Movement & Place Consulting

Moorabool Car Parking Study
Final Report

8 April 2022

Document Revision History

VERSION	DATE	DOCUMENT TYPE
Moorabool Car Parking Study v2.0	3 November 2020	Draft Report
Moorabool Car Parking Study v3.0	6 September 2021	Draft Report
Moorabool Car Parking Study v4.0	8 April 2022	Final Report

Document Control Panel

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This document has been commissioned by the Moorabool Shire Council and was developed based on a range of sources in particular an occupancy survey, travel behaviours survey, signage audit and stakeholder engagement all conducted by Movement & Place Consulting.

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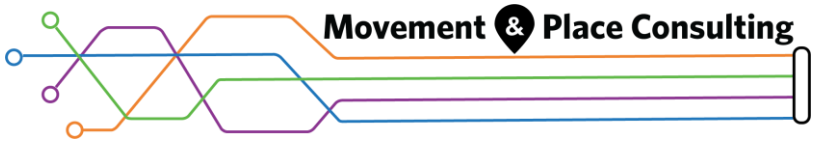
Cover Photos: Main Street Bacchus Marsh – courtesy of Movement & Place Consulting



Executive Summary

This study explores the current parking supply, occupancy and availability in Bacchus Marsh and Ballan, and estimates the future car parking needs for each centre. A key objective is to provide insight about what management strategies will best meet the needs of the future Moorabool population. Moorabool's population growth provides an opportunity to increase local economic activity and employment. Car parking plays a key role in this, because most people will continue to use cars to access jobs and town centres. In future, new parking facilities and management of parking spaces needs to be carefully planned, in order to protect the 'rural charm' of each town centre.

To inform the study outcomes, three surveys were conducted:

- An intercept survey to understand travel behaviour of people visiting each town centre
- An audit of car parking signage and restrictions
- A survey of car parking occupancy and availability (including non-compliant parking)

Both Bacchus Marsh and Ballan have several thousand car parking spaces in the core area (4,005 and 1,931 spaces respectively). Both town centres experience congestion in the premium parking areas, as drivers seek to find the "perfect" car space for their particular trip. Even though Bacchus Marsh has 4,005 parking spaces, each driver is typically most interested in parking within 50m of the front door of one's destination (where there are typically at most 40 spaces). Therefore, on any given day someone can experience "a lack of parking" even if 99% of the total parking spaces are available. When managing parking areas, it is best practice to ensure that 15% of parking is available at all times.

The context of Bacchus Marsh and Ballan town centres is not currently addressed adequately in the parking rates used by the Moorabool Planning Scheme. Even after taking into account high population growth and no modal shift, parking provision rates specified in Clause 52.06 will create a severe excess of parking supply in Bacchus Marsh and Ballan town centres by 2041.

This excess will have significant impacts on:

- Town centre attractiveness – particularly the centres' unique 'rural charm'
- Economic development – providing parking constitutes a significant cost barrier to market-entry and business development. Prioritising vehicle access over alternative modes like walking or bicycle riding also means that visitors spend a significant proportion of their income on imported goods (like vehicles, fuel or parts) rather than in the local economy
- Pedestrian safety and amenity
- Congestion
- Wider environment, public health and climate.

In Bacchus Marsh, the survey showed people living within 1km of their destination are much more likely to walk than people living further away. This highlights an opportunity to carefully consider the future location and intensity of residential areas, employment and retail centres as each town expands geographically.

Within the surveyed areas of Bacchus Marsh and Ballan, many premium car spaces were typically occupied during busy times of the day or week, and the spaces further away (though still well within walking distance) tended to be much more available.

As each activity centres grows and attracts more visitors, a wider range of restriction tools including fee-based restrictions become critical in efficiently & equitably managing premium parking spaces.

There will always be high demand for car parking spaces in premium locations. The existing parking controls consist mainly of user-based (such as loading and disability permit) and time-based (such as 1-hour and 2-hour) restrictions. This approach to parking management does not provide the level of choice required by the future community. Council has a range of tools that officers can apply to spread demand more widely and make spaces in premium locations more available.

Based on a 'high growth' scenario for both retail businesses and population, and the existing trip behaviours, if no new parking is provided this study predicts an availability shortfall of 372 spaces in the Bacchus Marsh Town Centre by 2041 (this availability shortfall is the number of spaces required to ensure 15% availability at all times). In contrast, strict compliance with the Moorabool Planning Scheme would result in an excess of 1,770 parking spaces being provided.

In Ballan, it is expected that there will be a small shortfall by 2041, which can be managed without additional parking space provision.

Recommendations

The recommendations are presented in the table overleaf (for parking precincts in Bacchus Marsh, Ballan and in future growth areas). They are informed by surveys and community consultation which provide specific and implementable actions to address the unique parking issues and opportunities in each area.

Parking Precinct	BM Town Centre	BM Primary School	BM Hospital	BM College	BM Railway Station	BM industrial area	Ballan Town Centre & Railway Station	Greenfield and PSP town centres
1. **Maximise use of existing parking**								
Maximise availability of premium spaces to reduce driver frustration	●	●	●	●	●	●	●	
Improve disability permit parking availability and design to ensure ease of access for all	●	●	●	●	●	●	●	
Improve compliant parking through public awareness and regular parking enforcement	●	●	●	●	●	●	●	
Review car parking availability, visitation rates and visitor market segments on a regular basis	●	●	●	●	●	●	●	
Provide a full range of parking options around high demand car storage areas in order to meet varied user needs	●				●		●	
2. **Meet future parking demand**								
Consolidate future car parking in areas that can be shared by any member of the public	●	●					●	●
Continue to monitor parking availability, development permit & parking reduction activity and adjust management accordingly	●	●	●	●	●	●	●	
In Bacchus Marsh Town Centre consider providing 372 additional spaces (and potentially offsetting some existing spaces) in a consolidated multi-level facility strategically located away from areas of high pedestrian activity	●							

Parking Precinct	BM Town Centre	BM Primary School	BM Hospital	BM College	BM Railway Station	BM industrial area	Ballan Town Centre & Railway Station	Greenfield and PSP town centres
3. Reduce parking requirements								
Develop an internal policy to support significant parking reductions (as per Clause 52.06) in defined areas, that includes potential for business contributions to town centre amenity improvements	●		●	●			●	
Consider the cost and risks associated with continuing Council's process of providing waivers versus the cost, time required and chance of success (including quantum of impact) of amending the Planning Scheme to achieve the same outcome	●						●	
Advocate to the State government to consider changing how Clause 52.06 functions to support new business activity in town centres	●						●	
4. Increase travel by other modes								
Improve the viability of walking as an alternative to driving by increasing street tree canopy cover, verandas and pedestrian priority	●	●	●	●	●	●	●	
Set a mode shift target in Bacchus Marsh to reduce private vehicle mode share (and parking demand) to determine strategic policies	●							
Encourage mixed-use development including residential dwellings within 1km of town centres to increase local economic activity and reduce reliance on car access to the centres	●						●	●
Work with DELWP and the VPA in the staging of new greenfield growth precincts Merrimu and Parwan Station to support viable densities for 20-minute neighbourhoods								●

5. **Maintain rural charm of towns**	**Parking Precinct**	BM Town Centre	BM Primary School	BM Hospital	BM College	BM Railway Station	BM industrial area	Ballan Town Centre & Railway Station	Greenfield and PSP town centres
Preserve the 'rural charm' of Bacchus Marsh and Ballan town centres by requiring new car parking to be located behind street frontages and include high-quality design features		●						●	
Reduce number of driveways and vehicle access points in areas of high pedestrian activity to minimise interruptions to movement		●						●	

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1. Introduction

Movement and Place Consulting (M&PC) have been engaged by Moorabool Shire Council to study parking supply and demand in the key activity centres of Bacchus Marsh and Ballan. The study will assist Council to address parking issues in both of the town centres, and across the Shire by:

- Determining the current availability of parking spaces in Bacchus Marsh and Ballan;
- Understanding various Bacchus Marsh and Ballan visitor opinions and choices, including transport mode, spending behaviours, frequency of visit and perception of car parking; and
- Providing recommendations for parking management in Bacchus Marsh and Ballan.

1.1 Methodology

There are two stages to this Car Parking Issues and Opportunities study including:

1. A baseline analysis of current trip behaviours, parking behaviours, occupancy patterns and an audit of existing parking restriction signage. This analysis forms the basis of key recommendations to ensure an efficient use of existing and future parking and manage demand; and
2. Modelling of future growth scenarios of areas of high parking demand such as the Bacchus Marsh town centre to accurately assess the need for additional parking provision.

1.2 Stage 1 – Baseline analysis of issues and opportunities

The first stage includes a baseline analysis of current parking policy, occupancy, trip behaviours and management. This study is being conducted in co-ordination with Moorabool Shire Council and in accordance with Austroads Guidelines and best practice. As part of this, the following analyses were undertaken:

- Strategic review (outlined in 2.2 Strategic context);
- Literature review of best practice research and approaches (outlined in 2.3 Best practice parking management);
- Car parking occupancy survey (outlined in Appendix B);
- Signage audit (outlined in Appendix C);
- In-centre intercept surveys conducted in Bacchus Marsh and Ballan town centres (outlined in detail in Appendix E);
- These five analyses provided a baseline for the issues and options for improving parking management in optimising parking efficiency and exploring ways of reducing demand. These analyses are explained in detail in the Appendices as referenced above; and
- Engagement with community, led by Council officers (consultation report attached in Appendix F)

1.3 Stage 1 – Parking precinct plans

Precinct parking plans were developed in the first stage of this study to provide an analysis of parking issues and opportunities in Bacchus Marsh and Ballan. These were informed by the trip behaviour survey, occupancy survey, signage audit and community consultation. The plans are cognizant of various parking user needs and 'willingness to pay' as well as of other stakeholder concerns such as safety, noise, congestion and other parking impacts. The parking precinct plans also provide recommendations for key actions for parking management and infrastructure improvements.

1.4 Stage 2 – Future growth scenario modelling

Following this baseline analysis, Stage 2 of the study addressed the likely growth scenarios. This analysis is discussed in Section 10 – Planning for growth (commencing from page 72) and includes modelling how much car parking will need to be provided into the future and where it should be located.

The modelling aims to predict the amount of parking required in future, in order to minimise the investment required by the local community and maximise benefits from the spaces currently provided. This is to prevent oversupply or undersupply of parking as both outcomes would be detrimental to the activity centres.

Stage 2 of the project provides an estimate for additional spaces needed for Ballan's retail centre and an update on previous studies (from 11 years ago) suggesting Bacchus Marsh will need an additional 429 car parking spaces by 2031[1]. This 2010 study was based on relatively blunt (unrefined) analysis and the assumption that there will be 13,000 square metres of additional retail floorspace within the existing activity centre.

Stage 2 of the project includes analysis of:

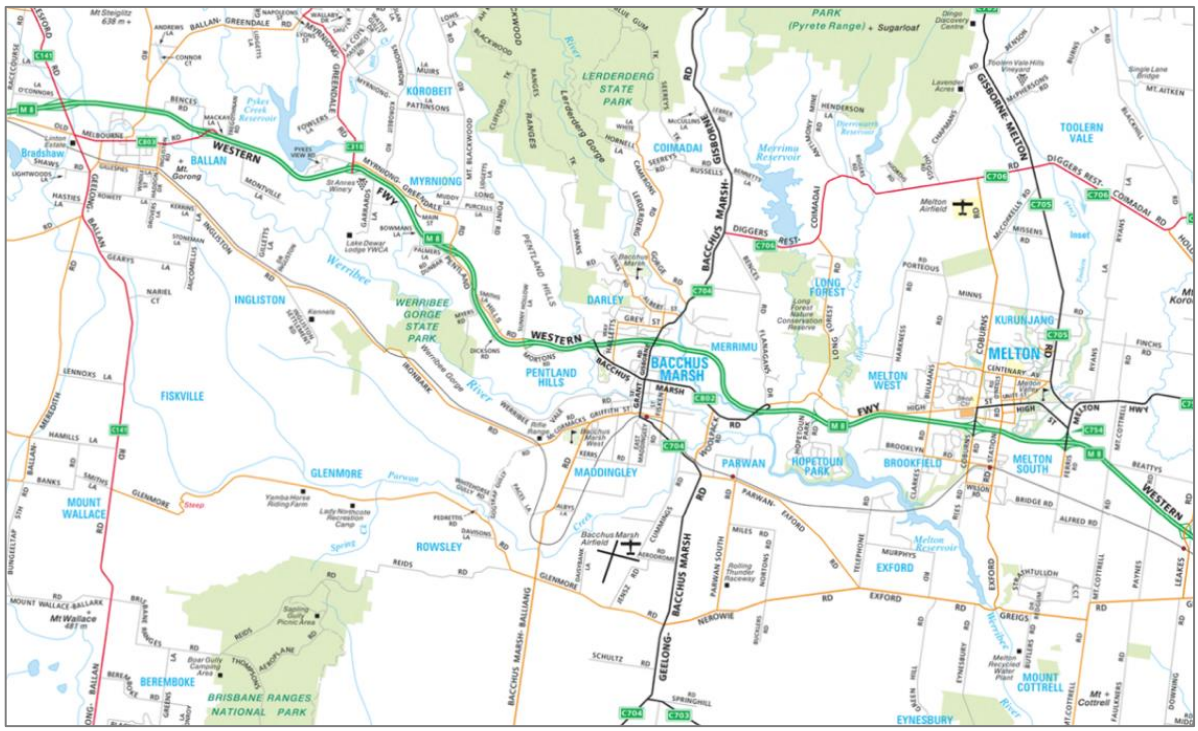
- Future car parking requirements, utilising growth and transport scenarios representative of population growth, commercial growth, and levels of private vehicle use within those scenarios;
- The timeline for car parking infrastructure to be provided so as to meet the needs of each growth and transport scenario;
- High-level estimates of the cost of providing a multi-deck for 372-spaces (to address the predicted shortfall assuming high population growth and no mode shift); and
- Strategies to reduce vehicle trip demand and make best use of the current car parking spaces (thereby minimising the need for future community investment in parking).

[1] *Bacchus Marsh Structure Plan: Transport and Parking Strategy (2010)*

2. Background and Context

Moorabool Shire is bordered by the City of Melton (to the east) and the City of Ballarat (to the west). The towns of Bacchus Marsh and Ballan compete commercially with Melton and Ballarat respectively; both are much larger centres with more variety of shopping services available. The broader transport context of the Moorabool region is shown in Figure 2-1 below.

