Suburban Rail Loop

PREPARED FOR SUBURBAN RAIL LOOP AUTHORITY

SRL East Structure Plan – Transport Technical Report – Appendix A – Precinct Parking Plan – Monash

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Glossary and abbreviations

TERM	DEFINITION
ABS	Australian Bureau of Statistics
AGTM	Austroads Guide to Traffic Management
AJM JV	Aurecon, Jacobs, Mott MacDonald Joint Venture – Technical Advisor to the SRLA
AM peak	The two-hour peak period between 7:00am to 9:00am on a typical weekday, unless stated otherwise
BAU	Business as usual
BIC	Business and Investment Case
CASBE	Council of Sustainability in the Built Environment
CBD	Central Business District of Greater Melbourne
DDA	*Disability Discrimination Act 1992* (Cth)
DTP / DoT	Department of Transport and Planning / Department of Transport (formerly)
ECF	European Cyclist Federation
End-of-trip facilities	Facilities available for people to shower, change clothes or otherwise transition from active transport to work or other activities.
EV	Electric vehicles
GFA	Gross floor area
Greater Melbourne	Covers the entirety of suburban Melbourne including as yet unreleased growth areas in outer suburbs, including 31 local government areas.
ITS	Integrated Transport Strategy
JTW	Journey to work
M&P	Movement and Place – a cross-disciplinary, place-based approach to the planning, design, delivery and operation of transport networks.
MAC	Metropolitan Activity Centre, as identified in Plan Melbourne
MAV	Municipal Association of Victoria
Micromobility	Transport provided by very light vehicles including bicycles, scooters and skateboards. Often shared and/or electric.
NEIC	National Employment and Innovation Cluster
NFA	Net floor area
NWCPS	National Walking and Cycling Participation Survey
Off-peak	The off-peak period between 6:00pm to 7:00am, and the inter-period between the morning and afternoon peaks between 9:00am to 3:00pm on a typical weekday, unless stated otherwise
Planning Area	The Planning Area declared within Monash by the SRL Minister under the *Suburban Rail Loop Act 2021* (Vic) on 4 December 2023.
PM peak	The three-hour peak period between 3:00pm to 6:00pm on a typical weekday, unless stated otherwise
PPTN57	Victorian Planning Practice Note 57: Parking Overlay
PPTN	Principal Public Transport Network
Precinct	Precinct refers to a designated area of focus where a critical mass of activity and significant change is anticipated.
PSA	Planning Scheme Amendment
PTAL	Public Transport Accessibility Levels
RMIT	Royal Melbourne Institute of Technology
RTANSW	Road Traffic Authority New South Wales
SA2	Statistical Area Level 2
SCO16	Specific Controls Overlay - Schedule 16

TERM	DEFINITION
SDAPP	Sustainable Design Assessment in the Planning Process
SRL East Planning Areas	The SRL East Planning Areas are Cheltenham (CTM), Clayton (CLA), Monash (MSH), Glen Waverley (GWY), Burwood (BUW) and Box Hill (BOX)
SRL East	The south-east section of SRL from Cheltenham to Box Hill
SRL	Suburban Rail Loop
SRLA	Suburban Rail Loop Authority
Structure Plan Area	A defined area around the SRL East stations that can support the most growth and change. These areas cover a walkable catchment that extends from the SRL station entrances. Additional places are included within the Structure Plan Area as required to make planning guidance more robust and effective, and to align with each community's aspirations and current and future needs.
TAFE	Technical and Further Education

Executive summary

This Precinct Parking Plan investigates and recommends parking management strategies to support the Monash Structure Plan. It sets parking objectives for the Monash Structure Plan Area and recommends tools that can be applied to achieve the objectives, and help achieve the transport ambition and goals for the Monash Structure Plan Area.

OBJECTIVES

The objectives of Precinct Parking Plan were developed by considering and then informing the SRL East Draft Structure Plan (Structure Plan) and Transport Technical Report for Monash. They plan for the residential population increasing from 10,000 in 2021 to 17,900 residents by 2041. Over the same period, employment is forecast to increase from 20,900 to 50,000.

This Precinct Parking Plan aims to identify flexible and appropriate measures for the Monash Structure Plan Area that:

- Support and encourage a shift toward sustainable transport modes (including public transport, walking and cycling)
- Support economic opportunity and productivity (by prioritising the efficient use and management of spaces)
- Prioritise placemaking and reduce parking and vehicle movement impacts (including congestion, spatial impacts, urban design outcomes)
- Support high quality and affordable housing choices (with development opportunities, reduced building spatial and cost requirements)
- Support positive and improved environmental outcomes (including embodied carbon, net zero emissions by 2045).

EXISTING CONDITIONS

The Monash Structure Plan Area forms part of the strategically significant Monash National Employment and Innovation Cluster (NEIC). It is a major attractor for employment and education trips across the wider region. The Wurundjeri Woi-wurrung and Boonwurung peoples are the Traditional Custodians of the land in Monash.

Monash University Clayton campus is located in the Monash Structure Plan Area. The main public transport hub is the Monash University bus interchange located on the southern side of the campus. The new SRL station at Monash offers a connection to the rail network and is located immediate north of the University. There are small pockets of residential land use in the north-east and south-west of Monash Structure Plan Area, mostly consisting of detached housing. Monash University is the leading contributor to arts, culture and sporting facilities for the Monash Structure Plan Area, generating trips from across the wider south-east region.

Average residential car ownership levels in Monash are generally equal to or less than the minimum standard requirements set out under Clause 52.06 of the Monash Planning Scheme. Car ownership levels in the Monash area are generally lower than the Monash LGA area and Metropolitan Melbourne. People living in apartments in the Monash Planning Area and Structure Plan Area have lower car ownership levels.

A total 4,917 on-street parking spaces are provided. On-street car parking within residential areas nearest to Monash University and shopping strips generally have shorter time restrictions which typically become less restrictive where parking spaces are further away from these trip attractors.

The majority of off-street car parking spaces in the Structure Plan Area are located within the Monash University Campus, make up around 60 per cent of the total off-street car parking in the Structure Plan Area.

The demand assessment for car parking indicates that there is a high parking demand for Monash University which is primarily concentrated in off-street carparks located within the campus. The demand for parking in surrounding residential areas are typically controlled by short-term parking restrictions which as a result exhibit low levels parking demand.

CAR PARKING CHALLENGES

There are several parking challenges identified in Monash which are:

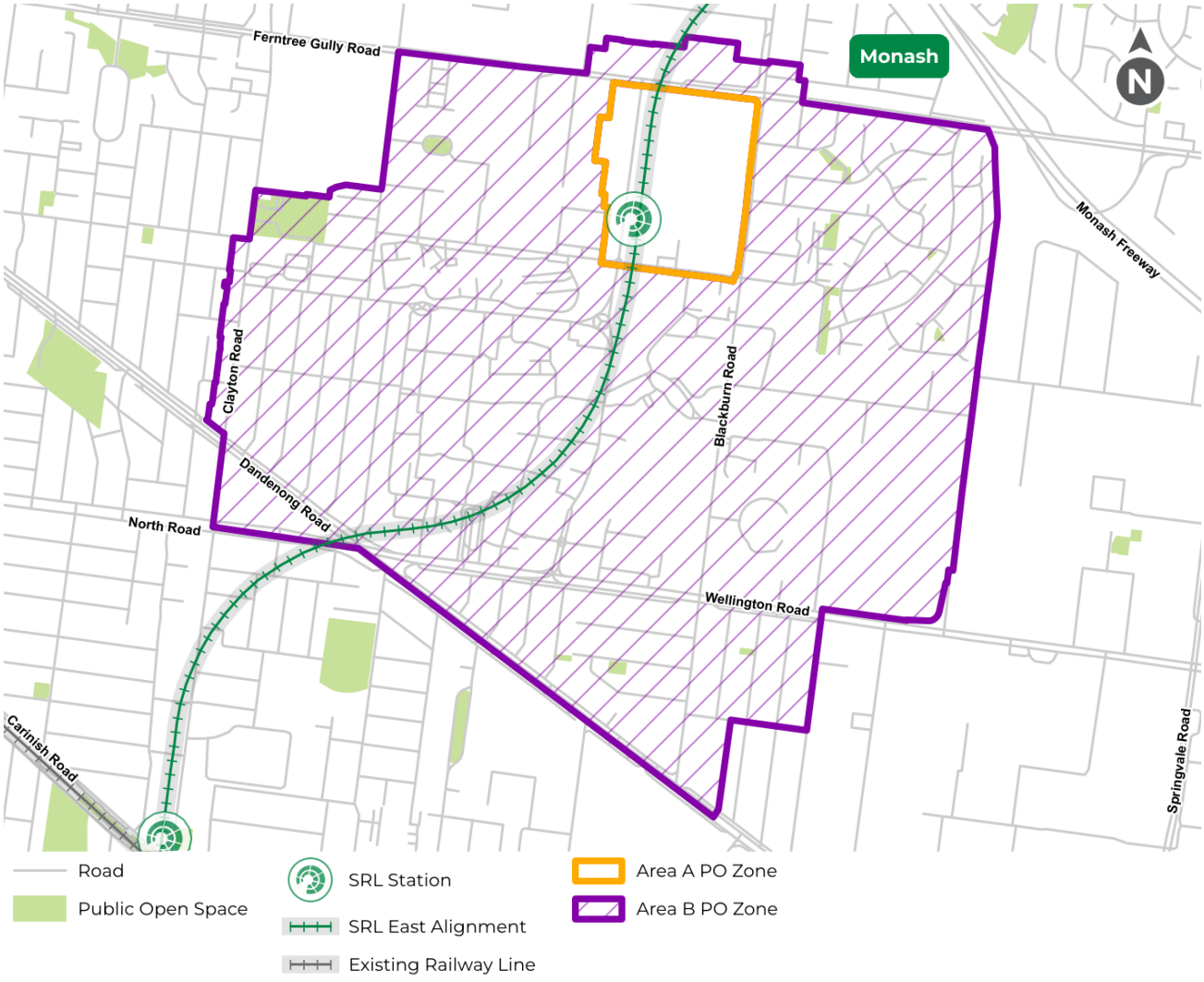
- Car parking provision, whether on or off-street, is a key factor that influences people's decision to own and use a car. Continuing to provide car parking in developments in line with the wider area will increase congestion and the inefficient use of space.
- Limited *Disability Discrimination Act 1992* (Cth) (DDA Act)-compliant on-street car parking is provided.
- End-of-trip facilities including secure parking, showers and lockers are provided only in newer developments and are not typically accessible to the public. This does not support and encourage active and sustainable transport trips.
- Secure bicycle parking and storage facilities outside of Monash University is generally limited and 'low quality' with varying levels of perceived security / safety, discouraging cyclists from parking their bicycles during rainy weather and/or in areas with lower perceived security / safety.
- Significant numbers of off-street car parking spaces are provided throughout the Structure Plan Area, with a high concentration within Monash University and the various industrial and business parks.
- There is a significant level of at-grade car parking provided to service existing commercial, educational and employment parking demands, limiting other uses that would likely provide increased economic and social benefits.
- High parking occupancy levels were observed in several parking areas (off-street and on-street) which mostly included unrestricted parking for industrial and business parks. The high provision of unrestricted parking encourages private vehicle commuter travel.

RECOMMENDATIONS

Recommendations have been developed and categorised depending on whether they can be implemented through the Structure Plan and Planning Provisions or through other implementation mechanisms.

PARKING OVERLAY

A Schedule to the Parking Overlay is proposed which varies the requirements of Clause 52.06 of the Monash Scheme with overlay areas and rates. Two parking overlay areas are proposed with associated rates as shown in the following map.



MONASH RECOMMENDED PARKING OVERLAY ZONES

MONASH RECOMMENDED PARKING OVERLAY RATES

USE	AREA A (MAXIMUM)	AREA B	UNIT/ MEASURE
Dwelling	0.7	0.5 min – 1 max	1 bedroom/studio
	1	0.7 min – 1 max	2 bedrooms
	1.4	1.4 min – 2 max	3+ bedrooms
Residential building (student accommodation)	0.3 (maximum)		bed
Supermarket	3.5	3.5 min	100 m2 LFA
Retail premises including Shop	3	Retail – N/A Shop – Clause 52.06 'Column B' rates (minimum)	100 m2 LFA
Office	3		100 m2 NFA
Other	Clause 52.06 'Column B' rates (maximum)		

RECOMMENDATIONS – STATUTORY IMPLEMENTATION

All of the recommendations of this Precinct Parking Plan are presented in Section 4.4, with implementation discussed in Section 6. The recommendations summarised in the table below are proposed via their inclusion in the Monash Structure Plan or the proposed Planning Scheme Amendment – via a Parking Overlay and accompanying Schedule (to Clause 45.09) and/or appropriate Schedule(s) to the relevant zone(s).

MONASH PRECINCT PARKING PLAN – STATUTORY TOOLS

TTR REF *	RECOMMENDATION
MNTP 3	Implement development parking controls, limiting new development parking provisions.
MNTP 1	Implement increased minimum bicycle parking and end-of-trip facility requirements to support sustainable modes and reflecting the change in cycling usage within 'living locally' based neighbourhoods and over time.
MNTP 21	Encourage car share scheme parking spaces in developments.
MNTP 5	Encourage adoption of an unbundled car parking model for on-site car parking provision and management.
MNTP 20	Encourage shared parking arrangements in developments to enable efficient and overall lower parking provisions.
MNTP 7	Implement adaptable building design requirements for new above-ground car parking facilities that enable their use for other purposes as parking demand reduces over time. Require developers to have an Adaptable Parking Plan which outlines future options for the use of on-site parking.

* Transport Technical Report reference

RECOMMENDATIONS – OTHER MECHANISM IMPLEMENTATION

Several recommendations will need to be implemented through other mechanisms in consultation with the City of Monash and other stakeholders. The following table summarises the recommendations in this Precinct Parking Plan that are considered 'non-statutory tools'.

MONASH PRECINCT PARKING PLAN – NON-STATUTORY TOOLS

TTR REF *	RECOMMENDATION
MNTP 4	Support major landholders to explore reducing existing parking supply and adopting alternative uses for the land as accessibility and density in the Structure Plan Area increase.
MNTP 2	Develop public realm cycling and micromobility end-of-trip policy and guidelines.
MNTP 12	Encourage Council to develop policy and guidelines for car share schemes in public areas and new developments that include electric vehicle charging facilities, by • Facilitating stronger relationships between developers and car share operators • Recognising electric vehicle charging for car share schemes in Green Travel Plans • Encouraging on-site car share scheme parking with electric vehicle charge points.
MNTP 21	Encourage car share scheme parking spaces in developments.
MNTP 8	Encourage Council to further develop and update the on-street parking management policy that supports the significant changes in land use density, diversity and accessibility levels in the Structure Plan Area over time.
MNTP 17	Encourage Council to develop a suite of policies and plans with Council to manage the function and needs that interface with the kerbside, which may include: • A Kerbside and Access Management Framework based on use hierarchy principles which supports urban cooling, sustainable transport modes and reduced private car trips, and on-street parking demands • A Kerbside Management Plan to inform access, freight and waste management and kerbside use in the Structure Plan Area
MNTP 6	Encourage the provision of consolidated car parking options which could be used to manage accessibility changes over time and reduce reliance on on-site parking.

* Transport Technical Report reference

MONITORING AND REVIEW

The recommendations implemented by this Precinct Parking Plan and their outcomes should be monitored and reviewed to ensure its aims and objectives continue to be met. As a minimum any Parking Overlay and accompanying Schedule (and any other statutory tools) should be reviewed concurrently with Monash

Councils' periodic Municipal Strategic Statement review. They should be reviewed and revised as access by sustainable transport modes improves, particularly upon commencement of SRL East rail services.

Implementation responsibilities of all strategies are presented in a general appendix to the Structure Plan.

STAKEHOLDER ENGAGEMENT

SRLA has developed a comprehensive engagement plan for the overall structure planning program. It includes several phases from early engagement to inform the draft structure plans through to statutory steps such as exhibition and advisory committee processes. The plan considers both community and stakeholder engagement.

As part of the engagement plan and this report, SRLA has engaged with DTP and Monash Council to inform the proposed transport recommendations. This included SRLA running workshops with Council officers which included SRLA presenting on the parking provision approach.

1. Introduction

1.1 Purpose

This Parking Precinct Plan was prepared to investigate and make recommendations regarding the specific parking management strategies required to support the Monash Draft Structure Plan (Structure Plan). It sets objectives for parking and summarises tools that can be applied to achieve those objectives and achieve the transport ambition and goals for the precinct.

Parking can be managed with a combination of statutory controls such as a Parking Overlay in a municipal planning scheme, and non-statutory controls such as strategies, plans and guidelines. A Parking Overlay sets requirements for parking and its management to an area of land, rather than on a site-by-site basis. A Parking Overlay is proposed for the Monash Structure Plan Area to set parking requirements for new developments, with a focus on parking rates, and recommended parking management changes recommended, having regard to current issues and conditions.

The Victorian Planning Practice Note 57: Parking Overlay (PPN57[1] – see Figure 1.2) guides the preparation of a car parking plan (or Precinct Parking Plan). A Precinct Parking Plan is required to support the application of a Parking Overlay (via a Schedule to Clause 45.09) and for implementing other potential parking management mechanisms on-the-ground to support the policy objectives of a municipality. PPN57 states that a Precinct Parking Plan must have consideration for the following:

- Objectives of the Precinct Parking Plan (see Section 3)
- Area to which the Precinct Parking Plan applies (see Section 1.3)
- Findings from research and surveys that provide factual material to support the Precinct Parking Plan (see Section 2, Section 3, Appendix A, Appendix B and the SRL East Structure Plan – Transport Technical Report – Monah)
- An assessment of car parking demand and supply (see Section 2.2 and Appendix A)
- Car parking strategies proposed to facilitate the objectives of the Precinct Parking Plan (see Section 4.4)
- Any locational, financial, design or other actions necessary to implement the objectives and strategies of the Precinct Parking Plan (see Section 4.4)

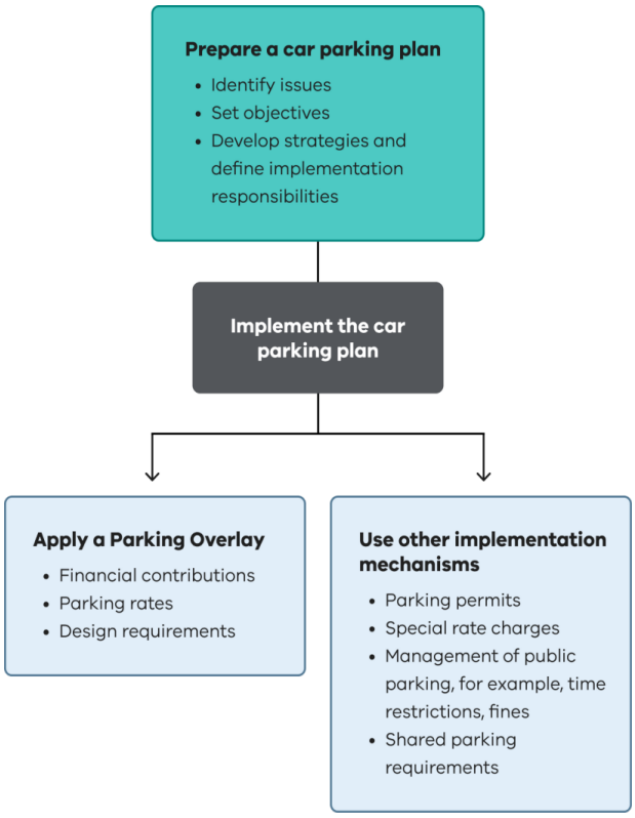


FIGURE 1.1 PPN57 EXCERPT

[1] *Planning Practice Note 57 – Parking Overlay (Aug 2023)*

The PPN57 also notes that car parking issues may need to be addressed on a precinct basis, where a precinct *'is undergoing a rapid rate of development or land use change'* or due to be impacted by other physical, social and economic factors.

While the development of a Parking Overlay is typically led by local governments and usually in response to an existing issue, SRLA is leading the development of Parking Overlays for the SRL East Structure Plan Areas as a proactive approach to managing parking. This includes supporting more active and sustainable transport choices, having regard for the significant increased accessibility that SRL East will provide, combined with the anticipated greater land use density and diversity that SRL East will generate.

1.2 Planning context

The relevant planning phases associated with the SRL station and the precinct vision, along with the preparation and implementation of recommendations from the Precinct Parking Plan is illustrated in Figure 1.2. These phases include post gazettal of the Structure Plan and Planning Scheme Amendment (PSA) in the short term, the 'medium term' pre-station opening phase (anticipated from 2031 to 2035) and 'long term' phase, which commences once the SRL station and rail works are completed and operating (from 2035 to 2041 and beyond).

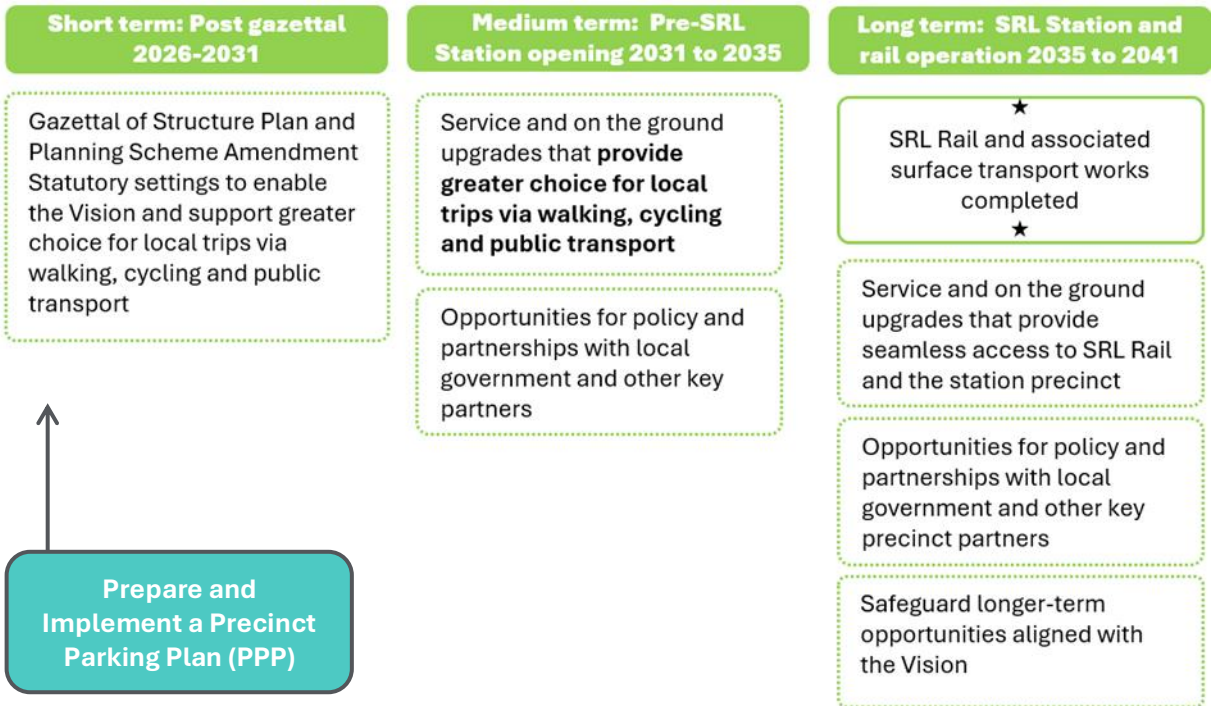


FIGURE 1.2 SRL EAST DEVELOPMENT AND TRANSPORT PLANNING PHASES

A key consideration for this Precinct Parking Plan is the approximately 10 years between gazettal of the PSA and the commencement of SRL East rail services. Other transport recommendations are proposed in the medium term in the SRL East Structure Plan – Transport Technical Report – Monash, including upgrades to active transport networks, on-road public transport, and the facilitation of a safe road network, among others. Accordingly, this Precinct Parking Plan has regard for the future scenario, when SRL is constructed and operating, but acknowledges that parking needs to be appropriately managed for the 10 years prior to delivery of SRL East. This anticipates development of the Monash Structure Plan Area and understands that achieving the vision for the SRL East neighbourhoods at Monash will continue beyond the opening of the SRL station.

Importantly the strategies and recommendations from this Precinct Parking Plan have informed and assisted with the objectives of the Structure Plan, SRL East Structure Plan – Transport Technical Report – Monash and Parking Overlay, albeit noting that this development process has been sequential and iterative in nature.

1.3 Study Area

The Monash Planning Area covers a wider area surrounding the SRL station, and contains the Structure Plan Area, where the most significant land use changes will occur (and to which the PSA will apply). The wider Planning Area and the Structure Plan Area within it are shown in Figure 1.3.

This Precinct Parking Plan is primarily based on, and considers the Structure Plan Area, with details of the local neighbourhood areas included in Section 4.1 – the planning details of which are further discussed in the Monash Structure Plan.

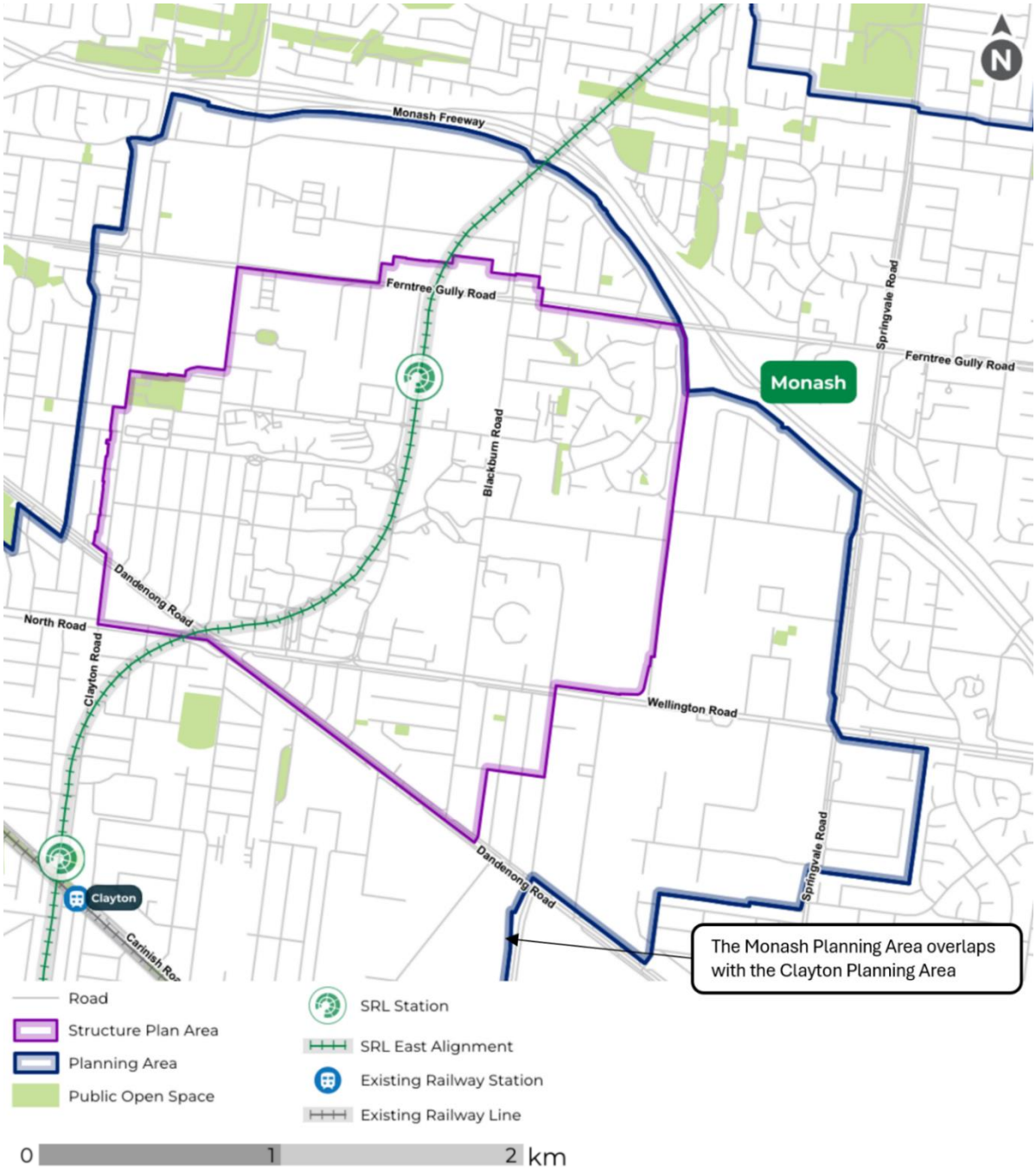


FIGURE 1.3 MONASH PLANNING AREA AND STRUCTURE PLAN AREA

1.4 Stakeholder engagement

SRLA has developed a comprehensive engagement plan for the overall structure planning program. The plan is summarised in Figure 1.4 and includes early engagement to inform the draft Structure Plans through to statutory steps such as exhibition and advisory committee processes. The engagement plan considers community and stakeholder engagement.

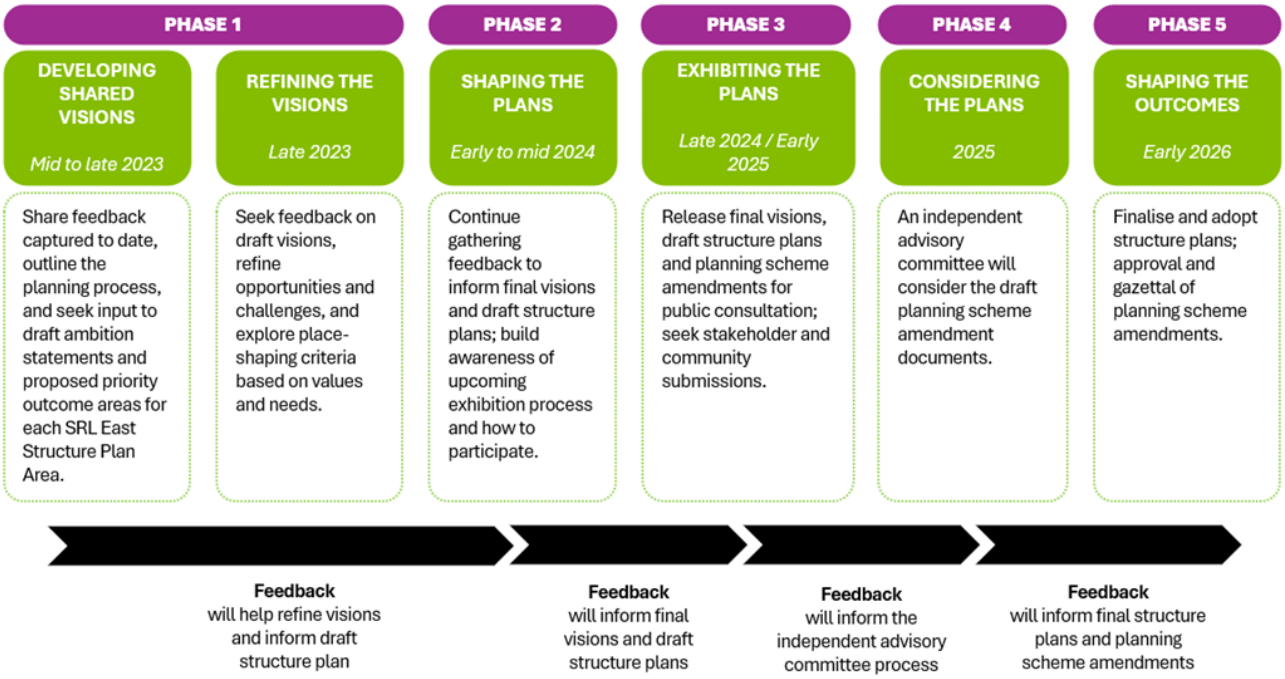


FIGURE 1.4 SRL EAST STRUCTURE PLANNING ENGAGEMENT PLAN

SRLA engaged with the Department of Transport and Planning (DTP) and Monash City Council to inform the development of the transport recommendations and this Precinct Parking Plan.

