceding report and analysis identify the traffic impacts associated with increased development, where car parking is provided at existing statutory rates, being Column B of Table 1 in Clause 52.06-5.

The report identifies that providing car parking at lower rates, including increased rates of zero parking dwellings, will increase the mode share of active transport based trips, and reduce the overall number of new development generated car trips onto the local road network.

The factors identified above, combined with the Built Form Review and Public Realm Framework vision for South Melbourne provide a number of clear objectives which could be investigated further with a Parking Precinct Plan.

The preparation of a car parking precinct plan will require detailed parking surveys, and be a suitable way to test various public realm initiatives, including repurposing of on-street car parking for other economic or placemaking purposes such as outdoor dining and WSUD / street greening initiatives.

7.6. Parking Management Approach

City of Port Phillip Parking Management Policy

The City of Port Phillip Parking Policy sets out the preferred approach to managing car parking within South Melbourne, including on-street and off-street locations, and within adjacent residential neighbourhood areas.

The preparation of a detailed Precinct Parking Plan will include, amongst other items, a review of existing restrictions against the objectives and user hierarchies outlined in the Parking Policy.

In this regard, undertaking a Precinct Parking Plan would be an appropriate mechanism to implement the Parking Policy for the Structure Plan area.

Improving the Management of Public Car Parking

To improve the overall walkability of the Activity Centre, in particular reinforcing Market Street, Clarendon Street and Coventry Street as key pedestrian streets, there is an opportunity to improve the way that car parking is managed in these locations.

On-street car parking plays a pivotal role in supporting the economic viability of activity centres, in particular for loading and parking for people with disabilities amongst other purposes.

At the same time however, on-street parking creates congestion, with people searching for the highest value car parking to suit their needs, as close to their final destination as possible. Clarendon Street for example plays a number of important functions, including adjacent commercial and retail land uses, a key walking link, a destination and place in its own right, as well as a major vehicle thoroughfare. The presence of on-street parking both supports and hinders these functions.

Car parking in activity centres is also evolving through the use of enhanced technology as well as car parking being repurposed for other uses. Based on the Built Form Review objectives, current trends and understanding of existing parking characteristics, the following could be implemented in South Melbourne:

- **Repurposing existing car parking on Clarendon Street, Market Street and Coventry Street** for a range of reasons including but not limited to:
 - outdoor dining / street trading;
 - landscaping / WSUD treatments;
 - providing for better pedestrian sight lines;
 - providing for improved public transport facilities; and
 - more bicycle parking in convenient locations (including e-scooters).
- **Extend paid parking and incorporate demand sensitive pricing**, subject to an activity centre wide, municipal wide or multiple municipality-based approach to pricing mechanisms;
- **Implementation of additional car share scheme spaces** to encourage uptake and reduce reliance on private vehicle use or ownership (existing and future residents);
- **Provision of public electric vehicle charging spaces;**
- **Implementation of parking overstay detection systems**, to improve compliance and hence turnover.

Implementation of the above would be subject to understanding the needs based on detailed parking occupancy and duration of stay analysis, including consideration of streets and land located outside of the Study Area boundary.

7.7. Car Parking Recommendations

A summary of the car parking recommendations for the South Melbourne Study Area are outlined below in Table 7.3.

Table 7.3 Car Parking Recommendations Summary

Recommendation	Description
Improvements to parking management and technologies	Implement existing and emerging car parking technologies to better manage the existing use of a finite resource, such as dynamic wayfinding signage, parking overstay detection devices etc.

Recommendation	Description
Implement the City of Port Phillip Parking Management Policy	<p>Implement the approaches to parking management outlined in Council's parking management policy including kerbside user hierarchies (typically through restrictions) and new technologies.</p> <p>Implementation will involve considering appropriate parking restrictions based on the change of business types and user needs within the precinct.</p>
Encouraging car share and other vehicle sharing initiatives in new developments	<p>Consider the implementation of car share in new developments to reduce the burden of vehicle ownership on owners who only require private motor vehicle for a small number of infrequent trips.</p> <p>Increase the number of car share spaces with the public road network for public use, including electric charging infrastructure.</p>
Implement Parking Maximums for New Developments	<p>Implementation of maximum car parking rates for new developments in line with anticipated vehicle ownership will improve the efficiency of off-street car parking, while also encouraging more sustainable transport trips.</p>
Parking Precinct Plan	<p>Prepare a Parking Precinct Plan for South Melbourne, the parking precinct plan should consider, at a minimum:</p> <ul style="list-style-type: none"> • Detailed car parking occupancy and duration surveys; • Implement the City of Port Phillip Parking Management Policy; • The car parking issues and needs from both a Council and community perspective; • Identify opportunities to repurpose existing on-street car parking for other purposes such as outdoor dining or public realm initiatives; • Identify opportunities to alter car parking restrictions to better suit the needs of users including residential visitors, business and visitors; and • Establishing appropriate mechanisms including Parking Overlay to implement the actions.
Public Electric Charging Facilities	<p>Implement electric car charging station in publicly available areas that generate higher volumes of non-local and visiting traffic (E.g. around South Melbourne Market).</p> <p>Identify opportunities to increase electric charging infrastructure in new developments (including for e-mobility devices).</p>

8. Recommendations

8.1. Overview

The following section summarises all recommendations made throughout this table including outlining their relative timing and priority.