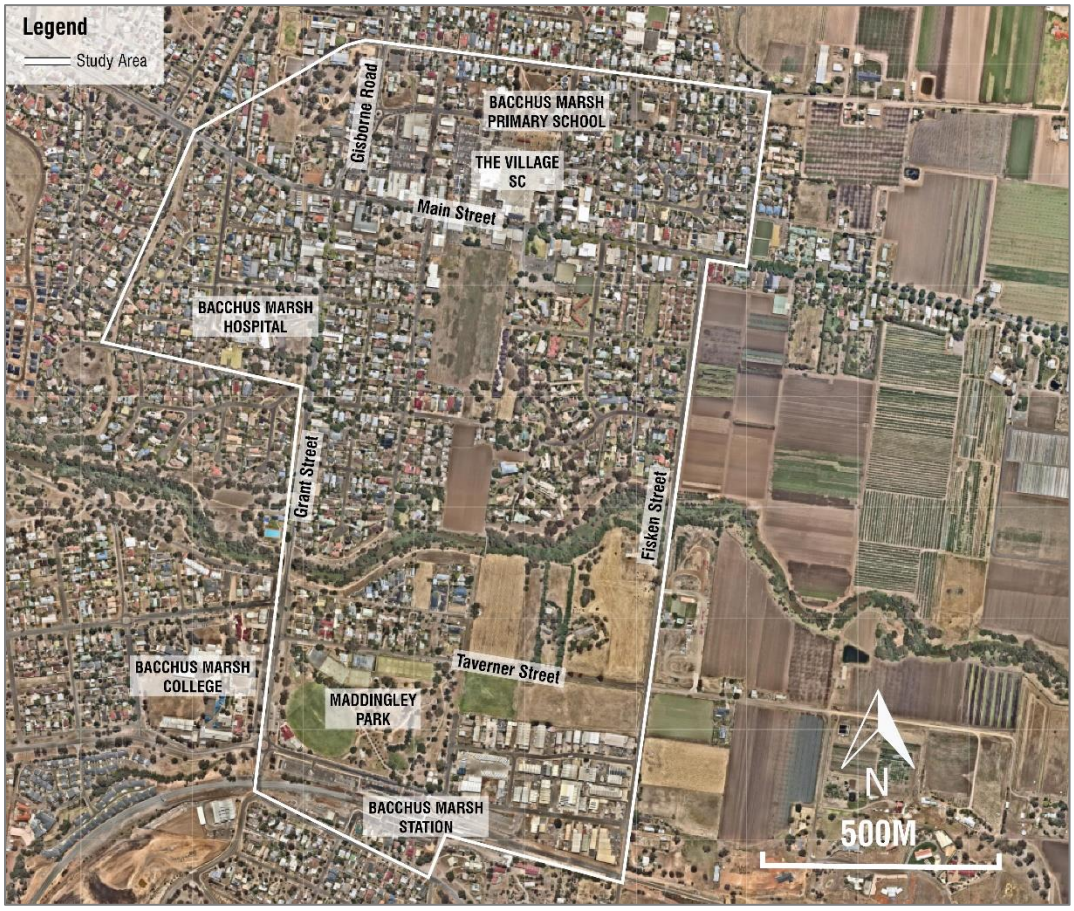
Figure 2-1: Major transport routes through the Shire



Source: Melway (2020)

Bacchus Marsh is the largest town centre in Moorabool. The study area extends south from Bacchus Marsh Train Station to Bacchus Marsh Primary School in the north. This includes the Main Street town centre, and the largest trip generators with the town, including *The Village Shopping Centre*, and Hospital precinct as shown in Figure 2-2 below.

Figure 2-2: Bacchus Marsh study area



Source: Nearmap (2019)

The study area was refined based on survey constraints and Council officer feedback.

Within the Bacchus Marsh Town Centre precinct (as shown in Figure 10-25 on page 135), there are 2,107 total on-street and car parking spaces, many of which are located 500m from the town centre. By comparison Melbourne CBD has only about 2,000 on-street spaces.

Ballan is the second largest town in Moorabool. The town centre lies generally between Inglis Street and the Railway Line and is surrounded by key community services including Ballan District Health and Care, Ballan Station, Mill Park and Ballan Primary School as shown in Figure 2-3 below.

Figure 2-3: Ballan study area

Source: Nearmap (2019)

The town centre has 1,931 car parking spaces within the Ballan study area.

Both Bacchus Marsh and Ballan are experiencing rapid population growth. With this growth, people bring more economic activity and there are more cars needed to support that economic activity. The estimated resident population and resident vehicle population for Moorabool and relevant localities is shown in Table 2-1 overleaf.

Table 2-1: Projected resident population and car population

	Ballan	Bacchus Marsh	Darley	Maddingley	Merrimu/ Hopetoun Park	Parwan Station	Moorabool Shire
Population (2020)	2,256	7,870	9,151	4,166	1,582	41	35,203
Number of vehicles (2020)	1,926	6,099	6,954	3,016	1,217	34+	31,401
Projected population (2041)	6,714	13,628	9,682	5,403	11,426	6,056	63,838
Projected number of vehicles (2041)*	5,733	10, 561	7,358	3,911	8,790	4,957	56,943

Source: Moorabool Shire Population Forecast and ABS data with M&PC analysis
**M&PC analysis based on 2016 rates of car ownership and projected population for 2041*
+Estimate based on comparing ABS mesh block data with population forecast area

As Table 2-1 above shows, residents of Moorabool Shire have a high rate of car ownership (a motorisation rate of 0.89 cars per person). This rate of car ownership is amongst the highest in Victoria. Typically, high rates of car ownership are influenced by long distances between population, employment centres and daily needs. High rates of car ownership place significant costs on households. Studies have shown that 70% of savings on vehicle costs are spent in the local economy. This is because vehicle costs are primarily spent on imported goods like motor vehicles, fuel and vehicle parts.

However, it should be noted that around 3.4% of households do not own a car at all. The way current planning approval systems provide for car parking, those 500 households pay for car parking they do not need or use.

2.1 Car parking provision considerations

Car parking provision broadly incurs an overall cost to the local economy. It costs residents and businesses thousands of dollars to provide parking whether they need it or not. In Moorabool the average cost per space is $10,500 including land and construction costs, however land costs can vary greatly depending on location. The provision of parking for specific people in a way that is not shared also reduces the economic competitiveness of an area, and fragments the 'rural charm' of each town centre.

Reliance on cars happens when other modes are less convenient to use, primarily because of the comparative distance to travel and overall perceived financial and physical costs (like discomfort or disinterest) of each trip. Increasing reliance on cars increases the cost of transport and therefore reduces local economic activity, and the reduction in economic activity makes[2]. The Moorabool Shire Retail Strategy (2016)[3], one particular study shows that a 20-minute walk to work generates $8.48[4].

[2] Australian Institute for Family Studies *(Australian Government; August 2011)*
[3] Cortright, J. (2007), "Portland's green dividend", CEOs for Cities, accessed 9th March 2020
[4] *The Economic Case for Investment in Walking (Victoria Walks; 2019)*

The Retail Strategy (2016) also demonstrates a significant gap between supply and demand of retail floorspace in Moorabool Shire. It was estimated that an additional 37,920sqm of retail floorspace (including 29,900sqm of non-food related floorspace) would be needed across the Shire to meet the demands of local residents, who instead rely on larger facilities in places such as Melton and Ballarat. It should be noted that The Retail Strategy (2016) is based on population projections which are outdated and do not include the new PSP areas.

Additional parking provision diverts investment from business development or other improvements within the centres, and creates additional constraints to each centre's growth. The Bacchus Marsh Transport and Parking Strategy (2010) estimated that 429 spaces would be needed in the Bacchus Marsh town centre if an additional 13,000sqm of retail floorspace was developed over 10 years. This amount of parking represents an additional 7,300sqm (over half of the area of the retail development) and would remove $4.5M from the local economy in construction costs alone.

Car parking also has a significant impact on our sense of place. Reliance on car travel has resulted in large areas dedicated to car parking in Bacchus Marsh and Ballan. This has a significant negative impact on the amenity and the 'rural charm' (or character) of both town centres. Currently around 21% of the Bacchus Marsh town centre is consumed by parking, as shown in Figure 2-4 below.

Figure 2-4: Car parking within Bacchus Marsh town centre

Source: Nearmap with M&PC analysis

For Bacchus Marsh and Ballan to maintain competitiveness with larger centres such as Ballarat and Melton, maintaining attractiveness of the centre in terms of the regional character is essential. Providing an abundance of car parking will not out-compete *Woodgrove* (in Melton). The management of existing parking facilities in Bacchus Marsh and Ballan needs to ensure that the regional character of both town centres is maintained and strengthened. This will be equally important as any parking is added to each town centre.

2.2 Strategic context

2.2.1 State and Local Strategies

A range of State and local policies, strategic plans and projects are relevant to a discussion about parking in the Bacchus Marsh and Ballan town centres. The following documents have been considered during preparation of this report:

1. ***Plan Melbourne (2016)*** - this metropolitan planning strategy makes specific reference to Bacchus Marsh and Ballan as regional towns with potential for growth.
2. ***Central Highlands Regional Growth Plan (2014) -*** identifies key population and economic growth issues and opportunities and provides strategic direction for the region. Bacchus Marsh in particular is highlighted as an area of high population growth in the region, due to an influx of migration from urban areas seeking a more 'peri-urban' lifestyle.
3. ***Connecting Regional Victoria, Victoria's Regional Network Development Plan (May 2016) -*** outlines key state rail infrastructure projects (some of which have been or are currently being undertaken) which impact Bacchus Marsh and Ballan stations. In particular, the plan includes upgrades to the Ballarat line (primarily duplication and higher service levels) in addition to station upgrades to both Bacchus Marsh and Ballan to accommodate more parking provision which have recently been completed.
4. ***Regional Rail Revival – Ballarat Line Upgrade (2016-19)*** - outlines key state rail infrastructure projects (some of which have been or are currently being undertaken) which impact Bacchus Marsh and Ballan stations. The plan provides more detail regarding station upgrades to Bacchus Marsh and Ballan including increased car parking provision and line upgrades – particularly duplication of tracks between Bacchus Marsh and Sunshine.
5. ***Moorabool Shire Council's Heavy Rail Development Plan (2015) -*** outlines key strategic directions needed to improve the viability of passenger rail to Ballarat and Melbourne from Bacchus Marsh, such as increasing the provision of parking at Bacchus Marsh station. The plan anticipates that the parking provision should meet increasing demand for passenger rail and discusses the possibility that parking can be offset to Parwan or Rowsley stations. The plan argues that offsetting to surrounding stations would reduce reliance on parking around Bacchus Marsh and improve development opportunities close to the station.
6. ***Bacchus Marsh Bulky Goods Assessment (2018) -*** investigates the potential for bulky goods retail uses in the Bacchus Marsh town centre. The report primarily establishes that bulky goods retail by its nature requires car parking for customers due to inaccessibility of physically carrying items by walking or public transport. Key findings of the report include that there seems to be limited available land in the Bacchus Marsh Town Centre - which should ideally be reserved for non-bulky goods retail due to lack of appropriate vacant sites to adequately manage parking, congestion and operations. This highlights the key role that inappropriate parking requirements are expected to have on pushing retailers toward out-of-centre locations in future.

7. ***Bacchus Marsh Integrated Transport Strategy (2015) -*** highlights parking as a key concern for access and mobility in the township. Key actions of the strategy include:
    - Increasing the amount of parking at Bacchus Marsh Station;
    - Improving public transport to provide a catchment for all residential areas in providing all residents with PT as viable option; and
    - Improving cycling links and bicycle parking facilities to provide active transport as a viable option to reduce further need for additional parking.
8. ***Ballan Strategic Directions (2018)*** - outlines key urban planning and design objectives for Ballan as it experiences significant growth into the future. Of particular relevance to this parking study, the plan identifies several residential areas as having large road reserves which have gravel edges used for informal car parking. Wide road reserves are also advised for future development to maintain character, though alternative treatments are advised such as walking and cycling paths. The report also identifies the following key strategic actions:
    - Minimising growth from the town centre;
    - Increasing density near the centre;
    - Upgrading the Ballan Station for a second platform and increased parking (completed); and
    - Improving parking availability and access near the Men's Shed.
9. ***Bacchus Marsh Structure Plan: Transport and Parking Strategy (2010)*** - identified several issues related to overall access and mobility in Bacchus Marsh. The strategy was informed by an analysis of traffic on local road network around the town centre and station with levels of volumes and widths of roads. Key findings include the following:
    - There is a need for alternative modes for station access, optimised management and increased parking supply - particularly by bus and cycling as 92% of formal spaces were occupied, while 66% of informal spaces were occupied (overall 83%);
    - Parking availability is highly uneven from a geographic perspective. For example, whilst the overall availability is 51% in the shopping area, parking has typically low availability within 300m but has typically high rates 300m away (56% availability on average);
    - The plan also identified problem areas such as Lerderderg Street (during school hours) and other main intersections such as Grant Road and Main Street;
    - The plan included a Parking Precinct Plan, which incorporated modelling based on land use and calibrated a rate of 3.3 spaces per 100sqm on average (varying on the land use). This was cross-referenced with a survey (which accounted for higher rates of parking that predicted in the default model) and determined that:
        - Should floor area increase to 7,000 sqms between 2009-2019, that there would be a need for 231 spaces; and
        - Should floor area increase to 13,000 sqms by 2031, that there would be a need for 429 spaces.

10. ***Bacchus Marsh Urban Growth Framework (2018)*** **-** identifies that Bacchus Marsh is a rapidly growing rural township, which creates significant pressures and opportunities for infrastructure - particularly transport. Key relevant policies and directions for parking outlined in the framework include:
    - Upgrades to the bus network to cater for more services in Bacchus Marsh (particularly in growing areas) to alleviate growing car reliance and its impact on parking demand;
    - Consolidated parking near Bacchus Marsh College and improved station parking (in addition to improving alternatives like buses and active transport networks);
    - Active land uses (particularly civic and commercial) to be located near transport and with access to walking and cycling networks for alternative access;
    - Active transport infrastructure improvements between the station and Main Street;
    - Establishment of Bacchus Marsh town centre as Shire's main commercial centre; and
    - Upgrades to Parwan Station including Park and Ride facilities and reconnection to Ararat Line to facilitate employment precinct.
11. ***Hike and Bike Strategy (2014)*** **-** outlines key issues, opportunities and strategic directions for improving walking and cycling viability for both recreation and as modes of transport to work, transport, shopping and other services. Key findings of the report include:
    - There is a need for bicycle parking facilities in recreational and activity centre critical locations; and
    - The report also included a survey which indicated a high response rate for improving and expanding the bicycle and pedestrian path networks.
12. ***Small Towns and Settlements Strategy (2016)*** - provides insight into growth and transport patterns of satellite towns of Bacchus Marsh and Ballan and provides strategic direction to optimise these sustainably. Relevant strategic directions include:
    - Strengthening transport throughout the Moorabool municipality – particularly in improving public transport to Bacchus Marsh as a regional centre.
13. ***Moorabool Shire Council Retail Strategy 2041 (2016)*** - identifies key issues, opportunities and strategic directions for the economic development of retail land uses in town centres such as Bacchus Marsh and Ballan. Key findings of the report include the following:
    - It is estimated that 37,920sqm of total retail area across the Shire (including 29,900sqm of area for non-food related uses) would be needed to meet the total demand of residents. Currently, this demand is met by larger retail centres in areas beyond the Shire such as Ballarat and Melton;
    - Lack of parking for the Bacchus Marsh Shopping Centre was a stakeholder concern. Providing additional parking in the centre was also a key direction of the report;
    - An increase in retail space (particularly with scenarios such as another full-scale supermarket) would also incur significant additional parking; and
    - A steady increase of transport costs over the last 35 years in proportion to the average household budget has increased financial stress and decreased capacity for local spending and economic activity.
14. ***Bacchus Marsh Activity Area Structure Plan (2011)*** - outlines key directions for developing activity, amenity and access between the station precinct and Bacchus Marsh Town Centre (on Main Street). The Plan highlights the high rate of two or more car ownership (63% of households)

and car dependency as a key issue for placemaking, land utility and access and mobility. Key directions of the plan with relevance to this car parking study include:

- Improving public transport networks and active transport in order to reduce car dependency and increased parking demand - particularly in providing pedestrian treatments to improve integration between the two. Particular interventions relevant to parking include:
    - Improving pedestrian movements and overall experience in shopping centre and station car parking;
    - Optimising efficiency for parking by maximising potential for alternative access modes;
    - Connecting the two focal points of the activity centre through improving north-south connectivity (particularly for active and public transport);
    - Balancing facilitation of new parking provision and additional services;
    - Facilitating improvements to parking along Gant Street and station parking;
    - Creating a new bus interchange at Main Street Civic Precinct and Station;
    - Improving bus routes and timetabling;
    - Improving pedestrian access south of railway line;
    - Improving bus shelters and seating; and
    - Providing bicycle parking facilities at Station and shopping centre

15. ***Bacchus Marsh Local Area Traffic Management Plan (2019)*** **-** identifies key traffic and parking issues for Bacchus Marsh. Key findings relevant to this car parking study include:
    - The study identified a need for a parking precinct plan in Bacchus Marsh Hospital as there is a lack of availability inside causing congestion issues in nearby streets such as Clarinda Street. There is also no clear demarcation of and/or enforcement of “no parking” areas on Clarinda Street corner;
    - The plan also considered threshold treatments or centre blister treatments at intersections such as Graham/Pilmer Streets. However, community feedback results highlighted concerns regarding loss of street parking. Similarly, the study explored the possibility of implementing a centre blister on Clifton Drive and MacFarland Street which would remove on-street parking which was also of concern to the community; and
    - The study identified that parking consistently interfered with sightlines associated with nearby school at the intersection of Dickie and Lerderderg Streets.