This included working collaboratively with DTP to gain endorsement of the Movement & Place (M&P) network for the Monash structure planning. Workshops were held with City of Monash officers and SRLA presented on the parking provision approach.

More information is provided in the SRL Structure Planning Engagement Reports on the SRL website at https://bigbuild.vic.gov.au/library/suburban-rail-loop/reports/engagement-reports/structure-planning-engagement-report.

Consultation undertaken with the City of Monash to date is summarised in Table 1.1 and Table 1.2.

TABLE 1.1 STAKEHOLDER TRANSPORT CONSULTATIONS AND CONSULTATION TOPICS

STAKEHOLDER	CONSULTATION TOPIC	TRANSPORT CONSULTATIONS
City of Monash	Structure planning program	• Workshop conducted in May 2024 • Workshop conducted in August 2024
	SRL Rail-related works	Ongoing engagement to comply with rail project environmental approvals

TABLE 1.2 CITY OF MONASH CONSULTATION DISCUSSION POINTS AND RESPONSES

CONSULTATION TOPIC	KEY ISSUES DISCUSSED	STRUCTURE PLAN RESPONSE
Structure planning program	• Precinct key directions • Transport 'Better Connection' themes • M&P classification for the Structure Plan Area (walking, cycling and general traffic classifications) • Development parking provision (suggested zones and rates)	• SRLA has developed infrastructure recommendations to reflect the 'Better Connection' themes and M&P network classifications workshopped with the City of Monash. • SRLA will continue to work with the City of Monash at project planning and delivery stages to deliver the infrastructure recommendations that reflect the M&P classifications. • SRLA has considered the comments received, and reviewed and refined the development parking provision, including the Parking Overlay areas and car parking provision.
SRL rail-related works	In addition to the rail project design issues as noted above, key issues discussed included: • The design of the intersection of Normanby Road and Howleys Road, including an assessment of pedestrian capacity and connections to the south to and from Scenic Boulevard, and general cyclist connectivity. • The locations of the SRL station entry and the location of the bus interchange and various options that were considered in the design development.	The SRL rail project design is subject to its own planning approval process.

2. Local conditions

2.1 Transport and land use overview

The Monash Structure Plan Area is within the strategically significant Monash National Employment and Innovation Cluster (NEIC). It is a major attractor for employment and education trips across the wider region. The Wurundjeri Woi-wurrung and Boonwurung peoples are the Traditional Custodians of the land in Monash.

The Monash Structure Plan Area surrounds the SRL station at Monash in the City of Monash. It is generally bordered by Wellington Road and Princes Highway to the south, Gardiner Road and residential properties between Clayton Road and Dover Street to the west, land north of Ferntree Gully Road to the north and a reservation for a future road, which forms a natural barrier to properties to the east.

Monash University Clayton campus is located in the Monash Structure Plan Area. The main public transport hub is the Monash University bus interchange located on the southern side of the campus. The new SRL station at Monash offers a connection to the rail network and is located immediate north of the university. There are small pockets of residential land use in the north-east and south-west of the Monash Structure Plan Area, mostly consisting of detached housing. Monash University is the leading contributor to arts, culture and sporting facilities in the Monash Structure Plan Area, generating trips from across the wider south-east region.

The Monash Structure Plan Area currently includes limited public open spaces outside Monash University, consisting of Carlson Reserve. These are the only significant areas that provide social and recreational functions for the community other than Monash University, which includes sporting facilities available for public hire and use.

Existing transport challenges in the Monash Structure Plan Area are summarised in the SRL East Structure Plan – Transport Technical Report – Monash. Existing conditions, challenges and opportunities specific to parking are discussed in the following sections of this Precinct Parking Plan.

2.2 Car parking

2.2.1 RESIDENTIAL AND COMMERCIAL LAND USES

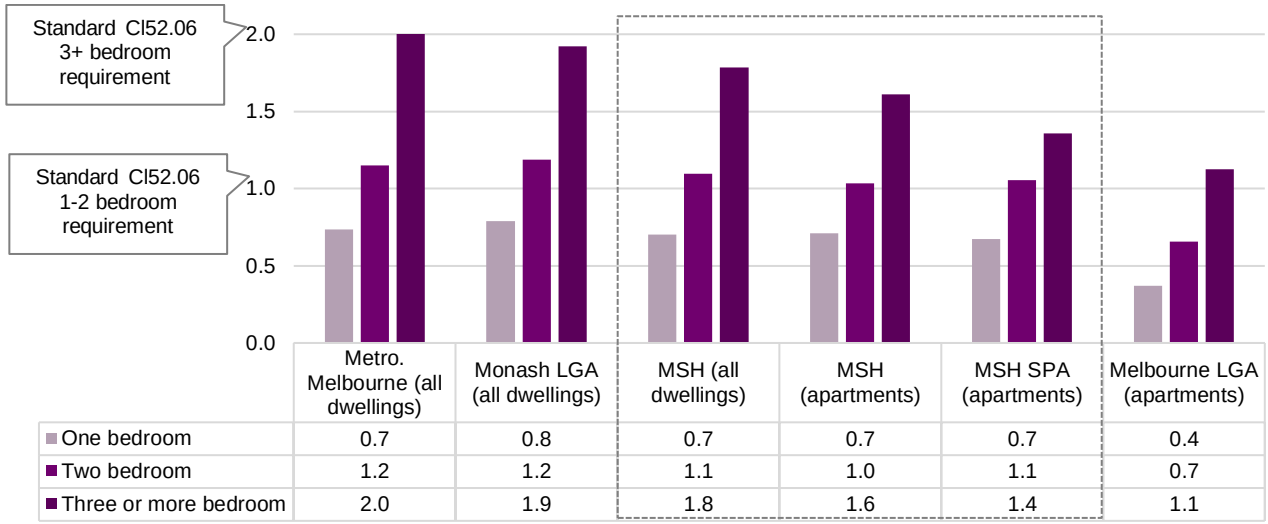
2.2.1.1 Residential

Figure 2.1 summarises the average car ownership in the area surrounding the SRL station at Monash (ABS 2021).[2] Comparisons with Metropolitan Melbourne, the Monash local government area (LGA), and the Melbourne LGA are shown. Car ownership rates for all dwellings in Monash (identified as MSH in Figure 2.1) and for apartments are also shown.[3]

[2] *Zero bedroom / studio dwelling data included within 'one-bedroom' dwelling category noting that studio apartment sample size is relatively small (that is, it represents 3.7% of 'one-bedroom CTM all dwelling data point presented here)*

[3] *'Apartments' include flats or apartments (various levels or attached to a house), 'all dwellings' include all ABS dwelling types.*

The broader Monash area (MSH) adopts car ownership data using ABS SA1 level boundaries that broadly align with the Planning Area. The Monash Structure Plan Area is also summarised below (MSH SPA) It is noted the Melbourne LGA (which includes several suburbs[4]) is included to enable a broad comparison.



	Metro. Melbourne (all dwellings)	Monash LGA (all dwellings)	MSH (all dwellings)	MSH (apartments)	MSH SPA (apartments)	Melbourne LGA (apartments)
One bedroom	0.7	0.8	0.7	0.7	0.7	0.4
Two bedroom	1.2	1.2	1.1	1.0	1.1	0.7
Three or more bedroom	2.0	1.9	1.8	1.6	1.4	1.1

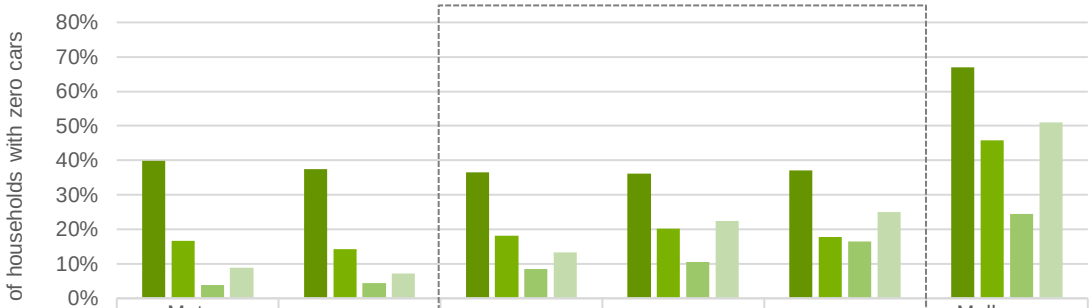
FIGURE 2.1 AVERAGE CAR OWNERSHIP COMPARISON BY HOUSEHOLD TYPE (SOURCE: ABS 2021)

Average residential car ownership levels in Monash are generally equal to or less than the minimum standard requirements set out under Clause 52.06 of the Monash Planning Scheme. These requirements are a minimum of one space per one or two-bedroom dwelling and two spaces for three or more bedroom dwellings. People living in apartments in the Monash Planning Area and the Structure Plan Area within it have lower car ownership levels, especially those living in apartments with three or more bedrooms.

Car ownership levels in the broader Monash area are generally lower than the Monash LGA area and Metropolitan Melbourne. People living in apartments in the Monash Planning Area and the Structure Plan Area within it have lower car ownership levels. However, people living in Melbourne LGA have even lower levels of car ownership due to the significantly higher levels of public transport services and mode share, and proximity to significant employment, retail and other land uses.

Zero car ownership rates and comparison for the broader Monash area and the Structure Plan Area are summarised in Figure 2.2 (ABS 2021). A number of areas are compared with apartments and all dwelling types separated in some instances.

[4] *Carlton, Carlton North, Docklands, East Melbourne, Flemington, Hotham Hill, Kensington, Melbourne, Melbourne West, North Melbourne, Parkville, Port Melbourne, South Yarra and Southbank.*



	Metro. Melbourne (all dwellings)	Monash LGA (all dwellings)	MSH (all dwellings)	MSH (apartments)	MSH SPA (apartments	Melbourne LGA (apartments)
One bedroom	40%	37%	37%	36%	37%	67%
Two bedroom	17%	14%	18%	20%	18%	46%
Three or more bedroom	4%	4%	9%	10%	16%	25%
All dwellings	9%	7%	13%	22%	25%	51%

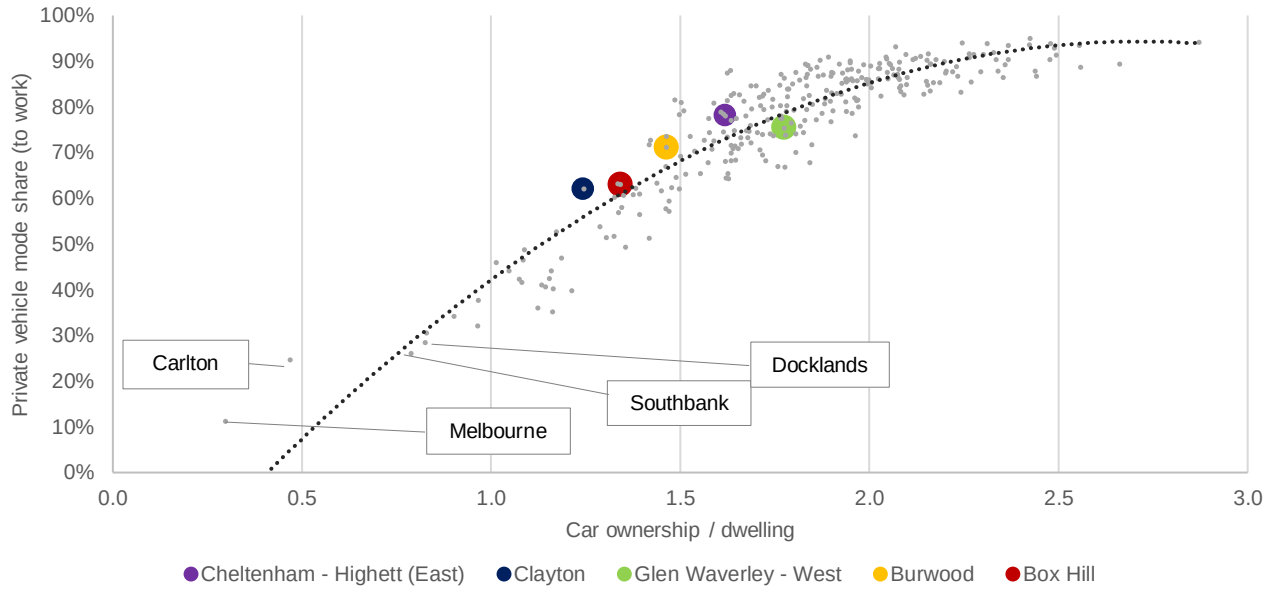
FIGURE 2.2 ZERO CAR OWNERSHIP COMPARISON BY HOUSEHOLD TYPE (SOURCE: ABS 2021)

Rates of zero car ownership are higher the broader Monash area compared to most of the comparison data points above (Metropolitan Melbourne and Monash LGA). For people living in apartments in the Structure Plan Area, zero car ownership levels are higher again. Levels of zero car ownership are highest in Melbourne LGA apartments, which is expected given the high level of public transport choices and use and land use density and diversity within the Melbourne LGA.

The data for average car ownership and zero car ownership in the Monash Planning Area and the Structure Plan Area within it is generally consistent with Monash LGA, albeit with lower average car ownership and higher levels of zero car ownership for two and three or more bedroom dwellings.

Car ownership vs mode share

Figure 2.3 summarises the existing SRL East Precincts (using broad ABS SA2 level data denoted by '●'), and the SRL East Precinct potential for mode share discussed in the Monash SRL East Structure Plan – Transport Technical Report – Monash (EES/BIC and TTR projections) considering average car ownership levels and private vehicle mode share.



Note: Clayton SA2 includes the Monash Structure Plan Area

FIGURE 2.3 AVERAGE CAR OWNERSHIP VS PRIVATE VEHICLE MODE SHARE (JTW, ABS2016 SA2 DATA)

Based on the above, there is a clear relationship between average car ownership and private vehicle mode share – noting that several other factors influence these outcomes and this includes aggregate data for broad comparison purposes.

At lower car ownership levels, private vehicle mode share appears to be closely related – that is, lower car ownership typically results in significant shifts in private vehicle mode share. However, at higher car ownership levels there is less of a relationship – that is, increased car ownership doesn't typically result in the same, or less of an increase in private vehicle mode share.

With specific regard to the 'Clayton' SA2 average car ownership data point (which includes Monash), and the forecast for mode share shift in Monash discussed in the SRL East Structure Plan – Transport Technical Report – Monash, a shift toward lower car ownership (less cars per dwelling) could potentially be considered as one of many factors that could contribute to achieving an associated shift toward sustainable travel modes (in the order of 1 to 1.4 average cars per dwelling).

2.2.1.2 Commercial (office)

A high level assessment of the existing commercial land use car parking demands has been estimated using existing private vehicle mode share in Monash and adopting the approach outlined in the TfNSW 'Guide to Traffic Generating Developments'[5].

Based on this approach, the average existing parking demands for commercial (office) are estimated to be in the order of 3.3 spaces per 100 m^2 net floor area, which is generally consistent with the 'standard' office car parking requirement rate in the Victoria Planning Provisions.

[5] *The RTANSW (now Transport for New South Wales (TfNSW)) Guide includes traffic and parking generation rates based on empirical evidence for a number of land uses. For 'office and commercial' land uses, the Guide discusses the factors relevant to vehicle trips and parking demands generated, which are based on employee density, car occupancy and private vehicle mode share. In determining the existing parking demand rate, these variables have been determined using information from Guide, existing ABS Journey to Work, VITM and other empirical data sources.*

2.2.2 ON-STREET AND OFF-STREET CAR PARKING

2.2.2.1 Supply

An inventory of current on and off-street car parking was undertaken to inform this Precinct Parking Plan. An initial desktop assessment was followed up with on-site verifications of on-street parking. Off-street car parking supply is based on information provided by SRLA[6] and supplemented with additional information where possible. A high-level summary of public and private[7] current on and off-street parking in the Structure Plan Area is provided in this section. The complete parking inventory is provided in Appendix A.

2.2.2.1.1 On-street

On-street parking restrictions in the Monash Structure Plan Area are shown in Figure 2.4. The locations of on-street parking spaces and their associated parking restrictions are detailed in Table 2.1.

A total 4917 on-street parking spaces are provided in the Structure Plan Area:

- 4026 spaces within residential areas – 1720 unrestricted and 2306 restricted spaces
- 891 spaces within non-residential areas – 524 unrestricted and 367 restricted spaces
- On-street parking for people with disabilities (DDA-compliant spaces) is minimal
- The majority of on-street parking in non-residential areas are unrestricted as they are located within industrial or business areas, and it is unlikely there is an intrusion of parking from Monash University staff, students or visitors in these areas
- Residential areas nearest to Monash University and shopping strips generally have shorter time restrictions which typically become less restrictive where parking spaces are further away from these trip attractors.

The complete parking inventory is provided in Appendix A.

[6] *Off-street supply information is less detailed than on-street parking as it does not include specific restrictions and/or DDA compliant parking supply information. This is due to the level of information readily available and access constraints.*

[7] Private off-street parking supply only included where information available.

FIGURE 2.4 ON-STREET CAR PARKING SUPPLY

TABLE 2.1 ON-STREET CAR PARKING SUPPLY

LAND USE / AREA	RESTRICTIONS	NO. OF SPACES
Residential area(s)	1/4P	1
	1/2P	22
	1P	1
	2P	271
	3P	502
	4P	12
	6P	1604
	Permit Zone	10
	No Stopping (various time periods)	31
	Unrestricted	222
	Unrestricted DDA	2487
Non-residential area(s)	P5min	1
	1/4P	26
	1/2P	2
	1P	116
	2P	133
	4P	17
	Paid Parking	33
	No Stopping (various time periods)	51
	Unrestricted	843

2.2.2.1.2 Off-street

Figure 2.5 shows the main public off-street parking facilities across the Monash Structure Plan Area:

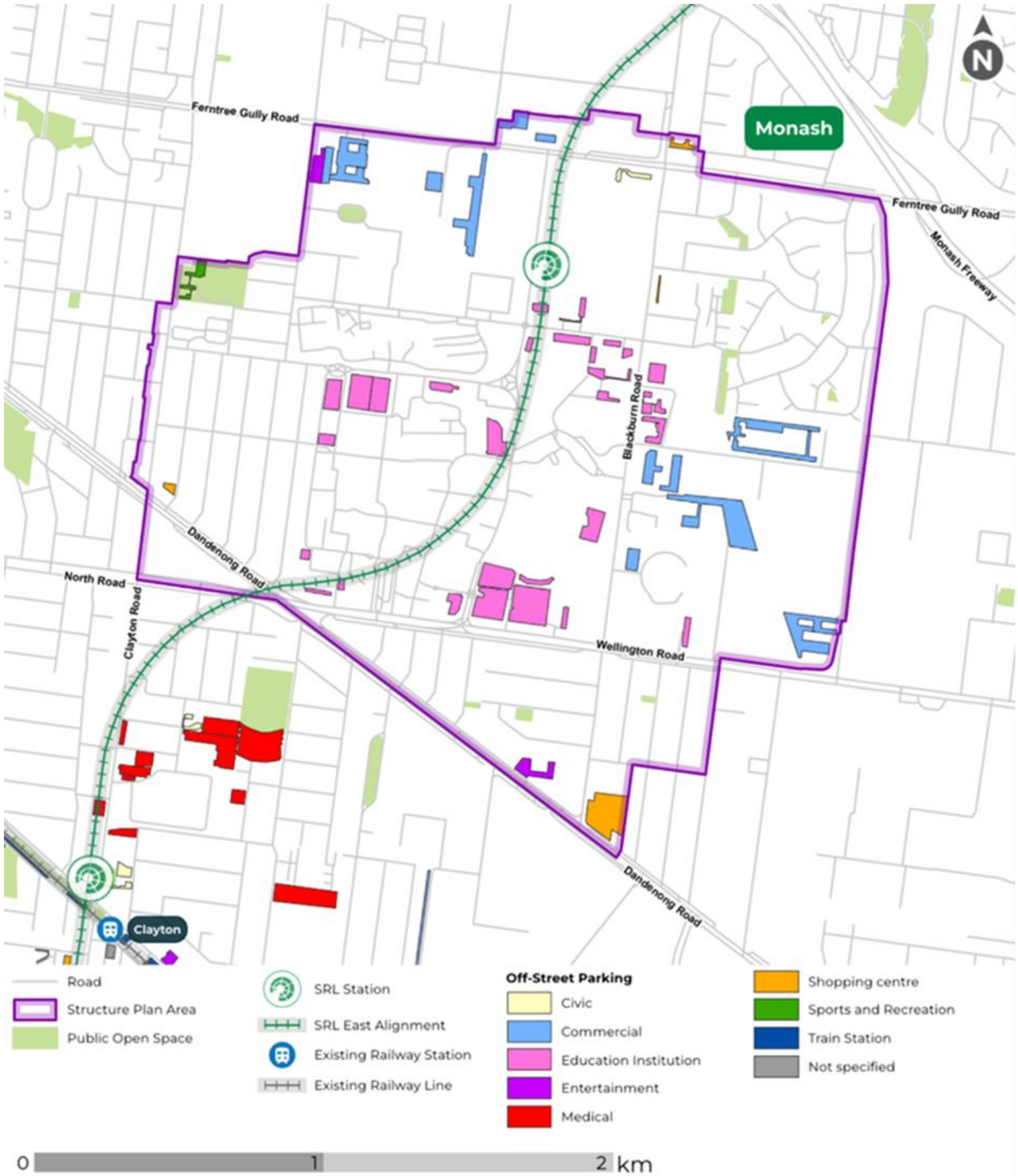
- Monash University provides a significant supply of nearly 7500 spaces with a combination of ticketed (priced) and permit parking, enforced to manage parking demand. However, ticketed parking has not been enforced in surrounding industrial and business park areas.

- Outside Monash University, most off-street parking facilities accommodate commercial use across the Monash Planning Area, with CSIRO Clayton, the Telstra Global Operations Centre and the Ferntree Business Park each offering over 500 parking spaces. Furthermore, most industrial and business parking areas in the Planning Area offer at least 100 parking spaces. The M-City Shopping Centre provides around 1000 parking spaces. However, other retail areas (shopping strips) generally offer less than 40 parking spaces.

- Given the Monash Structure Plan Area does not currently have a railway station, no commuter parking is available, even for the Monash University bus interchange area (no park and ride).

- There are 13 car share scheme spaces located across different areas of Monash University (operated by GoGet and ‘Flexicar’).

The off-street parking data was provided by SRLA. It is noted that off-street parking data was informed through a desktop review, with information compiled from third-party resources and review of aerial imagery, which was not verified on-site. The complete parking inventory is provided in Appendix A.



Off-Street Parking	Count	Restriction Type	Paid Parking (Yes/No)
Civic	**120**		
Notting Hill Community Hall	120	Unrestricted	N
Commercial	**3309**		
371 Ferntree Gully Road Car Park	60	Unrestricted	N
ANZ Business Centre Notting Hill Car Park	350	Staff / Customer Parking	N
Australian Synchotron	138	Unrestricted	N
Ferntree Business Park Car Park	590	Unknown	Y
Ferntree Place Parking Area	452	Staff and Customer Parking	N
Omnico Business Centre car park	250	Unrestricted	N
Telstra Global Operations Centre	609	Staff Parking	N
Uni Central Business Park car park	360	Unrestricted	N
Unipark - 195 Wellington Road, Mulgrave	500	Unrestricted	N
Education Institution	**7454**		
John Monash Science School	36	Staff Parking	N
Monash University	7369	Varies i.e. Permit, Ticket, Staff, Timed Restrictions	Varies
Melbourne Centre for Nanofabrication	49	Staff Parking	N
Entertainment	**335**		
Monash Hotel car park	200	Unrestricted	N
The Notting Hill Hotel	135	Customer Parking	N
Medical	**81**		
Monash Biomedical Imaging	81	Unrestricted	N
Shopping centre	**1079**		
Glenbrook Avenue car park	34	1P-4P	N
Hampshire Road Shopping Centre Car Park	45	1P-4P	N
M-City Shopping Centre Car Park	1000	2P	N
Sports and Recreation	**62**		
Carlson Avenue Reserve	62	1P-4P	N

FIGURE 2.5 OFF-STREET CAR PARKING SUPPLY

2.2.2.2 Demand

While detailed car parking demand surveys were not undertaken for this Precinct Parking Plan, detailed assessments of existing car ownership levels were undertaken, along with empirical parking demand and provision rates as discussed in Appendix B. Broad parking demand observations for the Monash Structure Plan Area are made, based on aerial photography and on-site observations (for select off-street parking areas).[8]

Parking demand observations, based on demands captured 11:30 am on Friday 10 November 2023, are summarised in Figure 2.6. Parking demand observations are summarised as:

- **Low** parking demands with approximate 0 to 33 per cent utilisation
- **Moderate** parking demands with approximate 33 to 66 per cent utilisation
- **High** parking demands with approximate 66 to 100 per cent utilisation
- Where no parking occurs within on-street no-stopping / no-parking restricted spaces, they are excluded from Figure 2.6 to avoid confusion, whereby these areas generally should not experience any car parking demands. Where parking does occur in on-street no-stopping / no-parking spaces, an equivalent demand observation is included as per the above categories.
- Where off-street parking in multi-decks is unknown they are assigned as **GREY.**

[8] *Parking enforcement data may be useful to inform some of the non-statutory tool recommendations in this Precinct Parking Plan. Further survey work and consultation with the City of Monash is recommended in the short-term, following the Planning Scheme Amendment (PSA) to support a number of recommendations in this Precinct Parking Plan, including the development of updated on-street parking management plan(s).*

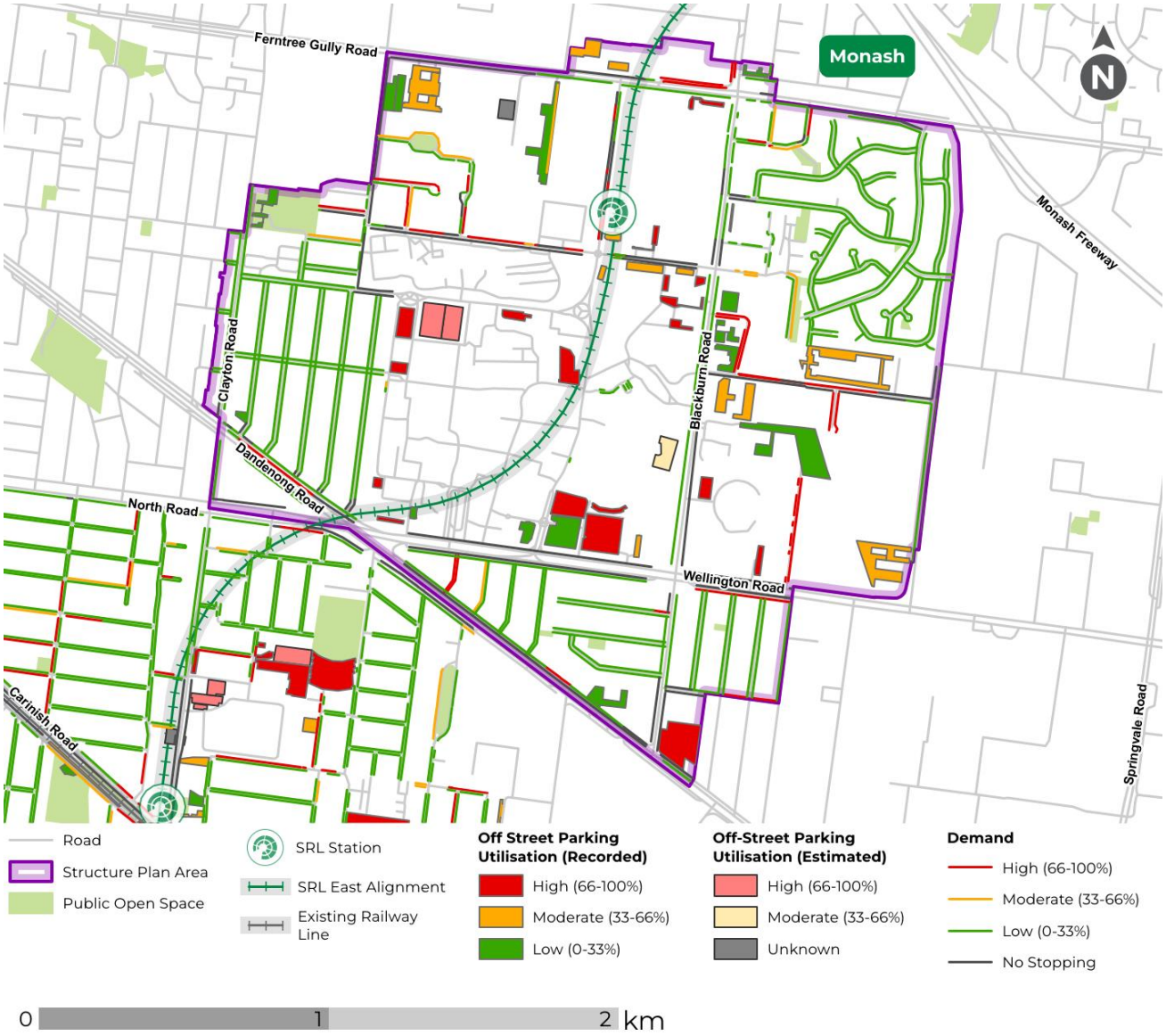


FIGURE 2.6 ON-STREET AND OFF-STREET CAR PARKING DEMAND

This assessment indicates a high parking demand at Monash University which is primarily concentrated in off-street carparks located within the campus. The demand for parking in surrounding residential areas are typically controlled by short-term parking restrictions which as a result exhibit low levels parking demand.

2.2.3 CAR PARKING CHALLENGES

Parking challenges identified in Monash Structure Plan Area are:

- Car parking provision, whether on or off-street, is a key factor that influences people's decision to own and use a car. Continuing to provide car parking in developments in line with the wider area will increase traffic movements and the inefficient use of space.
- Limited *Disability Discrimination Act 1992* (Cth) (DDA Act)-compliant on-street car parking is provided.
- End-of-trip facilities including secure parking, showers and lockers are provided only in newer developments and are not typically accessible to the public. This does not support and encourage active and sustainable transport trips.

- Secure bicycle parking and storage facilities outside of Monash University is generally limited and ‘low quality’ with varying levels of perceived security / safety, discouraging cyclists from parking their bicycles during rainy weather and/or in areas with lower perceived security / safety.

- Significant numbers of off-street car parking spaces are provided throughout the Structure Plan Area, with a high concentration within Monash University and the various industrial and business parks.

- There is a significant level of at-grade car parking provided to service existing commercial, educational and employment parking demands, limiting other uses that would likely provide increased economic and social benefits.

- High parking occupancy levels were observed in several parking areas (off-street and on-street) which mostly included unrestricted parking for industrial and business parks. The high provision of unrestricted parking encourages private vehicle commuter travel.

Figure 2.7 summarises and shows location-specific parking challenges in Monash.

Location-specific integrated parking challenges:

1. High levels of dedicated and unrestricted employee car parking in Monash reduces public amenity and encourages private vehicle ownership.

2. Monash University accounts for 60 per cent of off-street car parking in the Structure Plan Area. Significant amounts of parking for these staff and students may make mode shift challenging and still attract a significant number of private car trips into the active car area.

3. Based on site observations, parking facilities within Monash University appear to have low occupancy levels outside peak education periods (on weekends and university holidays).