Noting that there is no horizon or staging that can inform what pace development will occur within the Study Area, the timing given to priority has been established based on its relative need as listed below. It is imperative to support these timings with ongoing monitoring and assessment to reassess necessary timeframes.

- Short Term = Required immediately or may be required soon as a relatively small amount of development occurs (0-5 years).
- Medium Term = Required in the medium term (5-15 years), based on a relatively frequent approval and construction of new developments.
- Long Term = Required when the precinct will be closer to its capacity in terms of its built form based on the proposed built form controls (15+ years).

Separately, the Priority given to each recommendation is based on the relative urgency, its effectiveness in supporting the future growth of the precinct / achieving the broader objectives and noting also that some longer term actions will require a significant amount of planning.

Road Network Recommendations

ID	Recommendation	Timing	Priority
RN.1	Increased Mode Shift toward sustainable transport	Short (and ongoing)	High
RN.2	Investigate the implementation of parking bans and other capacity improvements on Key Traffic Routes.	Long	Low
RN.3	Advocate for improvements to existing signalised intersections at the gateways to the South Melbourne Precinct.	Medium	Medium
RN.4	Investigate the re-installation of Right Hand Turns from Sturt Street into Kings Way.	Long	Low
RN.5	Investigate improved charging facilities for Electric vehicle use.	Short	Medium

Walking Recommendations

ID	Recommendation	Timing	Priority
W.1	Pedestrian Safety and Access for All	Short (and ongoing)	High
W.2	Advocate for Improved Crossing Opportunities along Kings Way	Short / Medium	High
W.3	Improve crossing facilities at the Clarendon Street / York Street intersection.	Short	Low
W.4	Improvements to pedestrian Infrastructure at the Sturt Street / Dorcas Street intersection.	Medium	Medium
W.5	Introduce pedestrian crossing facilities at the Clarendon Street / Market Street Intersection.	Short	Medium
W.6	Pedestrian Experience along Market Street and Cecil Street.	Medium	Medium
W.7	Safe and Efficient Pedestrian Entry to the Study Area	Short - Long	Medium

ID	Recommendation	Timing	Priority
W.8	Pedestrian Threshold Improvements	Short - Medium	Medium
W.9	Improved Wayfinding and Signage	Short	High

Cycling Recommendations

ID	Recommendation	Timing	Priority
C.1	Design for cycling access and safety for everyone who wants to ride.	Short (and ongoing)	High
C.2	Park Street Cycling Infrastructure extension	Short	Medium
C.3	Cycling Infrastructure along Clarendon Street.	Short	Medium
C.4	On-Road cycling Infrastructure along Dorcas Street.	Medium	High
C.5	Additional cycling crossing opportunities across Kings Way	Long	Low
C.6	Integrate on road cycling infrastructure within roundabouts	Long (and ongoing)	Medium
C.7	Integrate improved cycling infrastructure at key developments.	Short – Medium	Medium
C.8	End-of-trip facilities and cycling infrastructure for all new developments.	Short (and ongoing)	High
C.9	Plan for the uptake of electronic micro mobility devices.	Short (and ongoing)	Medium

Public Transport Recommendations

ID	Recommendation	Timing	Priority
PT.1	DDA Compliance and Appropriate Infrastructure	Short (and ongoing)	High
PT.2	Advocate to realign the Route 96 South Melbourne Market Tram Stop	Short	High
PT.3	Advocate to extend the existing Park Street Tram route between Kings Way and Heather Street	Short (and ongoing)	High
PT.4	Advocate for increased Bus Service Frequency and Coverage	Medium	High

Car Parking Recommendations

ID	Recommendation	Timing	Priority
PA.1	Improvements to parking management and technologies	Short	Medium
PA.2	Implement the City of Port Phillip Parking Management Policy	Long (Ongoing)	Medium
PA.3	Encouraging car share and other vehicle sharing initiatives in new developments	Medium	Low
PA.4	Implement Parking Maximums for New Developments	Medium	Medium
PA.5	Parking Precinct Plan	Medium	High
PA.6	Public Electric Charging Facilities	Short	Medium

9. Summary of Findings

Based on the preceding report including analysis, a number of key findings and conclusions have been made which are outlined through the relevant sections.

In addition, recommendations have been made on the transport infrastructure and other interventions required to support the review of the South Melbourne Study Area, including future land use, transport network and population conditions.

The following Table 9.1 details the location of key recommendations and findings within the report.

Table 9.1 Summary of key Findings - Location within Report

Description	Location within the report
Summary of Stage 1 report findings	Section 2: Stage 1 Report Findings
Summary of Key Assumptions for Analysis	Section 3.1: Summary of Key Assumptions
Built Form Review summary and Public Realm Framework	Section 3.2: Built Form Review Section 3.3: Public Realm Framework
Future Population and Land Use conditions	Section 3.4: Population and Demographics
Future transport network including mode split and future additional trip generation	Section 4: Future Trip Generation
Traffic Generation: road network impact, Laneway assessment and recommendations	Section 5: Traffic Impacts Section 5.6: Traffic and Road Network Recommendations
Sustainable Transport: network impact and recommendations	Section 6.3: Pedestrians Section 6.4: Cycling Section 6.5: Public Transport
Car parking assessment and recommendations	Section 7: Car Parking
Summary of recommendations for each mode or transport theme, including their priority and timing.	Section 8: Recommendations