16. ***Growing Moorabool Economic Development Strategy (2006)*** **-** identifies strengths, issues and opportunities associated with anticipated population growth and associated economic growth in Bacchus Marsh and other townships such as Ballan. At the time of publication, the study identified Moorabool's strengths as:
    - Desirable location (central to Melbourne, Ballarat and Geelong); and
    - Very strong transport infrastructure which provided a high level of connectivity with the metropolitan area and beyond.
    - To complement the prospective population growth, the strategy proposes retail development, particularly in Bacchus Marsh, through developing the town centre as a Multi-Function Activity Centre. This aligns with the strategy's overarching objective of promoting higher levels self-containment for Bacchus Marsh and Moorabool Shire proper. This includes directions such as:
    - Ensuring that traffic and transport systems are designed to increase accessibility (both by private and public transport) and that adequate car parking is provided; and
    - Providing a high-quality street environment.

2.2.2 Conclusions

These strategic documents provide information about the value of parking in Moorabool Shire, particularly regarding mobility, amenity and access. The following points are salient:

- Parking is an essential part of the amenity, mobility and accessibility nexus for Moorabool's commercial centres. It is particularly important in terms of retail attractiveness and competitiveness. There is a need to balance parking with amenity and attractiveness of the wider area;
- There are physical constraints for growth of the Bacchus Marsh retail centre and additional growth is likely to require additional parking provision. Increasing the rate of parking provision (to meet increasing need for more vehicles) will rapidly become difficult due to the financial costs and land use opportunity costs associated with providing parking. These costs will continue to stifle development of businesses in the centre and limit economic growth;
- The Shire is growing outwards which is leading to increased car ownership and use. The Precinct Structure Plans highlight that public transport and active transport connections will be critical in achieving a sustainable balance of transport options, but data shows that maximising the population living within 1km of the town centres is critical;
- There are key traffic congestion and parking pressures close to key destinations such as Bacchus Marsh town centre, Bacchus Marsh Station and Hospital. There is often ample parking within 300m of these key destinations and equally abundant but considerably underused car parking a further 200m away;
- There is limited parking available at Bacchus Marsh Station and Ballan Station. Growth in these two towns will lead to a need for more commuter parking, improved management of that parking and potentially a new station at Parwan;
- There should be choices around where people park, and ways of ensuring that those with longer trips have the same access opportunities as people who live close by;
- Gaps within the public and active transport networks limit alternatives to driving; and
- Rising household costs relating to cars, has decreased consumer capacity to spend locally.

2.3 Best practice parking management

A review of best practice research and approaches to parking management was conducted as part of this study. The review also included an examination of innovative policies currently being adopted and implemented in Victoria, nationally and internationally. The following summary of current best practice literature were identified:

1. Parking requirements should be reframed as a policy instrument which is designed to bring about desired outcomes regarding access, mobility and amenity;
2. Parking is a part of a broader network of transport options and land use;
3. The way that parking is managed should serve various groups efficiently and maximise parking as an asset;
4. Increasing pedestrian amenity reduces pressure on parking facilities;
5. Minimising future parking requirements creates an economic return, through more efficient land use, increased productivity and lower cost goods and services; and
6. There are many successful case studies and policy tools that can be used by Moorabool Shire.

It was clearly noted that parking plays a role in a wider transport network. Ensuring that this network is sustainable requires offering people options rather than solely providing for car-based transport. This has clear benefits for the township in terms of opportunities for land use (with fewer spaces dedicated to accommodating vehicles), as well as financial, social, economic, health and environmental benefits. These topics are briefly discussed in following sub-sections.

2.3.1 Literature Review – Victoria

Current parking provision policy in Victoria consists of a set of minimum parking requirements outlined in Clause 52.06 of the Planning Scheme. These requirements apply consistently throughout municipalities in Victoria with minimal variation. This reflects a long-held view that car access is essential for everyone everywhere, despite the potential for other viable alternatives to be offered.

In contexts where land is used efficiently and where walking, bicycle riding and public transport are viable, car transport is often still prioritised. Some jurisdictions vary the minimum parking rates based on the following factors:

- Proximity to high frequency public transport (the Principle Public Transport Network is specifically mentioned in the Planning Provisions);
- Variations in demand and land value – that typically exist in activity centres; and
- Good access by active transport modes such as walking and bicycle riding.

Though often free for the user, parking is costly to provide and occupies land which could be used for more productive purposes such as retail, public space or vegetation. The availability of parking, particularly parking which is free and unrestricted has been shown to increase driving, resulting in increased congesting of local roads[5]. Making it compulsory to provide more parking is certain to achieve these outcomes. Reducing the minimum parking requirement, however, offers a significant reduction of cost whilst simultaneously leading to a reduction in parking demand if viable alternatives are provided.

Parking provision and management should be reframed as policy instruments, whereby varying the amount of parking and restrictions applied to it are regarded as tools in bringing about desired outcomes. Abundant free parking encourages driving and thus is a self-fulfilling provision that creates demand for parking. As a by-product it also creates local traffic congestion. Given that the road

[5] Shoup, D. 2018, Parking and the City, Taylor Francis Group

network in Bacchus Marsh and Ballan are unlikely to be expanded, the population growth coupled with the current approach to providing abundant free parking will significantly increase local traffic congestion.

Research shows that if parking is to be provided for free, then parking requirements need to be carefully created by understanding the current context of the township or community and the vision of where it intends to be, including engaging with stakeholders such as Council planners, businesses and their customers and employers and employees[6]. This ultimately decides the necessity for parking requirements and other policies which impact parking demand such as improved public and active transport options, shared parking, paid parking, re-allocation of parking spaces for retail use or bicycle parking and the introduction of parking maximums as opposed to minimums which limit rather than encourage parking provision.

Research for the City of Melbourne by Taylor (2019) revealed that there is for example, a chronic oversupply of parking in the Melbourne CBD with up to 40% of spaces (most of which are off-street) in central areas going unused[7]. The study explored in detail the policy that has led to this oversupply which is the minimum parking requirements for developments[8].

Taylor (2017) calls for a reassessment of mandatory minimum parking requirements and for serious consideration of the role parking plays within strategic planning and the broader transport system. The study revealed that renters and owners were wasting an estimated $700m dollars on 13,000 unused off-street parking spaces[9]. This unnecessary cost places further financial stress onto households and decreases their spending capacity in the community.

The City of Melbourne Transport Strategy Refresh paper highlights various aspects regarding the high financial and opportunity costs associated with providing parking in Melbourne's CBD. It also highlights many innovative approaches which have been used throughout the world to more efficiently manage parking spaces in commercial areas, including:

- Making a clear statement of parking strategy and hierarchies in relation to transport and land use goals;
- Valuing on-street parking spaces as public space. Make on-street parking spaces available for different uses and users, based on transparent values and guidelines. Trial and monitor methods for converting more on-street parking space to public open space. Introduce simple or trial versions of occupancy targets and dynamic pricing; and
- Reducing barriers to the re-use of off-street parking space for retail, housing and end-of-trip purposes and facilitating local parking policies and initiatives that build shared understanding with the community[10].

These are all possibilities to trial in Bacchus Marsh and Ballan.

2.3.2 Literature Review – Australia

The Austroads Traffic Management Guide (2008) gives similar examples of how parking requirements should be determined and managed. It also outlines how provided parking should be regulated in order to achieve desired mobility and access outcomes - including disability access. It notes that parking is costly and a significant opportunity cost, in terms of expenditure and land use, though

[6] Wilson, R. 2013, Parking Reform Made Easy, Washington: Island Press
[7] Transport Strategy Refresh – Background Paper – Parking (City of Melbourne, 2018)
[8] Taylor, E., Bemmel-Misrachi, R 2017, 'The Elephant in the Scheme: Planning for and around car parking in Melbourne 1929-2016', Land Use Policy, vol. 60, pp-pp. 287-297
[9] Transport Strategy Refresh – Background Paper – Parking (City of Melbourne, 2018)
[10] Transport Strategy Refresh – Background Paper – Parking (City of Melbourne, 2018)

temporary uses such as weekend markets and retail development space (such as seating) are highly effective ways to mix land use for optimal benefit.

The guide also demonstrates the importance of land use (mix of uses in compact proximity) and public and active transport in reducing the need to own and use a car and therefore parking demand. A policy framework is provided which highlights key tools required to meet various policy objectives for various contexts - this is illustrated on Table 2-2 overleaf.

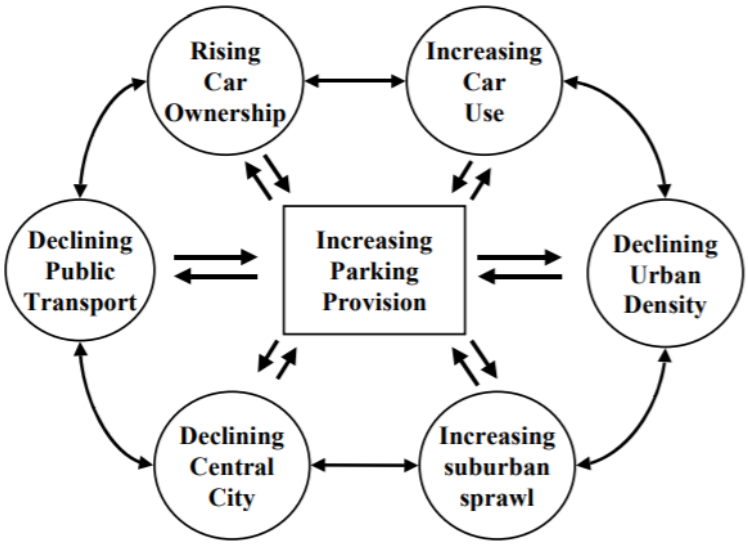
Table 2-2: Parking policy toolbox

Context	Policy Objective	Policy Tools
Supply and efficiency oriented	Encourage more efficient use of existing parking facilities and reduce distortions that favour driving, excessive parking supply and sprawl by providing better information and choice	• Provide information on parking facilities • Share parking facilities • Encourage use of remote parking • Regulate parking price and duration • Regulate time or season of use • Regulate types of users • Reduce parking regulations and subsidies • Unbundle parking • Apply minimum standards • Introduce parking allowance maximums • Apply parking 'ceilings' or 'freezes' • Introduce cash-in-lieu payment scheme • Parking brokerage services
Demand management oriented	Manage parking and transportation demand by implementing programs that favour travel high occupancy vehicles and other modes	• Encourage higher vehicle occupancy • Encourage public transport, walking and other sustainable transport options • Encourage company travel plans • Modify parking requirements given relative proximity to public transport • Establish transport management associations
Price-oriented	Manage parking by setting appropriate pricing regimes	• Introduce pricing • Set pricing on what the market will accept • Cash-out free parking programs • Tax parking • Introduce parking levies • Create benefit parking districts • Price relativities for short and long stay parking
Location-oriented	Encourage appropriate use of parking by applying location specific regulation	• Define parking policy zones • Apply location specific standards • Introduce permit schemes • Improve regional/municipal/private sector coordination

Source: AustRoads Traffic Management Guide (2008)

The Austroads Traffic Management Guide (2008) also highlights that parking is not the only form of access, instead it plays a role as *part* of a transport network. This is critical in understanding that providing access for people does not solely require parking provision and a sustainable transport network provides people with options. It means that as viable alternatives to driving (such as walking and cycling infrastructure and transit services) improve, the demand for parking declines and with it the costs and opportunity costs associated with it. This is illustrated in Figure 2-5 overleaf.

Figure 2-5: How parking impacts on land use and transport networks



Source: AustRoads Traffic Management Guide (2008)

2.3.3 Literature Review – Canada

The Victoria Transport Policy Institute in Canada (VTPIC) outline various best practice parking regulation policies and their impact on parking demand and management.

The VTPIC Parking Management Implementation Guide (2019) provides evidence for the need to shift parking paradigms regarding supply and management. It proposes that parking optimisation requires an understanding of the context including alternative methods of access to driving and also regulation which reflects prioritisation of use and efficiency over high rates of vacancy. The VTPIC paper[11] suggests that benefits of parking optimisation include, but are not limited to:

- Facility Cost Savings: Reduced costs to governments, businesses, developers and consumers;
- More Flexible Facility Location and Design: Parking management gives architects, designers and planners more ways to address parking requirements;
- Revenue Generation: Some management strategies generate revenues that can fund parking facilities, transportation improvements, or other important projects;
- Reduced Land Consumption: Parking management can reduce land requirements and so helps preserve greenspace and other valuable ecological, historic and cultural resources; and
- Improved Walkability: By allowing more clustered development and buildings located closer to sidewalks and streets, parking management helps create more walkable communities.

Table 2-3 below summarises many of the key factors which determine the demand for increased parking provision and contrasts principles which favour higher supply and lower supply.

[11] *VTPIC Parking Management Implementation Guide (2019)*

Table 2-3: Parking policy supply factors

Factors	Favours Higher Supply	Favours Lower Supply
How frequently adjacent parking may fill	Parking facilities should almost never fill	Adjacent parking facilities may frequently overflow
Whether all parking demand must be accommodated on site	All parking demands should be accommodated on-site	Off-site parking may be used
If onsite parking is allowed, the acceptable distance	Maximum walking distance of 90m	Up to 300 metres for longer-term uses
Whether on-street parking can be counted toward parking supply	All parking should be off-street	Nearby on-street parking may count as a portion of parking supply
Whether parking rates should reflect geographic, demographic and management factors	Parking should only be priced in a few situations, such as downtowns and airports	Parking should be priced as frequently as possible
Whether parking supply should be reduced where facilities are costly to build	Parking standards should be applied consistently, regardless of cost	Parking standards should be reduced where parking is more costly to supply
Whether parking supply must be oversized to accommodate possible future demand growth	Parking supply should anticipate possible future increases in demands	Parking supply should be minimised and managed to ensure access to those who need it
Whether parking supply may be constrained to help achieve strategic planning objectives	Parking standards should be applied consistently, regardless of other objectives	Parking standards should be consistent with strategic planning objectives
Whether transportation management programs can be implemented to reduce parking demand	Parking management is only applied as a last resort, where increasing supply is infeasible	Parking management should be implemented whenever it is cost effective, considering all benefits

Source: VTPIC Parking Management Implementation Guide (2019)

In the Victorian Planning Provisions and Moorabool Planning Scheme, Clause 52.06 adopts the "higher supply" principle for most of these factors.