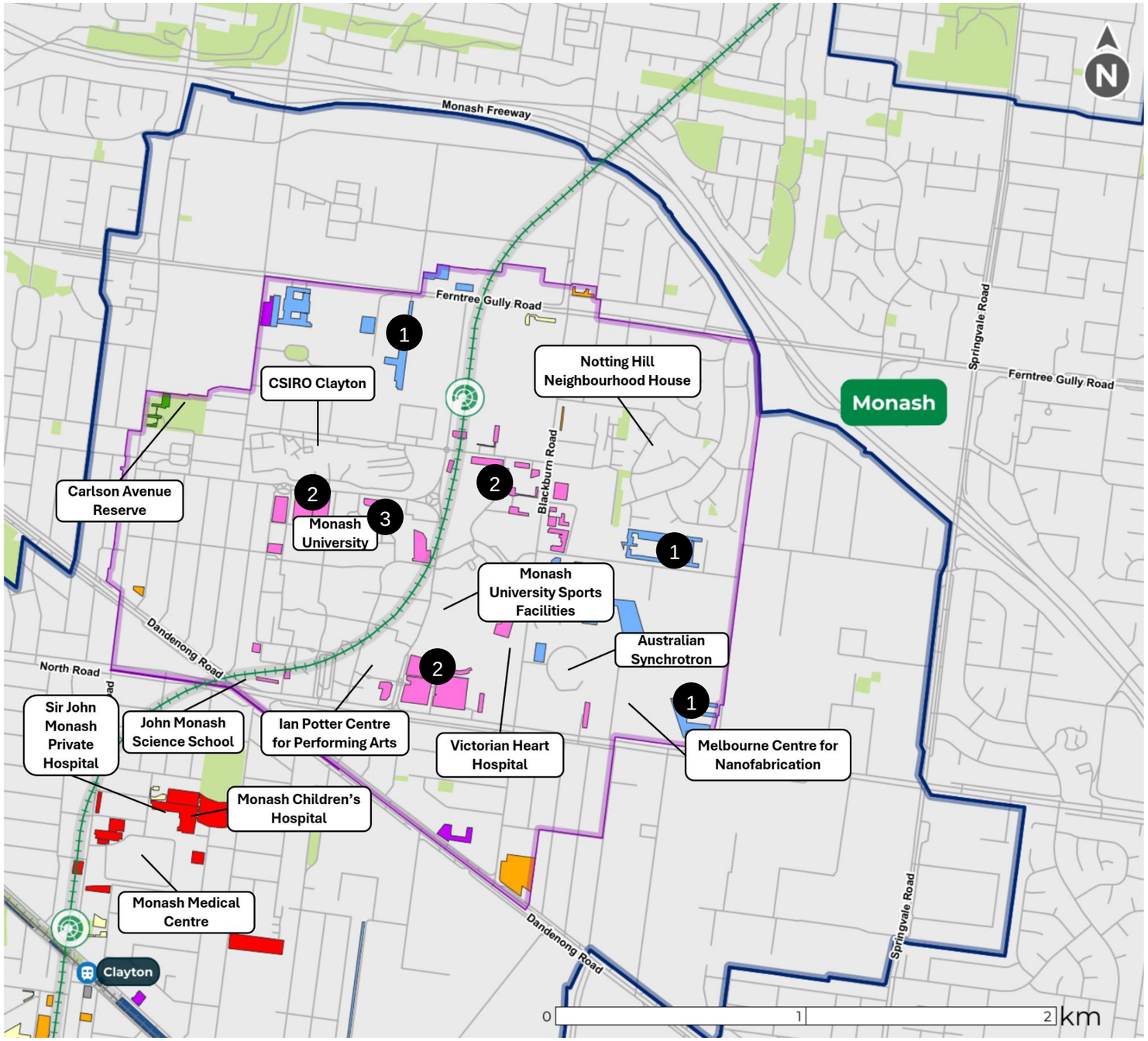


FIGURE 2.7 MONASH – INTEGRATED PARKING CHALLENGES

2.2.4 CAR PARKING OPPORTUNITIES

Continuing the status quo of providing more parking for more driving will not likely be effective or practical in Monash. There is opportunity to encourage sustainable travel modes and reduce reliance on private vehicle travel with parking management techniques such as:

- Considering reducing parking requirements and encouraging lower car ownership levels, supported with appropriate transport and policy interventions
- Reallocating road space to active transport and public transport
- Increasing the number of DDA-compliant parking spaces to provide equitable access
- Improving and increasing public bicycle and micromobility end-of-trip facilities
- Investigating ticketed (priced) on-street parking spaces, including dynamic pricing
- Investigating permit zones in residential areas near retail, educational and commercial areas
- Providing car share scheme spaces at key locations
- Investigating potential for additional and/or better managed consolidated car parking facilities with shared parking arrangements.

2.3 Bicycle parking

2.3.1 RESIDENTIAL OWNERSHIP

The Victorian Integrated Survey of Travel and Activity (VISTA) includes bicycle ownership data for different household types and sizes.[9] While the sample size is small, the VISTA data provides an indication of bicycle ownership in Monash[10] which is summarised in Figure 2.8 and Figure 2.9.

The data indicates that Monash currently has relatively low bicycle ownership, particularly for smaller households. However, as household size grows, bicycle ownership increases with two or more people households on average exceeding the bicycle parking requirements suggested by the current Clause 52.34 Planning Scheme rates.

Monash's relatively low VISTA bicycle ownership levels align with the relatively low level of cycling movements recorded in Monash. Aside from Gardiner Road and Bayview Avenue, cycling activity surveyed at key locations surrounding the proposed SRL station at Monash recorded up to 9 cyclists during the weekday peak period and 3 cyclists during the weekend peak period.[11]

[9] *The VISTA data used is from 2012 – 2020 and 2022. Note relatively small sample data available for some SRL East Planning Areas and metrics.*

[10] *Approximately 1.6 kilometre-radius around the SRL station at Monash*

[11] *Source: SRLA, 2023. Recorded weekday peak period between 9am – 10am and weekend peak period between 11am – 12pm.*

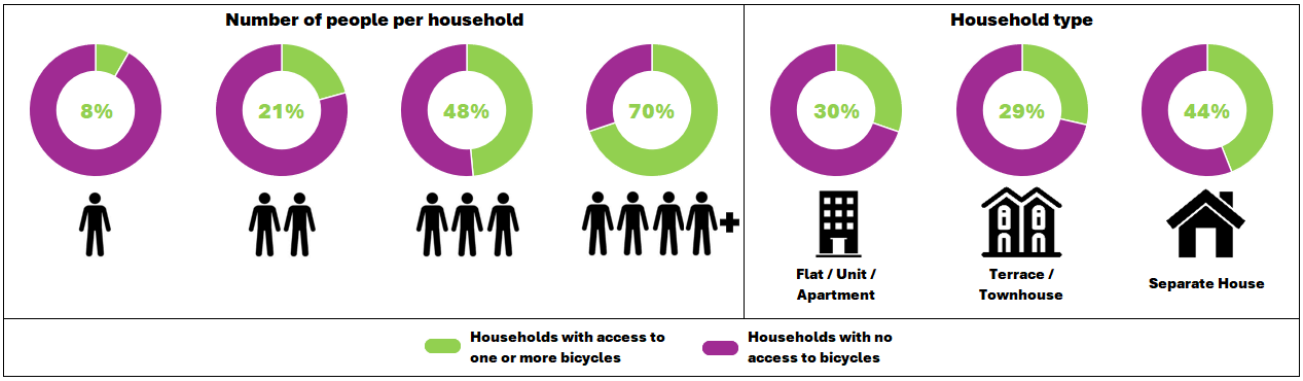


FIGURE 2.8 CURRENT HOUSEHOLDS IN MONASH12 WITH ACCESS TO AT LEAST ONE BICYCLE (SOURCE: VISTA 2012-2020 AND 2022)

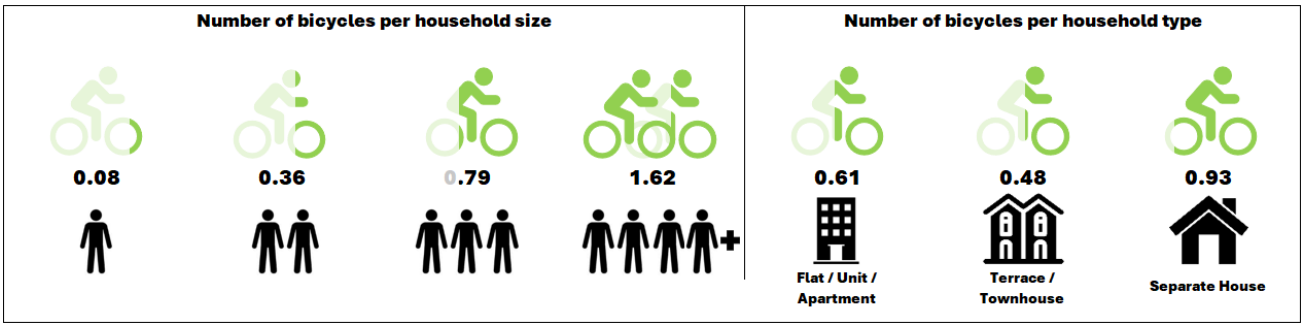


FIGURE 2.9 CURRENT BICYCLE OWNERSHIP PER HOUSEHOLD SIZE AND TYPE IN MONASH12 (SOURCE: VISTA 2012-2020 AND 2022)

2.3.2 PUBLIC BICYCLE PARKING SUPPLY

A desktop-based bicycle parking inventory informed this Precinct Parking Plan, which was followed up with on-site verification in some areas. Given the limitations of a desktop assessment, the bicycle parking inventory is indicative only.

Bicycle parking locations and indicative supply available to the public in the Structure Plan Area are detailed in Table 2.2.

[12] *Approximately 1.6 kilometre-radius around the SRL station at Monash*

TABLE 2.2 PUBLIC BICYCLE PARKING SUPPLY IN THE MONASH STRUCTURE PLAN AREA

LOCATION	BICYCLE HOOPS	BICYCLE SPACES
Monash University James Gormley Bike Arrival Station	-	143
Monash University Southern Bike Arrival Station	-	98
Monash University Outside Southern Bike Arrival Station	52	104
Monash University Hargrave-Andrew Library	20	40
Monash University Mechanical and Aerospace Engineering Building	7	14
Monash University Green Chemical Futures	20	40
Monash College Building	6	12
Monash University Bus Loop	20	40
Monash University E1 Building	5	10
Monash University FIT Computer Labs	18	36
Monash University 23 College Walk	6	12
Monash University C1 Building	4	8
Monash University Building B	7	14
Monash University Building 76	7	14
Monash University Building 77	7	14
Monash University Faculty of Medicine, Nursing and Sciences Building	6	12
Monash University Biotechnology Building	13	26
Monash University S3 Building	4	8
Monash University S2 Building	7	14
Monash University S1 Building	4	8
Monash University South 1 Building	4	8
Monash University M1 Lecture Building	4	8
Monash University Campus Centre	6	12
Monash University Strip 2 Biomedical Sciences Building	11	22
Monash University N1 Carpark	16	32
Monash University Residential College - Normanby House	2	4
Monash University NE7 Carpark	9	18
Monash University Menzies Building	10	20
Monash University Sports Walk / Exhibition Walk Corner	6	12
Monash University Opposite Turner Residential Hall	18	36
Monash University Krongold Clinic	6	12
Ferntree Gully Road / Blackburn Road shopping strip [1]	1	2
Acacia Place Office Building	5	10
Quest Hotel Notting Hill	5	10

[1] On-street provision and not part of a development / on-site location

2.4 Public transport and walking

Figure 2.10 shows the average Transit Score against the average Walk Score for the Monash Structure Plan Area and several areas across metropolitan Melbourne. The data included for the Monash Structure Plan Area include individual location scores (noted within the shaded area), which make up the aggregate score for the Structure Plan Area.

The Transit Score[13] is a 0 to 100 rating tool that measures how well a specific location is serviced by public transport, with 0 being poor public transport access and 100 being great access to public transport. Increased access to public transport service routes and service types result in higher scores.

The Walk Score[14] is a 0 to 100 rating that measures how walkable a specific location is and how accessible it is to nearby amenities. Increased density and diversity of nearby amenities and pedestrian friendliness result in higher scores.

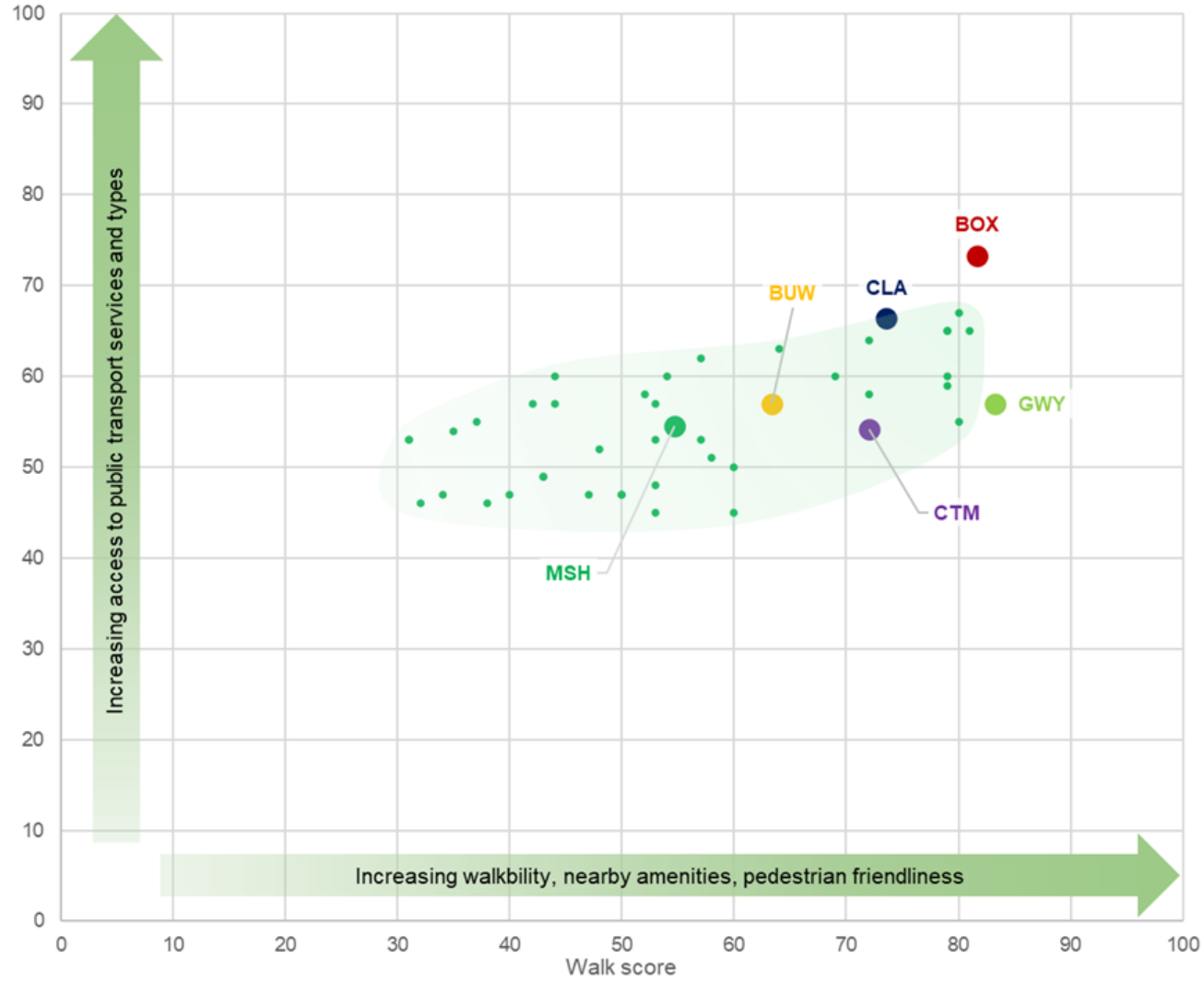


FIGURE 2.10 MONASH STRUCTURE PLAN AREA VS SRL EAST STRUCTURE PLAN AREAS TRANSIT / WALK SCORE

[13] *Walk Score, 2024, Transit Score® Methodology, <https://www.walkscore.com/transit-score-methodology.shtml>*

[14] *Walk Score, 2024, Walk Score Methodology, < https://www.walkscore.com/methodology.shtml>*

The Monash Structure Plan Area has a moderate Walk Scores with an average of 55 which is the lowest score compared to the other areas. The Structure Plan Area has a moderate Transit Score with an average of 55, and it varies from approximately 45 to 67 depending on the location within the Structure Plan Area.

In the future, increased land use density and diversity is expected to increase Monash's Walk Score and the SRL East project and other future public transport upgrades are expected to increase its Transit Score (i.e. shift it to the 'top right' of Figure 2.10).

3. Objectives

The objectives of this Precinct Parking Plan were developed with and align with the Monash Structure Plan and SRL East Structure Plan – Transport Technical Report – Monash, and considered the existing conditions, issues and opportunities in the Monash Planning Area and Structure Plan Area (see Section 2). The development of objectives was undertaken as part of the iterative process to develop the Structure Plan and transport that was presented in Section 1 of the Transport Technical Report.

Key items from these have been included throughout this report in relevant sections.

3.1 The Vision for Monash

To support Monash's future role as an attractive place to live, work and/or establish businesses, the structure planning for Monash needs to:

- Support the delivery of housing, jobs, services, and amenities in the right locations for new and existing residents, workers and visitors
- Enable infrastructure investment across transport, education, health, open space and other amenities.

The Monash Structure Plan sets out themes and accompanying objectives, strategies and actions to achieve the Vision. The five key themes of Boosting the Economy, Enriching Community, Better Connections, Enhancing Place and Empowering Sustainability will be delivered in the Structure Plan Area and for the SRL East neighbourhoods. More details are provided in the Monash Structure Plan.

Further, a set of transport ambitions and goals common to all SRL East Structure Plan Areas were developed to inform the Structure Plan and are provided below (and are further detailed in the SRL East Structure Plan – Transport Technical Report – Monash).

3.2 Transport ambition and goals

The population, job and traffic growth demands will require proactive management to achieve the full potential of SRL East. The transport ambition provides a foundation for managing growth in Monash, as stated in Figure 3.1.

Transport Ambition for Monash

Managing the growing number of transport trips through more people choosing to walk, cycle and catch public transport as Monash develops.

FIGURE 3.1 TRANSPORT AMBITION FOR MONASH

From the transport ambition, a set of transport goals and modal principles were developed to support the Monash Vision. The development of these goals and modal principles also considered the existing transport challenges, gaps and opportunities.

These transport ambition and goals should be considered with the Vision and themes outlined in the Monash Structure Plan, which address requirements such as those in the *Transport Integration Act 2010* (Vic). The development of the Monash Structure Plan and this Precinct Parking Plan informed the infrastructure and non-infrastructure recommendations to achieve the transport ambition of providing better transport choices.

The transport goals are listed and explained in Table 3.1.

TABLE 3.1 TRANSPORT GOALS

GOAL	EXPLANATION
A safe and connected walking and cycling environment	Walking and cycling[15] will serve as the most convenient, safe and enjoyable means of travel in the neighbourhoods around each SRL station.
A revitalised bus experience	In line with Victoria's Bus Plan, help change people's perception of buses. Provide a passenger-focused bus service, making road-based public transport a competitive, attractive and convenient choice.
An all-inclusive transport network	Ensure transport is accessible to people of all ages, abilities and genders.
Anchoring sustainable travel services and shared mobility to SRL East	SRL East stations are seamless integrated hubs, allowing quality interchanges between sustainable travel modes.
Prioritising safe and healthy movement	In line with Victoria's Road Safety Strategy 2021-2030, the transport network becomes safer for all, particularly vulnerable users. Uptake in walking and cycling contributes to an increase in daily physical activity.
Smart and efficient use of parking	Parking management needs for all users, with a strong emphasis on providing for the needs of bike and micromobility users. Car parking spaces will be managed and used to maximise their effectiveness while considering impacts on the urban realm.
Enable new and emerging innovative mobility	Neighbourhoods around each SRL station will lead Australia by enabling an ecosystem for partners to trial and test transport technologies.

The SRL East Structure Plan – Transport Technical Report – Monash further defines Goal 6 as '*parking management needs for all users, with a strong emphasis on providing for the needs of bike and micromobility users. Car parking spaces within the SRL East Structure Plan Areas will be managed and utilised to maximise their effectiveness while minimising impacts on the urban realm*'. Goal 6 informed the objectives of this Precinct Parking Plan.

3.3 Precinct Parking Plan objectives

The objectives of this Precinct Parking Plan are to identify flexible and appropriate measures for the Monash Structure Plan Area that:

- Support and encourage a shift toward sustainable transport modes (including public transport, walking and cycling)
- Support economic opportunity and productivity (prioritising efficient use and management of spaces)

[15] *Walking and cycling represent the action of moving as a pedestrian or cyclists, whether or not someone is walking or cycling unaided or using any kind of wheeled mobility aid, including cycles, scooters, wheelchairs, mobility scooters, walking frames, prams or buggies.*

- Prioritise placemaking and reduce parking and vehicle movement impacts (including congestion, spatial impacts and urban design outcomes)
- Support high quality and affordable housing choices (with development opportunities, reduced building spatial and cost requirements)
- Support positive and improved environmental outcomes (including embodied carbon and net zero emissions by 2045).

4. Future conditions

4.1 Monash Structure Plan

4.1.1 OVERVIEW

A Structure Plan is a blueprint to guide how an area develops and changes over time, describing how future growth within an area will be managed in an appropriate and sustainable way to achieve social, economic and environmental objectives. Matters considered by a Structure Plan may include transport connections and car parking, housing and commercial development, community infrastructure, urban design, open space, water and energy management, climate resilience and sustainability.

The SRL East Structure Plans cover a defined area within a walkable catchment extending from the SRL station entrances. By tailoring planning decisions to reflect the needs of a defined area, the Structure Plans give effect to the policies and objectives for these areas and cater for changing community needs. The Structure Plans also provide certainty for residents, businesses and developers by identifying the preferred locations and timing of future land uses, development and infrastructure provision. The Structure Plans take a flexible and responsive approach that enables places to evolve over time.

A series of technical planning reports were developed to inform the development of the SRL East Structure Plans. This included the SRL East Structure Plan – Transport Technical Assessment – Monash, which assessed existing transport conditions in Monash, identified transport challenges and opportunities, and recommended ways to manage transport in the Structure Plan Area as it develops. A Planning Scheme Amendment will be required to implement the Monash Structure Plan into the planning scheme of Monash City Council.

4.1.2 PROPOSED LAND USE AND NEIGHBOURHOOD AREAS

The Monash Structure Plan Area is divided into seven neighbourhood areas, each with a distinct purpose in achieving the Monash Vision. These seven neighbourhood areas were developed with a specific role and objectives, including, but not limited to various key projects, and planning and design requirements required to support anticipated growth. The Monash Structure Plan neighbourhood areas and land uses are shown in Figure 4.1.

FIGURE 4.1 MONASH STRUCTURE PLAN NEIGHBOURHOODS AND LAND USE

4.1.3 FORECAST GROWTH

The resident and worker population forecasts in the Monash Structure Plan are generally consistent with the growth forecast in the SRL Business and Investment Case (2021) and assessed for the Traffic and Transport Impact Assessment for the SRL East Environment Effects Statement (2021).

The population and employment forecasts for the Monash Structure Plan Area are shown in Figure 4.2. The resident population in the Structure Plan Area is forecast to increase from 10,000 in 2021 to 17,900 residents by 2041. The worker population is forecast to increase from 20,900 to 50,000.[16] With more people living and working in the Monash Structure Plan Area, the SRL station will become a focus point for movement.

FIGURE 4.2 POPULATION AND EMPLOYMENT GROWTH IN THE STRUCTURE PLAN AREA

The distribution of growth across different neighbourhoods proposed in the Structure Plan comprises:

- Greater diversity of land uses near the SRL station at Monash, particularly within the boundaries of Ferntree Gully Road, Blackburn Road, Normanby Road and just west of Howleys Road to support higher density commercial uses, supported by a mixed-use town centre
- Higher concentration of housing along arterial roads, such as Blackburn Road, Wellington Road and Princes Highway, and increased housing intensity in existing residential neighbourhoods east of Blackburn Road, south of Wellington Road and between Clayton Road and Monash University
- Increased employment intensity, particularly commercial and industrial developments, in areas that benefit from existing commercial functions, particularly within the south-east and north-west of the Structure Plan Area.

4.2 Accessibility and parking

The SRL East Structure Plans will enable increasing land use density and diversification in the lead up to SRL East opening and beyond, including future SRL stages.

In addition to any Council-planned works, it is anticipated that SRL East improvements to active transport accessibility and on-road public transport services in Monash will be delivered in the medium-term, and the viability of these sustainable transport modes will increase, particularly for local trips. The SRL East Structure Plan – Transport Technical Report – Monash, which also informs the Structure Plan, provides further details of these recommendations to increase local accessibility. Significant increases in accessibility will be achieved when the SRL East stations are completed, and in the very long term when the entire SRL project is completed.

Figure 4.3 conceptualises the changes in accessibility, land use, and mode share over time following the Monash Planning Scheme Amendment, noting that significant changes in land use density, and changes in associated travel choices, and associated relative change in parking demands will take time.

[16] *AJM (2025), Economic Profile – Monash*

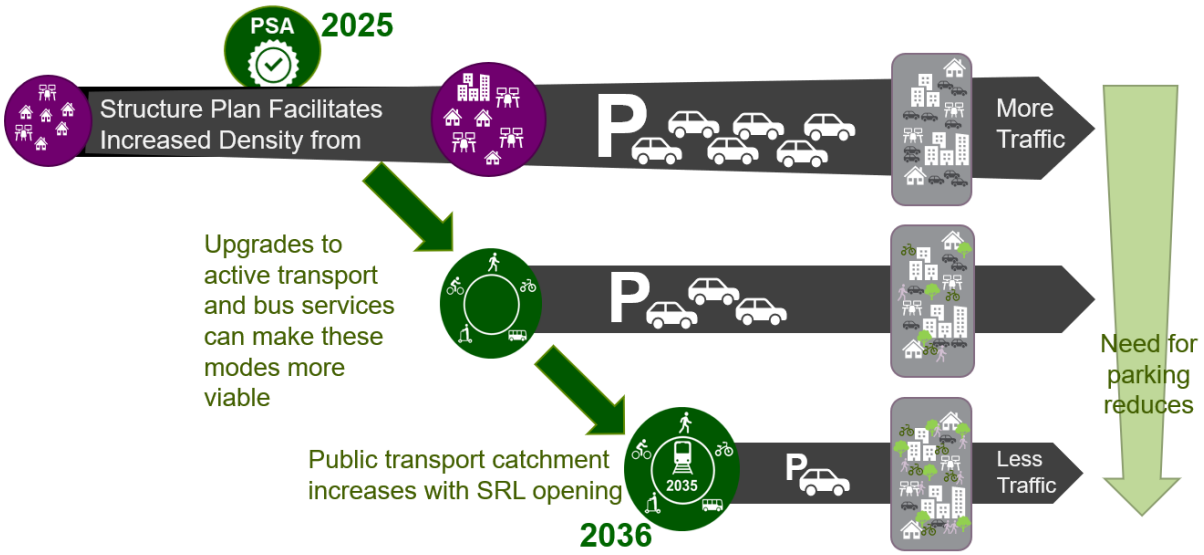


FIGURE 4.3 ACCESSIBILITY STAGES FOR SRL EAST AND OPPORTUNITIES FOR PARKING CHANGES

It is important to recognise that any transport and/or parking tools proposed to meet the SRL East goals and objectives must be appropriate for existing land use and transport choices; that is, prior to and including SRL East commencing operation. Notwithstanding, SRL East will increase accessibility and shift transport mode share, be a significant catalyst for development in some precincts, and in some areas will drive rapid development over the next 10 years.

Parking management should support mode share changes over time to meet sustainable transport goals, noting that planning should consider the existing context and the future vision and objectives set out in the Structure Plan. Any parking management strategies should be flexible and appropriate for local conditions in the Structure Plan Area while having regard for the land use changes and transport interventions brought about by the Monash Structure Plan, recommendations in the SRL East Structure Plan – Transport Technical Report – Monash, and SRL East more generally.

The review and evaluation of the Precinct Parking Plan and subsequent statutory and non-statutory tools will be required in future to assess their appropriateness for the levels of accessibility and development outcomes in the Structure Plan Area to 2041 and beyond.

4.3 Precinct density and mode share

Assessment of ABS 2016 census data[17] for Greater Melbourne highlights the trend that areas with high population (Figure 4.4) and high employment densities (Figure 4.5) typically have lower private vehicle mode shares, driven by factors including the nearness of residential, employment, and leisure land uses, as well as assumed or inferred higher degrees of access to public transport services that enable a shift to sustainable travel choices.

The private vehicle mode shares (to work) for Monash are represented by the following:

- Green dot – existing mode share
- Green bar range – forecast mode share (2041):

[17] *2016 ABS Census data considered appropriate for mode share analysis as it is pre-COVID and 2021 is pre-COVID 'normal'. 2021 ABS Census data considered appropriate for car ownership data as on balance 2016 and 2021 data is similar.*

» Upper end of bar (baseline SRL Business Investment Case (2012) / SRL East Environment Effects Statement (2021)

» Lower end of bar (future target mode share with Structure Plan).

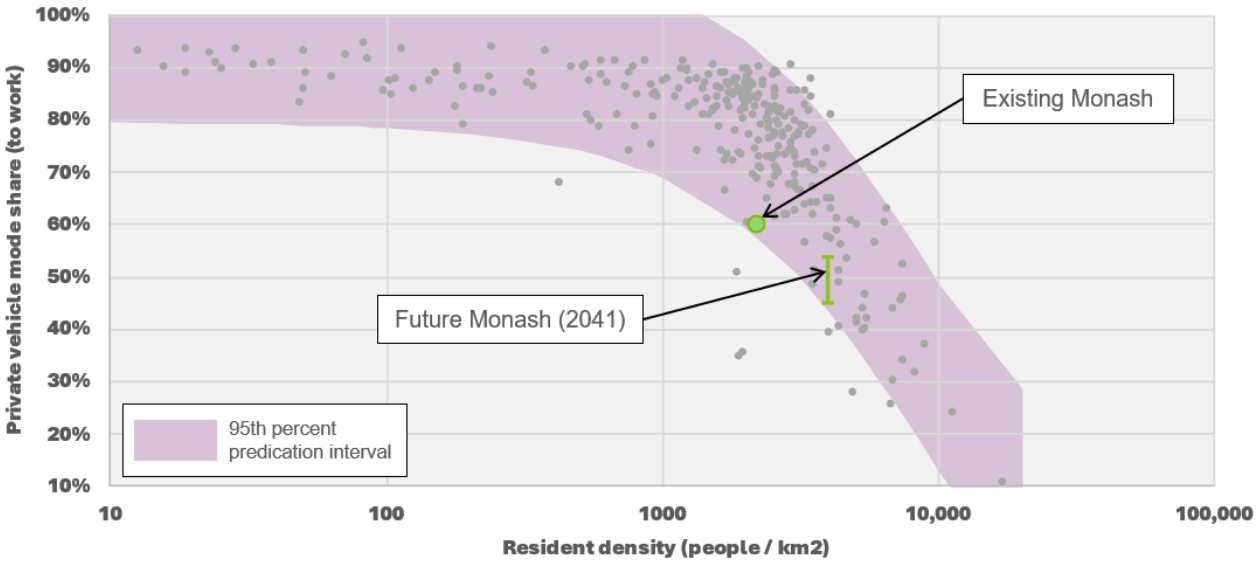


FIGURE 4.4 POPULATION DENSITY AND PRIVATE VEHICLE MODE SHARE FOR MONASH (SOURCE: ABS CENSUS 2016, JOURNEY TO WORK, PLACE OF USUAL RESIDENCE)

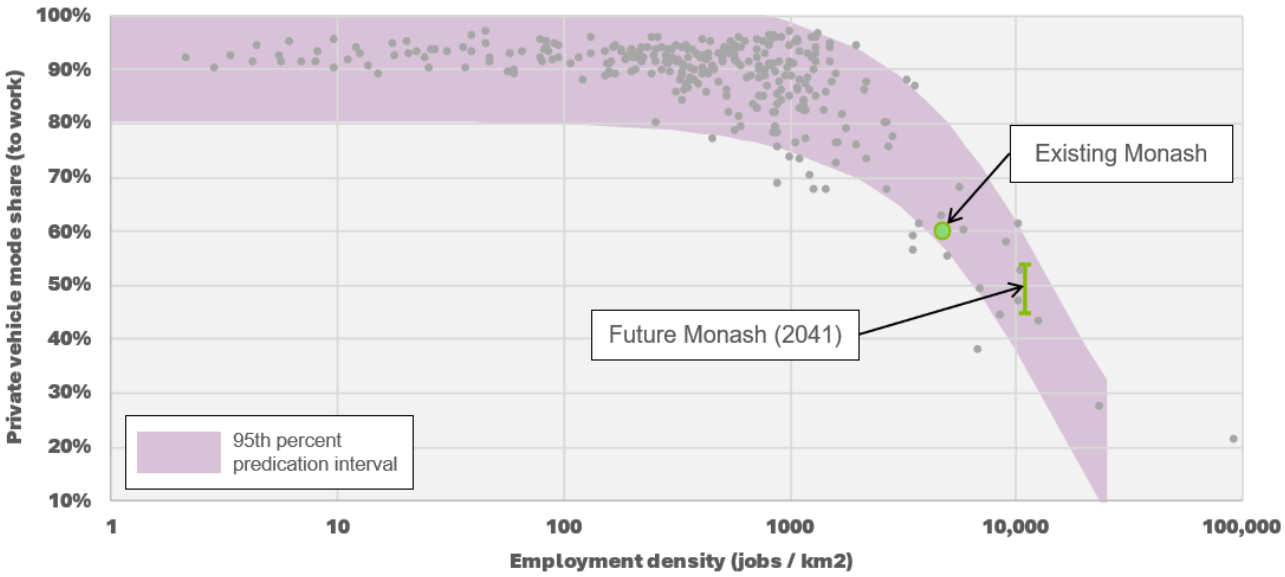


FIGURE 4.5 EMPLOYMENT DENSITY AND PRIVATE VEHICLE MODE SHARE FOR MONASH (SOURCE: ABS CENSUS 2016, JOURNEY TO WORK, PLACE OF WORK)

The SRL East Structure Plan – Transport Technical Report – Monash includes further detail regarding the development of mode share projections for Monash, and the measures required to achieve the transport ambitions and goals. However, Figure 4.4 and Figure 4.5 illustrate that with increasing population and employment density anticipated, a shift toward sustainable travel mode shares would be expected (resulting in a shift from private vehicles to other forms of transport including public transport, walking and cycling).