The Victoria Transport Policy Institute Canada (VTPIC) proposes many key principles and strategies, including strategies which reduce demand and strategies which optimise parking efficiency. The latter include: improving active transport and transit, introducing parking maximums (to ensure that supply is not wasteful), introducing parking regulations – including:

- Paid parking (to more accurately reflect choice and demand and achieve cost recovery);
- Improving environmental amenity;
- Financial incentives;
- Cycle parking; and
- Unbundling policies (to allow for shared use of parking spaces).

The VTPIC also offer advice on parking management approaches and tools. With the availability of other transport options, there are a variety of ways explored by VTPIC to provide and manage parking in a way that ensures choice for users, which are highlighted in Table 2-4 overleaf.

Table 2-4: Parking policy approaches and tools

Parking Tools	Description	Case Studies
Introduce parking regulations	Introducing paid parking and time restrictions	Horsham Municipal Parking Strategy (see Section 2.4.1)
Encourage other forms of Sustainable Transport	Connecting footpaths and the public transport network. Making public transport more convenient by providing more regular services	Horsham Municipal Parking Strategy (see Section 2.4.1) City of Darebin Streets for People (see Section 2.4.2)
Introduce parking maximums	Introducing a maximum number of carparks, a business is required to provide so that land is better utilised	Kingston Parking Study (see Section 2.4.3) Moreland Parking Implementation Strategy (see Section 2.4.4)
Dynamic pricing	Technology-enabled pricing based on real-time changes in demand and supply e.g. peak and off-peak transport times	Seattle Department of Transportation (see Section 2.4.5)
Unbundle parking	Unbundling parking involves separating the rent of an apartment / house from the cost of a carpark	Not applicable

Source: Litman, T (2019) and M&PC case studies

Litman (2019) outlines the various pricing and parking regulation policies and their impact on parking demand and management. These broadly include:

- Shared parking;
- Parking regulations (for short-term parking);
- More accurate and flexible standards - including parking maximums;
- Remote parking; and
- Smart growth (compact, multi-use close to transit and highly walkable).

These strategies can each have a 20%-40% reduction on parking demand, and are usually more effective at achieving higher levels of reduction when combined. Other strategies, with a lower impact, include:

- Walking and cycling improvements;
- Increase capacity of existing facilities;
- Parking pricing;
- Financial incentives;
- Bicycle facilities;
- Improved information and marketing;
- Improved enforcement;
- Transport management associations (run by the community);
- Overflow parking plans;
- Addressing spill over problems; and
- Parking facility design and operation[12].

An exploration of some of these approaches and tools being implemented are discussed below.

[12] Parking Pricing Implementation Guidelines (Litman; 2013)

2.4 Case studies

2.4.1 Horsham Parking Strategy (2017): A Walkable Rural City

The Horsham Municipal Parking Strategy identifies that Horsham CBD is not under significant parking demand pressure (although some stakeholders perceive that it is). The strategy acknowledges 'hotspots' of high demand in the CBD, which are managed through time-based and fee-based parking restrictions. Typically parking in these premium locations cost $1 per hour and can only be used for a maximum of 1 hour. These spaces tend to be well utilised, despite an abundance of 2-hour and unrestricted free parking options within 100m of the paid parking.

The report also identifies the role parking plays in enabling access (particularly for tourists and regional visitors) to enhance town centres. The strategy outlines a vision to continue managing parking using fee-based and time-based restrictions, and transforming Horsham into "a walkable rural city".

The “Walkable City” was a recurring aspiration from members of the Horsham community that came up in various consultation workshops. The vision highlights Horsham’s potential to be a walkable city, due to its relative compactness, central activity centre and walking environment. Similar attributes exist in Bacchus Marsh and Ballan, where the surveys showed that 20% of visitors walked to the town centres[13].

2.4.2 City of Darebin (2018): Streets for People

'Streets for People', prepared for the City of Darebin is an innovative approach to street design which incorporates the 'Movement and Place' framework to create higher levels of amenity and pedestrian access. In many cases the project involved a minimal reallocation of parking spaces for footpath widening, additional space for cafe seating, tree planting or traffic calming interventions.

This involved a consultation process which helped to identify and overcome contests about allocation of street priority, for instance, space for cars versus space for walking (given that there are high levels of car use compared to walking). However, there was general support from the community in considering initiatives such as tree planting. The consultation findings demonstrate the significance of determining and encouraging community support whilst also addressing key concerns. It included traders workshopping ideas to improve levels of access, mobility and amenity in the centre, focussed on specific market segments rather than just car drivers[14].

2.4.3 Kingston Parking Study (ACT) (2013): Maximum Parking Requirements

The Kingston Parking Study was prepared for the ACT Government to advise parking management policy for the redevelopment of the Kingston Foreshore. The study adopted a 'maximum parking requirement' approach, which critically assessed the levels of public transport, cycling and walking infrastructure and land use mix to determine the realistic demand for private vehicle access. Based on this, the study advised for a small number of additional spaces to be required at a maximum. Parking is further optimised by regulation of the available spaces to restrict parking to paid parking with a 2hr limit within 300m of the foreshore and paid parking with a 1hr limit within 100m of the foreshore[15].

[13] Horsham Municipal Parking Strategy (Horsham Rural City Council; 2018)
[14] Streets for People Feasibility Study (City of Darebin, 2018)
[15] Kingston Parking Study Final Report (ACT Planning, 2018)

2.4.4 Moreland (2019): Reducing Minimum Requirements in Activity Centres

The Moreland Parking Implementation Plan identifies key policies for improving parking management in Moreland to best address the challenges highlighted in the Integrated Transport Plan in achieving more sustainable transport.

The plan demonstrates that for Moreland, provision of more parking will not be sustainable given land use and aims to achieve lower levels of car dependency and overall mode share. To address this, the plan recommends significantly lower parking requirements for key activity centres (such as Brunswick) and 20% reduction levels in neighbourhood activity centres which would also alleviate significant financial pressures on new businesses using a parking overlay.

In addition, the plan also recommends paid parking in strategic locations for longer-term car storage, though the plan acknowledged that this would have to be carefully implemented as it was a key concern highlighted during community consultation[16].

2.4.5 Seattle Department of Transportation (USA) (2018): Dynamic Parking Pricing

Seattle Department of Transportation (SDOT) manages the city's parking by adjusting the pricing of parking to ensure that there is optimal availability of spaces. SDOT assesses parking occupancy rates on an annual basis against a performance indicator of 85% occupancy.

Parking areas which are consistently observed to be above 85% occupancy over the course of the year have a fee-based control applied. These controls are incrementally increased by 50 cents per hour if the occupancy remains above 85%.

If the occupancy drops below the threshold then the fee is reduced by 50 cents per hour and the fee-based control is removed entirely at times of the day when the occupancy threshold is not met.

The price is raised only in increments of 50 cents per year, ensuring that people are not suddenly priced out of the area. The price is change on a small area basis so that nearby spaces that are available would not experience the price increase and would therefore attract some of the demand – which in turn makes spaces available for those willing to pay 50 cents per hour more.

The annual report with significant data is provided to the public in an open and transparent manner. Public meetings are held to discuss the data and reiterate how Council uses an evidence based approach to ensure parking is available for people in the places they need it.

This dynamic pricing model helps to regulate demand by regularly influencing demand in premium areas. It also ensures that places with lower parking demand are inexpensive and unrestricted to help meet a broader range of community needs. This holistically ensures that parking is provided for everyone who needs it, in locations that they want to park, in a manner that reduces community and economic cost and improves the availability of land for other uses[17].

[16] Moreland Parking Implementation Plan (City of Moreland, 2018)
[17] Seattle Parking Annual Report (Seattle DOT, 2018)

3. Objectives, principles and tools

This section of the report outlines high level objectives principles and tools that should be considered when developing the Moorabool Parking Policy.

3.1 Parking is not free – even when we think it is

Already across the Shire, everybody pays for parking. They rarely pay with money. It is much more common to "pay" in other ways such as:

- Getting out of bed earlier to get the best space;
- Getting frustrated looking for a space; or
- Parking away from the destination to find an available space and walking further.

Currently in most cases the walking distance is so short, that people do not perceive they have suffered any penalty by walking a bit further. One exception might be Bacchus Marsh Station car park where it is necessary to get up early for the best space, or much walk further if you arrive at the station later.

As the population grows, there is no easy way to duplicate the premium car spaces, because even new parking structures would be further away than the best existing space for each shop. This is evident at *The Village Shopping Centre* where the upper level car park (on exactly the same site as car spaces below) has much lower occupancy because it requires more walking and driving to access). This highlights that literally no two car spaces are the same.

A robust parking management framework focussed on maintaining availability of spaces in all areas will be required. This is particularly important as the Bacchus Marsh and Ballan grow. This population growth will create a need for additional parking in some locations, but these locations cannot be the premium locations because these already have car spaces on them (or are roadways or buildings without which the centre would not function).

3.2 Parking objectives

The key objectives for parking management in Moorabool should include:

- **Maximising Choice:** People should have various options to choose from regarding how they access a centre. Low-cost access options (walking and bicycle riding) should be given priority over high cost transport options. Parking should be provided and managed in a manner that provides visitors with choices about where they park and how they pay (by walking, by limiting their time in the car space or by paying a fee);
- **Protecting Amenity:** Parking should be provided and managed in a manner that protects and improves the 'rural charm' of each centre and the amenity of the Shire as a whole. This can be achieved by:
    - **Consolidation:** Off-street car parking should be consolidated where practical into areas that make it easier to find a car space;
    - **Enclosed by activity:** Locating parking areas behind buildings to reduce the negative impact of parking on the streetscape, pedestrian amenity and safety; and
    - **Minimising Driveways:** Discouraging the construction of new driveways in the town centre to improve pedestrian amenity and safety.
- **Equity:** The cost of providing parking should not be disproportionately paid for by those who do not use it.

3.3 Parking management principles

Parking aims to increase the economic activity in a centre by making it easier for a wider catchment of people to access the centre. Parking is a resource that needs to be managed in order to maximise the benefit to the whole community. It is important to acknowledge that:

- Each parked car reduces access options for those that arrive later;
- Parked cars are typically a low-amenity use of land that detracts from the 'rural charm' of the place it is parked in; and
- People will walk significant distances from a car space to a really attractive location that they have a strong desire to reach – this is what causes car parking to creep into residential areas around activity centres.

Management of parking facilities should be based on robust principles such as:

- **Choice:** Providing people with choice about where they park;
- **Availability:** Ensuring that availability in all locations is almost always guaranteed;
- **Payment:** Recognise that everyone pays for parking (through leaving early, walking more, frustration or financially – and sometimes a multiple of these);
- **Consolidation:** Off-street car parking is consolidated into areas that make it easier to navigate and find a space;
- **Shared:** Car parking assets are shared and open for anyone to use at any time of day;
- **Quality:** The physical asset should be high quality, with shade trees, safe pedestrian access to car spaces, flat and even surfaces and high levels of maintenance;
- **Pricing:** Asset maintenance costs should be met by the users;
- **Evidence Based:** Regular data collection to identify the levels of demand in various areas;
- **Segmented Approach:** Recognise that different users have different parking needs (duration of stay and proximity to where they want to go) that vary with every trip; and
- **Understanding Trade-offs:** Seek to understand the trade-offs that everyone makes with regard to: Duration of stay, proximity to where they need to go, willingness to search (frustration), and willingness to pay in order to get the best space easily.

These principles should be explored and articulated in Council's Parking Policy.

3.4 Parking management tools

The toolkit to achieve availability and choice for all drivers relies on rationing the premium car parking spaces. Rationing is typically achieved through user based, time based, or fee-based restrictions.

User based restrictions are most appropriate for specific activities such as loading and bus bays or user groups such as people with a disability.

Time based restrictions are most appropriate around very high demand locations that require a short stay, such as school drop off areas and pharmacies.

Fee based restrictions are most appropriate where there is high demand for long-stay parking. This is because short time restrictions would simply not meet a significant proportion of people's needs. An example of this would be the first 10 parking spaces close to the entrance of Bacchus Marsh Station. Placing a fee on just these spaces would mean they are not the first spaces filled by early risers (those drivers would simply walk the 30 metres from the nearest free car space.

The 10 premium spaces would remain available for people arriving much later in the day or those who are running late for their train (in which case the reduced walk is worth paying for). In some train stations in Perth, a $2 per day parking fee applies to all off-street spaces. In Bacchus Marsh, a fee of $1 per day could apply only to the 10 premium space closest to the station.

Enforcement is a tool that sits within the restrictions. That is, people can choose to park in contravention of the restriction if they are willing to pay a fine (if caught). This commonly occurs in proximity to popular events. If a significant number of people drive, and parking becomes difficult to find, some people are willing to risk paying a fine in order minimise walking distance and ensure they get to the event on time. Significant use of enforcement typically implies that the parking management system is not appropriately tuned to customer demands.

4. Existing parking provision policy in Moorabool Shire

4.1.1 Current parking requirements (State and local provisions)

The State Government controls Victorian Planning Provisions (VPP) which include Clause 52.06 specifying minimum parking requirements in Victoria. The rates apply consistently throughout the State and mandate the provision of parking based on land uses. Problematically, the rates are estimates that assume no other transport is available and they consistently over-estimate the parking actually required and make development more expensive than it needs to be.

These rates are illustrated in Table 4-1 below:

Table 4-1: Clause 52.06 minimum parking provision rates examples

Land Use	Column A Rates	Column B Rates	Car Parking Measure
Art and craft centre	4	3.5	To each 100 sq m of net floor area
Bar	0.4		To each patron permitted
		3.5	To each 100 sq m of leasable floor area
Bowling Green	6	6	To each rink plus 50 per cent of the relevant requirement of any ancillary use
Childcare centre	0.22	0.22	To each child
Cinema-based entertainment facility	0.3	0.3	To each patron permitted
Hotel	0.4		To each patron permitted
		3.5	To each 100sqm of leasable
Medical Centre	5		To the first person providing health services, plus:
	3		For every subsequent person providing health services
		3.5	To each 100sqm of leasable
Motel	1	1	To each unit and 1 to each manager dwelling, plus 50 percent of the relevant requirement of any ancillary use
Restaurant	0.4		To each patron permitted
		3.5	To each 100sqm of leasable floor area
Supermarket	5	5	To each 100sqm of leasable floor area

Notes: Column A applies unless Column B applies. Column B applies if any part of the land is identified as being within the Principal Public Transport Network Area (State Government of Victoria, August 2018); or a schedule to the Parking Overlay or another provision of the planning scheme specifies that Column B applies

The rates can be changed by amending the local planning scheme to include a parking overlay. These overlays have been applied in activity centres such as Footscray, Frankston and Box Hill to reduce traffic congestion caused by too much parking. Moorabool Shire has not yet adopted any changes to the State-wide rates and it is the current parking requirement for all new development in the Shire.

For instance, the existing provisions assume that a restaurant would attract the same number of vehicle trips irrespective of where it is located. Even in the same township, the number of vehicle trips varies greatly depending on where the restaurant is located. Restaurants in the Bacchus Marsh town centre will attract more trips by walking than a restaurant located near the Western Freeway. From town to town, there can be an even higher variation. For instance, a supermarket in Melton is likely to attract more trips by car than Bacchus Marsh, as it is located beyond a walkable distance for most residents of Melton. This means that the parking rates required are often inappropriate and excessive for most contexts.

The standard approach to parking in the VPP is to require future development and changes of use to provide a high rate of car parking, so that on street car parking would be "unaffected" by the development. This 1960's approach uses mode share and trip generation averages that do not reflect local conditions in Bacchus Marsh and Ballan.

The VPP car parking provisions that negatively impact on development and the cost of living in Bacchus Marsh and Ballan include:

- The VPP requires car parking for every dwelling, even though across Victoria there is significant variability in the proportion of households who do not own a car (households that do not own a car are typically located very close to town centres)
- The VPP eliminates efficiency gains that a communal approach to car parking provides (communal in that a range of users could access a single car space over during a day or week)
- The high rates in the VPP creates an over-supply of parking that is rarely needed
- The VPP privatises public space by encouraging driveway crossovers that remove a public asset (the on street car space) in order to create a private asset (a private car space that can be restricted to private users)
- The standard VPP car parking rates undermine future commercial activity due to land and development costs associated with car parking
- The standard VPP car parking rates weaken existing centres by forcing a piecemeal approach to parking provision on each site, that undermines the attractiveness of each centre and is not competitive with the ease and convenience provided by large consolidated and more communal car parking areas provided at competing centres such as *Woodgrove* in Melton and Ballarat.

Parking Precinct Plans are a specific device used in the Victorian Planning Provisions (VPP) to articulate a parking requirement (applied to new uses and development) that is different to the one-size-fits-all approach included in the standard VPP. The Parking Precinct Plans are a short two-page document that vary the parking requirements using a Parking Overlay that applies to a specific geographic area.

Other centres have sought to use Parking Precinct Plans to generate an income stream to finance construction of future communal car parking spaces. In reality though, the arbitrary parking requirements of the VPP do not relate to actual needs of businesses in the town centres, and any financial imposition on new businesses based on VPP rates undermines the business case and weakens the local economy.

Those businesses that do try to establish and provide car parking or some form of cash-in-lieu contribution to the long-term provision of parking are weakened by the financial impact of paying up front for 30 years of parking during their initial start-up phase. This often results in new businesses ceasing, in part due to car parking costs, but leaving behind a car parking asset that the next business gets the benefit of at a much-reduced cost.

Only in relatively recent history has car parking been required to be provided on site with new development. This requirement certainly makes sense for large developments. For towns like Bacchus Marsh and Ballan, the one-size-fits-all requirements create significant problems for smaller developments and makes many of them unviable.

Council strategy clearly articulates a vision to maintain and grow the role of Bacchus Marsh and Ballan town centres. The main thing that will determine whether the role of each town centre grows or shrinks is the property economics of developing and maintaining businesses in the centre when compared with other competing locations.

To reduce the impact of extreme parking provisions on local economic activity, Moorabool Shire will need to consider how the cost of parking can be removed from the initial set up costs of a business in the town centres.

Businesses which locate outside the centre are more difficult to get to by walking, bicycle riding and public transport. Therefore, due to their location, these businesses do attract a high proportion of visitors arriving by car. These businesses, outside the town centre, are the ones that the standard VPP parking requirements have been designed to address (and should be applied). The standard VPP requirements should not be applied to businesses that seek to establish in the traditional town centres that Moorabool Shire is seeking to maintain and strengthen.

4.1.2 Cash-in-lieu and parking waiver policy

Moorabool delivers infrastructure in accordance with the Infrastructure Design Manual (IDM), which applies consistent standards for civic infrastructure such as parking. Where the minimum requirements outlined in the VPP Clause 52.06 cannot be met, Clause 14 of the IDM requires businesses to demonstrate that enough parking for staff, employees and visitors is provided.

Alternatively, developers may satisfy the planning scheme requirements by contributing a cash-in-lieu payment which varies based on the number of spaces provided. In Moorabool Shire, there is no set fee for cash-in-lieu contributions. Council instead assesses each waiver application on a case-by-case basis and fees have ranged between $0 to $10,000 per space based on factors, in particular the actual cost of each space. In 2009 Council engineers calculated the average costs of providing one parking space at $10,500 which Council uses as a reasonable benchmark for the fees. The varying rate is reasonably consistent with other rural townships such as Echuca, Traralgon and outer metropolitan activity centres such as Frankston. Consideration of a waiver of the parking fee rate is also based on:

- Whether sufficient parking is supplied elsewhere, which is a highly common basis for waiving parking provision;
- If the car park is ‘packaged’, whereby use is restricted to visitors or employees of the particular facility, such as a pharmacy and hospital;
- Access to alternative modes such as walking or public transport. Parking waivers are not often granted on this basis;
- Physical constraints, which is a highly common basis for waiving parking provision. Since 2002, 67 spaces have been waived because the businesses lacked space to provide them;
- Negligible impact, which is the most common basis for waiving parking provision. Since 2002 132 spaces have been waived because they were deemed as unnecessary; and
- Special exemption. In one case on Main Street, 15 spaces were waived for a new restaurant on the basis that there was a desire to fill a long-term vacant site and add vibrancy to the section of main street.

Between 2002 and 2018, there were 440 recorded waived spaces granted in Moorabool Shire, mainly arising from new developments or other land use changes. Most of these waivers were requested by businesses in Bacchus Marsh, primarily on Main Street. Of the total waivers granted:

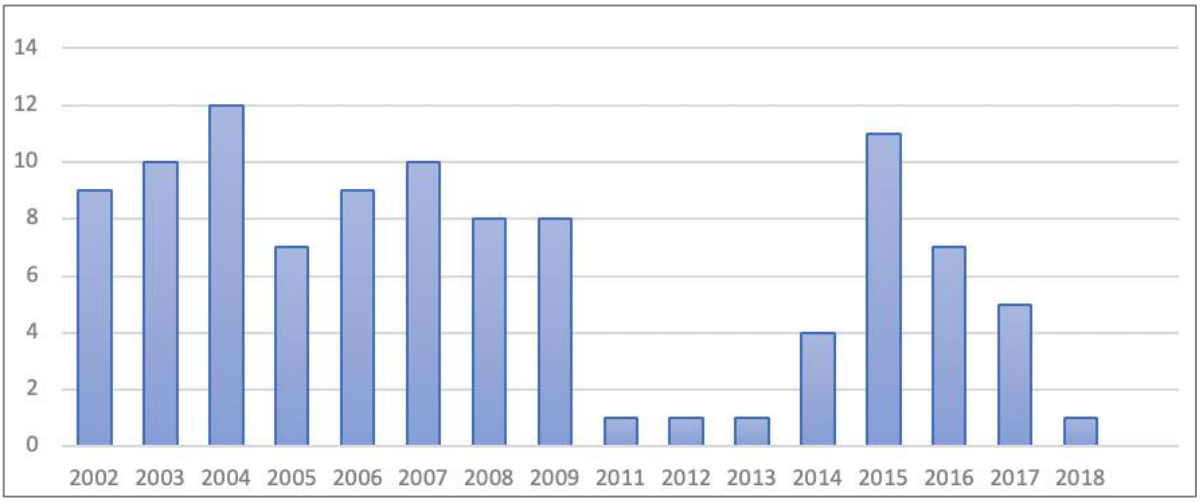
- 401 were commercial spaces, 49% of which were located on Main Street, Bacchus Marsh;
- 30 were residential spaces; and
- 9 were visitor spaces.

In one case on Main Street, Bacchus Marsh, 129 spaces were waived for the reuse of the theatre on Grant Street for a dance school, which was determined to be unlikely to generate a different volume of long-stay parking. This is of particular interest because without the waiver, the dance school would need to either:

- Build car parking (by removing buildings that are otherwise generating activity) and pass the cost onto customers;
- Locate outside the town centre in a more difficult place to access (and leaving the building vacant); or
- Not commence operation or fail financially due to the high finance cost of building the parking.

By waiving the need for 129 car parking spaces the dance school has been able to open and reinvigorate the building and this area of the town centre. It is noted that no parking issues have been reported regarding the new dance school. Since 2015, there has been a decline in parking waiver applications as demonstrated in Figure 4-1 below.

Figure 4-1: Number of parking waiver applications in Moorabool Shire by year



Source: Moorabool Shire Council Planning Permit Data

The reason for a lull in waivers (2011-2013) and the decline more recently is unknown. It could be due to a range of factors including:

- Reduced local development activity (businesses not opening or opening in locations beyond the town centre);
- More stringent application of policies of the day (by officers or Councillors); and
- Global economic factors (reducing development activity).

The Moorabool Shire Council Retail Strategy (2016) highlights that Bacchus Marsh Town Centre is physically constrained and that future growth will require additional parking (based on current policy). The parking requirements are a likely factor that is limiting growth in the centre which is currently needed to meet retail demand in the Shire partly due to spatial constraints and to the financial cost associated with each space (as discussed in Section 2.1).

Another key finding of the Retail Strategy was that there had been a steady increase of transport costs since 1981 in proportion to the average household budget. This not only demonstrates increased financial stress but also a loss of capacity for local spending and economic activity.

5. Bacchus Marsh issues and opportunities

5.1 Existing situation

5.1.1 Overview of transport in Bacchus Marsh

Bacchus Marsh is experiencing rapid population growth, which has resulted in an increasingly outward urban footprint spread. With growth areas set towards the southeast in Parwan and northeast in Merrimu, this trend is likely to increase significantly into the future. Activity centres located in new suburbs like Stonehill, Merrimu and Parwan Station will provide some everyday services, however there is still likely to be an increase in trips to Bacchus Marsh.

These trips will be served mainly by private vehicles, with a high reliance on the local road network and parking in Bacchus Marsh Town Centre. Maximising the efficiency of the local road and parking facilities without compromising competitive advantages like the centre's amenity will be important for stimulating economic growth in Bacchus Marsh, and reducing leakage of economic activity to surrounding areas including Melton and Ballarat.

A key way to ensure the road network and parking is used efficiently is to encourage some people to access the centre by walking, bicycle riding or public transport. These options will not be available to everyone, nor will they always be appropriate. For example, just because someone lives close enough to walk to the Town Centre doesn't mean they should (or will) walk regardless of the weather conditions, other activities they have to complete that day or the urgency of the trip.

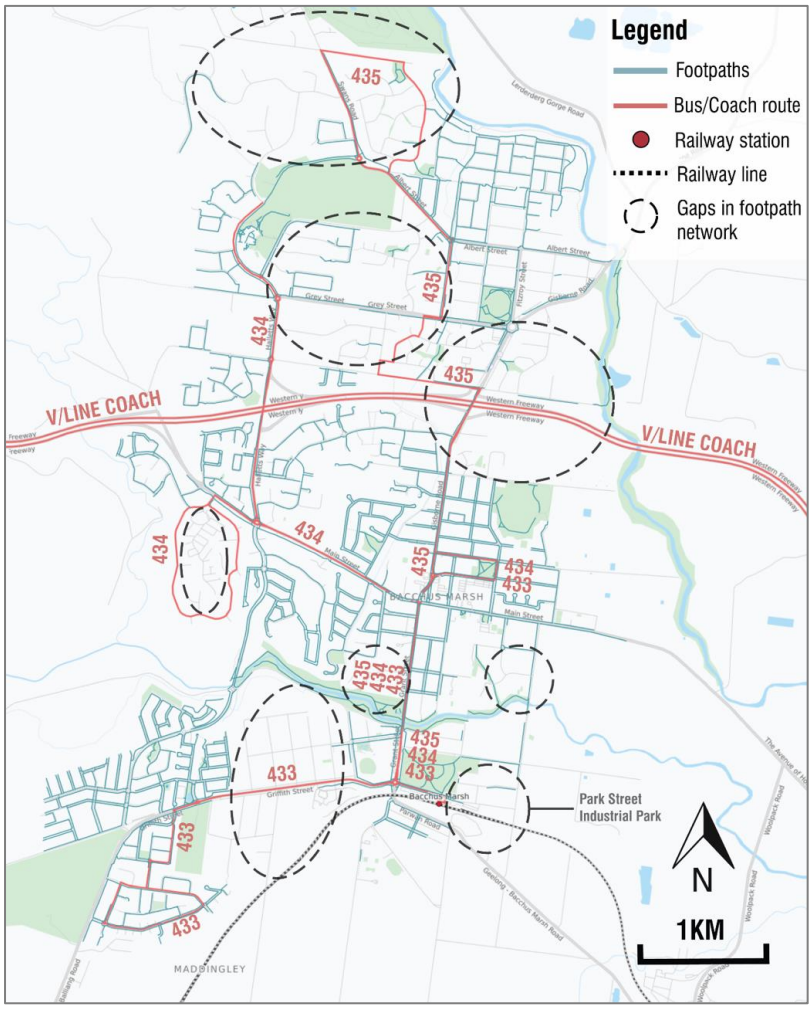
A myriad of factors influence each individual's travel choices. Holistic planning of the transport network seeks to maximise those choices, so that the most efficient outcome for the whole community can be achieved.

Local connections

Bacchus Marsh is served by three local bus routes. Specifically, Routes 433, 434 and 435 which broadly have the following characteristics:

- Services every 20 minutes during the weekday peak hour;
- Services every hour off-peak including weekends; and
- There are service coverage gaps in areas of Maddingley, north of Griffith Street and in Darley as illustrated in Figure 5-1 overleaf.

Figure 5-1: Bacchus Marsh public and active transport networks



Source: Open Street Map, Moorabool Shire Council and DOT with M&PC Analysis

As shown, key footpath network gaps include:

- Areas of Maddingley in the west (north and south of Griffith Street);
- Areas to the west of Bacchus Marsh – including the new Underbank Boulevard development;
- Areas in Darley, north of the Western Freeway; and
- There is a significant gap in the north in the development surrounded by Links Road, Robertsons Road and Cairns Drive.