4.4 Parking demand assessment

High level 2041 land use estimates for the Monash Structure Plan Area were used to undertake a broad assessment of additional office and residential parking demands.[18] The forecast growth in office land use and dwellings are summarised in Figure 4.6. The 2041 forecast growth forecasts indicate an increase of 316,100 m^2 office land use and 4350 dwellings.

FIGURE 4.6 MONASH STRUCTURE PLAN AREA OFFICE AND RESIDENTIAL GROWTH

An indicative and approximate parking demand assessment was made considering a 'business as usual' approach—that is, the parking demand status quo demands is maintained— and a 'mode shift' scenario where a mode shift toward sustainable travel modes may be achieved with transport and associated interventions, including but not limited to additional development parking controls. The latter would result in lower office parking demands and average residential car ownership over time.

Existing and forecast future mode share projections as well as associated and indicative residential car ownership and office parking demand rates used as a guide are provided in:

- Section 4.3 – existing and forecast mode share
- Section 2.2.1.1 – residential car ownership
- Section 2.2.1.2 – office parking demand.

On this basis, the following assumptions are made for a 'business as usual' and 'mode shift' scenario parking demand assessment for the Monash Structure Plan Area:

- Business as usual scenario – indicative assumptions:
  - » Average office parking demand – 3.3 spaces / 100 m^2
  - » Average residential parking demand – 1.3 spaces / dwelling
- Mode shift scenario – indicative assumptions:
  - » Average office parking demand – 1.7 spaces / 100 m^2 office land use
  - » Average residential parking demand – 1.1 spaces / dwelling.

18 Land Use Scenario and Capacity Analysis (LUSCA) forecasts & SRL East Structure Plan – Housing Needs Technical Assessment – Monash office land use estimate rounded to nearest 100 sqm (gross leasable area GLA estimated from gross building area GBA), residential land use estimates rounded to nearest 50 dwellings.

It is noted the above is based on broad assumptions for the whole Structure Plan Area, and that inner areas with higher levels of transit accessibility and walkability are expected to exhibit lower parking demands, particularly as the area develops over time. Figure 4.7 summarises the estimated increase in office and residential parking spaces required under a 'business as usual' (BAU) approach and 'mode shift' approach to provide an indication of the types of outcomes.[19]

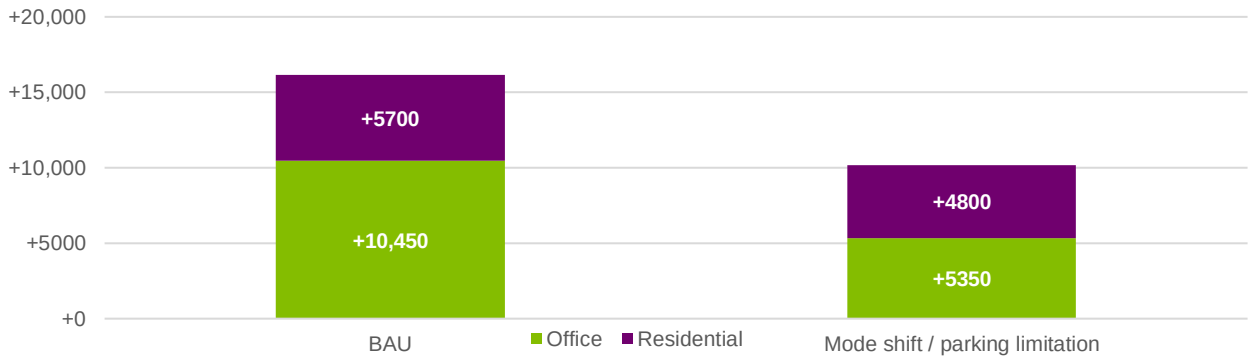


FIGURE 4.7 MONASH STRUCTURE PLAN AREA - 2041 ADDITIONAL PARKING DEMANDS

Under the 'business as usual' approach, forecast 2041 office and residential land uses equate to an additional parking demand of approximately 16,150 car parking spaces comprising 10,450 office spaces and 5700 residential spaces. Conversely, assuming a mode shift toward sustainable travel modes and associated reductions in office and residential car parking demands, the 'mode shift' scenario indicates approximately 10,150 additional car parking spaces comprising 5350 office spaces and 4800 residential spaces.

This equates to a 37 per cent reduction, or 6000 less car parking spaces in the Monash Structure Plan Area, comprising 5100 less office car spaces and 900 less residential car spaces.

In terms of traffic and congestion improvements, a shift toward sustainable travel modes (public transport, walking and cycling) has clear positive benefits such as reducing the numbers of vehicle movements on the road network in and around the Structure Plan Area. As a broad and indicative guide, and assuming conservative traffic generation rates,[20] the estimated reduction in additional parking demands suggests an approximate 40 per cent reduction in office and residential land use generated vehicle movements in and around the Monash Structure Plan Area.

This assessment highlights that continuing the "business as usual" approach to parking would result in a higher number of parking spaces compared to the "mode shift scenario" and lead to outcomes that are inconsistent with the transport ambition set out in the Transport Technical Report - Monash and Precinct Vision.

There are several positive and relative benefits from a mode share shift toward sustainable travel modes and associated lower parking demands, due to many factors including parking management techniques including but not limited to:

- More efficient use of space within developments and increased land use opportunity
- Increased affordable housing opportunities

19 Parking demand estimate rounded to nearest 50 spaces.

20 0.5 and 0.25 vehicle movements per space for office and residential (dwelling) land use, respectively.

- Lower overall spatial requirements for parking (in this case approximately 12.6 hectares less space required for parking, or opportunity to be provided for other land use or amenity)[21]
- Lower environmental impacts from emissions and embodied carbon
- Lower parking and vehicle impacts (congestion, spatial impacts, urban design impacts).

[21] *Assuming a conservative average of 21.1 sqm per car space.*

5. Recommendations

Various parking management tools and techniques were reviewed and their implementation is recommended in this Precinct Parking Plan.

Key recommendations of this Precinct Parking Plan relate to:

- Development parking requirements
- Bicycle parking
- Car share schemes
- On-street parking management
- Consolidated car parking
- Unbundled parking
- Shared parking
- Adaptable buildings / re-use of car parking.

Each are discussed in the following sections, with specific recommendations summarised at end of each section. Further detailed discussion on parking demand and transport demand management policy, guidelines and empirical data review is included in Appendix B where noted below.

The alignment of the recommendations with the objectives of the Precinct Parking Plan in Section 3 are summarised in Section 5.9. Implementation responsibilities are discussed in Section 6 and in the Monash Structure Plan.

5.1 Development parking requirements

5.1.1 STANDARD PARKING REQUIREMENTS

Clause 52.06 (Car Parking) of the Victoria Planning Provisions sets out 'standard' requirements for the number and design of car parking spaces in instances when this clause applies.

'Standard' statutory minimum parking requirements for developments are set out in Table 1 of Clause 52.06-5 of the Victoria Planning Provisions (where applicable). Reduced minimum 'Column B' rates in Table 1 in Clause 52.06-5 also apply for areas located within the designated Principal Public Transport Network (PPTN) area.

Depending on the land use and rate measure, 'Column B' rates can equate to a reduction of 13 per cent to 65 per cent to 'standard' Clause 52.06 rates,[22] and are provided on the basis that developments within the PPTN have a higher proximity and access to public transport services, and so have a lower requirement for parking spaces based on a shift away from private car use.

5.1.1.1 Modernising car and bicycle parking requirements (PTALs)

Reform work being considered by the Department of Transport and Planning (DTP) proposes a potential replacement to the current standard statutory parking requirements under Clause 52.06 of the Victoria Planning Provisions.

DTP released the *Modernising car and bicycle parking requirements discussion paper* in October 2023 and sought submissions from stakeholders including municipal councils, the Municipal Association of Victoria

[22] *Based on Column A vs Column B rates for 'shop (other than listed…)' and 'food and drink premises' to 'industry (other than listed…)' uses. Other uses' reductions vary, notwithstanding reduced provision rates also include 'office (other than listed…)', 'market', 'restricted retail' uses, etc.*

(MAV) and the Council Alliance for a Sustainable Built Environment (CASBE). SRLA also consulted with DTP on the discussion paper. It is understood that DTP is considering feedback from submissions received.

Changes proposed in the discussion paper include an alternative approach based on Public Transport Accessibility Level (PTAL) to remove or refine minimum car parking rates and instead apply maximum car parking rates. Medium and high PTALs are generally proposed to include maximum and reduced maximum car parking requirements.

While still under development, it is understood that DTP has proposed the alternative approach partly on the basis that (italics denote direct quotes from the discussion paper):

- The 'standard' requirement to require a permit to waive or reduce minimum parking requirements generates significant numbers of permit applications which can mean lengthy application decision periods[23]
- Minimum parking requirements *'also results in the need to allocate land for car parking in areas where it may not be required, leading to inefficient use of limited available land which could be better utilised for housing, employment or open space'*
- Including a car parking space can add significant additional development costs *('up to $50,000 to the cost of an apartment')*
- *'Minimum car parking requirements can encourage an oversupply of car parking, which results in increased traffic, noise and emissions and a poorer quality urban environment.'*

The proposed PTAL-based and varied minimum and maximum parking rates (including minimum, minimum-maximum (range) and maximum rates) recognise that differences in accessibility levels impact transport choices and parking demands.

The proposed PTAL-based approach includes four accessibility levels: poor, low, medium and high. DTP's discussion paper recognises that a shift away from minimum parking requirements is appropriate for low, medium and high levels of accessibility (PTALs), noting these categories include varying application minimum-maximum ranges or maximum parking requirements.

5.1.2 THE PARKING OVERLAY

Varied standard parking requirements of Clause 52.06 may be introduced via a Parking Overlay and accompanying Schedule to Clause 45.09 of the Victoria Planning Provisions (minimum, minimum-maximum (range) or maximum rates) and are based on a number of stated parking objectives.

A number of metropolitan Melbourne areas feature Parking Overlays with varied and reduced parking requirements (provision rates). These are applied in activity centres, urban renewal areas, activity and movement corridors and specific development sites or areas where varied parking requirements are considered beneficial.

A Schedule to Clause 45.09 (Parking Overlay) may include specific parking rates, decision guidelines, design standards and application requirements, and may:

- Vary Clause 52.06 requirements of the Victoria Planning Provisions
- Specify additional requirements to Clause 52.06

[23] *DTP notes approximately 900 amended planning permits to waive or reduce minimum requirements in the 2021-22 financial year, with an average of 121 days for application approval decision (Modernising car parking and bicycle facilities requirements, discussion paper, DTP, October 2023).*

- Specify that financial contribution is a way of meeting Clause 52.06 requirements (in lieu of)
- Specify that a permit must not be granted to reduce (including to zero) the requirement under Clause 52.03-5 or the Parking Overlay
- Specify that a permit must not be granted to provide more than the maximum rate under the Parking Overlay
- Specify exemption from permit requirement under Clause 52.06-3 ('permit requirements')
- Specify that a permit must not be granted to provide some of all parking required under Clause 52.06-5 or the Parking Overlay to another site
- Specify that a permit is not required under Clause 52.06-3.

Varied parking rates apply to specific land uses. For dwellings, this typically only applies to construction of more than one dwelling on a lot (multi-dwelling developments and apartments, not a single dwelling on a lot).

A summary of the select Parking Overlays includes the residential and key non-residential parking rates summarised in Table 5.1.

TABLE 5.1 EXISTING PARKING OVERLAY EXAMPLE SUMMARY

LAND USE		MINIMUM RATES	MAXIMUM RATES
Residential	1 bedroom dwelling 2 bedroom dwelling 3+ bedroom dwelling	0.5 to 1 spaces / dwelling 0.75 to1 spaces / dwelling 1 to 2 spaces / dwelling	0.5 to 2 spaces / dwelling 0.5 to 2 spaces / dwelling 1 to 2 spaces / dwelling
Non-residential	Office Retail premises [1]	1.5 to 3.5 spaces / 100 m^2 0.5 to 4 spaces / 100 m^2	1 to 3 spaces / 100 m^2 1 to 3.5 spaces / 100 m^2

[1] Includes retail and supermarket land use rates (where relevant)

The rate ranges which have been observed from current Parking Overlay examples above, for residential, office and retail land uses, are generally consistent with those rates which have been recommended for the SRL East precincts (as discussed later in this section).

5.1.3 PARKING RATE APPLICATION

This section considers the relative merits of specifying minimum, minimum-maximum (range), or maximum parking rates.

5.1.3.1 Minimum parking rates

> ***Minimum car parking requirements can encourage an oversupply of car parking, which results in increased traffic, noise and emissions and a poorer quality urban environment.*** [24]

'Standard' and PPTN-based Clause 52.06 parking requirements are based on minimum car parking requirements. This is the typical approach. It effectively protects against under-provision but it can encourage a higher reliance on private car use and parking in excess of what is required, even if reduced minimum rates are used.

[24] *Modernising car parking and bicycle facilities requirements, discussion paper, DTP, October 2023.*

Reduced minimum parking requirements may be implemented via a Parking Overlay and accompanying Schedule.

5.1.3.2 Minimum-maximum (range) parking rates

While less common, parking requirement 'ranges' are adopted in the Footscray Metropolitan Activity Centre Parking Overlay (summarised in Appendix B).[25] They are also proposed in reform work being considered by DTP including in its *Modernising car and bicycle parking requirements discussion paper* for several PTAL rating categories, depending on land use group application. This sets:

- A minimum parking requirement – to protect under provision and reduce off-site parking intrusion impacts.
- A maximum parking requirement – which sets a de facto parking cap to reduce associated vehicle movements and congestion, as well as reduce environmental impacts, and to support a shift to sustainable travel modes.

In the case of the Footscray Metropolitan Activity Centre Parking Overlay, it is noted the minimum and maximum requirements are both discretionary, as a permit may be granted to reduce the minimum requirement (including reduce to zero) and to exceed the maximum requirement.

5.1.3.3 Maximum parking rates

> ***'Minimum parking requirements subsidise cars, increase traffic congestion, pollute the air, encourage sprawl, increase housing costs, degrade urban design, prevent walkability, damage the economy, and penalise people who cannot afford a car.'***[26]

The AustRoads parking management guide (AGTM11-20) includes discussion of maximum car parking rates as part of a 'parking policy toolbox'. It notes that best practice in major city centres is moving towards imposing 'maximum permitted parking capacities' and away from 'minimum mandated parking supply allowances'. This is primarily because the availability of parking is an important influence in determining travel behaviour and so is an effective tool in travel demand management (as well as reducing vehicle movements and congestion and associated environmental impacts, compared with a Business-as-Usual approach).

As the examples in Appendix B show, a number of Parking Overlays in other areas of metropolitan Melbourne (including urban renewal precincts) include maximum car parking rates rather than the traditional minimum rates. Some include a mix of minimum and maximum rates as a range, as in the Footscray Metropolitan Activity Centre Parking Overlay(s). Other jurisdictions that adopt maximum car parking rates include the City of Waverley (New South Wales), New Zealand, London (United Kingdom), Zurich (Switzerland), San Francisco (United States) and Edmonton (Canada).

Appropriate use of maximum parking rates is considered especially useful in limiting car parking supply and car use for non-residential land uses, where parking provision may effectively cap and reduce the 'end-of-trip' parking supply. The implementation of maximum rates is a technique that enables development to strike a suitable balance between progressive transport outcomes with commercial and user need for parking. Notably, other metropolitan Councils have supported the introduction of maximum rates based on the following aspects:

- Rapid rate of development and land use change

[25] *Minimum-maximum ranges are also included in the very small 'North Road, Ormond PO10' area in Glen Eira Council, however noting that unlisted land uses default to Column B rates as maximum parking requirements (include no minimum requirement).*

[26] *Professor Donald Shoup - Department of Urban Planning - University of California, Los Angeles (UCLA).*

- Significant number of car trips, constrained road network and high-levels of traffic congestion
- Extensive car parking detracting from built-form outcomes and streetscape appearance
- Excessive current rates in the Planning Scheme, which are not reflective of local environs and/or accessibility.

Based on these, the application of maximum rates would be generally consistent with current practice adopted and in particular, where a more proactive approach is necessary to 'trade-off' parking needs with achieving a sustainable transport and place outcomes. The objectives of this Structure Plan and Precinct Parking Plan are seeking such outcomes, which makes utilisation of maximum rates appropriate.

Maximum parking rates also allow flexibility for developments and associated parking provision to respond to changing land use and accessibility levels over time. For example, developments can provide less parking over time if accessibility levels improve, such as the commencement of SRL East rail services. However, they do require careful consideration and management of publicly available off and on-street parking in the area the Parking Overlay applies to as well as the immediately surrounding areas.

It is important to consider if there are potential negative impacts of maximum rates and address them, with key issues and approaches to mitigate these being:

- Ensuring adequate provision for proposed land uses.
  There is likely to remain some level of parking need, and rates (as discussed) should provide a suitable 'balance' by enabling lower level of parking where appropriate for 'as-of-right' uses, whilst enabling higher rates of parking to be sought through a planning permit process.

- Inadequate provision resulting in parking in local streets.
  Car parking controls/restrictions are provided within the areas recommended for maximum parking rates. These controls will naturally need to be refined and improved to reduce the likelihood of parking impacts and overspill into surrounding streets, both within the area to which maximum rates apply and its periphery. The preparation of a kerbside management plan which includes reviewing parking controls is a recommendation in the Transport Technical Report.

- Reduction of local traffic may result in increased through traffic.
  Changes to parking are intended to manage further private vehicle demand and provide opportunities to enhance place rather than provide additional capacity on the road networks. Various transport improvements are recommended within the Transport Technical Report to support increased active and public transport.

The areas recommended for maximum parking rates in the SRL East precincts have been determined based on land uses in the Structure Plan, current parking controls together with recommendations that include sustainable transport improvements and the development of a kerbside management plan that are expected to mitigate these potential adverse impacts. As acknowledged earlier in this PPP, the recommendation for maximum rates provides a clear focus on a post-SRL period, with the proposed rates themselves set to allow for gradual reduction over time during the 'transitionary' period prior to SRL opening, as active travel, public transport, and parking controls / management within the precincts improve.

A maximum car parking rate mechanism (that is, in a Schedule to the Parking Overlay) may include the discretionary ability to provide in excess of the maximum to the satisfaction of the relevant authority (the local Council).

More discussion on car parking rates, and an assessment on empirical evidence and policy support for them is provided in Appendix B.

5.1.4 RECOMMENDATION

A mix of maximum and minimum-maximum (range) and parking rates are recommended for the Monash Structure Plan Area in two separate areas, noting they:

- Support the objectives of the Structure Plan, including a shift toward sustainable modes of transport
- Provide flexibility for developments and associated parking provisions to respond to changing land use and accessibility levels over time
- Are considered best practice in major and key activity centres
- Provide a de facto car parking cap
- Are an effective travel demand management tool
- Are effective in reducing vehicle movements, congestion and environmental impacts.

Selective uses of minimum parking rates for particular uses in parts of the Structure Plan Area where the pre-conditions for implementing a mix of maximum and minimum-maximum rates do not currently exist. However, this approach should be reviewed as these conditions are planned to change over time.

Two Parking Overlays have been developed with SRLA and are proposed for the Monash Structure Plan Area including minimum and minimum-maximum (range) rates in ‘Area B’ and maximum car parking rates in ‘Area A’. The proposed Parking Overlay areas and rates are summarised in Figure 5.1 and Table 5.2 on the following page.

The parking overlay areas have been developed considering the following:

- Area A Parking Overlay area considers:
  - » Higher density and diverse mix of land uses including consideration of the 'Monash central' and north-eastern parts of the “Employment Growth” neighbourhoods defined in the Monash Structure Plan
  - » Proximity to existing and future public transport, including the new SRL station.
  - » Areas with existing on-street parking management. Only some streets within Area A have parking controls given the current land use. Whilst many surrounding streets have on-street parking management, there are others including areas to the north of Fern Tree Gully Road and to the east of Blackburn Road which do not.
- Area B Parking Overlay area is based on the remainder of the Monash Structure Plan Area.

FIGURE 5.1 MONASH RECOMMENDED PARKING OVERLAY ZONES

TABLE 5.2 MONASH RECOMMENDED PARKING OVERLAY RATES

USE	EXISTING MINIMUM RATES [1]	AREA A (MAXIMUM)	AREA B	UNIT/ MEASURE
Dwelling	1	0.7	0.5 min – 1 max	1 bedroom/studio
		1	0.7 min – 1 max	2 bedrooms
	2	1.4	1.4 min – 2 max	3+ bedrooms
Residential building (student accommodation)	0.3-0.4 (min) [2]	0.3 (maximum)		bed
Supermarket	5	3.5	3.5 min	100 m2 LFA
Retail premises, including Shop	4	3	Retail – N/A Shop – Clause 52.06 'Column B' rates (minimum)	100 m2 LFA
Office	3.5	3		100 m2 NFA
Other		Clause 52.06 'Column B' rates (maximum)		

[1] Clause 52.06-5 Table 1 Column A rates, includes residential visitor rates not shown here, [2] Monash local policy 16.01-1L-02

The proposed parking rates in Table 5.2 for residential and non-residential land uses in the two Parking Overlay areas summarised in Figure 5.1 were developed on the following basis:

- Area A
  - » Residential maximum rates are based on existing ABS average car ownership levels in Monash, as discussed in the body of this Precinct Parking Plan and Appendix B.
  - » Student accommodation (residential building) maximum rates are based on existing local policies and empirical data discussed in Appendix B. It is noted the proposed 0.3 maximum space / bed is the same as the minimum requirement set out in Monash City Council's local policy and offers a parking cap for student accommodation developments in Area A.
  - » Commercial (office, retail and supermarket) maximum rates are based on a review of existing Australian and international policies, guidelines and empirical evidence from the SRL East Structure Plan Areas and other locations discussed in Appendix B.
  - » All other land uses (unspecified land uses) are proposed to defer to maximum rates from Column B of Table 1 of Clause 52.06 of the Monash Planning Scheme.
- Area B
  - » Residential minimum-maximum (range) rates with minimum rates using maximums set for Area A (based on reduced ABS ownership levels[27]) but capped with a maximum rate at the equivalent Column B of Table 1 of Clause 52.06 rates from the Monash Planning Scheme. This protects for potential under provision of parking while capping parking provision at the current 'standard' rate in the Planning Scheme.
  - » Supermarket minimum rate based on a review of existing policies, guidelines and empirical evidence from the SRL East Structure Plan Areas and other locations discussed in Appendix B.
  - » All other land uses (unspecified land uses) are proposed to defer to minimum rates from Column B of Table 1 of Clause 52.06 of the Monash Planning Scheme. Where relevant local policies may apply (such as residential building – student accommodation) rates are set in Clause 16.0-1L-02 of the Planning Scheme).

5.1.4.1 Application requirements and decision guidelines for permit applications

Clause 52.06 of the Monash Planning Scheme includes a number of permit requirements, application requirements and decision guidelines, and other requirements. This includes but is not limited to requirements and guidance for applications (Clause 52.06-3 and Clause 52.06-7) to: [28]

- Provide less than the minimum requirement (including reduce to zero)
- Provide more than the maximum parking requirement
- Provide some or all parking spaces on another site.

The first two items require preparation of a Car Parking Demand Assessment, and include decision considerations which may consider a number of factors, including availability of public transport services, empirical assessments (including anticipated car ownership rates), walking and cycling convenience, future growth of nearby activity centres and many others.[29]

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[27] *This equates to an approx. 30% reduction to provide a minimum rate 'floor' below current practice (and provide a broadly consistent rate range across all SRL East precincts).*

[28] *As applicable under Clause 52.06 and/or the Schedule to the Parking Overlay associated applications*

[29] *Car Parking Demand Assessment and decision considerations vary between application scenarios set out in Clause 52.06-7.*

All rates are proposed to be discretionary, with the ability to vary parking provisions to the satisfaction of the responsible authority. The existing clauses in Clause 52.06 of the Monash Planning Scheme include several factors for consideration when considering permit applications under these scenarios.

Notwithstanding, as noted in Section 5.1.2, a Schedule to the Parking Overlay can vary a number of requirements, decision guidelines and other items in Clause 52.06. Appropriate application requirements, decision guidelines and design standards should include consideration of:

- Bicycle parking spaces (see Section 5.2)
- Car share scheme spaces (see Section 5.3)
- Consolidated parking spaces (see Section 5.5)
- Unbundled parking spaces (see Section 5.6)
- Shared parking spaces (see Section 5.7)
- Anticipated effectiveness of an 'Adaptable Parking Plan' (see Section 5.8).

Development car parking control recommendations:

MNTP 3 – Implement development parking controls, limiting new development parking provisions.

MNTP 4 – Support major landholders to explore reducing existing parking supply and adopting alternative uses for the land as accessibility and density in the Structure Plan Area increase.

5.2 Bicycle parking

On-site bicycle and end-of-trip facility parking requirements are detailed in Clause 52.34 of the Victoria Planning Provisions..

Providing bicycle parking spaces (on-site and off-site), end-of-trip facilities and cycling infrastructure to promote a shift from private vehicle use supports various SRL East goals and objectives. More people cycling also reduces demand for car parking.

Significant levels of bicycle parking will be provided at SRL East stations, based on broadly 15 per cent of daily patronage numbers (boardings). A range of between 400 to 750 bicycle parking spaces will be provided across each SRL station precinct, increasing to a capacity of between 800 and 1500 spaces in future. Monash will include capacity for 700 bicycle spaces with the ability to increase to 1400 bicycle spaces.

While the significant bicycle parking at the SRL station at Monash will support more cycling and access to the rail network, more bicycle parking is required to increase cycling not related to SRL East (that is, to, from and within Monash) and reduce the number of car parking spaces needed.

The SRL East Structure Plan – Transport Technical Report – Monash discusses the need to increase bicycle parking, with recommendations for new developments through Planning Scheme controls, as well as recommendations to work with the City of Monash to increase bicycle parking in the public realm, including but

not limited to as part of mobility hubs (as well as bicycle transport infrastructure). This is supported by a recommendation to significantly increase the amount of on and off-road bicycle infrastructure.

In addition, the SRL East Structure Plan – Transport Technical Report – Monash discusses the need for more guidance to inform the design of bicycle parking and end-of-trip facilities to encourage cycling and micromobility as primary travel modes. This is also in response to how bicycle parking must cater for the rapidly expanding range, form, and powering of cycling and micromobility options available to the public.

Australian and international design standards, research papers and guidance documents were reviewed to provide a summary of recommended bicycle parking and end-of-trip facilities requirements. This includes provision for non-standard device storage, charging capabilities for electric bikes, security of bicycle parking, weather protection, showers, change rooms and lockers.

More discussion on cycling infrastructure and end-of-trip facilities is provided in Appendix B.

Recommended minimum bicycle parking rates proposed for the entire Structure Plan Area are summarised in **Table 5.3**. Further details on the basis of the recommended bicycle parking rates are provided in the Appendix B. Additional bicycle parking provisions will be encouraged over and above the rates proposed in **Table 5.3**.

TABLE 5.3 MONASH RECOMMENDED MINIMUM BICYCLE PARKING RATES (ENTIRE STRUCTURE PLAN AREA)

USE	CATEGORY	MINIMUM BICYCLE PARKING RATE	UNIT/MEASURE
Dwelling	1 or 2 bedroom	1	Per dwelling
	3+ bedroom	2	
	Visitor parking	0.25	
Office	Employee	0.5	*per 100 m^2 NFA [1]*
	Visitor	0.2	500 m^2 NFA [1]
Retail premises	Employee	0.33	*per 100 m^2 LFA [2] [3]*
	Customer	0.6	Per 100 m^2 LFA, if LFA exceeds 500m^2 [2]
Education	Staff	0.1	Per staff
	Student	0.3	Per student, for primary school pupils over year 4
Leisure and recreation	Person	0.1	Per staff, participant & spectator

[1] Net Floor Area, [2] Leasable Floor Area, if use unlisted revert to Clause 52.34 [3] or 1 space per 300m^2

In addition, the recommended statutory feature requirements for bicycle parking and end-of-trip facilities in the Monash Structure Plan Area are summarised in Table 5.4.

These are proposed on the basis of a detailed review of Australian and international precedents, research papers, cycling design standards, advocacy papers and bicycle use data. These findings were then translated to recommendations that considered specific relevance to the Monash Structure Plan Area and the vision for it. Further details on the basis of the recommended bicycle parking supporting facilities and design guidance are provided in Appendix B.

TABLE 5.4 MONASH RECOMMENDED SUPPORTING BICYCLE PARKING FACILITIES

FEATURE	RESIDENTIAL	OFFICE	RETAIL PREMISES	EDUCATION	LEISURE AND RECREATION	PUBLIC REALM
Non-standard	10% of facilities plus 1 cargo/family space per 3 bedrooms	-	10% of facilities	-	5% of facilities	5% of facilities
Floor mounted / non-lift options	50%	50%	100%	100%	100%	100%
Security [1]	Cage	Cage & racks	Cage & racks	Cage & racks	Racks	Cage and racks
E-bike charging	10% future capability	Best practice	-	10% staff	10% staff	In mobility hubs only
Weather protection	Yes	Yes	No	Yes	No	In mobility hubs only

[1] Similar to Clause 52.34, employee and resident spaces to be provided in a secure location (lockable bicycle locker, cage or compound).

Bicycle parking and end-of-trip facility recommendations:

MNTP 1 – Implement increased minimum bicycle parking and end-of-trip facility requirements to support sustainable modes and reflect the change in cycling use within 'living locally' neighbourhoods and over time.

MNTP 2 – Develop public realm cycling and micromobility end-of-trip policy and guidelines.

5.3 Car share schemes

Car share schemes provide people with a private vehicle without the need to own it, pay for its upkeep, or provide a parking space. This is considered an efficient way to allow use of a car while reducing the reliance on car ownership and supply of parking spaces.

Car share schemes offer various vehicles including small, medium and larger passenger cars, vans and people movers. Electric vehicles are increasingly part of their fleet.

Combined with high-quality local public transport services and active travel facilities, car share schemes can help reduce reliance on car ownership, especially for people who only require a private vehicle occasionally.