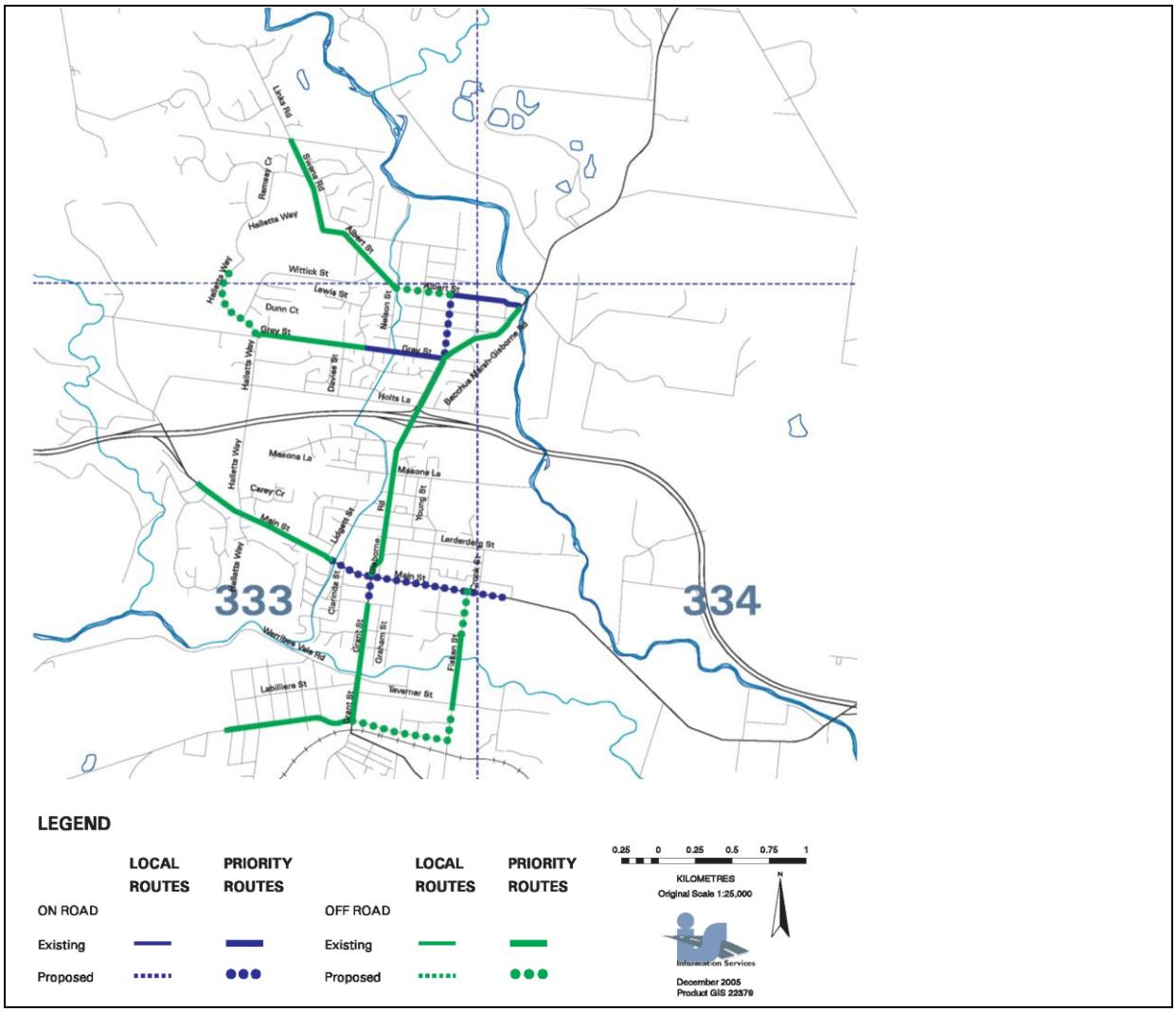
Bacchus Marsh's bicycle connections are mostly off-road and are not yet well-linked to key destinations such as the town centre, hospital, schools and station. Currently the few people in Bacchus Marsh who ride a bike to work, shops and other destinations largely rely on using road segments or sharing the footpath to complete their trip.

A City of Melbourne study found that about 80% of bicycle riders feel confident riding with a protected lane on roads and at intersections, while less than 20% feel confident riding on an unprotected shoulder[18]. While Bacchus Marsh does not currently have the same level of traffic as Melbourne, it is likely that bicycle riders need improved protection along key road links.

[18] *Draft Transport Plan 2030 (2019), City of Melbourne*

VicRoads has proposed a range of bicycle network improvements as shown in Figure 5-2 below.

Figure 5-2: VicRoads Bacchus Marsh Municipal Bicycle Networks

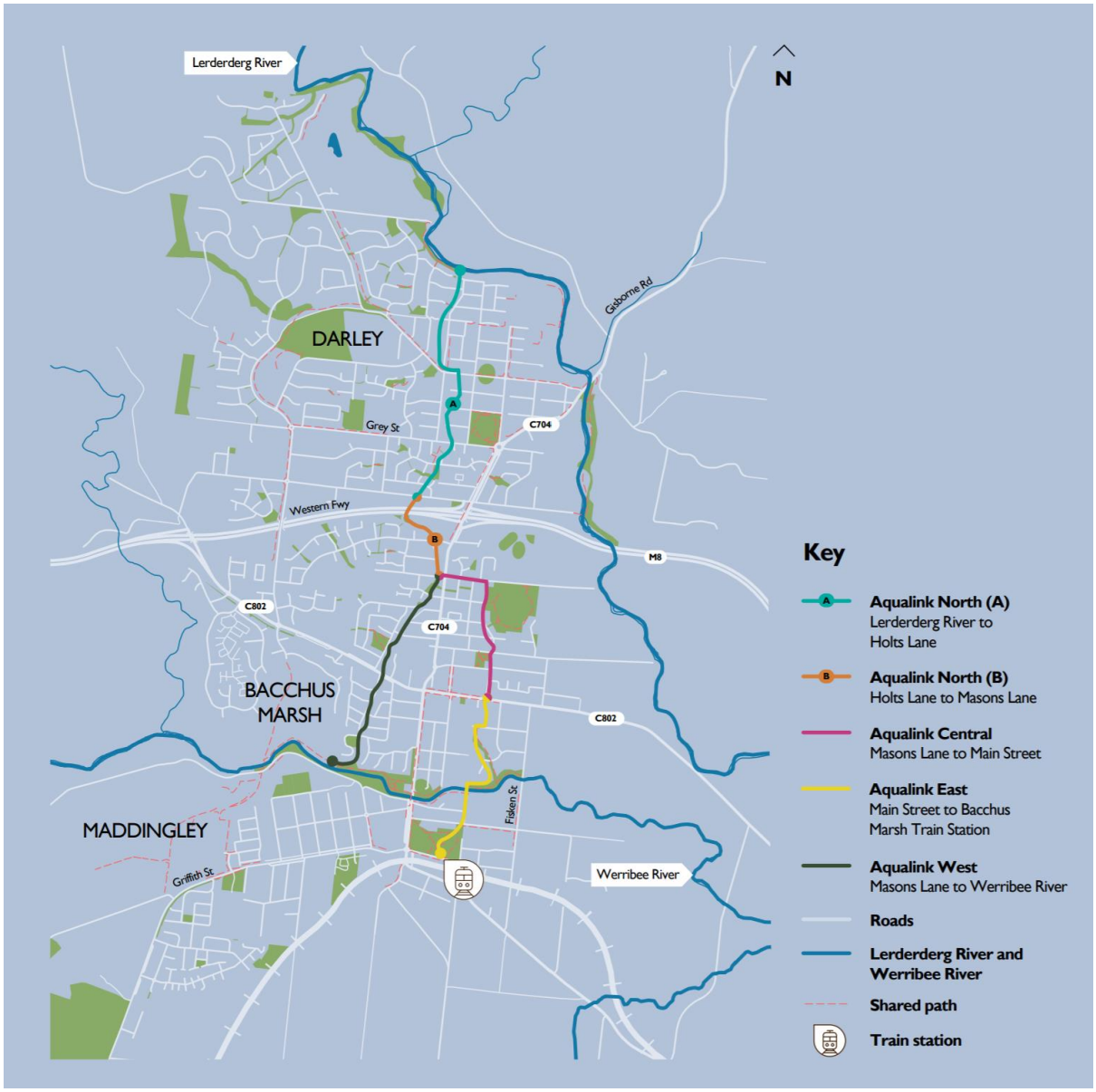


Source: VicRoads (2020)

In addition to these, the 'Aqualink' program (led by Council with support from TAC, Victorian State Government, the Australian Government and Regional Roads Victoria) provides connections along former agricultural water channel reserves and other parts of the road network as shown in Figure 5-3 overleaf. Specifically, these include:

- Paths Main Street (eastern segment) through the town centre;
- Paths near the station (north of station street);
- On-road paths along Albert Street, Halletts Way and Gisborne Road in Darley;
- Off-road paths between Lerderderg River & Holts Lane;
- Off-road paths between Holts Lane and Masons Lane;
- On-road paths between Masons Lane and Main Street;
- Off-road path between Masons Lane and Werribee River; and
- Mostly off-road paths between Main Street and Bacchus Marsh Station.

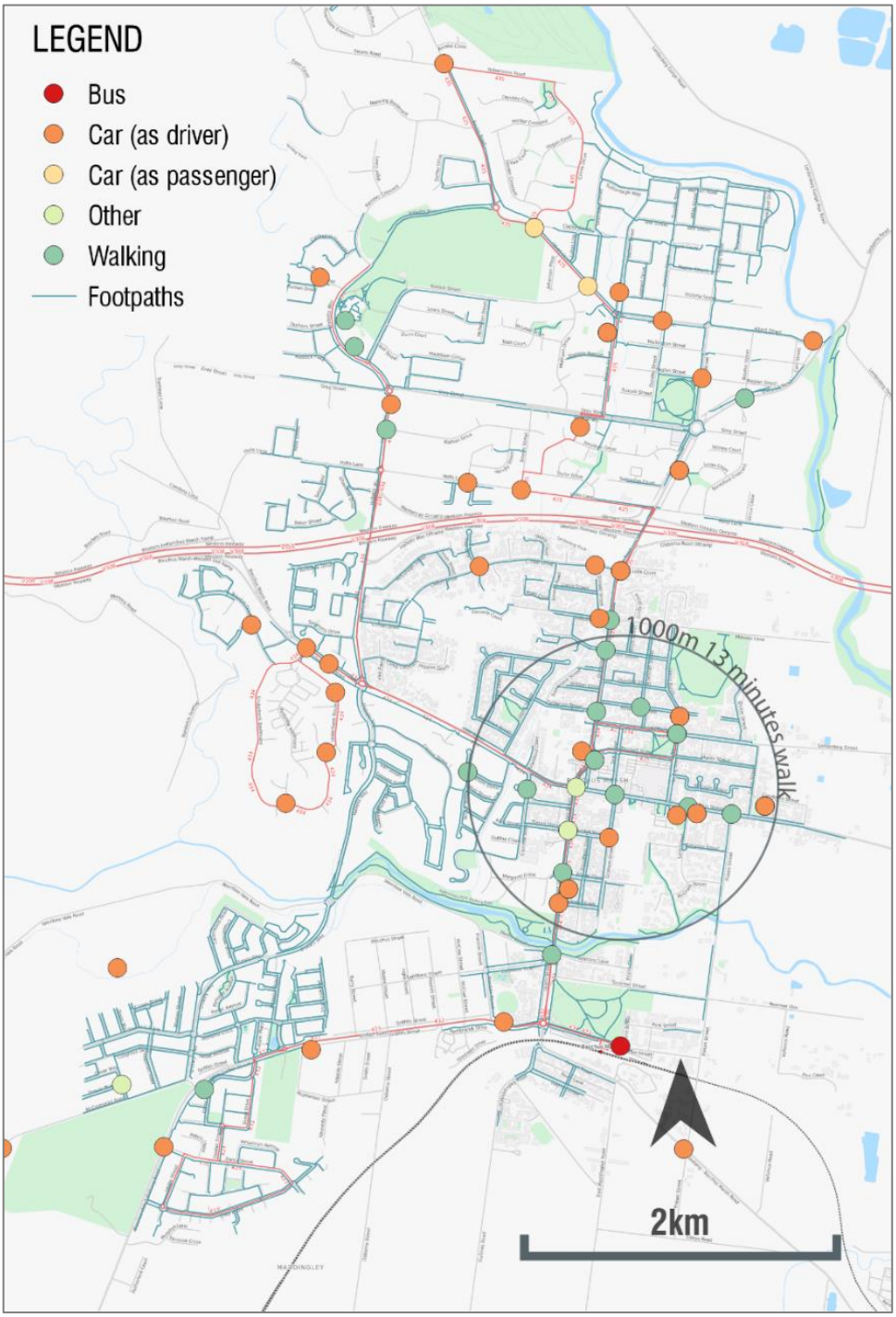
Figure 5-3: Proposed Aqualink network



Source: Moorabool Shire Council (2021)

In the Bacchus Marsh In-Centre Intercept Survey (outlined in Appendix D) 69% of the 117 respondents drove, 4% were car passengers, 25% walked, 1% took public transport and 1% arrived by other modes such as mobility scooters. Geographically, however, the closer the respondent's residential address was to the Bacchus Marsh centre, the more likely they were to walk as shown in Figure 5-4 overleaf.

Figure 5-4: Access mode to Bacchus Marsh based on residential address



Source: Open Street Map, Moorabool Shire Council and DOT with M&PC Analysis

This illustrates a step-change in mode share based on walking distance to the centre. In this case, over half (52%) walked if they were within 1km of the centre and around 10% walked if they live more than 1km away. It is noted that distance would appear to a be a significant factor in mode choice. As Bacchus Marsh continues to grow outward, it is highly likely that the rapid population growth trajectory will be met with an equally rapidly increasing car ownership and usage (as discussed in Section 1).

As the Moorabool population grows there will be an increasing need to manage car parking to facilitate access for those who most need it and to maximise travel and parking choice for everyone.

Regional connections

The Victorian government operate V/Line train services to Bacchus Marsh. The Western Rail Upgrade has recently been completed and includes a second platform at Bacchus Marsh Station, additional car parking and new stabling facilities to enable more trains to commence from Bacchus Marsh each day. Bacchus Marsh is also served by V/Line coach services on the Western Freeway and the Shuttle Bus between Ballarat and Melbourne Airport.

5.1.2 Bacchus Marsh parking supply

M&PC conducted a parking occupancy survey in December of 2019 involving a study on a Friday (6th December) and Saturday (21st December), both days had fine weather. The survey was conducted in accordance with best practice and involved discussions with Council in order to ensure the days were representative of typical trip behaviours.

The parking survey (outlined in detail in Appendix A) found 4,005 public parking spaces within the study area in Bacchus Marsh (as illustrated by Figure 5-5 overleaf). About one third of these spaces (1,327 spaces) are located within 300m of the Bacchus Marsh town centre area, with another 20% (793 spaces) located within 200m of the station. In these areas, most of this parking is off-street and unrestricted. The remaining 47% (1,885 spaces) are distributed throughout the study area as predominantly on-street parking spaces in residential areas that are all unrestricted.

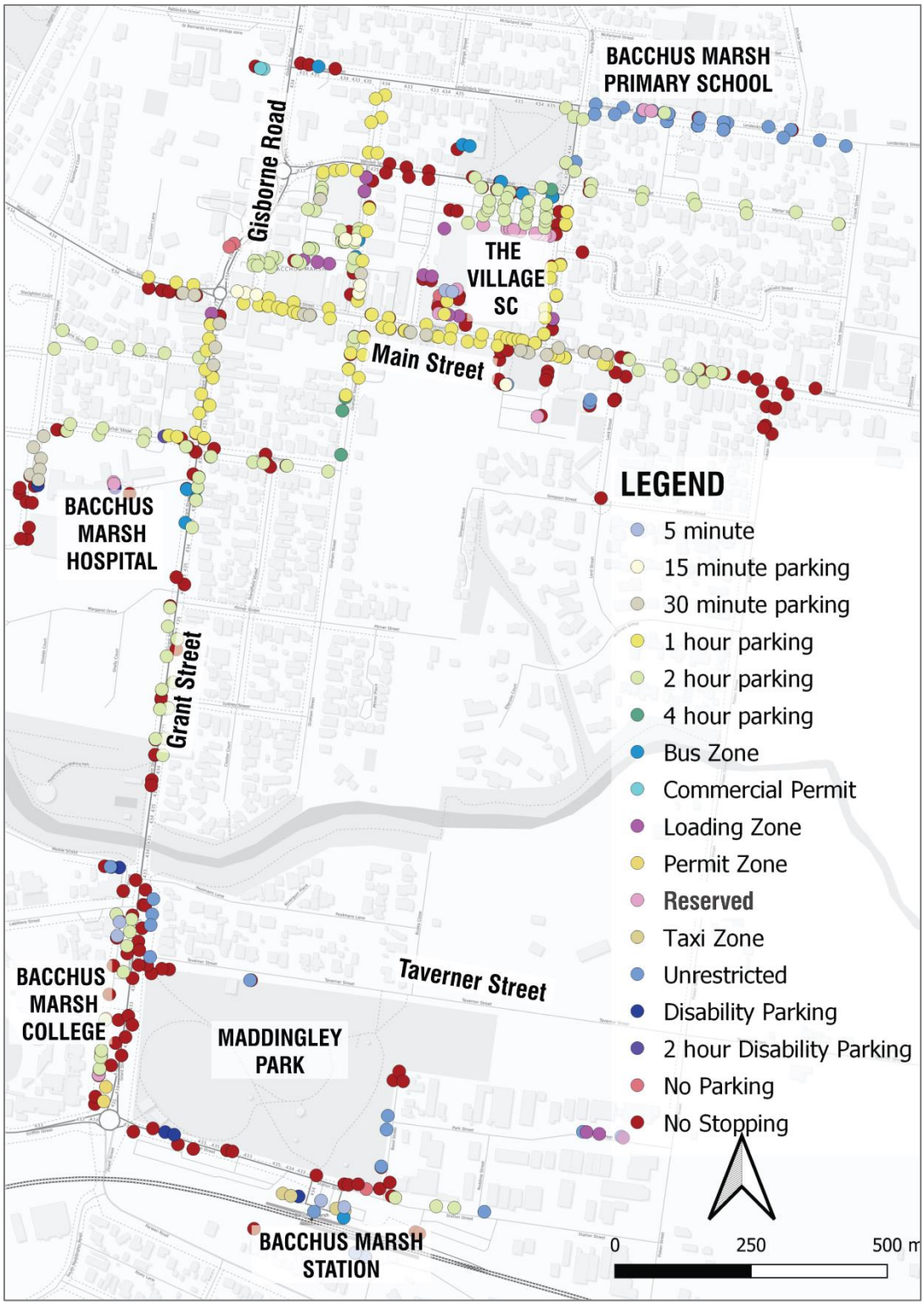
Figure 5-5: Bacchus Marsh available parking spaces

Source: Nearmap with M&PC analysis

Parking restrictions in Bacchus Marsh vary greatly depending on the area and level of demand. In areas of high demand such as Bacchus Marsh town centre and Bacchus Marsh Primary School parking signage restrictions are more stringent (as illustrated in Figure 5-6 overleaf). These controls optimise turnover and provide clear access guidelines for varying users but limits choice which in other similar contexts is provided for by fee-based parking restrictions.

Horsham in rural Victoria, for example manages its CBD parking with $1 per hour parking which provides a higher availability for premium spaces whilst parking on the city fringes which is unrestricted (as discussed in Section 2.4.1). Paid parking can be less limited in terms of time, offering more choice with regard to location and duration of stay depending on the parker's willingness to pay. It also means that all the parking facilities regardless of their location are optimally utilised, as people who want unrestricted parking will park in other facilities further away.

Figure 5-6: Bacchus Marsh on-street parking restriction signage (12:00pm Friday)



Source: Open Street Map with M&PC analysis

As Figure 5-6 illustrates, the following restrictions are used in Bacchus Marsh to manage times of peak occupancy in key areas:

- Loading and bus zones;
- No standing and no stopping;
- Pick-up zones (particularly near the station and primary school);
- 15-minute to 4-hour parking time restricted zones;
- Residential permit zones; and
- Commercial permit zones.

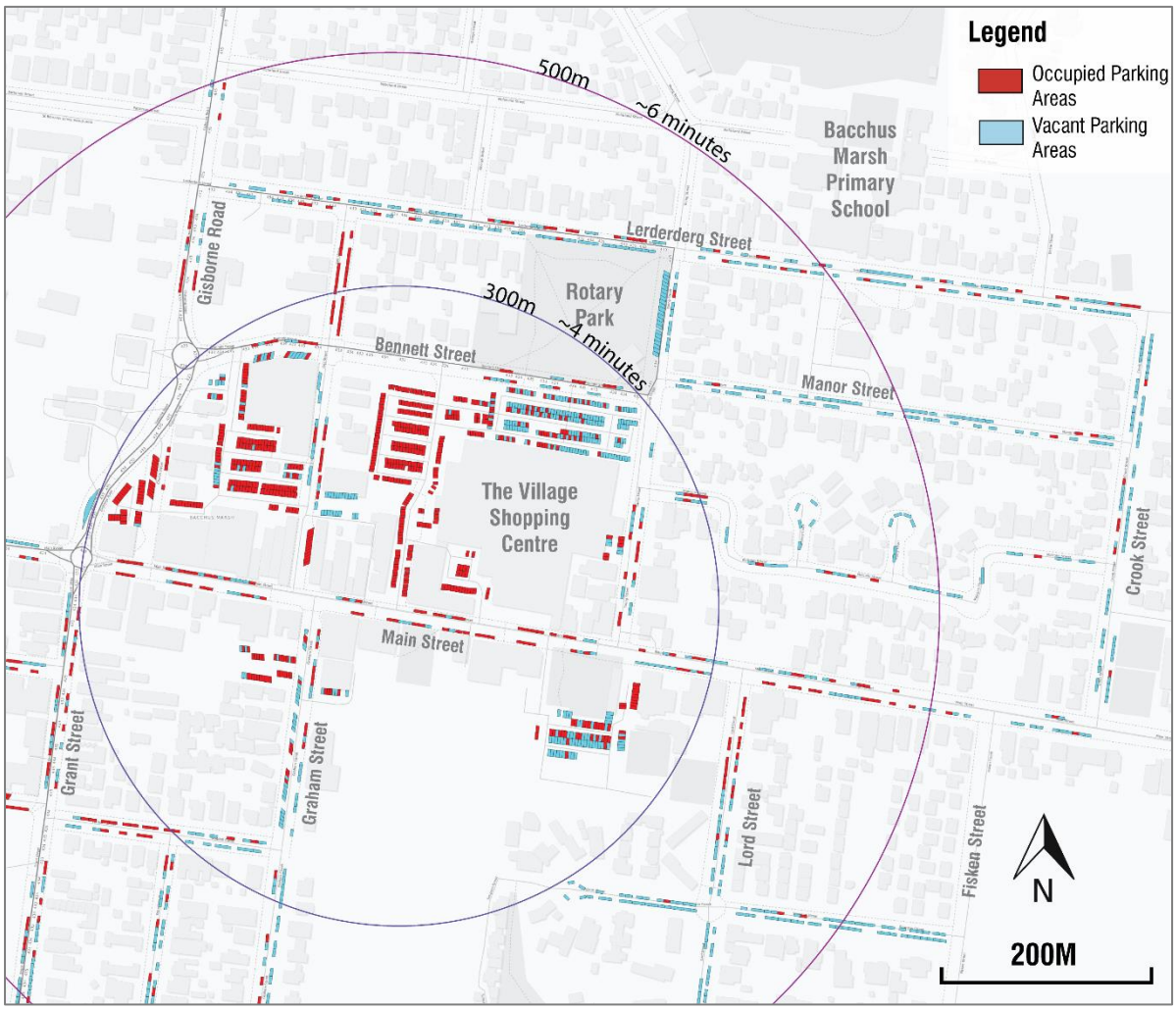
Parking in the town centre is typically limited to 1 and 2 hours in the core of the centre. Time restrictions evaporate relatively quickly around the centre including to the north (such as in parts of Bennett Street) where parking is free and unrestricted all day.

Most of the off-street parking facilities are restricted to 4-hour parking, if at all. This generates a high demand for all parking, but particularly storage parking (over 4 hours) which significantly limits parking turnover. This is particularly critical in areas in premium locations (such as the multi-deck adjacent to '*The Village*') where many find the most convenient spaces unavailable for most of the day.

5.1.3 Bacchus Marsh parking availability

Overall, in the busiest time recorded by the occupancy survey (Friday 6th December at 11:00am-1:00pm), on average, most people parked 300m or less from key Bacchus Marsh destinations such as *The Village Shopping Centre*, *Bacchus Marsh and Melton Regional Hospital* and Bacchus Marsh Station. This is shown in Figure 5-7, Figure 5-8, Figure 5-9, Figure 5-10 overleaf respectively. Note that the aerials in Figure 5-7 and Figure 5-8 below illustrate an aerial view and as such capture the rooftop level of the two storey car park to the rear of *The Village*. Of the 202 parking spaces on the ground level, during the survey there was a 14% availability on average and less than 10% on Friday between 9:00am and 11:00am.

Figure 5-7: Bacchus Marsh parking availability at 11:00am – 1:00pm on Friday



Source: M&PC Survey conducted Friday 6th December 2019

At a distance of 300 metres from these locations, there is substantially higher availability of parking spaces. For instance, within 500m of the intersection of Main Street and Graham Street (the centre of town), 47% of the 2,201 spaces were available at the busiest time of day.

The distribution of parking availability within this 500m catchment is shown in Figure 5-7 above and can be summarised as:

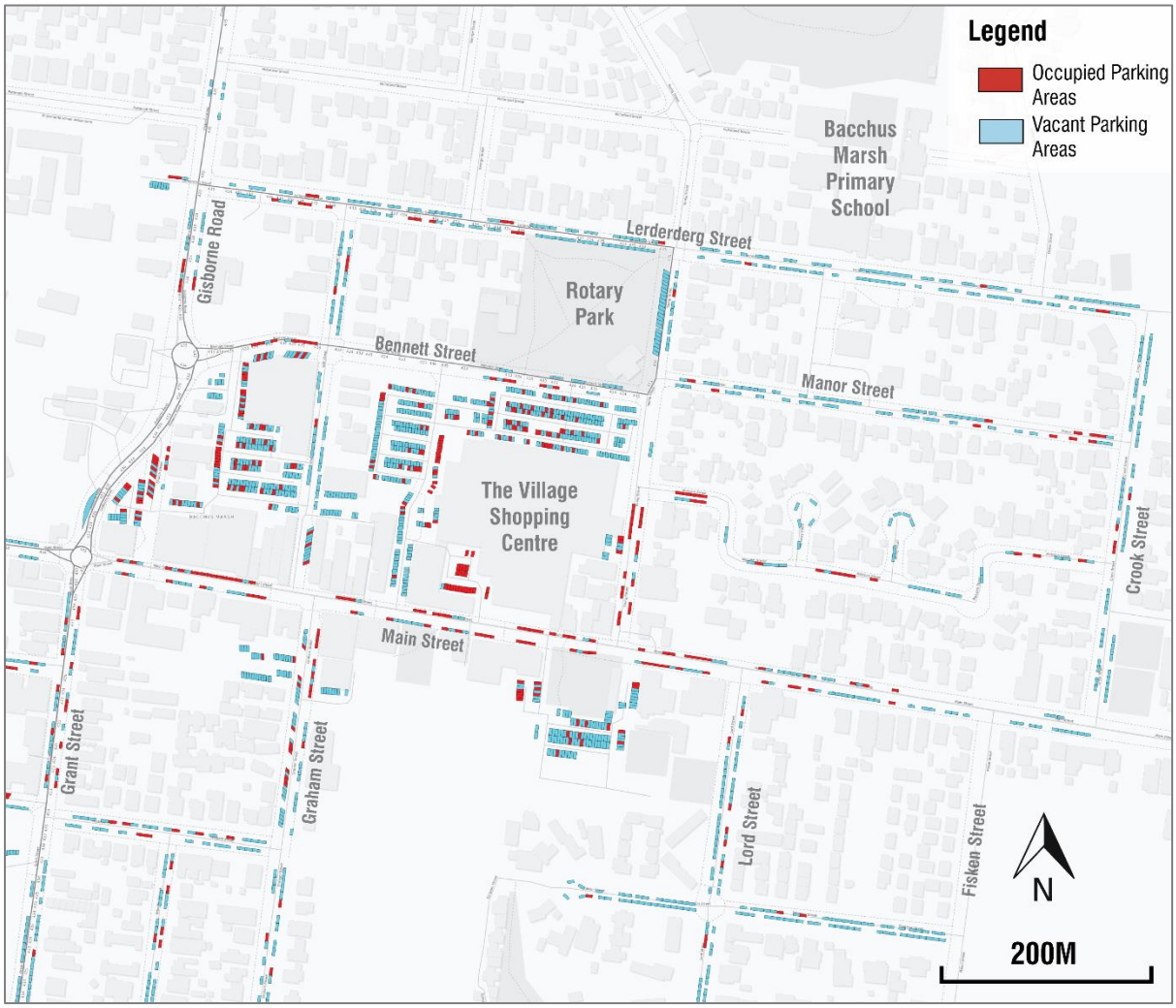
- 39% availability in the 1,327 spaces located within 300m; and
- 67% availability in the 864 spaces located between 300m and 500m away.

Availability seems to be highly correlated to places of significant attraction, time restrictions (particularly the 1-hour parking along Main Street) and perceived walkability from the parking space to key destinations.

This demonstrates a high demand in a significantly localised area, meaning people are likely to perceive a lack of availability particularly in areas where parking is highly desirable (i.e. less than 2 minutes of walking). Providing additional free parking in these premium areas, however, is highly costly (as discussed in Section 1) as it would remove land which could be used for increasing local economic activity.

On Saturdays, the highest occupancy occurs between 0900-1100 and there is relatively high parking availability, as shown in Figure 5-8 below.