Research suggests that a single car share vehicle in metropolitan Melbourne can replace 7 to 10 privately-owned cars (referenced in City of Yarra Car Share Policy 2019–2024, CASBE SDAPP[30]). European research suggests a single car share vehicle can replace 12 to 15,[31] and up to 20 privately-owned cars in the most optimistic scenarios assessed.[32]

[30] *Shaheen , S.A. & Cohen, A.P. (2013): Carsharing and Personal Vehicle Services: Worldwide Market Developments and Emerging Trends, International Journal of Sustainable Transportation, 7:1, 5 34*

[31] *Case Studies on Transport Policy, September 2022, 'A dozen effective interventions to reduce car use in European cities: Lessons learned from a meta-analysis and transition management', www.sciencedirect.com/science/article/pii/S2213624X22000281, 06/09/23.*

[32] *Transportation Research, November 2020, 'Does free-floating carsharing reduce private vehicle ownership? The case of SHARE NOW in European cities', www.sciencedirect.com/science/article/pii/S0965856420307291, 06/09/23.*

Car share schemes currently operate across metropolitan Melbourne, including in areas with SRL East stations. For example, 'GoGet' operates in the Box Hill, Monash, and Clayton Structure Plan Areas, with two pods located just outside the Glen Waverley Structure Plan Area near Syndal Station on Pimm Court and Doynton Road. 'Flexicar' also operates in Burwood and Monash.

In 2022, the City of Whitehorse partnered with GoGet for an 18-month trial in the municipality. In August 2023, the number of GoGet vehicles in Whitehorse was increased due to high demand exceeding the trial targets (currently operating six vehicles). The significant access and coverage of GoGet in inner Melbourne is shown in Figure 5.2.

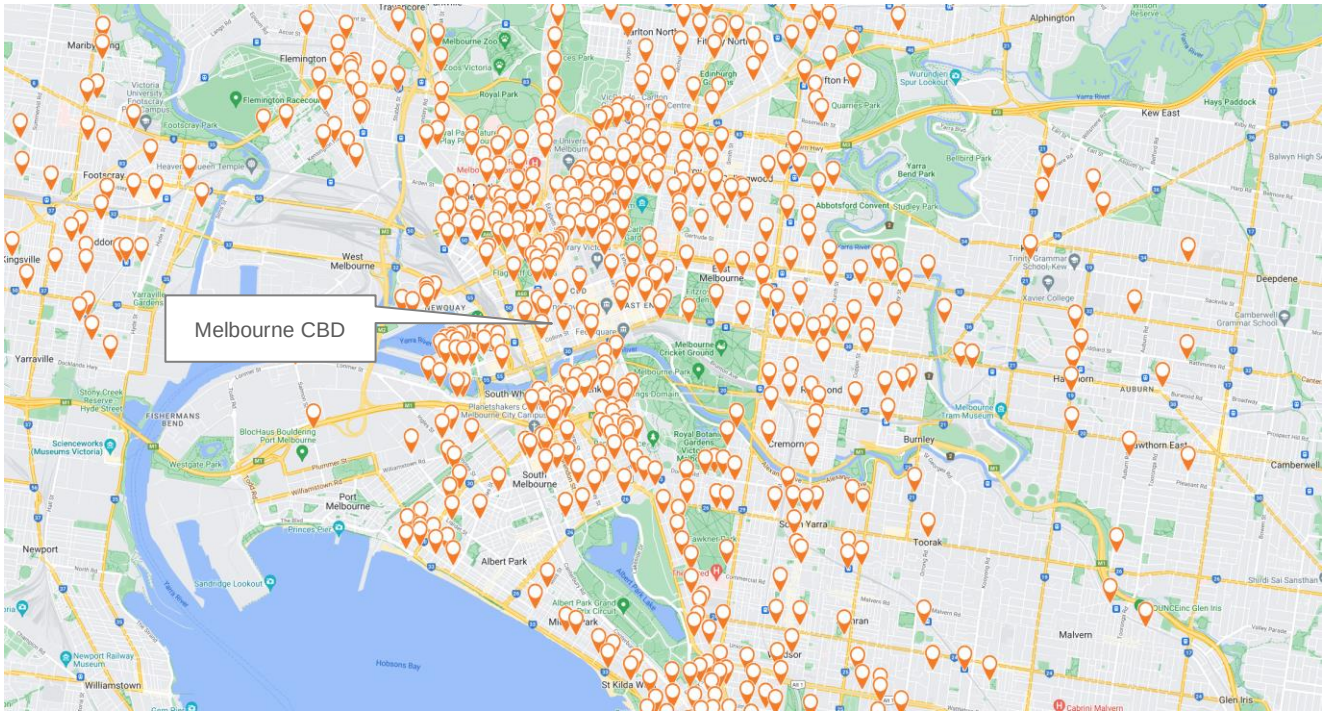


FIGURE 5.2 INNER MELBOURNE GOGET CAR SHARE SCHEME VEHICLE LOCATIONS (WWW.GOGET.COM.AU/FIND)

The planning schemes of Bayside, Boorondara, Monash, Kingston and Whitehorse do not currently include any car share scheme requirements (noting that Whitehorse's GoGet car share scheme trial is a non-statutory parking management tool). However, car schemes are discussed in the parking management policies of the cities of Boroondara and Kingston (Car Share Policy 2013 and Parking Management Policy 2023 respectively) and provide implementation requirements.

Car share parking may be provided in on-street and off-street areas, with the most common arrangement being on-street locations due to access and commercial considerations, noting that car share vehicles are provided in commercial car parking facilities in central Melbourne.

5.3.1 ON-STREET CAR SHARE

Publicly available on-street car parking spaces (where restricted) can be converted to car share spaces with appropriate parking restrictions. This arrangement requires agreement between a car share scheme operator and the local government, and may include registration fees and annual permit fees.

5.3.2 OFF-STREET CAR SHARE (ON-SITE)

The City of Melbourne Planning Scheme requires that parking in new developments allocate a minimum of 5 per cent of spaces to car share scheme vehicles (following recent amendments to the Planning Scheme: Parking Overlay and accompanying Schedules for West Melbourne PO14 and Arden PO15) – noting these areas have relatively low maximum car parking rates.

The City of Port Phillip and the City of Melbourne have set car share scheme requirements under the Fishermans Bend Urban Renewal Area (Schedule to the relevant Capital City Zone) as summarised in Table 5.5.

TABLE 5.5 FISHERMANS BEND URBAN RENEWAL PRECINCT – CAR SHARE SCHEME REQUIREMENTS

		SPACES ALLOCATED TO ACA CAR SHARE SCHEME	
Developments of more than 50 dwellings	Provision of spaces	2 spaces plus 1 per 25 car spaces	
	Provision of visitor spaces	n/a	
Developments with over 10,000 m^2 non-residential floor space	Provision of spaces	For all developments with 120 or less car spaces: A minimum of 2 spaces	For developments with more than 120 car spaces: 1 per 60 car parking spaces
	Provision of visitor spaces	n/a	

Statutorily required on-site car share scheme spaces, especially in private parking facilities (not commercial car parks), may be problematic as they rely on third party agreement (car share scheme operators). Certain developments and/or locations may not be economically viable for the operator at the time of the development's construction, if at all.

5.3.3 RECOMMENDATION

Increased provision and use of car share schemes in Monash is supported noting car share scheme benefits discussed above such as less car parking required in developments and lower car ownership.

Car share scheme spaces should be encouraged in on-street car parking areas and within off-street development sites. The following is therefore recommended:

- Car share policies and/or guidelines are developed in consultation with the City of Monash
- Relationships between key stakeholders and car share operators are developed and strengthened
- Car share scheme space provisions are acknowledged and supported in updates to the Monash Planning Scheme, potentially addressed via decision guidelines and design standards within a Schedule to the Parking Overlay and/or appropriate Schedule to the relevant zone

Car share scheme recommendations:

MNTP 12 – Encourage Council to develop policy and guidelines for car share schemes in public areas and new developments that include electric vehicle charging facilities, by

- Facilitating stronger relationships between developers and car share operators
- Recognising electric vehicle charging for car share schemes in Green Travel Plans
- Encouraging on-site car share scheme parking with electric vehicle charge points.

MNTP 21 – Encourage car share scheme parking spaces in developments.

5.4 On-street parking management

On-street parking is managed by the relevant local government. Various techniques and tools can be employed to manage parking and demand to enable the efficient and equitable use of space and contribute to urban design outcomes.[33]

On-street parking management is considered critical in areas of high parking demands (occupancy and turnover), where parking intrusion occurs from non-residential to residential uses (a common issue in activity centres) and where parking minimisation policies are adopted by the relevant authority. The main on-street parking management techniques can be broadly categorised[34] as:

- **Restrictions** ensure equitable use of parking spaces:
  - » Reserved parking for certain users or vehicles:
    - parking for people with disabilities (DDA-compliant spaces for disability permit holders)
    - loading (to support loading and delivery activities in commercial areas)
    - special vehicles (car share scheme, authorised vehicles, taxis)
    - permit schemes / resident parking zones (to manage parking intrusion in residential areas)
  - » Unrestricted
  - » Time restricted (with or without time limits):
    - short term (generally 2P or less)
    - long term (2P or greater)
  - » Clearways (to ensure transport network capacity during certain times).
- **Paid parking / ticketing** (a subset of above but listed separately here) – paid parking should generally be considered where insufficient turnover exists (potentially resulting in illegal parking), where high demands result in low levels of vacancies during business hours, or where insufficient proximate off-street parking

[33] It is noted that on-street parking management, kerbside management and freight and loading controls and guidelines overlap in some content and application, however these are distinctly separate management tools noting they all impact parking outcomes. They therefore must be considered holistically.

[34] Including consideration of the Austroads Guide to Traffic Management Part 11: Parking Management Techniques.

facilities exist. Parking studies, including occupancy and turnover surveys, are typically carried out to establish justification of paid parking (on- or off-street).

Technological methods now mean that commercial service providers (PayStay, EasyPark) may streamline implementation of pay parking for local governments.

Modern technological approaches to parking potentially enable the use of dynamic pricing (currently being rolled out in San Francisco (USA) and supported in principle by Infrastructure Victoria[35]).

Dynamic parking pricing allows pricing to vary over time and across locations (time and demand responsive pricing). It is similar to the road pricing concept and could be linked to it as well as public transport pricing. This is untested in Australia, although as noted above, it is supported by Infrastructure Victoria as a means to efficiently manage on-street parking supply.

- **Monitoring and enforcement** – compliance with parking restrictions is important to ensure the success of a parking management strategy or policy. Monitoring was traditionally completed by parking officers on the ground, but technological approaches are increasingly being adopted, including to provide live parking occupancy data (on- and off-street).

In activity centres, on-street parking management techniques are important to manage parking demands of various users, efficient and equitable use of parking spaces. This typically includes short-term parking restrictions and may be ticketed (priced) and but can vary by street typology, street frontage (land use) and other local factors and user requirements.

On-street parking management, kerbside management, and freight and loading controls and guidelines overlap in terms of some of their content and application (the latter two are discussed in the SRL East Structure Plan – Transport Technical Report – Monash). Despite this, they are distinctly separate but supplementary management approaches.

It is proposed that SRLA develop a suite of documents in consultation with the City of Monash to effectively manage the function and needs of the kerbside and on-street parking. Each document must reinforce the objectives of the vision for the Monash Structure Plan Area and this Precinct Parking Plan, and support the significant changes in land use density, diversity, and accessibility levels over time.

While a significant amount of on-street parking in Monash are already managed with short stay time restrictions and resident parking permit zones, on-street parking management will become even more important as population density and diversity of land uses increase in the Monash Structure Plan Area, particularly around the proposed Area A Parking Overlay area. Measures the City of Monash will be encouraged to implement and enforce as part of its On-Street Parking Management Policy, as appropriate, include:

- Additional parking restrictions and permit provisions for residents and other users as required
- On-street parking primarily restricted to short-term use by loading vehicles, visitors and other pick-up/drop-off uses
- More DDA-compliant parking spaces and associated restrictions

[35] Infrastructure Victoria. (n.d.). 6. Parking pricing reform. [online] Available at: https://www.infrastructurevictoria.com.au/report/6-parking-pricing-reform/.

- Appropriate time restrictions in response to increasing density and changes in land uses as the Monash Structure Plan Area develops over time
- More paid parking and ticketed parking may be required, which could potentially include dynamic parking pricing and may require live parking monitoring
- Additional parking restrictions in areas surrounding the Monash Structure Plan Area (such as resident parking zones and permit schemes).

Further details for kerbside management and freight and loading is provided in the SRL East Structure Plan – Transport Technical Report – Monash.

On-street parking management:

MNTP 8 – Encourage Council to further develop and update the on-street parking management policy that supports the significant changes in land use density, diversity and accessibility levels in the Structure Plan Area over time.'

MNTP 17 – Encourage Council to develop a suite of policies and plans with Council to manage the function and needs that interface with the kerbside, which may include:

- A Kerbside and Access Management Framework based on use hierarchy principles which supports urban cooling, sustainable transport modes and reduced private car trips, and on-street parking demands
- A Kerbside Management Plan to inform access, freight and waste management and kerbside use in the Structure Plan Area

5.5 Consolidated car parking

Consolidated parking is shared parking that is generally provided off-site from the end destination to accommodate parking demands generated by developments in the broader area. It can reduce the total amount of parking provided in a precinct by allowing the same space to be used by different people at different times.

Consolidated parking is considered an efficient but untested tool in Victoria when provided to meet individual site statutory parking requirements.

Consolidated car parking also limits the negative impacts of typical distributed parking across multiple sites in an area by providing parking in concentrated and spatially efficient multi-storey car parks.

A shift toward consolidated car parking facilities in an established precinct would ideally be provided ahead of or in time with land use change.

Consolidated parking can be delivered via public funds, perhaps through a financial contribution in a Schedule to the Parking Overlay or other mechanism, or it can be provided through privately-managed car parking facilities for public or private use.

It is considered that consolidated parking should not be mandated, as development of the Monash Planning Area (which is already established) should not be tied to providing consolidated car parking, as it may slow or restrain redevelopment. Rather, support for consolidated parking either via policy or working with local government may be appropriate.

It is proposed that SRLA work with the City of Monash to encourage commercial and publicly operated consolidated parking in Monash. This will contribute to a reduction in individual on-site car parking by allowing the same space to be used by different people at different times and concentrating parking in spatially efficient multi-storey car parks.

Support and encouragement for consolidated car parking facilities is also proposed via application requirements and decision guidelines provided in an appropriate Schedule to the relevant zone (and may also be supported in local policy).

No specific consolidated car parking facilities, or financial contribution requirements, are proposed or identified in this Precinct Parking Plan.

Consolidated parking recommendation:

MNTP 6 – Encourage the provision of consolidated car parking options which could be used to manage accessibility changes over time and reduce reliance on on-site parking.

5.6 Unbundled parking

The price of parking is typically included directly with development costs. That is, parking costs are 'bundled' and fixed with building costs. This means that parking costs are included in the purchase or leasing costs of a building or an apartment, and the costs cannot be avoided, even if those spaces are not initially required or if demands change over time.

'Unbundled' parking is where parking is bought or rented separately. This already occurs in Melbourne where offices or other developments with little to no on-site parking may lease parking spaces in nearby off-site off-street parking facility at a cost (note this is within a commercial off-street car park and not within the development site itself). If there is no demand, there is no cost incurred.

Unbundled parking on residential land uses is uncommon. Parking spaces are usually directly tied to each development via their strata. However, if parking is 'unbundled', an occupant could rent or buy a car space from the owners corporation for an additional cost (that is an increase in the overall dwelling cost of lease). Occupants only pay for the parking spaces they actually need.

This approach is generally considered more efficient and fairer, since occupants may save money if they do not require parking and may adjust access to their parking supply as their needs change.

For this to function efficiently, building owners must be able to lease or sell excess parking spaces. Local officials should regulate nearby on-street parking to avoid spill-over problems if residents use on-street parking to avoid paying costs for parking spaces.

Adoption of unbundled parking over time is expected to result in reduced but more efficient car parking provision, more efficient management of parking facilities, and reduced development costs.

It is recommended to encourage adoption of an unbundled car parking model. This could potentially be implemented as a decision guideline in the Schedule to the parking overlay.

Unbundled parking recommendation:

MNTP 5 – Encourage adoption of an unbundled car parking model for on-site car parking provision and management.

5.7 Shared parking

Car parking demands generated by different land uses peak at different times of the day. Allowing and encouraging shared use of car parking spaces (perhaps between mixed use development sites, or multiple mixed use development sites) enables efficient parking provision and reduces overall supply requirements. Shared use of car parking spaces differs to consolidated parking discussed in Section 5.5 as shared parking typically refers to on-site car parking facilities provided in mixed-use developments and do not accommodate parking demands generated by developments in the wider area.

A number of policies, guidelines and empirical-based parking rates are assessed in Appendix B which support the efficacy of shared parking in reducing overall parking provision requirements.

Shared parking provisions enable more efficient use of, and lower overall parking provisions, where accommodation of different land use parking demand profiles are complementary, especially in mixed use developments.

Shared parking provisions are therefore to be supported and encouraged, and may potentially be addressed via decision guidelines and design standards within a Schedule to the Parking Overlay and/or appropriate Schedule to the relevant zone.

It is noted that no specific shared parking rate is recommended as part of this Precinct Parking Plan.

Shared parking recommendation:

MNTP 20 – Encourage shared parking arrangements in developments to enable efficient and overall lower parking provisions.

5.8 Adaptable buildings / re-use of car parking spaces

Providing on-site car parking spaces has an obvious cost to the built form and use of a development site. The ability to re-use or repurpose car parking spaces provided off-street (and on-street) is an efficient and sustainable use of space and resources. It allows car parks to be repurposed to other uses without needing to be demolished and re-developed. This is especially relevant for areas with expected significant changes to land use and travel behaviour such as the SRL East Structure Plan Areas.

Examples of other precincts across Melbourne with specified built form requirements for the re-use of car parks via a Design and Development Overlay are shown in Table 5.6.

The Box Hill Central North Master Plan proposed amendment to the Whitehorse Planning Scheme (Amendment C245) also included access and car parking design requirements. While not ultimately included in the approved amendment, these are also included below.

TABLE 5.6 EXAMPLE ADAPTABLE BUILDING BUILT FORM REQUIREMENTS

PRECINCT	DESIGN ELEMENT	REQUIREMENT
Arden Precinct (Schedule to Clause 43.02)	Adaptable building car parks	Should have a floor to floor height of at least 3.2 metres Car park ramps should be capable of removal for future adaptation
	Above ground car parking	Should be located on the first floor or above. Should be sleeved to streets.
Fishermans Bend – Lorimer Precinct (Schedule to Clause 43.02)	Adaptable building car parking areas	In areas not in a basement: Level floors. A floor-to-floor height at least 3.8 metres. Mechanical parking systems to reduce the area required for car parking.
Box Hill Central North Master Plan [1]	Car parking location / design	Locate car parking underground. Where located above ground, parking should be sleeved with active uses so it is not visible from the public realm or adjoining sites.
	Adaptable building car parking areas	Where located above ground, allow for the adaption of car parking areas for other uses over time by providing floor to floor heights of at least 3.5 metres within the lower levels of the building up to the height of the street wall.

[1] – Proposed Whitehorse Planning Scheme amendment C245 – not included in incorporated document

New land use developments or the reconfiguration of existing buildings will occur before the SRL station at Monash opens and rail services commence. There will be further change in future as the population and employment in the Structure Plan Area grows and changes.

Provision of parking which may be required before the SRL station and rail services open may not be required once SRL rail services commence due to reduced parking demand as a result of changes to land use and travel behaviour. The ability to re-use or repurpose car parking spaces is important.

Ensuring that developments include adaptable building design elements is recommended via an appropriate Schedule to the relevant zone or local policy to prioritise adaptable building design, and specifically include a requirement for the ability to re-use or repurpose car parking spaces within a building.

Adaptable building design requirements are considered appropriate in inner areas of the Monash Structure Plan, and could be aligned to the inner Area A Parking Overlay zone, or other relevant inner area defined in the Monash Structure Plan. This should be supported by an Adaptable Parking Plan outlining future options for re-use.

Adaptable buildings and the re-use of car parking spaces recommendation:

MNTP 7 – Implement adaptable building design requirements for new above-ground car parking facilities that enable their use for other purposes as parking demand reduces over time. Require developers to have an Adaptable Parking Plan which outlines future options for the use of on-site parking.

5.9 Alignment with objectives

Table 5.7 summarises the alignment of the recommendations in this Precinct Parking Plan with the objectives in Section 4:

- Objective 1: Support and encourage a shift toward sustainable transport modes (including public transport, walking and cycling)
- Objective 2: Support economic opportunity and productivity (prioritising efficient use and management of spaces)
- Objective 3: Prioritise placemaking and reduce parking and vehicle movement impacts (including congestion, spatial impacts and urban design outcomes)
- Objective 4: Support high quality and affordable housing choices (with development opportunities, reduced building spatial and cost requirements)
- Objective 5: Support positive and improved environmental outcomes (including embodied carbon and net zero emissions by 2045)

Green ticks indicate where recommendations clearly align with each objective. Grey ticks indicate general alignment with each objective.

TABLE 5.7 ALIGNMENT BETWEEN PRECINCT PARKING PLAN OBJECTIVES AND RECOMMENDATIONS

TTR REF [1]	RECOMMENDATION	TYPE [2]	OBJECTIVE					COMMENTARY
			1	2	3	4	5	
Development parking controls								
MNTP 3	Implement development parking controls, limiting new development parking provisions.	R	✓	✓	✓	✓	✓	Supports mode share shift, encourages sustainable travel choices, lower parking provisions, lowers car ownership, reduces parking and vehicle impacts, supports affordable housing choices.
MTNP 4	Support major landholders to explore reducing existing parking supply and adopting alternative uses for the land as accessibility and density in the Structure Plan Area increase.	O	✓		✓	✓	✓	
Bicycle parking								
MNTP 1	Implement increased minimum bicycle parking and end-of-trip facility requirements to support sustainable modes and reflecting the change in cycling usage within 'living locally' based neighbourhoods and over time.	R	✓	✓	✓	✓	✓	Supports mode share shift, encourages sustainable travel choices, lowers car ownership, reduces parking and vehicle impacts, supports affordable housing choices.
MNTP 2	Develop public realm cycling and micromobility end-of-trip policy / guidelines.	O	✓	✓	✓		✓	
Car share								
MNTP 12	Encourage Council to develop policy and guidelines for car share schemes in public areas and new developments that include electric vehicle charging facilities, by • Facilitating stronger relationships between developers and car share operators • Recognising electric vehicle charging for car share schemes in Green Travel Plans • Encouraging on-site car share scheme parking with electric vehicle charge points.	O	✓		✓	✓	✓	Lowers car ownership, lowers parking provisions, supports affordable housing choices.
MNTP 21	Encourage car share scheme parking spaces in developments.	O	✓		✓	✓	✓	Lowers car ownership, lowers parking provisions, supports affordable housing choices.
On-street parking management								
MNTP 8	Encourage Council to further develop and update the on-street parking management policy that supports the significant changes in land use density, diversity and accessibility levels in the Structure Plan Area over time.	O	✓	✓	✓	✓	✓	Encourages sustainable travel choices, lowers parking provisions, lowers car ownership and usage, reduces parking and vehicle impacts, prioritises placemaking, supports economic opportunity.

TTR REF [1]	RECOMMENDATION	TYPE [2]	OBJECTIVE					COMMENTARY
			1	2	3	4	5	
MNTP 17	Encourage Council to develop a suite of policies and plans with Council to manage the function and needs that interface with the kerbside, which may include: • A Kerbside and Access Management Framework based on use hierarchy principles which supports urban cooling, sustainable transport modes and reduced private car trips, and on-street parking demands • A Kerbside Management Plan to inform access, freight and waste management and kerbside use in the Structure Plan Area	O		✓	✓			Encourages sustainable travel choices, lowers parking provisions, lowers car ownership and usage, reduces parking and vehicle impacts, prioritises placemaking, supports economic opportunity.
Unbundled parking								
MNTP 5	Encourage adoption of an unbundled car parking model for on-site car parking provision and management.	R				✓		Lowers parking provisions, supports affordable housing choices.
Consolidated car parking								
MNTP 6	Encourage the provision of consolidated car parking options which could be used to manage accessibility changes over time and reduce reliance on on-site parking.	R						Lowers parking provisions, reduces parking and vehicle impacts, prioritises placemaking
Shared parking								
MNTP 20	Encourage shared parking arrangements in developments to enable efficient and overall lower parking provisions.	R	✓					Lowers parking provisions, reduces parking and vehicle impacts, prioritises placemaking.
Adaptable buildings / re-use of car parking								
MNTP 7	Implement adaptable building design requirements for new above-ground car parking facilities that enable their use for other purposes as parking demand reduces over time. Require developers to have an Adaptable Parking Plan which outlines future options for the use of on-site parking.	R			✓			Lowers future parking provisions, reduces future parking impacts, reduces parking and vehicle impacts.

✓ High alignment (clear alignment)

✓ Low- moderate alignment (general alignment)

[1] – Transport Technical Report (TTR) reference, [2] R – recommendation, O – other opportunity

6. Implementation

6.1 Pathways

The following recommendations are proposed via their inclusion in the Monash Structure Plan or the proposed Planning Scheme Amendment – via a Parking Overlay and accompanying Schedule (to Clause 45.09) and/or appropriate Schedule(s) to the relevant zone(s). Table 6.1 summarises the recommendations in this Parking Plan that are considered 'statutory tools'.

TABLE 6.1 MONASH PRECINCT PARKING PLAN – STATUTORY TOOLS

TTR REF	RECOMMENDATION
MNTP 3	Implement development parking controls, limiting new development parking provisions.
MNTP 1	Implement increased minimum bicycle parking and end-of-trip facility requirements to support sustainable modes and reflecting the change in cycling usage within 'living locally' based neighbourhoods and over time.
MNTP 21	Encourage car share scheme parking spaces in developments.
MNTP 5	Encourage adoption of an unbundled car parking model for on-site car parking provision and management.
MNTP 20	Encourage shared parking arrangements in developments to enable efficient and overall lower parking provisions.
MNTP 7	Implement adaptable building design requirements for new above-ground car parking facilities that enable their use for other purposes as parking demand reduces over time. Require developers to have an Adaptable Parking Plan which outlines future options for the use of on-site parking.

Several recommendations cannot be implemented as statutory tools. They should be implemented in consultation with the City of Monash and other stakeholders. Table 6.2 summarises the recommendations in this Precinct Parking Plan that are considered 'non-statutory tools'.

TABLE 6.2 MONASH PRECINCT PARKING PLAN – NON-STATUTORY TOOLS

TTR REF	RECOMMENDATION
MNTP 4	Support major landholders to explore reducing existing parking supply and adopting alternative uses for the land as accessibility and density in the Structure Plan Area increase.
MNTP 2	Develop public realm cycling and micromobility end-of-trip policy and guidelines.
MNTP 12	Encourage Council to develop policy and guidelines for car share schemes in public areas and new developments that include electric vehicle charging facilities, by • Facilitating stronger relationships between developers and car share operators • Recognising electric vehicle charging for car share schemes in Green Travel Plans • Encouraging on-site car share scheme parking with electric vehicle charge points.
MNTP 21	Encourage car share scheme parking spaces in developments.
MNTP 8	Facilitating stronger relationships between developers and car share operators
MNTP 17	Encourage Council to develop a suite of policies and plans with Council to manage the function and needs that interface with the kerbside, which may include: • A Kerbside and Access Management Framework based on use hierarchy principles which supports urban cooling, sustainable transport modes and reduced private car trips, and on-street parking demands • A Kerbside Management Plan to inform access, freight and waste management and kerbside use in the Structure Plan Area
MNTP 6	Recognising car share schemes in Green Travel Plans

Implementation responsibilities of all strategies are presented in a general appendix to the Structure Plan.

6.2 Monitoring and review

The Planning Practice Note PPN57 notes the following:

> *'The characteristics of a precinct often change over time, affecting local parking conditions. It is important that the Parking Overlay is regularly monitored and reviewed to ensure it continues to reflect the precinct's actual parking requirements and is consistent with future plans for the precinct. It is recommended that any Schedules to the Parking Overlay are reviewed concurrently with the council's Municipal Strategic Statement to ensure the specified car parking rates still reflect the car parking demand for each land use.'*

The recommendations implemented by this Precinct Parking Plan and their outcomes should be monitored and reviewed to ensure its aims and objectives continue to be met.

SRL East will increase accessibility and shift transport mode share, be a significant catalyst for development in some precincts, and in some areas will drive rapid development over the next 10 years. Parking management should support mode share changes over time to meet sustainable transport goals, noting that it should consider the context at the time of the subsequent review and the vision and objectives set out in the Structure Plan.

As a minimum any Parking Overlay and accompanying Schedule (and any other statutory tools) should be reviewed concurrently as part of Council's periodic Municipal Strategic Statement review. They should be reviewed (including the appropriateness of rates for other specific land uses) and revised as access by sustainable transport modes improves, particularly upon commencement of SRL East rail services.

AJM
Joint Venture

Appendix A

Car parking inventory

Appendix A – Car parking inventory

An on and off-street car parking inventory was undertaken based on an initial desktop assessment and on-site verification process. Off-street car parking supply is based on this desktop assessment and supply information provided by SRLA supplemented with additional information where possible. The following is the full parking inventory located within the Monash Structure Plan Area, as summarised in Figure A.1, Table A.1 (on-street) and Table A.2 (off-street).

FIGURE A.1 EXISTING MONASH PARKING SUPPLY

TABLE A.1 EXISTING ON-STREET PARKING SUPPLY

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
Gardiner Rd	Florence Ave	&	Hilltop Ave	W	No Stopping (3-6pm Mon-Fri), 1/2P (9am-3pm Mon-Fri)	Residential	6
	Hilltop Ave	&	Normanby Rd	W	No Stopping (3-6pm Mon-Fri), 1/2P (9am-3pm Mon-Fri)	Residential	4
	Normanby Rd	&	Auguste Ave	W	No Stopping (3-6pm Mon-Fri), 1/2P (9am-3pm Mon-Fri)	Residential	3
	Auguste Ave	&	Clarkson Ct	W	No Stopping (3-6pm Mon-Fri), 1/2P (9am-3pm Mon-Fri)	Residential	3
Industrial Ave	5 Industrial Ave	&	Normanby Rd	W	Unrestricted	Non-residential	10
				E	Unrestricted	Non-residential	7
Redwood Dr	10 Redwood Dr	&		W	1P (8am-6pm Mon-Fri)	Non-residential	6
				E	Unrestricted	Non-residential	10
Normanby Rd	Industrial Ave	&	Redwood Dr	N	Unrestricted	Non-residential	12
	Redwood Dr	&	Howleys Rd	N	Unrestricted	Non-residential	22
				N	1P (8am-6pm Mon-Fri)	Non-residential	4
				N	Unrestricted	Non-residential	11
Howleys Rd	Ferntree Gully Rd	&	Normanby Rd	W	Unrestricted	Non-residential	20
				E	2P (8am-6pm Mon-Sat)	Non-residential	15
				E	Unrestricted	Non-residential	6
				E	2P (8am-6pm Mon-Sat)	Non-residential	1
				E	Unrestricted	Non-residential	6
Gilby Rd	45 Gilby Rd	&	Ferntree Gully Rd	E	Unrestricted	Non-residential	1
Ferntree Gully Rd	No.303	&	Gilby Rd	S	Unrestricted	Non-residential	9
	Gilby Rd	&	Howleys Rd	S	Unrestricted	Non-residential	6
				N	Unrestricted	Non-residential	15
Ferntree Gully Rd Service Rd	399 Ferntree Gully Rd	&	Blackburn Rd	N (north side of service rd)	Unrestricted	Non-residential	21
				N (south side of service rd)	Unrestricted	Non-residential	34

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
Blackburn Rd Service Rd	549 Blackburn Rd	&	Ferntree Gully Rd	W (west side of service rd)	Unrestricted	Non-residential	13
				W (east side of service rd)	Unrestricted	Non-residential	12
Norfolk St	32 Norfolk St	&	Hampshire Rd	W	Unrestricted	Residential	4
				E	Permit Zone (8am-6pm Mon-Fri)	Residential	5
Hampshire Rd	Blackburn Rd	&	Norfolk St	S	2P (8am-6pm Mon-Fri)	Non-residential	7
				S	Unrestricted	Non-residential	4
	Norfolk St	&	25 Hampshire Rd	N	Unrestricted	Residential	3
			18 Hampshire Rd	S	Unrestricted	Residential	4
Ferntree Gully Rd	Howleys Rd	&	Blackburn Rd	S	Unrestricted	Residential	40
	Blackburn Rd	&	Elwood St	S	1/4P (8am-6pm Mon-Fri, 8am-1pm Sat)	Non-residential	4
				S	No Stopping (7-9am, 4-6pm)	Non-residential	5
Elwood St	Ferntree Gully Rd	&	Finch St	W	2P (8am-6pm Mon-Fri)	Residential	10
				E	Unrestricted	Residential	13
Finch St	Blackburn Rd	&	Elwood St	N	2P (8am-6pm Mon-Fri)	Residential	4
				N	Unrestricted	Residential	6
				S	2P (8am-6pm Mon-Fri)	Residential	12
				S	Unrestricted	Residential	2
Samada St			Cassia St	N	1P	Residential	2
Eucalytpus Mews	Eucalyptus Mews End	&	Rusden Pl	W	Unrestricted	Residential	19
Rusden Pl	Blackburn Rd	&	Eucalyptus Mews	N	Unrestricted	Residential	10
				N	Unrestricted (Marked Bays)	Residential	10
	Eucalyptus Mews	&	Normanby Rd	W	Unrestricted	Residential	6
				E	Unrestricted	Residential	8
Normanby Rd	Blackburn Rd	&	Rusden Pl	N	Unrestricted	Non-residential	6
				S	Unrestricted	Non-residential	7
	Howleys Rd	&	Blackburn Rd	N	Unrestricted	Non-residential	6
Blackburn Rd	Ferntree Gully Rd	&	Finch St	W	No Stopping (4-6pm Mon-Fri)	Non-residential	10
				E	No Parking (7-9:30am Mon-Fri)	Non-residential	7
	Finch St	&	Samada St	W	No Stopping (4-6pm Mon-Fri)	Non-residential	18
				E	No Parking (7-9:30am Mon-Fri)	Non-residential	19

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
	Samada St	&	Rusden Pl	W	No Stopping (4-6pm Mon-Fri)	Non-residential	23
				E	Clearway (7-9:30am, 4-6pm Mon-Fri), 2P (9:30am-4pm Mon-Fri, 8:30am-12:30pm Sat)	Non-residential	18
Boundary Rd	Woodside Ave	&	Ancora Imparo Way	W	Loading Zone 30min (7am-7pm Mon-Fri)	Non-residential	4
				W	1/4P (Pick up / Drop off)	Non-residential	1
Scenic Blvd	Administration Rd	&		E	1/4P	Non-residential	3
College Walk	Scenic Blvd	&	College Walk End	N	Loading Zone 30min	Non-residential	3
				N	1/2P (Pick up / Drop off)	Non-residential	3
				S	1/4P DDA (Pick up / Drop off)	Non-residential	1
				S	1/4P (Pick up / Drop off)	Non-residential	9
				S	Permit Zone DDA (Monash RSTO)	Non-residential	2
				S	Permit Zone (Monash RSTO)	Non-residential	7
Martin St	Blackburn Rd	&	Duerdin St	N / E	Unrestricted	Non-residential	38
				S / W	Unrestricted	Non-residential	29
Duerdin St	Martin St	&	15A Duerdin St	N	Unrestricted	Non-residential	18
Henderson Rd	Henderson Rd End	&	Wellington Rd	W	Unrestricted	Non-residential	16
				E	Unrestricted	Non-residential	35
Blackburn Road	Normanby Rd	&	Duerdin St	W	Unrestricted	Non-residential	38
	Duerdin St	&	Heart Hospital N	W	Unrestricted	Non-residential	24
	Heart Hospital S	&	Wellington Rd	W	Unrestricted	Non-residential	16
	Normanby Rd	&	Martin St	E	Unrestricted	Non-residential	13
	Martin St	&	Duerdin St	E	Unrestricted	Non-residential	30
	Duerdin St	&	Biomedical Imaging N	E	Unrestricted	Non-residential	10
Cobain Street	Princes Hwy	&	Wellington Road	W	Permit Zone	Residential	13
				E	1/2P (8am-6pm Mon-Fri)	Residential	16
Parker Street				W	1/2P (8am-6pm Mon-Fri)	Residential	19
				E	1/2P (8am-6pm Mon-Fri)	Residential	17
Irwin Street				W	1/2P (8am-6pm Mon-Fri)	Residential	25
				E	1/2P (8am-6pm Mon-Fri)	Residential	24

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
Arnott Street				W	1/2P (8am-6pm Mon-Fri)	Residential	28
				E	1/2P (8am-6pm Mon-Fri)	Residential	33
Morton Street	Blackburn Road	&	Dead end	N	1P (8am-6pm Mon-Fri)	Residential	34
				N	1/2P	Residential	7
				N	2P	Residential	6
				S	1P (8am-6pm Mon-Fri)	Residential	37
Dennis Street				N	1/2P (8am-6pm Mon-Fri)	Residential	44
				S	1/2P (8am-6pm Mon-Fri)	Residential	38
Bettina Street				N	1/2P (8am-6pm Mon-Fri)	Residential	33
				S	1/2P (8am-6pm Mon-Fri)	Residential	33
Blackburn Road	Wellington Road	&	Princes Hwy	W	No Stopping (8am-6pm Mon-Fri)	Non-residential	11
				W	No Stopping (8am-6pm Mon-Fri)	Non-residential	4
Connam Avenue				N	1P (8am-8pm Mon-Fri)	Residential	7
				S	2P (8am-6pm Mon-Fri)	Residential	2
Princes Hwy - Northern Service Lane			Arnott St	N	1/2P (8am-6pm Mon-Fri)	Residential	50
	Arnott St	&	Training Day Gym	N	1/2P (8am-6pm Mon-Fri), Permit Zone (10pm-5am)	Residential	7
	Training Day Gym	&		N	2P (8am-6pm Mon-Fri), No Stopping (10pm-5am)	Residential	9
			2057 Princes Hwy - Northern Service Rd	N	1/2P (8am-6pm Mon-Fri), No Stopping (10pm-5am)	Residential	2
	2057 Princes Hwy - Northern Service Rd	&	Monash Hotel	N	2P (8am-6pm Mon-Fri), No Stopping (10pm-5am)	Residential	16
	Adjacent Monash Hotel	&		N	No Stopping (10pm-5am)	Residential	21
Princes Hwy - Southern Service Lane	Browns Road	&	Panorama Street	S	1/2P (8am-6pm Mon-Fri)	Residential	18
	Panorama Street	&	Evelyn Street	S	1/2P (8am-6pm Mon-Fri)	Residential	6
				S	Unrestricted	Residential	7
	Evelyn Street	&	Winterton Road	S	Unrestricted	Residential	20
	Winterton Road	&	Blackburn Road	S	No Stopping (10pm-5am)	Residential	21
Wellington Road - Southern Service Lane	Princes Hwy	&	Cobain Street	S	1/2P (8am-6pm Mon-Fri)	Residential	17
	Cobain Street	&	Parker Street	S	1/2P (8am-6pm Mon-Fri)	Residential	9
	Parker Street	&	Irwin Street	S	1/2P (8am-6pm Mon-Fri)	Residential	8
	Irwin Street	&	Arnott Street	S	1/2P (8am-6pm Mon-Fri)	Residential	7
	Arnott Street	&	Blackburn Road	S	1/2P (8am-6pm Mon-Fri)	Residential	36
	Blackburn Road	&	Murdo Rd	S	1/2P (8am-6pm Mon-Fri)	Residential	4
	Murdo Rd	&	Cambro Rd	S	1/2P (8am-6pm Mon-Fri)	Residential	7

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
	Cambro Rd	&	Renver Rd	S	1/2P (8am-6pm Mon-Fri)	Residential	9
	Renver Rd	&	Sarton Rd	S	1/2P (8am-6pm Mon-Fri)	Residential	10
Wellington Road	Sarton Rd	&	Garden Rd	S	1/2P (8am-6pm Mon-Fri)	Non-residential	13
Risdon Drive	Westerfield Ct	&	Pemberley Dr	S	Unrestricted	Residential	52
			Hunsford Ave	N	Unrestricted	Residential	12
	Hunsford Ave	&	16c Risdon Dr	N	No Stopping (8am-9am, 3pm-4:15pm Mon-Fri)	Residential	2
	16c Risdon Dr	&	Pemberley Dr	N	Unrestricted	Residential	33
Merlin Court	Risdon Dr	&	Risdon Dr	Outside	Unrestricted	Residential	6
Marina Court				Outside	Unrestricted	Residential	5
Hunsford Ave			Pemberley Ct	W	Unrestricted	Residential	29
				E	Unrestricted	Residential	33
Erawan Ave	Westerfield Dr	&	Dead end	W	1P (8am-6pm, Mon-Fri)	Residential	2
				W	Unrestricted	Residential	7
	Chandor Ct	&		E	Unrestricted	Residential	4
	Westerfield Dr	&	Chandor Ct	E	1P (8am-6pm, Mon-Fri)	Residential	3
Chandor Ct	Erawan Ave	&	Dead end	N	Unrestricted	Residential	6
				S	Unrestricted	Residential	9
Pemberley Dr	Westerfield Dr	&	Dead End	N	Unrestricted	Residential	14
				S	Unrestricted	Residential	11
Westerfield Dr	Erawan Ave	&	Ferntree Gully Rd	W	Unrestricted	Residential	88
	Dead End	&	Erawan Ave	W	2P (8am-6pm, Mon-Fri)	Residential	2
	Erawan Ave	&	Ferntree Gully Rd	E	Unrestricted	Residential	86
	Dead End	&	Erawan Ave	S	2P (8am-6pm, Mon-Fri)	Residential	1
Longbourne Ave	Pemberley Dr	&	Westerfield Dr	W	Unrestricted	Residential	42
				E	Unrestricted	Residential	44
				W	Unrestricted	Residential	42
				E	Unrestricted	Residential	44
Rosings Ct	Longbourne Ave	&	Dead end	W	Unrestricted	Residential	9
				E	Unrestricted	Residential	9
Akuna Ave	Westerfield Dr	&	Samada St	W	Unrestricted	Residential	38
				E	Unrestricted	Residential	35
Wooral Ct	Akuna Ave	&	Dead end	N	Unrestricted	Residential	6
				S	Unrestricted	Residential	7
Normanby Road	Rusden Pl	&		W	2P (8am-6pm Mon-Fri)	Residential	19
				E	Unrestricted	Residential	31
Samada St	Sanicky St	&	Samada Reserve	N	1P	Residential	14
				S	1P	Residential	14
		&	Westerfield Dr	N	Unrestricted	Residential	46

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
	Samada Reserve			S	Unrestricted	Residential	39
Bingley Ave	Sanicky St	&	Samada St	W	Unrestricted	Residential	35
				E	Unrestricted	Residential	30
Kentucky Ct	Bingley Ave	&	Dead end	N	Unrestricted	Residential	12
				S	Unrestricted	Residential	13
Grange Court				Outside	Unrestricted	Residential	4
Sanicky Street	Samada St	&	No.14	W/N	1P	Residential	17
				E/S	1P	Residential	15
	No.14	&	Westerfield Dr	N	Unrestricted	Residential	46
				S	Unrestricted	Residential	48
Darcy St	Sanicky St	&	Dead end	Outside	Unrestricted	Residential	6
Trent Court				W	Unrestricted	Residential	18
				E	Unrestricted	Residential	16
Finch Street	Elwood St	&	Ferntree Gully Rd	N/W	2P (8am-6pm, Mon-Fri)	Residential	9
				N/W	2P (8am-6pm, Mon-Fri)	Residential	10
				S/E	Unrestricted	Residential	10
				S/E	2P (8am-6pm, Mon-Fri)	Residential	6
				S/E	Unrestricted	Residential	6
Ferntree Gully Road	Blackburn Road	&	Elwood St	S	1P (8am-6pm Mon-Fri)	Residential	6
	Elwood St	&	Finch St	S	No Stopping (7am-9am, 4pm-6pm, Mon-Fri)	Residential	15
Ferntree Gully Road - Southern Service lane	Finch St	&	Westefield Drive	S	Unrestricted	Residential	25
Ferntree Gully Road Service Rd	Avonhurst Dr	&	Monash Fwy	N	Unrestricted	Residential	14
Ferntree Gully Road				N	Unrestricted	Residential	20
	Westerfield Dr	&		S	Unrestricted	Residential	2
Tamala Avenue	Akuna Ave	&	Dalpura Ct	N	Unrestricted	Residential	17
	Dalpura Ct	&	Westerfield Dr	N	Unrestricted	Residential	11
	Akuna Ave	&		S	Unrestricted	Residential	26
Dalpura Court	Tamala Ave	&	End of Court	W	Unrestricted	Residential	5
				E	Unrestricted	Residential	6
Auguste Avenue	Gardiner Road	&	Dead end	N	1P (8am-6pm Mon-Fri)	Residential	15
				S	1P (8am-6pm Mon-Fri)	Residential	1
Hilltop Avenue	Carlson Ave	&	Gardiner Rd	N	1/2P (8am-6pm Mon-Fri)	Residential	17
				S	1/2P (8am-6pm Mon-Fri)	Residential	15
Carlson Avenue	Hilltop Ave	&	Bayview Ave	W	1P (8am-6pm Mon-Fri)	Residential	18
				E	1/2P (8am-6pm Mon-Fri)	Residential	11
	Carlson Ave	&	Gardiner Rd	N	1/2P (8am-6pm Mon-Fri)	Residential	17

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
Florence Avenue				S	1/2P (8am-6pm Mon-Fri)	Residential	18
Bayview Avenue	Clayton Rd	&	Marshall Ave	N	1/2P (8am-6pm Mon-Fri)	Residential	39
				S	1/2P (8am-6pm Mon-Fri)	Residential	34
Glenbrook Avenue	Bayview Ave	&	Woodside Ave	W	1/2P (8am-6pm Mon-Fri)	Residential	29
	Woodside Ave	&	Princes Hwy	W	1/2P (8am-6pm Mon-Fri)	Residential	21
				E	1/2P (8am-6pm Mon-Fri)	Residential	27
	Bayview Ave	&	Woodside Ave	E	1/2P (8am-6pm Mon-Fri)	Residential	23
Koonawarra Street				W	1/2P (8am-6pm Mon-Fri)	Residential	23
				E	1/2P (8am-6pm Mon-Fri)	Residential	22
	Woodside Ave	&	Princes Hwy	W	1/2P (8am-6pm Mon-Fri)	Residential	32
				E	1/2P (8am-6pm Mon-Fri)	Residential	29
				E	1/2P (8am-6pm Mon-Fri)	Residential	5
Stockdale Street	Bayview Ave	&	Woodside Ave	W	1/2P (8am-6pm Mon-Fri)	Residential	25
				E	1/2P (8am-6pm Mon-Fri)	Residential	24
	Woodside Ave	&	Princes Hwy	W	1/2P (8am-6pm Mon-Fri)	Residential	35
				E	1/2P (8am-6pm Mon-Fri)	Residential	32
Marshall Avenue	Bayview Ave	&	Woodside Ave	W	1/2P (8am-6pm Mon-Fri)	Residential	26
				E	1/2P (8am-6pm Mon-Fri)	Residential	24
	Woodside Ave	&	Princes Hwy	W	1/2P (8am-6pm Mon-Fri)	Residential	43
				E	1/2P (8am-6pm Mon-Fri)	Residential	41
Beddoe Avenue	Bayview Ave	&	Woodside Ave	W	Permit Zone (8am-6pm Mon-Fri)	Residential	23
				E	1/2P (8am-6pm Mon-Fri)	Residential	27
	Woodside Ave	&	Princes Hwy	W	Permit Zone (8am-6pm Mon-Fri)	Residential	41
				E	1/2P (8am-6pm Mon-Fri)	Residential	50
Woodside Avenue	Clayton Rd	&	Monash Uni	N	1/2P (8am-6pm Mon-Fri)	Residential	45
				S	1/2P (8am-6pm Mon-Fri)	Residential	43
Princes Highway - Northern Service Lane			Glenbrook Ave	N	1/4P (8am-10pm Mon-Sun)	Residential	6
	Glenbrook Ave	&	Koonawarra St	N	1/2P (8am-6pm Mon-Fri)	Residential	5
	Koonawarra St	&	Beddoe Ave	N	1/2P (8am-6pm Mon-Fri)	Residential	27
	Clayton Rd	&	Glenbrook Ave	S	1P (8am-6pm Mon-Fri, 8am-1pm Sat)	Non-residential	6
Princes Highway - Southern Service Lane	Adjacent McDonalds	&	Wellington Rd	S	Unrestricted	Non-residential	8
	McDonalds	&	No.1728	S	1P (8am-6pm Mon-Fri)	Non-residential	7
	Adjacent Aged care Centre	&		S	15min (8:30-9:30am, 3-4pm School Days)	Non-residential	4
	Adjacent Clayton N Primary	&		S	2min (8:30-9:30am, 3-4pm School Days)	Non-residential	5
	Adjacent McDonalds	&		N	1P (8am-6pm Mon-Fri)	Non-residential	7

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
	No.1728	&	Clayton N Primary	N	1P (8am-6pm Mon-Fri)	Non-residential	20
Gardiner Road	Florence Ave	&	Normanby Rd	W	1/2P (9am-3pm) No Stopping (3pm-6pm) Mon-Fri	Non-residential	12
North Road	Clayton Rd	&	Beluera Gr	S	Clearway (6:30-9:30am, 4-6:30pm)	Non-residential	17
	Beluera Gr	&	No.1492	S	Unrestricted	Non-residential	3
North Road - Southern Service lane	No.1498	&	Kumara Pl	S	Unrestricted	Non-residential	8
	Kumara Pl	&	Princes Hwy	S	1P (8am-6pm Mon-Fri)	Non-residential	15
	No.1498	&		N	1P (8am-6pm Mon-Fri)	Non-residential	33
Clayton Road	North Rd	&		W	Clearway (7-9:30am, 3-6:30pm)	Non-residential	16
				E	Clearway (7-9:30am, 3-6:30pm)	Non-residential	27
	No.187	&	Rossdale St	W	Clearway (7-9:30am, 3-6:30pm)	Residential	8
	Rossdale St	&	Boyd Ave	W	Clearway (7-9:30am, 3-6:30pm)	Residential	19
	Boyd Ave	&	Stewart Rd	W	Clearway (7-9:30am, 3-6:30pm)	Residential	11
	Stewart Rd	&	Strelden Ave	W	Clearway (7-9:30am, 3-6:30pm)	Residential	8
	Strelden Ave	&	No.59	W	Clearway (7-9:30am, 3-6:30pm)	Residential	14
	Princes Hwy	&	Woodside Ave	E	Clearway (7-9:30am, 3-6:30pm)	Residential	17
	Woodside Ave	&	Bayview Ave	E	Clearway (7-9:30am, 3-6:30pm)	Residential	24
	Bayview Ave	&	No.187	E	Clearway (7-9:30am, 3-6:30pm)	Residential	23
Duerdin St	50 Duerdin St	&	Nantilla Rd	North	Unrestricted	Residential	32
	51 Duerdin St	&		South	Unrestricted	Residential	14
University Place	Duerdin St	&	End of University Place	West	Unrestricted	Residential	8
				East	Unrestricted	Residential	10
Nantilla Rd	Boundary	&	Duerdin St	West	No Stopping (8am-6pm, Mon-Fri)	Residential	79
	Wellington Rd	&	Dunlop Rd	East	Unrestricted	Residential	13
				East	Unrestricted	Residential	19
				East	Unrestricted	Residential	5
Sarton Rd	Connam Ave	&	Wellington Rd	West	Permit Zone	Residential	36
				East	Unrestricted	Residential	32
Connam Ave	Cambro Road	&	Renver Rd	North	1P 8am-8pm	Residential	9
				South	Loading Zone (15min 8am-6pm)	Residential	3
				South	Unrestricted	Residential	4
	Renver Rd	&	Sarton Rd	North	Permit Zone	Residential	3
				North	1P (8am-8pm Mon-Fri)	Residential	5
				South	Unrestricted	Residential	2
				South	1/2P (8am-8pm Mon-Fri)	Residential	1
				South	Unrestricted	Residential	4
	Connam Ave	&	Wellington Rd	West	Permit Zone	Residential	38

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
Cambro Road				East	Unrestricted	Residential	37
Murdo Rd				West	Permit Zone	Residential	36
				East	1P (8am-6pm Mon-Fri)	Residential	36
Renver Rd				West	1P 8am-8pm	Residential	31
			16 Renver Rd	East	Permit Zone	Residential	18
	16 Renver Rd	&	Wellington Rd	East	Permit Zone	Residential	17
Commercial Rd	Gardiner Rd	&	End of Commercial Rd	North	Unrestricted	Residential	20
			Industrial Ave	South	Unrestricted	Residential	14
	Industrial Ave	&	End of Commercial Rd	South	Unrestricted	Residential	12
Industrial Ave	8 Industrial Ave (Zone A Boundary)	&	Commercial Rd	West	Unrestricted	Residential	5
				East	Unrestricted	Residential	5
Business Park Drive	Gardiner Rd	&	Redwood Dr	North	Unrestricted	Residential	31
			Roundabout	South	Unrestricted	Residential	10
	Roundabout	&	Redwood Dr	North	1P 8am-6pm Mon-Fri	Residential	4
				South	Unrestricted	Residential	16
				South	1P 8am-6pm Mon-Fri	Residential	4
Redwood Dr	Business Park Dr	&	17 Redwood Dr (Zone A Boundary)	East	Unrestricted	Residential	13
			4 Redwood Dr	West	1P 8am-6pm Mon-Fri	Residential	3
	4 Redwood Dr	&	17 Redwood Dr (Zone A Boundary)	West	No Parking	Residential	1
Strelden Ave	Clayton Rd	&	31 Strelden Ave	North	1P 8am-6pm Mon-Fri	Residential	4
				South	Unrestricted	Residential	4
Stewart Rd			14A Stewart Rd	North	Unrestricted	Residential	4
				South	1P 8am-6pm Mon-Fri	Residential	2
Boyd Ave			16 Boyd Ave	North	1P 8am-6pm Mon-Fri	Residential	5
				South	Unrestricted	Residential	5
Rossdale St			4 Rossdale St	North	1P 8am-6pm Mon-Fri	Residential	3
				South	Unrestricted	Residential	4
Gardiner Rd	Bus Stop (Ferntree Gully Road Stop NB for route 742)	&	Melbourne Water Notting Hill Service Reservoir Access	West	No Stopping (3-6pm Mon-Fri)	Residential	35
	Melbourne Water Notting Hill Service Reservoir Access	&	Opposite Archclad Access	West	Unrestricted	Residential	4
	Opposite Archclad Access	&	Clarkson Ct	West	No Stopping (3-6pm Mon-Fri)	Residential	14

ON-STREET PARKING	LOCATION START		LOCATION END	SIDE	PARKING TYPE	TYPE	SUPPLY
Princes Highway Service Rd	Boundary	&	1866 Princes Hwy Service Rd	South	No Stopping (10pm-Midnight, Midnight-5am)	Residential	25
Princes Highway				South	Unrestricted	Residential	34
				North	Unrestricted	Residential	18
Ferntree Gully Road	Forester Rd	&	Gilby Rd	North	Unrestricted	Residential	32

TABLE A.2 EXISTING OFF-STREET PARKING SUPPLY

OFF-STREET PARKING FACILITY	RESTRICTION	SUPPLY
Glenbrook Avenue car park	>4P	34
Monash University 700 Blackburn Road Parking Area	Unrestricted	180
Monash University Residential North East 6 Parking Area	Unrestricted	41
Monash University Residential North East 5 Parking Area	Unrestricted	40
Monash University Residential North East 7 Car Park	Unrestricted	78
Monash University Residential North East 8 Parking Area	Unrestricted	57
Monash University Residential North East 4 Parking Area	Unrestricted	33
Monash University Residential North East 2 Parking Area	Unrestricted	126
Monash University Residential North East 3 Parking Area	Unrestricted	47
Monash University 56 Howleys Road Parking Area	10P	39
Monash University Residential North East 1 Parking Area	3P	34
Hampshire Road Shopping Centre Car Park	1P-4P	45
Monash University - 10 Research Way Car Park	>4P	410
Monash University - 10 Research Way Car Park	>4P	410
Ferntree Business Park Car Park	Unknown	590
The Notting Hill Hotel	Unknown	135
ANZ Business Centre Notting Hill Car Park	Unknown	350
Carlson Avenue Reserve	1P-4P	62
Monash University - 3 Alliance Lane Parking Area	>4P	217
Monash University - West 2 Parking Area	Unknown	54
Monash University -	Unknown	44
Monash University - 30 Ancora Imparo Way Parking Area	>4P	100
Monash University - 52 Scenic Blvd Parking Area	>4P	370
Monash University - 64 Scenic Blvd Parking Area	>4P	380
Monash University - 62 Scenic Blvd Parking Area	>4P	1590
Monash University - South East Flats	Unrestricted	52
Monash University - South-East 2 Parking Area	>4P	100
Monash University - 17 Scenic Blvd Parking Area	>4P	490
Monash University - 738 Blackburn Rd Parking Area	>4P	90
Monash University - 710 Blackburn Rd	>4P	105
371 Ferntree Gully Road Car Park	Unrestricted	60
M-City Shopping Centre Car Park	Unknown	1000

OFF-STREET PARKING FACILITY	RESTRICTION	SUPPLY
Monash Hotel car park	Unrestricted	200
Omnico Business Centre car park	Unrestricted	250
Unipark - 195 Wellington Road, Mulgrave	Unrestricted	500
Uni Central Business Park car park	Unrestricted	360
Ferntree Place Parking Area	Staff and Customer Parking	452
Notting Hill Community Hall	Unrestricted	120
Monash University SW1 Parking Area	Permit and Ticket Parking	23
John Monash Science School	Staff Parking	36
Victorian Heart Hospital	Ticket Parking	4
Monash University 24-30 Research Way Parking Area	Permit and Ticket Parking	69
Monash Biomedical Imaging	Unrestricted	81
Telstra Global Operations Centre	Staff Parking	609
Australian Synchrotron	Unrestricted	138
Melbourne Centre for Nanofabrication	Staff Parking	49

AJM
Joint Venture

Appendix B

Background review

B.1 Car parking background

B.1.1 Parking management

The traditional approach to parking management is based on setting mandatory minimum requirements for parking. This includes on and off-street parking in activity centres, and parking in individual developments. This approach can be described as a 'predict and provide' approach, where motorists should always be able to easily find convenient and free parking at every destination.[36]

A shift from this approach is underway, particularly at activity centres. Parking does not cause transport demand, but is an effect of transport demands generated by factors including land use type and intensity, spatial distribution, and availability and attractiveness of travel mode choices. The need for parking, driven by parking demand, is primarily moderated by quality and choice of alternative travel modes and convenience and availability of parking.

The supply of parking and how it is managed can directly influence transport and travel choices. On and off-street car parking can be managed with policies and techniques, and used as one of many effective tools in the context of travel demand management – that is, the management of parking supply and demand can directly influence transport and travel choices and the efficient use of transport infrastructure. Parking management can be even more effective when supporting land use planning outcomes and other transport initiatives.

Car parking demand is also influenced by mode share choice based on the quality and accessibility of alternative travel modes. The term 'integrated parking' is used in the SRL East Structure Plan – Transport Technical Report – Monash and in this Precinct Parking Plan in recognition that providing parking for non-car travel modes should be elevated.

In addition to supply, the key considerations and factors in parking management policy include:

- Availability and attractiveness of non-car-based travel modes, such as sustainable transport modes of public transport and active travel (cycling, walking)
- Density, diversity and proximity of land uses in the Structure Plan Area, as well as desired urban design outcomes
- The economic role and necessity of car parking to support employment and retail land uses, and servicing requirements
- Ability to efficiently use and share car parking between different land uses and users (shared parking, car share schemes, consolidated parking).

Parking management 'tools' implemented through the relevant controls of a planning scheme are considered statutory tools. These include zoning, Parking Overlays and accompanying Schedule(s) and particular provisions such as Clause 52.06 'Car Parking'. These statutory controls may be amended or supplemented through planning scheme amendments to introduce new or amending existing parking requirements.

In addition to statutory controls, council policies, strategies and guidelines may be considered when it comes to parking management. These can be considered non-statutory tools and are typically developed and managed by the responsible authority (relevant council).

[36] Austroads Guide to Traffic Management 11: Parking Management Techniques (AGTM11-2020)

Examples of statutory and non-statutory tools are summarised in Table B.1, some of which are identified in a Precinct Parking Plan as a way to manage parking.

TABLE B.1 EXAMPLE STATUTORY AND NON-STATUTORY TOOLS

STATUTORY TOOLS (VARIOUS MECHANISMS AND LEVELS OF SUPPORT / REQUIREMENT) E.G. PARKING OVERLAY, DECISION GUIDELINES, DESIGN STANDARDS, ZONING SCHEDULE	NON-STATUTORY TOOLS (VARIOUS MECHANISM AND LEVELS OF SUPPORT / REQUIREMENT) SUCH AS MANAGEMENT POLICY (COUNCIL)
• Amended car parking rates (minimums, maximums) • Consolidated car parking provision • Shared car parking provision • Car share provision • Electric vehicle charging bay requirements • On-site loading requirements • Green Travel Plans • Bicycle parking and end-of-trip facilities	• On-street parking and loading management (restrictions, pricing, enforcement, among others) • Off-street parking provision (consolidated) • On-street car share provision • On-street bicycle parking provision • Mobility and freight delivery hubs • On-street parking reallocation / conversion (parklets, bicycle parking, mobility hubs, among others)

Note: The list of tools is non-exhaustive

B.1.2 Transit / Walk Score vs. empirical data

Transit Score, available from www.walkscore.com, is a score or measure of how well a site or location is served by public transport on a scale of 0 to 100. Specifically, it measures public transport accessibility based on distance to closest stop on each route, analyses route frequency and type. The higher the score, the higher the level of, proximity to, and frequency of public transport for a given site. Further discussion on this measure and the methodology used to calculate it are provided at www.walkscore.com.

While different to PTAL (Public Transport Accessibility Levels) used in the United Kingdom and New South Wales, it is a similar approach that seeks to calculate accessibility levels to specific sites or areas. At the time of preparing this report, the Department of Transport and Planning (DTP) is considering an update to the way that car parking rates are calculated based on proximity to public transport (using PTALs).

Given the wide range of scores (Transit and Walk Score) within a Structure Plan Area, two areas have been identified for separate parking requirements, with Area A being those areas planned for higher densities, mixed used and better served by public transport. The average Transit Score for Monash Area A is 55, with Area B representing the remainder of the Structure Plan Area. Figure B.1 presents the Transit and Walk Scores for the entire Structure Plan Area and Area A for the six SRL East Structure Plan Areas.

As illustrated, the Area A zones for each precinct have higher scores (Transit and Walk) as they include areas that are higher density, mixed use and close to higher quality public transport. It shows that:

a) Box Hill has the highest Transit Scores and with Area A having the highest Walk Scores.

b) Clayton (Area A) follows with next highest Transit and one of the highest Walk Scores reflecting Clayton's existing role as a key public transport interchange and activity centre.

c) The Area A of Glen Waverley and Cheltenham have higher walk scores reflecting the mixed use of activities at these centres.

d) Burwood and Monash have Walk Scores that are the lowest of the precincts, reflecting that these locations are currently not activity centres with a limited range of land uses.

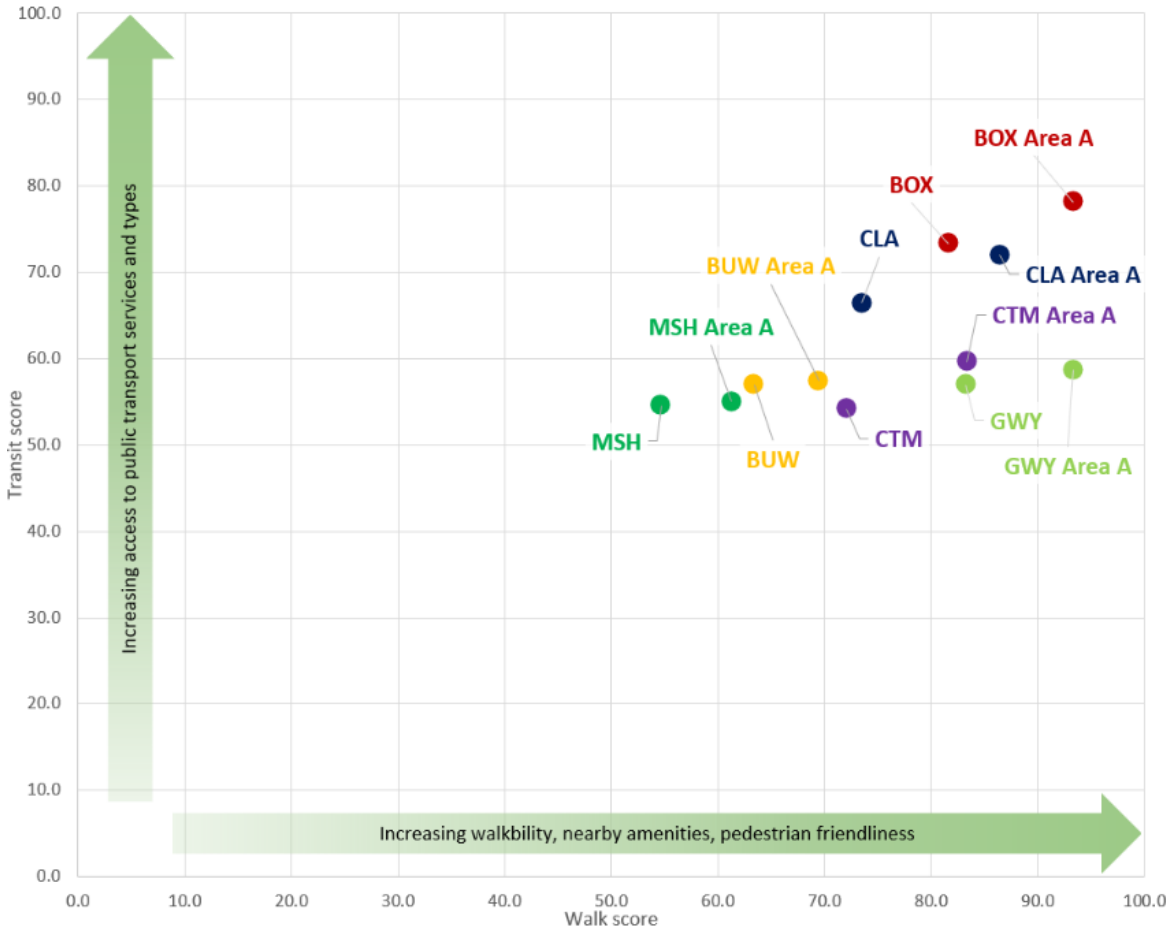


FIGURE B.1 SRL EAST STRUCTURE PLAN AREAS AND AREA A, WALK VS TRANSIT SCORE

The Transit Scores for the Monash Structure Plan Area data points have been compiled and added to a database of other office and shop land use rates compiled by a number of Melbourne-based consultants. Note the shop land use data includes a number of different uses that are nested under the 'shop (other than listed)' land use and in some cases comprise mixed use developments in areas with higher 'walk-up trade' customers.

The approved parking provision rates for these developments have been plotted against the sites Transit Score to identify if a relationship exists between higher accessibility to public transport (that is, a high Transit Score) and lower parking provision rates – implying lower parking requirements and lower inferred private vehicle use–- in areas of high public transport accessibility.

Figure B.2 and Figure B.3 presents the office and shop land use parking provision rates plotted against the sites' Transit Scores. These figures suggest that both office and shop land use parking provision rates exhibit a degree of (negative) relationship to public transport accessibility, noting this relationship is particularly evident for office land use. That is, the higher the Transit Score (i.e. higher degree of access to quality public transport services) the lower the car parking provision rate.

From these graphs, it can be seen that the recommended office and retail car parking provision rates for Monash Area A, as compared to the Transit Score are marginally below the relative trend exhibited by the data. However, this is reasonable given parking overlay rates for other activity centres (refer section B.1.5) and Monash's Transit Score will improve towards the trend line when SRL rail services commence.

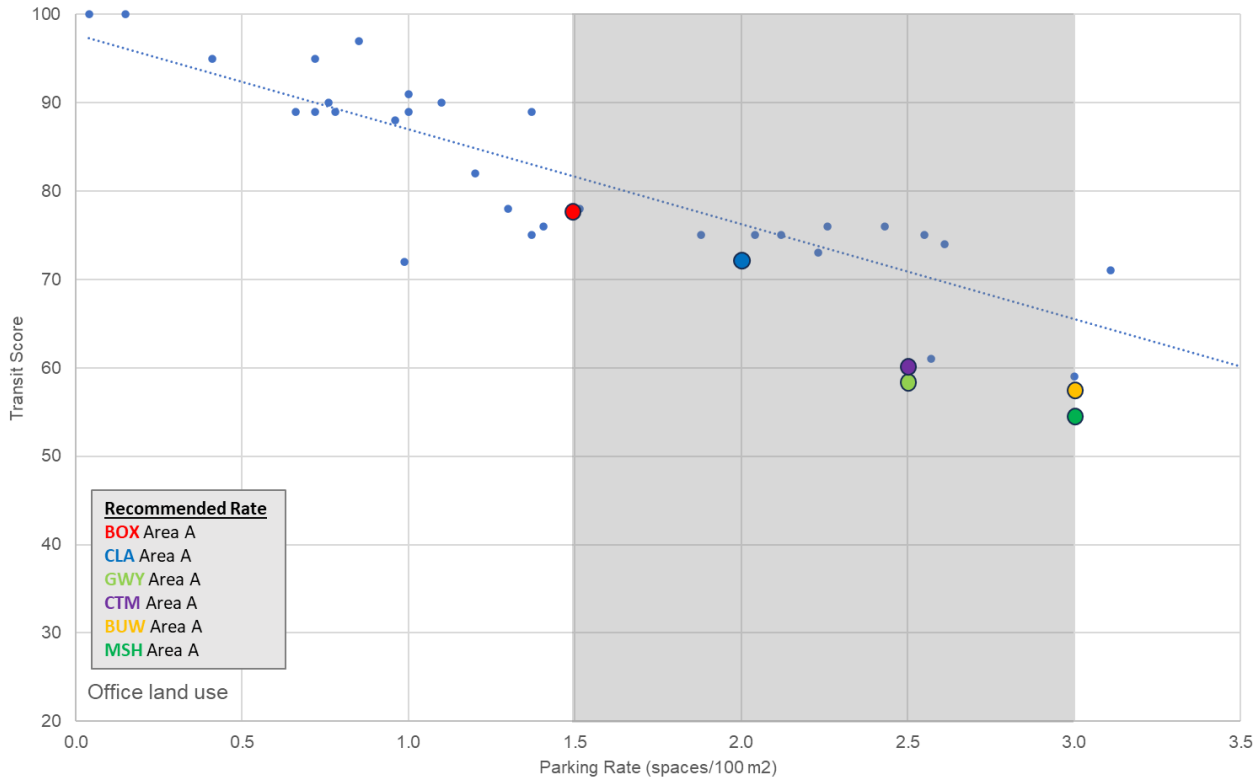


FIGURE B.2 OFFICE LAND USE PARKING PROVISION RATES VS TRANSIT SCORE

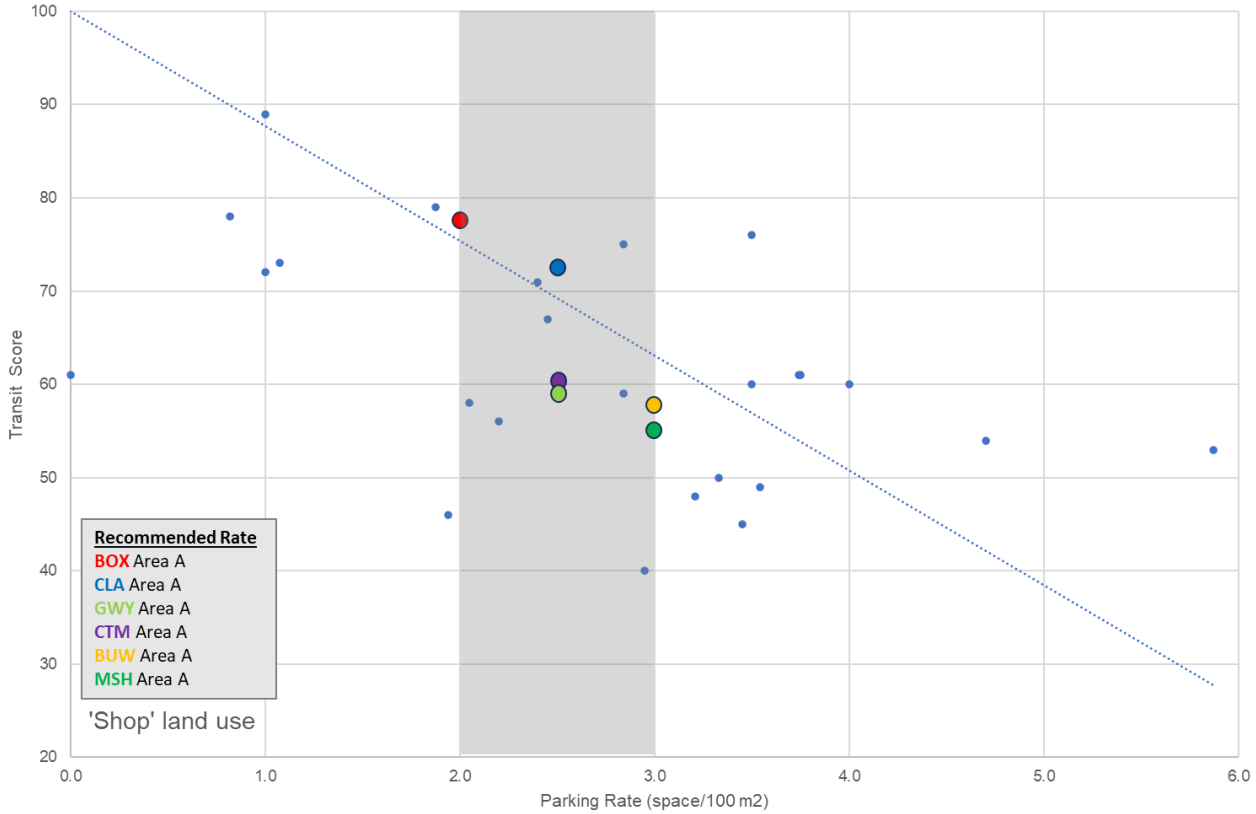


FIGURE B.3 RETAIL (SHOP) LAND USE PARKING PROVISION RATES VS TRANSIT SCORE

Walk Score is also available from www.walkscore.com and measures walkability based on a similar 0 to 100 scale. While not presented here, plotting each site's Walk Score also indicates a similar correlation between Walk Score and parking provision rate albeit a weaker one compared to office land use. This is intuitive as less people are likely to walk to work regardless of an office's walkability (as the critical factor here is

employees place of residence). However, walk-up trade is common for retail (and/or shop) land uses (given customer origin) – more so in commercial and Activity Centre areas.

B.1.3 SRL East Structure Plan Areas - Recent planning approvals and developments

A number of recent projects have been approved and/or constructed in the SRL East Structure Plan Areas. These have been tracked by SRLA and compiled in a data base. A number of single and mixed-use developments have been recorded which include office, retail / shop, residential (apartments), food and drink premises, medical centre, child care and supermarket.

For the purposes of this report, office and retail (shop)[37] land uses are summarised in **Figure B.4** and **Figure B.5** below. Each includes the 'standard' parking provision rate from Clause 52.06 of the Victoria Planning Provisions, the alternative 'Column B' rate based on the Principal Public Transport Network (PPTN).

It is noted that were no data points available for Burwood or Monash, while only one 'retail (and/or shop)' was available for Glen Waverley. Box Hill could be argued as being the most similar, or close to, the future state of the SRL East Structure Plan Areas, with a high degree and level of mixed-use development and a high degree of accessibility to a high-quality public transport services. Notwithstanding, based on the development data available, the following key items can be summarised from **Figure B.4** and **Figure B.5** below:

- In Box Hill (BOX), where there is a high degree of mixed-use development, high accessibility to high quality public transport and a lower minimum parking requirement in the Box Hill Activity Centre Parking Overlay (PO1)
  - » Two 'office' parking provision in the central Box Hill area are less than the minimum requirement under PO1 (~1.5 spaces / 100 m^2)
  - » Two 'retail (and/or shop)' parking provision in the central Box Hill area are significantly less than the 'Column B' rates applicable to these sites (~0.8 spaces / 100 m^2 and ~1.8 spaces / 100 m^2)
- In Glen Waverley (GWY) one 'retail (and/or shop)' parking provision is less than the minimum requirement under 'Column B' rates applicable to that site (~2.8 spaces / 100 m^2)
- In Cheltenham (CTM) one 'retail (and/or shop)' parking provision is less than applicable 'Column B' requirement (~2.8 spaces / 100 m^2)
- In Clayton (CLA) two 'retail (and/or shop)' parking provisions are less than both 'standard' and reduced 'Column B' requirements (~0.9 & ~1.1 spaces / 100 m^2).
- In Clayton (CLA) one site's 'office' parking provisions are less than both 'standard' and reduced 'Column B' requirements (~1.0 space / 100 m2).

These recently approved and/or constructed developments indicate that parking provision below the minimum parking requirements set the Planning Scheme (or applicable overlay) relevant to each SRL East Precinct is currently being achieved. They appear to be based on the existing proximity to public transport services and mixed-use Activity Centre-based development.

[37] Table 1 of Clause 52.06-5 includes parking requirements for Shop and Supermarket land uses but non for Retail Premises. Both retail Shop and Supermarket (and other uses) are nested under Retail Premises in the Planning Scheme and Shop includes a broad range of uses itself. For the purposes of this assessment, Retail Premises (retail) is adopted for the overarching land use term, noting this includes various Shop data points.

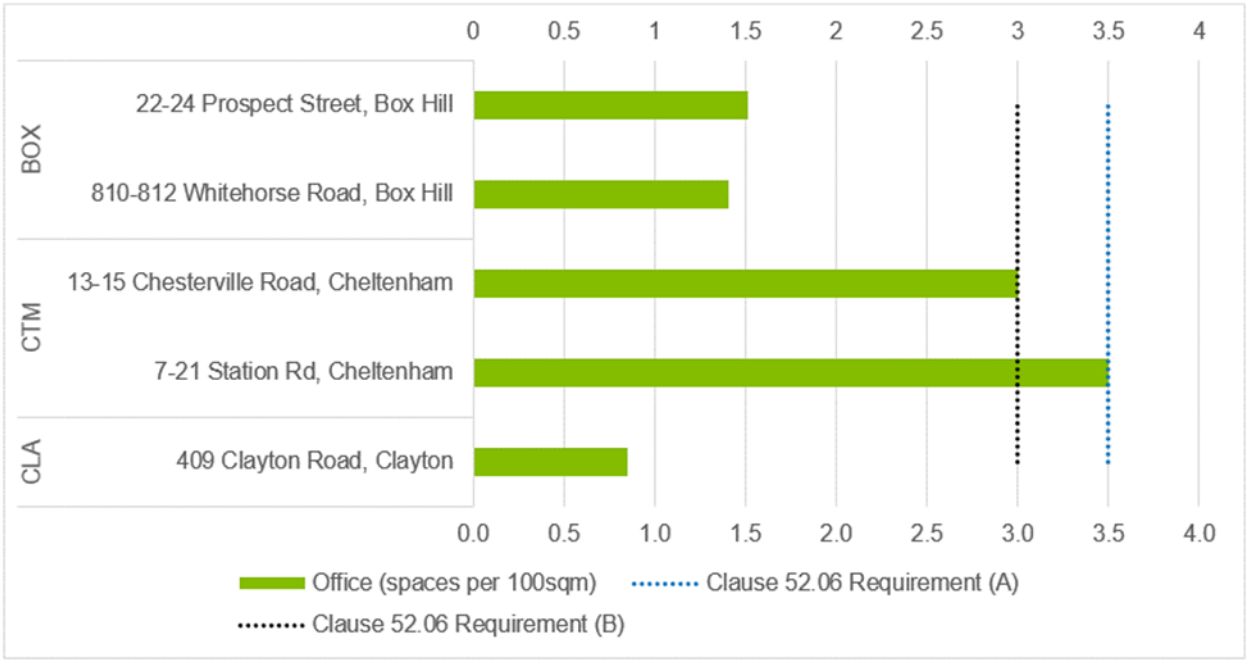


FIGURE B.4 SRL EAST PRECINCTS – EXISTING OFFICE CAR PARKING PROVISIONS (SRLA PROVIDED COUNCIL & CORELOGIC DATA)

FIGURE B.5 SRL EAST PRECINCTS – EXISTING RETAIL (SHOP) CAR PARKING PROVISIONS (SRLA PROVIDED COUNCIL & CORELOGIC DATA)

In considering the specific sites across the SRL East precincts above, it is expected that the maximum rates recommended for both office and retail within Area A, would be viable and consistent with providing at lower than the 'standard' (Cl 52.06) requirements on average. This acknowledges the size of Area A and its location closest to the station, providing a higher Transit Score than the broader Structure Plan Area.

B.1.4 Land use specific considerations

Supermarket

There is a range of planning approvals data that shows that supermarkets in inner and middle suburban areas that have rates is up to 3.30 car spaces per 100sqm LFA.

There is also higher density locations close to public transport where supermarket that have lower parking requirements. Supermarket operators have also developed a different supermarket or convenience format, such as Woolworths Metro. A maximum parking requirement for Area A at about the 85th percentile level shown in Table B.2 is recommended. It is also recommended that a minimum rate be set for Area B around this level.

TABLE B.2 SUPERMARKET PARKING RATES (SOURCE: SRLA)

Site	Operator	Size (sqm)	Rate (spaces/ 100 sqm)
Malvern Road	Woolworths	1990	1.76
Wattle St, Prahan	Woolworths	2385	3.30
Smith St, Fitzroy	Woolworths	4320	2.40
Burke Rd, North Balwyn	Coles	2209	3.26
Carlisle St Balaclava	Coles	2590	1.80
Carlisle St Balaclava	Woolworths	1640	1.30
Acland Street, St Kilda	Woolworths	2225	1.30
Average			2.30
85th percentile			3.30

Student accommodation

Student accommodation (residential building) is not specified in Table 1 of Clause 52.06 of the Victoria Planning Provisions. Notwithstanding, the Monash and Whitehorse Planning Schemes include local policies for student accommodation (Clause 16.01-1L-02 and Clause 22.14 respectively). The minimum parking requirements for student accommodation included tiered minimum car parking rates based on the site's location and are summarised in Table B.3.

TABLE B.3 MONASH AND WHITEHORSE COUNCIL – STUDENT ACCOMMODATION LOCAL PARKING POLICY

MUNICIPALITY	RATE (MIN.)	APPLICATION
Monash [1]	0.3 car spaces per bed	'Preferred Locations' include locations within one or more of the following: • 1500 m of a tertiary institution • 800 m of a railway station • 800 m of Major or a larger Neighbourhood Activity Centre • 400 m of a bus route that provide access to a tertiary educational institution.
	0.4 car spaces per bed	Sites located outside of preferred locations.
	0.5 bicycle spaces per student (1 bicycle per two students)	
Whitehorse	0.1 car spaces per bed	Purpose-built student accommodation in the Box Hill Major Activity Centre (MAC)
	0.25 car spaces per bed	Purpose-built student accommodation within a Major Activity Centre, within 500 m of a tertiary institution, or on a site abutting the PPTN.
	0.33 bicycle spaces per bed (1 space per three beds)	

The draft Monash City Council 'Student and Shared Accommodation Guideline' (dated June 2022) also notes that 'it is policy to consider applications for car parking reductions for developments in a Preferred Location, where alternatively transport measures are strongly supported by the design (for example, offer on-site car share, exceed the bicycle parking and storage requirements, are close to high quality and frequent public transport connections or in safe walking distance to an activity centre, Monash University or Holmesglen TAFE).'

A further review of student accommodation developments[38] indicate that car parking provision rates in metropolitan Melbourne vary from 0 to 0.4 car spaces per bed. In Monash and Whitehorse these range from 0.1 to 0.32 car spaces per bed, and average less than 0.2 car spaces per bed.

B.1.5 Other Parking Overlays

Examples of Parking Overlays that vary parking requirements in other locations in Melbourne are provided in Table B.4. While the examples generally relate to areas smaller than the Monash Structure Plan Area, they are considered relevant for comparison purposes.

Some include minimum, maximum or a mix of minimum and maximum parking requirements. The recently approved Box Hill Central North Master Plan incorporated document is included, which includes maximum rates for this area, noting these have not been implemented via an amendment to the existing Whitehorse Council Schedule to the Parking Overlay (PO1).

The examples include permit requirements, application requirements and decision guidelines that vary the standard requirements of Clause 52.06 of the Victoria Planning Provisions. There are also examples of how 'other land uses' / 'uses not listed' are captured are included, as well as specific permit requirements to reduce (including reduce to zero) below minimum requirements, or to exceed maximum requirement.

In some cases, other land uses (unlisted in the Schedule to the Parking Overlay) defer to 'Column A' or 'Column B' requirements in Clause 52.06 of the Planning Scheme (either as minimum or maximum requirements).

It is noted the City of Melbourne Arden Parking Overlays include the lowest residential and non-residential maximum parking rates (lower than Fishermans Bend and Docklands for example, and all Activity Centre Parking Overlays reviewed). These precincts could be considered distinct from other precincts noting their inner-city location and in the case of Arden (for which the Parking Overlay zone map currently refers to West Melbourne PO14 instead of PO15) it is noted this is a brownfield redevelopment precinct with a new Metro Tunnel Station to be complete in the near term.

The range of rates which have been observed in current Parking Overlay examples (as per the following table), for residential, office and retail land uses, are generally consistent with those rates which have been recommended for the SRL East precincts.

[38] Survey data from Melbourne-based consultants, Cordell (CoreLogic) development data and Victorian Civil and Administrative Tribunal (VCAT) approvals.

TABLE B.4 EXAMPLES OF PARKING OVERLAYS IN METROPOLITAN MELBOURNE

OVERLAY	LOCAL GOVERNMENT AREA	RESIDENTIAL (NO. OF SPACES)		NON-RESIDENTIAL (NO. OF SPACES)		COMMENTS
Box Hill Activity Centre PO1 [1] (2022)	Whitehorse	0.5 0.75 1 0.2 0.1	/ 1 bedroom dwelling / 2 bedroom dwelling / 3+ bedroom dwelling visitor spaces if ≤ 5 dwellings + visitor spaces if >5 dwellings	2	/ 100 m^2 NFA	For all other uses listed in Table 1 of Clause 52.06-5, the Rate in Column B of Table 1 in Clause 52.06-5 applies. A permit is required to reduce (including reduce to zero) the minimum number of car parking spaces required for a use as specified in this Schedule.
Box Hill Central North Master Plan (incorporated document) [1] (2022)	Whitehorse	1 2	/ studio,1 and 2 bedroom dwelling / 3+ bedroom dwelling	1 1	/ 100 m^2GLFA (retail uses) / 100 m^2 NFA (office)	
Footscray Metropolitan Activity Centre – Inner Parking Precinct PO1 (2019)	Maribyrnong	0.5 – 1 0.8 – 1 1 – 1.5 0.1	/ 1 bedroom dwelling / 2 bedroom dwelling / 3+ bedroom dwelling visitor / dwelling (min.)	1.5 – 2 1 – 2.3 0.05 – 0.01 0.05 – 0.25 0.1 – 0.3 0.5 – 1.5 0.5 – 1 2 – 2.5	/ 100 m^2 NFA (office) / 100 m^2 NFA (medical centre) / patron (restaurant) / bedroom (residential college) / lodging room (residential hotel) / 100 m^2 NFA (retail premises) / 100 m^2 NFA (restricted retail) / 100 m^2 NFA (supermarket)	For all other uses listed in Table 1 of Clause 52.06-5, the number of car parking spaces required for a Use shall be calculated by using the Rate in Column B of that Table, and the resulting requirement shall be the minimum. A permit is required to: reduce (including reduce to zero) the minimum number of car parking spaces required for a use as specified in this Schedule, or provide more than the maximum number of car parking spaces for a use as specified in this Schedule. All buildings that provide on-site car parking must provide motor-cycle parking for the use of occupants and visitors, at a minimum rate of one motor-cycle parking space for every 25 car parking spaces, unless the responsible authority is satisfied that a lesser number is sufficient.
Footscray Metropolitan Activity Centre – Outer Parking Precinct PO2 (2019)	Maribyrnong	Generally as per PO1. Differences in non-residential rates included below.		2 2.3 0.01 1.5 1 2.5	/ 100 m^2 NFA (office (min.) / 100 m^2 NFA (medical centre (min.)) / patron (restaurant (min.)) / 100 m^2 NFA (retail premises (min.)) / 100 m^2 NFA (restricted retail (min.)) / 100 m2 NFA (supermarket (min.))	For all other uses listed in Table 1 of Clause 52.06-5, the number of car parking spaces required for a Use shall be calculated by using the Rate in Column B of that Table, and the resulting requirement shall be the minimum. A permit is required to: reduce (including reduce to zero) the minimum number of car parking spaces required for a use as specified in this Schedule, or provide more than the maximum number of car parking spaces for a use as specified in this Schedule.
Moonee Ponds Activity Centre (MPAC) PO2 (2022)	Moonee Valley	1	/ dwelling	2	/ 100 m^2 NFA (office)	For all other uses listed in Table 1 of Clause 52.06-5, the Rate in Column B of Table 1 in Clause 52.06-5 applies. A permit is required to reduce the minimum number of car parking spaces as specified in this Schedule. A permit is not required under Clause 52.06-3.
Sunshine Activity Centre PO1 (2023)	Brimbank	0.7 0.9 1.3	/ 1 bedroom dwelling / 2 bedroom dwelling / 3+ bedroom dwelling	1.8 2 3	/ 100 m2 NFA (restricted retail) / 100 m2 NFA (other) / 100 m2 NFA (supermarket)	For all other uses listed in Table 1 of Clause 52.06-5, the Rate in Column B of Table 1 in Clause 52.06-5 applies. A permit is required to reduce (including reduce to zero) the minimum number of car parking spaces required for a use as specified in this Schedule.
Preston Market PO2 (2023)	Darebin	1 2	/ 1-2 bedroom dwelling / 3+ bedroom dwelling	1 3.5	/ 100 m^2 NFA (office) / 100 m^2 NFA (market, retail premises, supermarket)	For uses not listed, the Rate in Column B of Table 1 in Clause 52.06-5 applies as a maximum rate. A permit is required to provide more than the maximum parking provision specified for a use in this Schedule.
Activity Centres PO1 (2022)	Boroondara	1 2 0.2	/ 1-2 bedroom dwelling / 3+ bedroom dwelling visitor spaces if ≥ 5 dwellings	3.5	/ 100 m^2 NFA (office)	For all other uses listed in Table 1 of Clause 52.06-5, the Rate in Column B of Table 1 in Clause 52.06-5 applies.
Docklands – Business Park PO10 (2013)	Melbourne	1.5	/ dwelling	0.4 1 1 2 4 3 3.5	/ each room (residential hotel) / 150 m^2 NFA (industry) / 100 m^2 GFA (other) / 100 m^2 GFA (place of assembly) / 100 m^2 GFA (retail (varied by area)) / 100 m^2 GFA (office) / 100 m^2 GFA (film studio)	
Residential Development in Specific Inner Areas PO12 (multiple areas totalling 354ha) (2013)	Melbourne	1	/ dwelling	-	-	A permit is required to provide car parking spaces in excess of the maximum number specified.
Fishermans Bend Urban Renewal Area PO1 (2018)/ Fishermans Bend Urban Renewal Area PO13 (2018)	Port Phillip / Melbourne	0.5 1	/ 1-2 bedroom dwelling / 3+ bedroom dwelling	0.5 1 2	/ bed (residential village, retirement village) / 100 m^2 NFA (industry, office, retail premises, restricted retail…) / 100 m^2 NFA (supermarket)	For all other uses listed in Table 1 of Clause 52.06-5, the maximum number of car parking spaces to be provided for the use is calculated by multiplying the rate in Column B of Table 1 in Clause 52.06-5 specified for the use, by the accompanying measure. A permit is required to provide more than the maximum parking provision specified for a use in this Schedule. This does not apply to the provision of additional car parking that is allocated for car share or precinct based parking to the satisfaction of the responsible authority

OVERLAY	LOCAL GOVERNMENT AREA	RESIDENTIAL (NO. OF SPACES)		NON-RESIDENTIAL (NO. OF SPACES)		COMMENTS
Arden PO15	Melbourne	0.2 0.3 0.5	/ 1 bedroom dwelling / 2 bedroom dwelling / 3+ bedroom dwelling	0.3	/ 100 m^2 NFA (other)	A permit is required to provide car parking spaces as part of any use or development. A permit must not be granted to provide more than the maximum parking provision specified
Legend:						
Maximum rates	Min & Max rates	Minimum rates				

[1] Box Hill Central North Master Plan incorporated document (May 2024) includes maximum car parking requirements but is not implemented via a schedule to the parking overlay

NFA = Net Floor Area. GFA = Gross Floor Area. GLFA = Gross Leasable Floor Area.

B.1.6 Car parking background summary

On the basis of the above discussion and analysis, and that included in the body of this report, the following key items are summarised (noting this is not an exhaustive summary):

- The proposed **SRL East Structure Plan Area population and employment forecasts and mode share projections** are considered reasonable compared to the distribution of Melbourne's population and employment densities, and private vehicle mode share outcomes discussed in the body of this report and the SRL East Structure Plan – Transport Technical Report – Monash.

- The **private vehicle mode share and average car ownership relationship for Metropolitan Melbourne** indicates average car ownership levels of approximately 1 to 1.3 cars per dwelling as being consistent with the potential for mode share shift the Monash Structure Plan Area.

- A detailed review of **empirical parking data** in SRL East Structure Plan Areas, benchmark suburbs and other Metropolitan Melbourne locations, against each site's Transit Score (a measure of how well a site or location is served by public transport, on a scale of 0 to 100 – not dissimilar to PTAL (Public Transport Accessibility Levels understood to be considered by DTP as part of proposed parking requirement changes)) indicates:
  - » Office parking provision has a clear negative relationship with Transit Score (high public transport accessibility is associated with lower parking provisions). Parking rates of Transit Scores with similar locations have been considered.
  - » Shop parking provision has a negative relationship with Transit Score, albeit a relatively less pronounced one (higher public transport accessibility tends to be associated with lower parking provisions). Similarly, the Transit Scores of specific development sites with similar locations and their relative parking rates have been considered.

- Rates for recent planning approval decisions have also been considered.

- Notwithstanding the Whitehorse and Monash City Council student accommodation parking policies, **empirical student accommodation parking** provision rates are relatively low with car parking provision rates of:
  - » 0.1 to 0.32 car spaces per bed (average less than 0.2 car spaces per bed) in the cities of Monash and Whitehorse
  - » 0 to 0.4 car spaces per bed in metropolitan Melbourne
  - » On this basis the proposed maximum of 0.3 spaces per bed is considered appropriate in Area A.

Where applicable, parking rates are summarised in Table B.5 with specific regard to Office and Retail (shop) land use. Clause 52.06 'standard' and Principal Public Transport Network ('PPTN') minimum parking requirement rates have been included for reference.

A comparison of the office and retail rates, and residential rates are presented in Table B.6.

TABLE B.5 SUMMARY OF PARKING RATES FOR OFFICE AND RETAIL (SHOP) LAND USE

SOURCE	OFFICE	RETAIL (/SHOP) [1]
VPP Clause 52		
Clause 52.06 'standard' column A requirement	3.5 spaces / 100 m^2 NFA (minimum rate)	4 spaces / 100 m^2 NFA (minimum rate) – Shop
Clause 52.06 'PPTN based' column B requirement	3.0 spaces / 100 m^2 NFA (minimum rate)	3.5 spaces / 100 m^2 NFA (minimum rate) – Shop
Existing Parking Overlay review		
Minimum requirements	1.5 – 3.5 space / 100 m^2 NFA	0.5 – 4 space / 100 m^2 GFA – Retail
Maximum requirements	1 – 3 space / 100 m^2 NFA	1 – 3.5 space / 100 m^2 GFA – Retail
Transit Score data		
High Transit Score (70 to 90)	0.5 – 2.5 space / 100 m^2	
Moderate Transit Score (<70)	> 2.5 spaces / 100 m^2	

[1] Clause 52.06 includes parking requirements for Shop and Supermarket land uses which are nested under Retail Premises (bot no Retail rate). The common approach in Parking Overlays is to include Retail Premises and to sometimes include supplementary rates for Shop and/or Supermarket. This makes comparisons difficult, however given Shop and Supermarket (and many others) are all nested under Retail Premises in the Planning Scheme, they are included here for comparison.

NFA = Net Floor Area. GFA = Gross Floor Area. LFA = Leasable Floor Area

TABLE B.6 SUMMARY OF PARKING RATES FOR RESIDENTIAL LAND USE

SOURCE	RESIDENTIAL - 1 BED DWELLING	RESIDENTIAL - 2 BED DWELLING	RESIDENTIAL - 3+ BED DWELLING	RESIDENTIAL - VISITOR
VPP Clause 52				
Clause 52.06 'standard' column A requirement (minimum rate)	1.0 spaces / dwelling	1.0 spaces / dwelling	2.0 spaces / dwelling	1.0 spaces / dwelling for visitors to every 5 dwellings for developments of 5 or more dwellings
Clause 52.06 'PPTN based' column B requirement (minimum rate)	1.0 spaces / dwelling	1.0 spaces / dwelling	2.0 spaces / dwelling	[note 1]
Existing Parking Overlay review				
Minimum requirements	0.5 – 1.0 spaces / dwelling	0.75 – 1.0 spaces / dwelling	1.0 – 2.0 spaces / dwelling	[note 2]
Maximum requirements	0.5 – 2.0 spaces / dwelling	0.5 – 2.0 spaces / dwelling	1.0 – 2.0 spaces / dwelling	[note 2]
Car ownership				
Monash LGA (all dwellings)	0.8 cars owned	1.2 cars owned	1.9 cars owned	
Monash (all dwellings)	0.7 cars owned	1.1 cars owned	1.8 cars owned	
Monash (apartments)	0.7 cars owned	1.0 cars owned	1.6 cars owned	
Monash SPA (apartments)	0.7 cars owned	1.1 cars owned	1.4 cars owned	

[1] Not specified

[2] Varies, or defers to Clause 52.06 Column A or Column B requirements

B.2 Bicycle and micromobility parking facilities

B.2.1 Cycling in Monash

Monash, like many middle and outer suburbs in Melbourne, currently exhibits low cycle mode share. The Victorian Integrated Survey of Travel and Activity (VISTA) and Australian Bureau of Statistics (ABS) journey to work data both suggest the Planning Area has less than a one per cent cycle mode share for most trip types. However, there is clear potential for this to change as conditions in Monash change and the cycling and micromobility options for personal more sustainable travel increase.

Studies such as the DTP Cycling to Work in Melbourne[39] study show that as capacity on the road network decreases and congestion rises, bicycle use increases. According to VISTA, there has been a 42 per cent increase in total cycling trips to work in inner Melbourne and a 17 per cent increase in middle Melbourne between 2008 and 2020.

In terms of assisted cycling and micromobility modes in the form of e-bikes and e-scooters, a study by the RACV suggests that although e-bikes currently amount to eight per cent of new bike purchases, this is expected to grow to 20 per cent[40]. Increasing the number of these forms of micromobility in the community will result in cycling and micromobility becoming more viable for more people and more trip distances and purposes.

On a local level, Monash, as density increases and has a more live locally focus, more daily trips by a greater cohort of the population will be able to be undertaken by bicycle or other forms of micromobility.

Storage and parking of these forms of transport is needed to support and encourage the use of these modes and it will be imperative to foster and plan for increasing numbers of cycling trips. This report sets out recommendations to increase bicycle parking in the Planning Area and provide facilities that reflect the intended movement aspirations for the future Monash community to live locally and support growth in bicycle use.

> ***When executed well, bicycle parking investment not only meets current demand, but can also simulate an increase in cycling use.***
>
> Best Practice Bicycle Parking (AP-R527-16), AustRoads, 2016

Non-infrastructure recommendations MNTP-1 and MNTP-2 regarding parking for cycling and micromobility are provided in Section 5 of this Precinct Parking Plan.

State and local policies can be interpreted as driving a need to increase and improve bicycle parking in precincts such as Monash.

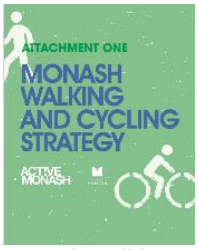
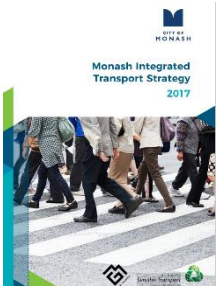
Victorian Government policies such as DTP's Future Directions and The Victorian Climate Change Strategy include directions and goals to achieve more active transport trips, with a state-wide target of 25 per cent active transport mode share clearly identified as part of measures to combat climate change. Monash and the other SRL East Structure Plan Areas will be key contributors to meeting this target

[39] VicRoads, 2012, Cycling to Work in Melbourne 1976 – 2011

[40] RACV, 20 October 2020, Why adult bike sales have surpassed new car sales, accessed September 2023, <https://www.racv.com.au/royalauto/transport/cycling/bike-sales-trends-victoria.html>

At a local level, City of Monash local plans and policies support and encourage bicycle parking as indicated within the below table.

TABLE B.7 LOCAL PLANS AND POLICIES THAT ARE COMPLEMENTED BY OR ALIGN TO THE RECOMMENDATIONS FOR BICYCLE PARKING

LOCAL PLAN / POLICY	HIGH LEVEL GOALS AND STRATEGIC DIRECTIONS SRL RECOMMENDATIONS WILL SUPPORT
 **Monash Walking and Cycling Strategy**	Has a vision for walking and cycling in Monash that includes a city 'where people embrace walking and cycling as part of their lifestyle… *pathways and amenities…. on a journey to where they want and need to go; and connect people and neighbourhoods.'* This implies a need for good quality bicycle parking where people 'want and need to go.' Public consultation undertaken during the strategy preparation indicated a need for more secure bicycle racks. Action 20 looks to review bicycle parking relevant to pathways.
 **Monash Integrated Transport Strategy 2017**	Under theme 4c Promote Sustainable Transport, the strategy considers that: 'Addressing barriers to greater cycling uptake, as safety, comfort and end-of-trip facilities should be a priority in Monash.' Action C21 identifies there should be an increase in bicycle parking opportunities at key destinations across Monash, with community engagement to understand the level of demand for bicycle parking not currently being met.

B.2.2 SRL project transport goal drivers for bicycle parking

As discussed in the SRL East Structure Plan – Transport Technical Report – Monash, seven transport goals have been developed for the SRL East Structure Plan Areas. The approach to bicycle and micromobility parking for Monash will respond either directly or indirectly to six of these goals, as outlined below.

FIGURE B.6 TRANSLATING KEY GOALS INFORMING BICYCLE AND MICROMOBILITY PARKING

B.2.3 Development bicycle parking recommendations

The current bicycle parking rates for Monash are set out in Clause 52.34 of the Monash Planning Scheme, with the exception of student housing which is covered under local policies. Clause 53.24 provides new rates for apartments constructed under the Future Homes project banner.

As accessibility improves, density increases and the reliance on the private car reduces, bicycle ownership and usage will increase. Setting bicycle parking rates as minimums will enable supplies to increase as demand rises without the need to amend permits.

Typically, the full suite of land uses is not covered by alternative bicycle parking requirements within planning schemes. Generally, the key focus of bicycle parking requirements is on residential, office and retail uses. The approach taken to recommend bicycle parking requirements for these key land uses is described below.

Residential

The Victorian Integrated Survey of Travel and Activity (VISTA) provides an indication of current bicycle ownership in Monash. [41] This data is summarised in the body of this report. The data indicates that currently Monash has relatively low bicycle ownership, particularly for smaller households. In larger households, bicycle ownership is higher and on average exceeds the bicycle parking requirements suggested by the current VPP Clause 52.34 rates.

The bicycle parking rates for residential use are presented in Table B.8 (which is located at the end of this sub-section), and these recommended rates are supported by the following:

- Council Alliance for a Sustainable Built Environment (CASBE) recommends providing one bicycle parking space per apartment plus a further 0.25 bicycle parking spaces per apartment for visitors.

- Additional bicycle parking requirements for larger apartments are supported by bicycle ownership data which indicates that the larger the household or bigger the dwelling, the more bikes will need to be accommodated for. As density increases there will be more larger households or families living in apartments, so this should be reflected in bicycle parking requirements for larger apartment formats.

- There are precedents for applying a rate of one space per dwelling for alternative bicycle parking requirements attached to use or zone schedules, superseding Clause 52.34. This has happened in multiple planning schemes including Merri-bek and Darebin. The rate is also included in Box Hill Metropolitan Activity Centre Planning Scheme.

Office

Office bicycle parking is currently provided at a rate of one employee bike park per 300 square metres net floor area, which is based on average employee density levels as set out in NSW Road Traffic Authority (RTA) Guide to Traffic Generating Developments. It is less than 7 per cent mode share and does not support current aspirations. This will need to be increased to meet the aspirations for active transport mode share.

The bicycle parking rates for office use are presented in Table B.8, and these recommended rates are supported by the following:

- CASBE recommends bike parking to meet the demands of 10 per cent of employees with an additional space per 500sq.m lettable floor area for visitors.

- The Inner Northern Suburbs of Melbourne such as Fitzroy, Carlton, Collingwood, Brunswick, and Northcote are typically areas where the attitude of the population, typical commuter journeys and bicycle facilities help to support this mode. ABS journey to work data indicates in this swathe of suburbs between 10 per cent and 16 per cent for those that travelled to a workplace from these suburbs, and between 5 per cent and 8 per cent who travelled to a workplace in these suburbs did so solely by bicycle.

- There are precedents for applying 0.5 per 100 m^2 (equivalent to one space per 200 m^2) attached to a use or zone schedule superseding Clause 52.34 This has happened in multiple planning schemes including Merri-bek, Box Hill and Darebin.

Peak bicycle parking demand in retail outlets will comprise a relatively steady but low long-term demand from employees and fluctuating short-term demands associated with customers profiles. Both the long and short-term demands would be highly dependent on the type and size of retail. The current planning scheme rates at one bicycle space per 300 square metres typically supports less than 7 per cent bicycle mode share at peak times.

[41] The VISTA data used is from 2012 – 2020

CASBE, recommends that non-residential developments should provide bicycle parking for 10 per cent of occupants, which matches the base bicycle mode share recommended by AustRoads. In many cases this will not be achieved with the level of bicycle parking required under current rates.

To determine a stronger bicycle parking rate for retail that align with state and local targets to increase active transport, a higher bicycle parking rate is recommended. Without any higher precinct cycle mode share targets, the CASBE non-residential 10 per cent cycle mode share for bicycle parking has been adopted, as an appropriate base for the SRL East Structure Plan Areas.

To convert the intended mode share to a bicycle parking rate, data collated on behalf of what is now known as Transport for New South Wales (TfNSW)[42] for their Technical Directions Note 4a-2013 has been sourced. While based on NSW sites, this data is widely considered to be the most comprehensive source of person and vehicle trip generating characteristics for different land uses in Australia and is regularly used to provide transport guidance for development in Victoria.

The data suggests that for shopping centres, a person density of eight people per 100 square metres at peak times is reasonable. Applying a 10 per cent mode share to this density would suggest a rate of 0.8 bicycle parking capacity per 100 m^2. Of which 80% would typically be expected to be customer demands..

The bicycle parking rates for retail use are presented in Table B.8, and these recommended rates are supported by the following:

- CASBE recommends 10 per cent of peak occupants should be able to cycle and park at non-residential uses.
- AustRoads recommends base rate of 10 per cent cycle mode share, aligning with CASBE.
- Rates fall between those recommended for Arden and alternative rates set out in Meri-bek Planning Scheme and the Box Hill Activity Centre Structure Plan documentation.
- Rates fall between the range for different shop sizes as set out in LTN 1/20 which documents national base bicycle parking rates for the UK.

It is noted that it may be impractical to require smaller businesses to provide private bicycle parking on site with public realm options likely to be more viable from a spatial and customer experience stance. This can be managed either with individually-sought waivers, or inclusion of a broad trigger floor area for application of rates (noting that this is adopted for ‘shop’ use but not ’retail’ use in Clause 52.34 already). Individual waivers against bicycle parking requirements could be used to provide a mechanism to encourage developers to invest or contribute to the delivery of shared bicycle parking solutions, particularly in areas where there is currently no or limited bicycle parking. Adopting a trigger to apply bicycle parking rates would reduce the need for smaller developers to apply for a permit and therefore potentially facilitate a more streamlined planning process. Typically, a trigger of 1000 square metres has been adopted for shop and retail uses in planning schemes and schedules. For retail in Monash it is proposed that this trigger is 500 m^2.

Other uses

Recommended The bicycle parking rates for other relevant uses are shown in Section 5.2. These have been developed considering that:

- Rates adopted for these uses are consistent with other land uses for employees and lean on Austroads for student bicycle parking.

[42] Data published under the early entity RTANSW, Roads and Traffic Authority of New South Wales

- Participant parking for leisure and recreation facilities are proposed to align with the base modal share of 10 per cent set out in AustRoads and CASBE.

Comparison of proposed rates to existing precedents

The proposed rates have been compared against other rates that have precedents for the main categories of land use targeted.

The comparison rates adopted are:

- VPP 52.34 rates which are the current requirement for this precinct.
- CASBE recommendations which are not area specific and broadly based on ten per cent cycle mode share.
- Precinct Specific Precedents that have been incorporated or expected to be incorporated into the relevant planning scheme.
- UK Local Transport Note 1/20 which is the UK's national design guide intended to improve cycling infrastructure to facilitate significant increases to cycling mode share.

Rates for the three primary land uses anticipated for the Planning Area are compared below.

TABLE B.8 COMPARISON OF DIFFERENT AGREED BICYCLE PARKING RATES FOR LAND USES

LOCAL PLAN / POLICY	Recommendation	STATE-WIDE RATES		PRECINCTS OR ZONES SPECIFIC RATES				OTHER
		PLANNING SCHEME 52.34 UNLESS STATED	CASBE SDAPP TRANSPORT FACT SHEET	CITY OF MELBOURNE ARDEN PRECINCT	BOX HILL MAC (AMD C245)	MERRIBEK COBURG ACTIVITY CENTRE ZONE	ST KILDA RD SOUTH PRECINCT PORT PHILLIP	LTN 1/20 (UK)
Residential		1 per 5 dwellings plus 1 per 10 dwellings for visitor	1 per dwelling plus 1 per 4 dwellings	1 per bedroom plus 2 per 5 dwellings for visitors	1 per dwelling plus 1 per 10 dwellings for visitors	1 per studio or 1 bed dwelling 2 per 2+ bed dwellings (ACZ Schedule)	1 per dwelling plus 1 per 5 dwellings for visitors	1 per bedroom
	1 per 1 to 2BR dwelling 2 per 3+ BR dwelling 1 per 4 dwellings for visitors	1 per dwelling 1 per 5 dwellings for visitors Clause 53.24						
Office	1 to per 200 m^2 NFA for employees plus 1 per 500 m^2 NFA for visitors	1 to per 300 sq.m NFA >1000 sq.m for employees plus 1 per 1000 sq.m NFA > 1000 sq.m for visitors	10% of occupants	1 space per 100 sq.m NFA for employees plus 1 per 100 sq.m NFA for visitors with a minimum of 4 spaces	1 to per 200 sq.m NFA employees plus 1 per 500 sq.m NFA > 1000 sq.m for visitors	1 per 200 sq.m 1 per 750 sq.m over 1000sq.m for visitors	-	1 per 200 sq.m for employees plus 1 per 1000 sq.m for visitors
Retail	1 per 300 m^2 NFA for employees plus 3 per 500 m^2 NFA for visitors if leasable floor area exceeds 500 m^2	1 to per 300 sq.m NFA employees plus 1 per 500sq.m NFA for visitors			1 to per 300 sq.m LFA employees plus 1 per 500 sq.m NFA >1000 sq.m for visitors	1 per 300 sq.m plus 1 per 500 sq.m over 1000 sq.m for visitors	-	1 per 500 sq.m for employees plus 1 per 250 sq.m for visitors [1]
	Notes: [1] Rate provided for retail > 1000 sq.m. Note higher rates are provided for medium and smaller scale retail							

A number of the recommended bicycle parking rates for the Planning Area are an increase from VPP Clause 52.34 rates, and are generally comparable with bicycle parking rates that have been adopted for Activity Centres and precincts. However, it is noted the bicycle parking provision rates are well below those identified for the Arden Precinct, which is expected given the Planning Area has an aspirational non-car mode share of 90 per cent, which is significantly higher than proposed for Monash.

B.2.4 Parking design and other end-of-trip facilities

Bicycle and micromobility parking design needs

The range, form, and powering of cycling and micromobility options is rapidly expanding; bicycle and micromobility parking will need to be able to accommodate these vehicle forms.

Tricycles, e-bikes, cargo bikes and bikes with trailers have greater width envelopes to standard bicycle parking while tandems, recumbent, cargo, and bikes with trailers have greater length envelopes. Bicycle parking needs to reflect these different forms of bicycle transport. AS2890.3 suggests that bicycles can typically range between 1500 millimetres and 3000 millimetres long and from 500 to 1000 millimetres wide. In addition, the growing scooter (electric and foot) market has different parking infrastructure needs from bicycles.

In 2016 Austroads suggested that 'there is little need to provide dedicated parking for every style. A better solution is to ensure there are Floor-Mounted Racks' in every facility. AS2890.3-15 indicated that all bicycle parking should include 20 per cent ground-based parking to account for the range of different bicycles as well as for riders who are unable to use wall mounted facilities.

As the prevalence of bicycles and other micromobility modes for everyday trips increases, so too will the need to accommodate bicycles with larger envelopes and different forms but also for the cohort of cyclists where lifting a bicycle is not practical or viable.

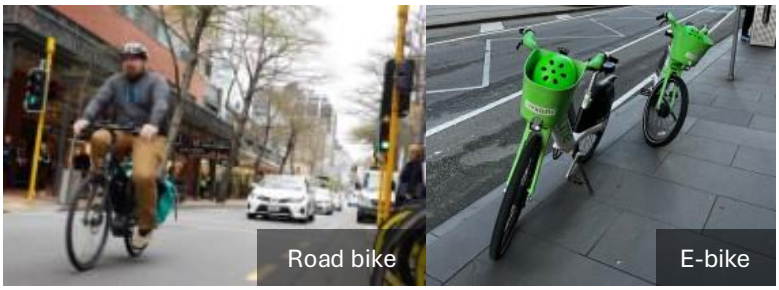


FIGURE B.7 DIFFERENT CYCLING AND MICROMOBILITY OPTIONS THAT NEED PARKING

The Royal Melbourne Institute of Technology (RMIT) prepared a policy brief paper, Transport Impacts of New High-Density Housing, which suggests that 'bicycle storage facilities should cater for current and future demands and a range of bicycle types (e.g. cargo, electric) with at least 50 per cent of spaces ideally provided at ground level.'

The London Cycling Design Standards[43] recommends that '5 per cent of all spaces should be capable of accommodating a larger cycle'.

Bikes Welcome, a New Zealand advocacy group, which was primarily active from 2017 to 2020, prepared a Bike Parking Guidance Note to help inform the design of private and public bicycle parking facilities. This

[43] Transport for London, (2016), London Cycling Design Standards Chapter 8 – Cycle parking, < https://content.tfl.gov.uk/lcds-chapter8-cycleparking.pdf >

document suggested that 10 per cent of bicycle parking should be suited to wider bicycle forms, such as cargo bikes, mobility tricycles and some e-bikes.

Local Transport Note (LTN) 1/20 states that 'cycle parking provision should consider all types of cycle vehicle and all types of cycle users… Accessible cycle parking should normally also be placed to accessible car parking spaces… Isolated cycle stands for short term parking should be configured to bear in mind the length of cargo bikes and tandems and the width of tricycles and side by side cycles'. The note goes on to state in relation to shops and services parking that 'Particular attention needs to be paid to accommodating larger models, such as cargo cycles'.

Bicycle count data published by Bicycling Australia also supports the increasing range of bicycle parking forms with counts undertaken on the Bay Trail in Brighton indicating a 40 per cent increase in cargo or long bicycle trips from 2018 to 2020.

Given the above, it is recommended that Monash non work-related bicycle parking should reflect a minimum of ten per cent parking demands from longer and wider forms. While bicycle parking associated with commuting will have less demand for bicycles such as cargo bikes, it should recognise that some bicycles used for commuting may be difficult to accommodate within standard bicycle spaces. A lower rate of five per cent suitable for use by longer or wider bicycles is therefore recommended for these areas.

Given the SRL East Structure Plan Areas are intended to positively encourage forms of transport other than the car and discourage car ownership and usage, it is considered appropriate that bicycle parking should plan for increasing provision of e-bikes, non-standard bicycles and cohorts of users that may find lifting a bicycle to secure to a wall rack difficult or impractical. It is recommended that 50 per cent of bicycle parks should be floor or non-lift options.

Electric micromobility and bicycle charging

The growing increase in e-bikes and micromobility options means that bicycle parking facilities should consider the need to meet demands for recharging and / or future proof for the growth in this market.

The RMIT paper Transport Impacts of New High-Density Housing, which suggests that 'electric charging should be made available for both bicycles and cars'.

For residential bike charging provision rates, Bicycle Network Victoria[44] indicated that in 2021 around 60,000 e-bikes were sold in Australia. Bicycle network analysis of the National Walking and Cycling Participation Survey (NWCPS) estimated that 1.5 per cent of the Australian population rides some form of e-bike or similarly powered form of micromobility. Trends around the world have shown the popularity of e-bikes is increasing. In an article posted in July 2021, the ABC reported that in Germany and UK around 40 per cent of bicycles sold were e-bikes.[45] The market research paper E-bike Market – Growth, Trends, COVID-19 Impact and Forecast (2022 – 2027),[46] reported that in Paris e-bike sales outnumbered regular bicycle sales.

Based on the aspiration of the SRL East Structure Plan Areas to be 'car lite' and the role that e-bikes will play in removing the need for a car, it is reasonable to assume there will be a significant number of e-bikes in residential developments in the SRL East Structure Plan Areas.

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[44] Bicycle Network, 23 November 2022, Where is Victoria's e-bike strategy, <https://bicyclenetwork.com.au/newsroom/2022/11/23/where-is-victorias-e-bike-strategy/>

[45] ABC News, 25 July 2021, Call for change as illegal e-bikes reaching speeds of more than 100 kilometres per hour, <https://www.abc.net.au/news/2021-07-25/e-bike-market-booms-but-safety-concerns-rise/100318382>

[46] ReportLinker, 2022, Bicycle Market Outlook 2022 – 2026, <https://www.reportlinker.com/p06271871/E-bike-Market-Growth-Trends-COVID-19-Impact-and-Forecast.html>

Many e-bikes have a removable battery and therefore charging these bicycles could be undertaken within individual dwellings, although it is noted this would include carrying the battery to the dwelling, which may be less convenient.

For models where the charging is integrated into the frame of the e-bike, residential bicycle parking will need to include potential for these vehicles to be charged as part of their home bicycle parking option. Given the increasing ratio of e-bike sales and noting that not all e-bikes will need to be charged in place it is recommended that a capacity to facilitate 10 per cent of residential bicycle parking with a recharge capability is not unreasonable.

As best practice, residential developments may like to consider including dedicated space for battery charging banks in line with the growth of this market for residents with e-bikes with removable batteries. This will provide a better experience and will not require users to move batteries back and forth between the bicycle parking area and their apartments.

For non-residential e-bike recharging facilities, it is considered that as the SRL East Structure Plan Areas are intended to be designed around the 20-minute neighbourhood model and that most e-bikes can travel up to 70 kilometres,[47] it is unlikely that e-bike recharging will be required. However, e-bike recharge facilities should be included as part of the more significant mobility hubs that will be delivered throughout the SRL East Structure Plan Areas, to allow for scenarios of unexpected battery failure.

Given that the average commuting distance across Melbourne is 18.6 kilometres irrespective of mode, the need to provide the ability to recharge vehicles on a regular basis in workplaces is considered to be limited. However, for significant areas of employee bicycle parking, the provision of a facility to recharge an e-bike should be considered, as best practice.

Security of electric micromobility and bicycle parking

The potential for bicycle theft is a major disincentive for owning and using bicycles, Paris's 2021-2026 Cycling Plan cites that 81 per cent of people who want but currently do not cycle give fear of theft as a major reason for their stance. The European Cyclist Federation (ECF) published an article[48] on bicycle theft in July 2023, which cited that 11 per cent of bicycle theft victims stopped cycling while 23 per cent cycled less often.[49]

It must be recognised that increasing security of a bicycle parking facility often comes with decreasing convenience in accessibility. As such, most design guides and practice notes require higher levels of security for longer stay bicycle parking than for shorter stay bicycle parking. AustRoads and AS2890.3 indicate three levels of bicycle parking security as summarised below.

Security Level	Style	Suitability
A	Bicycle Locker	Long-term parking that includes overnight storage.
B	Bicycle Cage	Day parking for staff, students and public transport users. Some overnight parking in residential buildings.
C	Bicycle Rack	Short-term parking such as visitor or customer parking.

Source: AS 2890.3:2015

FIGURE B.8 AUSTROADS BICYCLE PARKING SECURITY LEVELS, AP-R528-16

In general, these security levels should be applied across the SRL East Structure Plan Areas. It is recommended that residential bicycle parking, although long term and overnight in nature, should be provided

[47] Sami Hasnine, et al, (2020), Investigating the factors affecting the distance travel and health conditions of e-bike users in Toronto, Transportation Research Interdisciplinary Perspectives, Volume 8, <https://www.sciencedirect.com/science/article/pii/S2590198220301767>

[48] European Cyclists Federation, 11 July 2023, Bike theft across Europe and securing better bike parking, <https://www.ecf.com/news-and-events/news/bike-theft-across-europe-and-securing-better-bike-parking>

[49] French survey conducted by FUB and Academie Des Mobilities Actives

as secured bicycle cages. These can allow flexibility in individual dwelling ownership and different bicycle forms and hence storage space requirements.

It is recommended the appropriate design overlay recognises these design recommendations, particularly for residential, office and student accommodation.

Weather protection

Long-term bicycle parking, such as resident and employee bicycle parking should be fully protected from the weather to extend the life of the bicycle. It is recommended this requirement for employee, resident, and student bicycle parking is recognised under an appropriate design overlay.

Typically, short-term bicycle parking does not require weather protection however best practice would suggest that some weather protection is provided. In the more significant mobility hubs, it is recommended that weather protection is incorporated.

Showers and change rooms

The Monash Planning Scheme requires showers to be supplied for employee uses only. The current level of provision is based on one shower for the first five employee spaces plus one to each 10 employee bicycle spaces thereafter. Changing room requirements are mandated at one change room or direct access to a communal change room to each shower.

Maintenance / repair stations

While bicycle shops do offer servicing of vehicles, in practice many users either fully or partially undertake repairs and maintenance themselves. Bicycle Council of Victoria notes that repairs such as, punctures and chain re-fitting, often need to be resolved as and when they occur so a journey can be continued. The provision of public repair stations can assist users in undertaking these repairs.

For new residential and office developments, it is good practice for repair areas to be identified so that when users need to do some quick repairs there is space sufficient to allow a bicycle to be positioned (turned upside down, laid flat or ideally put on a stand) without blocking passageways, corridors or access to other bicycles or parking.

AustRoads AP-R527-16 suggests that it is best practice for residential and office parking to include a dedicated workshop which includes a work stand, floor pump, basic tools, and facilities to clean up after repairs. However, there is no guide that articulates when there should be a realistic expectation for maintenance or repair facilities to be provided.

Maintenance and repair stations can also be incorporated as a component in mobility hubs as suggested the Transport Technical Report.

FIGURE B.9 BEST PRACTICE EXAMPLE OF BICYCLE WORKSHOP (SOURCE: AUSTROADS AP-R527-16)

Guidance for bicycle parking facilities

Based on the discussion and analysis, the recommended statutory feature requirements for bicycle parking facilities in the SRL East Structure Plan Areas is summarised below.

	Residential	Office	Retail premises	Education	Leisure and Recreation	Public realm
Non-Standard	10% of facilities plus 1 cargo/family space per 3 bed	-	10% of facilities	-	5% of facilities	5% of facilities
Floor mounted / non- lift options	50%	50%	100%	100%	100%	100%
Security [1]	Cage	Cage and racks	Cage and racks	Cage and racks	Racks	Cage and racks
E-bike charging	10% future capability	Best practice	-	10% staff	10% staff	In mobility hubs only
Weather Protection	Yes	Yes	No	Yes	No	In mobility hubs
Showers and change rooms	-	1 plus 1 shower per 20 employee / staff bicycle spaces				-
Lockers	-	1 per 3 employee / staff bicycle spaces				-

[1] Similar to Clause 52.34, employee and resident spaces to be provided in a secure location (lockable bicycle locker, cage or compound).

FIGURE B.10 RECOMMENDED FEATURES OF BICYCLE PARKING AND SUPPORTING FACILITIES FOR DIFFERENT LAND USES

B.2.5 Public realm bicycle parking

An inventory of public bicycle parking suggests there are around 880 bicycle parking spaces in the Monash Structure Plan Area.

The ultimate level of public bicycle parking for each SRL East Precinct that will be available to support short term bicycle parking demands (shopping / retail and visitor) in the Planning Area will depend on discussions between SRLA and local governments.

It is noted that local governments are generally recognising public bicycle parking needs to increase. Monash also recognises this and Action C21 of the ITS speaks to the need to increase bicycle parking at key destinations although it does not nominate a target increase.

The City of Melbourne has extensive public bicycle parking provisions which have been gradually increased over the life of the current bicycle plan. Data received on the number of council-owned asset bicycle parks in the City of Melbourne[50] indicates that more than around 1950 bicycle hoops are available on streets across the municipality capable of accommodating around 3800 bicycles at any one time. This results in a bicycle parking provision rate of around 400 bicycles per square kilometre in the City of Melbourne.

AustRoads AP-R528-16 suggests that Major Activity Centres should target a cycle mode share at two thirds of the level of a principal CBD. Adopting the same ratio to the level of public bicycle parking in the SRL East Structure Plan Areas would suggest a comparable rate of public bicycle provision for Monash of 268 bicycles per square kilometre.

Applying this to Structure Plan Area this would suggest providing hoops to accommodate 1220 bicycle parks. It is recommended that SRLA continually work with the City of Monash to increase the provision on street bicycle parking or provision in mobility hubs and where appropriate to support the use of bicycle and micromobility for trips within Monash, not just to and from the station.

The location of this public bicycle parking should be developed with ongoing consultation with the City of Monash but in general it is well established that public bicycle parking should be:

- Proximate to main cycle route entry and exits to activity areas
- Grouped to minimise walk between bicycle parks and individual uses in activity areas
- Abutting or incorporated into mobility hubs
- Within converted on street parking spaces or footpath extensions so that bicycle parking does not intrude into footpath space or place making opportunities for Monash
- Areas with good passive surveillance.

This public bicycle parking would enable smaller land uses to draw on these supplies to satisfy statutory bicycle parking requirements where it may be impractical to provide on-site.

[50] Data received from City of Melbourne on 19/01/2024.

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