Figure 5-8: Bacchus Marsh parking availability at 9:00am – 11:00am on Saturday



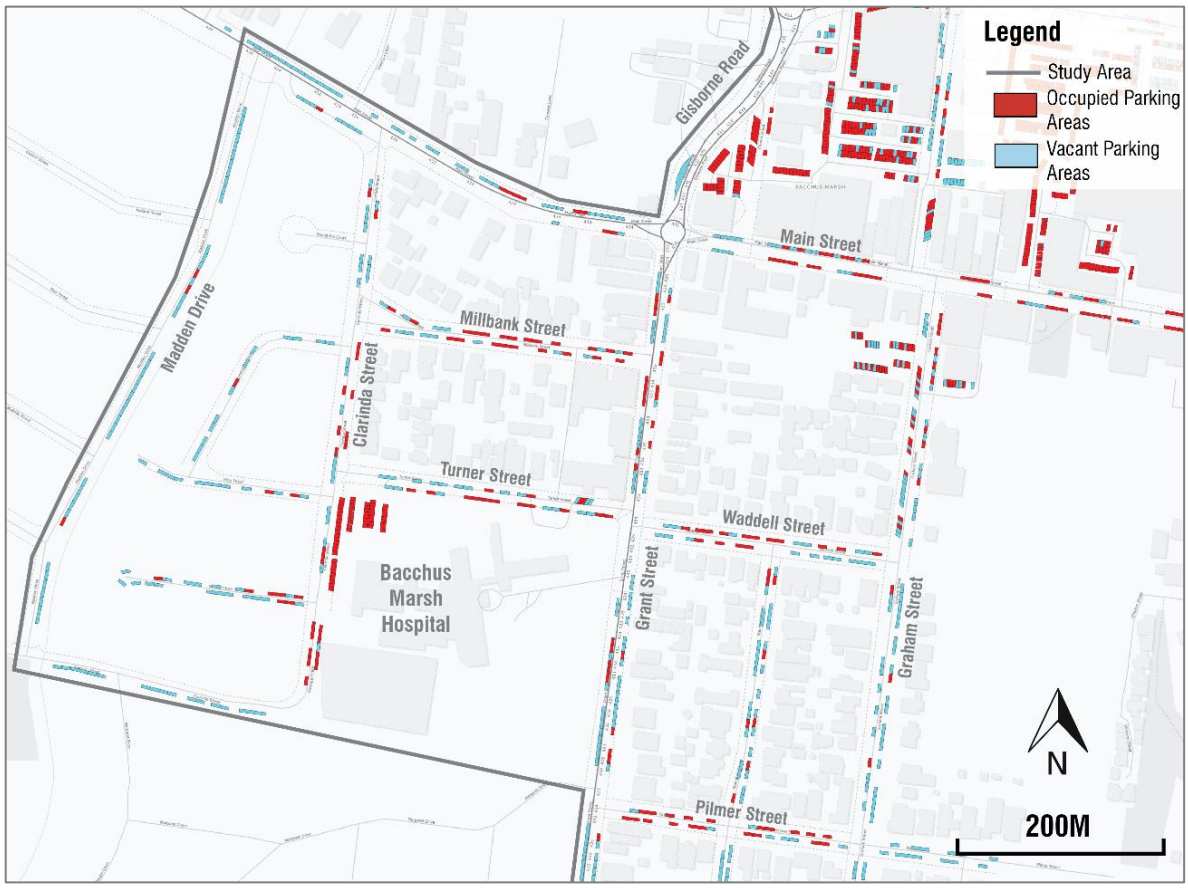
Source: M&PC Survey conducted Saturday 7th December 2019

There are several areas which require careful management to optimise utility and community benefit including:

- Around Bacchus Marsh and Melton Regional Hospital;
- Around Bacchus Marsh Station; and
- Around Bacchus Marsh Primary School at school drop-off and pick-up times.

Each of these areas have frequently moderate to high rates of occupancy in peak times of the day with considerable impacts on the local traffic network. There are also varying competing interests from stakeholders as to how these areas should be managed. The peak parking occupancy around *Bacchus Marsh and Melton Regional Hospital* on a Friday is shown in Figure 5-9 below.

Figure 5-9: Parking availability near the hospital at 11:00am – 1:00pm on Friday

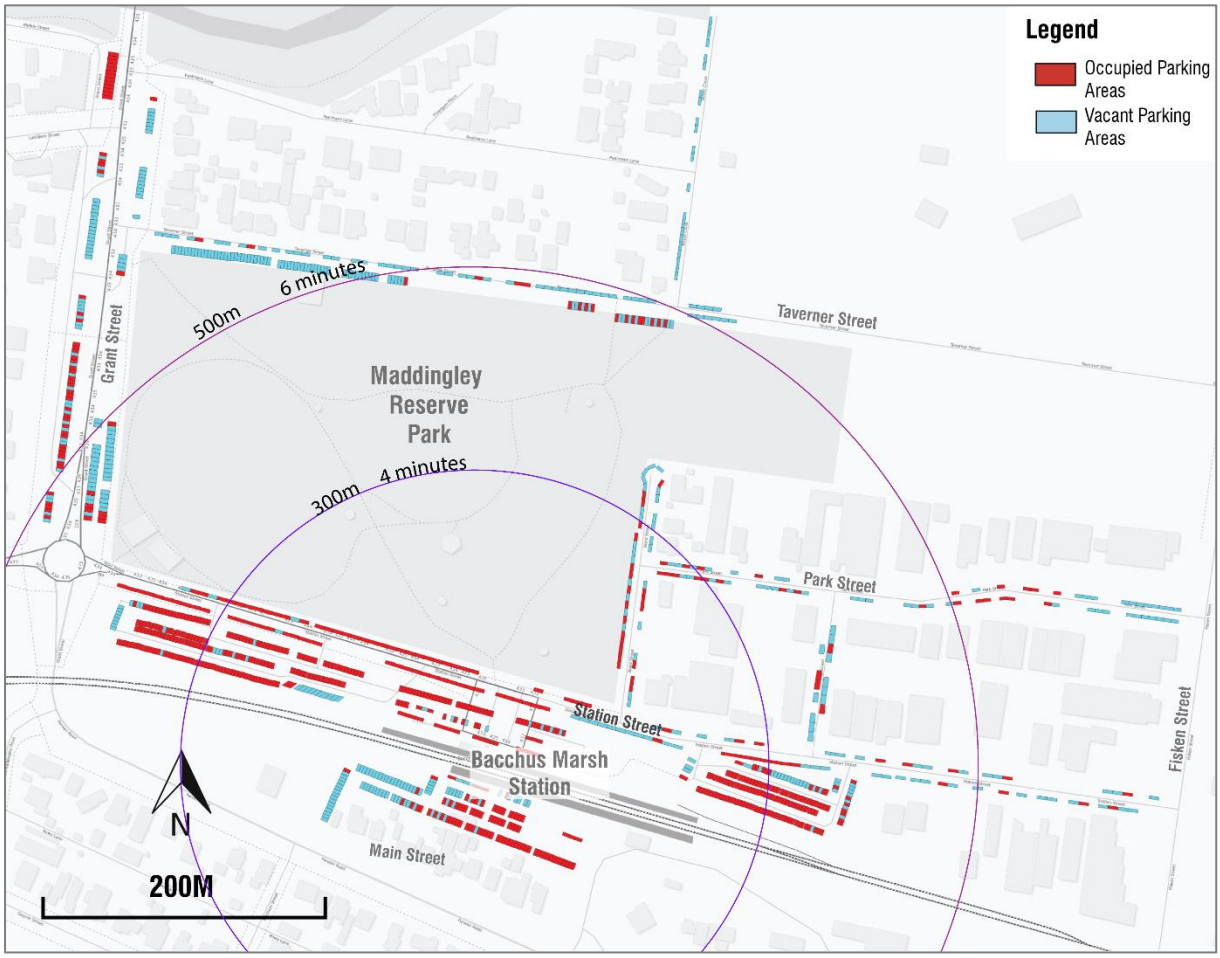


Source: M&PC Survey conducted Friday 6 December 2019

This highlights that car parking in close proximity to the Hospital is in high demand but there is still some parking available in Turner Street and Clarinda Street.

The peak parking occupancy around Bacchus Marsh Station on a Friday (in December) is shown in Figure 5-10 below. The survey includes the 155 spaces added in November 2019 as part of the Regional Rail Revival project.

Figure 5-10: Bacchus Marsh Station at 11:00am – 1:00pm on Friday



Source: M&PC Survey conducted Friday 6th December 2019

This highlights that much of the new parking supply is occupied with some spaces available on the southern side of the railway line and at the very end of the car parking areas (with the exception of disability permit parking close the station entrance. This image also highlights that the 60 on-street car spaces Station Street (between Grant Street and Bond Street) provided by Council are well utilised.

As growth continues, it will be critical to have a robust management plan which adequately caters for various users to access their important destinations.

5.2 Key issues and options

A range of issues related to parking currently exist, including the following:

- Premium spaces are occupied while many others are available;
- Driveways interrupt the pedestrian flow and rhythm of a commercial street;
- Drivers get frustrated searching for parking, which is exacerbated by small off-street parking areas that are for exclusive use of specific people;

- Providing more parking weakens the attractiveness of the town centre as it impacts on 'country town amenity';
- Forcing new businesses to provide parking reduces business development opportunities in the centre, making competing locations more attractive;
- The spaces available could be better managed to suit the various needs of its users and in doing so become more efficiently utilised;
- There are varying and often competing stakeholder interests when improving access to key destinations and their amenity; and
- Rates of car parking provision are currently inequitable (as discussed in Section 4).

These key issues and options are briefly discussed below.

5.2.1 Optimising availability of premium spaces

Most drivers are only interested in the 40 or so car spaces that are located close to where they want to go. If these spaces are in a premium location, they can become fully occupied quite quickly. When these spaces become completely unavailable, drivers can experience a stressful search for a park and long walk. This sense of frustration and inconvenience is what causes people to become dissatisfied with their parking and request for a larger supply. From the survey, a small number of people expressed this level of dissatisfaction (17%) and 16% of people suggested that the centre could be best improved with more parking facilities. As discussed in Section 5.1.3, there is plenty of parking available even in peak periods of demand just beyond 300m (or a little further than a 4-minute walk) of the centre, but this is often underutilised while parking within 300m is only 30% available.

This is a very common problem for parking managers and is typically addressed through a range of user, time and fee-based restrictions.

In Moorabool Shire both user and time-based restrictions are applied, primarily in centres such as Bacchus Marsh and other key destinations. Fee based restrictions would be appropriate in some instances, but these are typically challenging to install due to a perception that parking should be free.

As the population of Bacchus Marsh increases, the demand for the premium spaces (at the train station and near really popular shops and cafes) will increase. Time and user-based restrictions will not cope with the level of demand that arises. As a result, there will be a need to apply some fee-based restrictions on the spaces that are in highest demand. A dilemma for Council is that additional fees are never popular.

The clearest example of premium parking spaces in Moorabool exists in Station Street, Bacchus Marsh, near the entrance to Bacchus Marsh Station. There are now over 500 spaces at the station and Council provides another 60 on-street car spaces in Station Street.

Over 1,000 people use Bacchus Marsh Station each weekday. A 2012 passenger survey conducted by DOT found that 50% of passengers accessed the station by driving, 25% walked and 25% caught the bus or rode a bicycle.

The parking at Bacchus Marsh Station has recently been upgraded including provision of new car spaces at both stations. A survey was completed following the opening of the new car park at Bacchus Marsh Station and found that at the peak time of occupancy (Friday 11:00-1:00pm), 27% of the parking spaces were available.

Studies have shown that Park and Ride spaces are often less available to people who have limited alternatives to driving due to where they live, because they are often occupied by people who live

closer but drive because parking is free and abundant[19]. To mitigate this, people living more regionally either have to leave earlier to ensure that they can find a space, or park further away.

Providing an additional choice for people who arrive to the Bacchus Marsh Station later in the day is important, and can really help people trying to catch a specific train after running errands early in the morning. Identifying the ten on-street spaces closest to the Station entrance and applying a fee-based restriction on them would help anyone arriving later in the day to make up some valuable time and catch an earlier train.

5.2.2 Parking consolidation

Main Street in Bacchus Marsh has already had a number of shops removed in order to construct driveways as part of newer development. Driveways crossing the main pedestrian spine of a town centre negatively impact on the amenity, safety and 'rural charm' of the town. A high intensity of punctuations of driveways in town centres interrupts the rhythm of pedestrian activity, as people walking along the street are constantly needing to cross areas used by vehicles. This is best illustrated by the driver who feels the need to sound their car horn when exiting a driveway across a busy footpath. Many driveways to small privatised parking areas will not improve the amenity or 'rural charm' of Bacchus Marsh.

In Horsham, the built form and pedestrian amenity of the Town Centre and main street has been keenly protected. Car parking has been consolidated into Council managed facilities behind the traditional shops to enable uninterrupted pedestrian activity along Firebrace Street. The photograph in Figure 5-11 below illustrates this, as people can walk down a block without needing to stop for crossing vehicles. The aerial in Figure 5-11 below shows that parking near Firebrace Street Horsham is consolidated in the centre of each city block.

Figure 5-11: Retaining the "country ambience" though consolidation of parking

Source: GoogleMaps & M&PC Images

Driveways into small parking areas can also significantly reduce on-street parking. Driveways are essentially a privatisation of the public space that could be used for short term on-street parking. Each 3m wide driveway removes one on-street car space from the typical street.

19 Kimpton, A., Pojani, D., Sipe, N., Corcoran, J. 2019. 'Parking Behaviour: Park 'n' Ride (PnR) to encourage multimodalism in Brisbane', Land Use Policy, vol. 91, pp. 1-16

Given that every driveway starts by removing a public car space, and replacing it with private parking used for commercial gain, a key objective should be to minimise driveways in town centres where public parking demand will be high. This requires consolidation of parking into larger areas that have the benefit of being easier to find and navigate to. Larger parking facilities also provide greater certainty that there will be a parking space available. This is a very important aspect of maintaining the ease of access that people associate with the 'rural charm' of towns like Bacchus Marsh (as previously discussed in Section 5.2.7).

The appropriate siting of future car parking facilities in the Bacchus Marsh town centre is critical to being able to maintain the 'rural charm' and to meet people's desire to park close to their destination. These two objectives are often competing with each other because the 'rural charm' is undermined by large swathes of car parking, and moving the car parking to areas where it does not impact on town centre amenity often means moving the parking away from key destinations.

5.2.3 Reducing levels of driver frustration when searching for parking

The intercept survey found that parking was considered an important part of what was attractive about Bacchus Marsh town centre, but not the most significant.

Of the respondents who drove and parked, 73% were satisfied or extremely satisfied with their space, whilst 16% were either dissatisfied or extremely dissatisfied. When asked what people's trip alternative would be if parking became too difficult in Bacchus Marsh, most residents (89%) would change their trip habits to access the same centre, by either parking further away (64%) or changing mode (15%). Only 11% said that they would go elsewhere for the trip. These results are reasonable given the existing situation, but as the population grows the level of satisfaction could reduce unless parking is managed to meet their needs.

Small car parking areas and areas that are allocated to specific users exacerbate frustrations when premium car parking areas are full (as discussed in Section 5.2.2).

Small parking areas are difficult to navigate and need to be entered before you can tell they are full, then you need to get out of them and find another one. It is much easier to navigate around larger parking areas with 100 or more spaces. Appropriate parking management ensures that spaces will be available. In the long-term, Council could consider using technologies which show the occupancy levels of the car park before drivers enter. This could be particularly useful for the multi-deck parking to the rear of *The Village Shopping Centre* in showing the number of available spaces on the ground level and the roof, where the former is often 10% available whilst the roof is 50% or more.

5.2.4 Impacts on the amenity of Bacchus Marsh Town Centre

Parking has a significant impact on how Bacchus Marsh feels. People specifically visit each town centre for their 'rural charm'. During the In-centre intercept surveys in Bacchus Marsh, 9% of people commented positively on the amenity and "country town ambience" of the town centre and most made suggestions for it to be protected or improved. There is an opportunity to test this further and determine if the target market would visit either town centre more or less frequently if the 'rural charm' was improved.

Part of this 'rural charm' is tree lined streets of narrow fronted shops that provide a high level of visual interest and diversity in product offer (various goods and services) within an easy walk of parking.

Maintaining this 'rural charm' is essential to the attractiveness of each centre. A key competitor to Bacchus Marsh is *Woodgrove* Shopping Centre in Melton. *Woodgrove* does not have a 'country ambience'; it is a big box retail dominated centre with a sea of car parking surrounding it as shown in Figure 5-12 below.

Figure 5-12: *Woodgrove Shopping Centre*'s parking

Source: GoogleMaps & Google Streetview

Bacchus Marsh town centre should not try and compete with *Woodgrove* on parking supply. The centre can instead take a smarter approach and compete on being an attractive place, one that people enjoy visiting and want to visit because it is a nicer place to be.

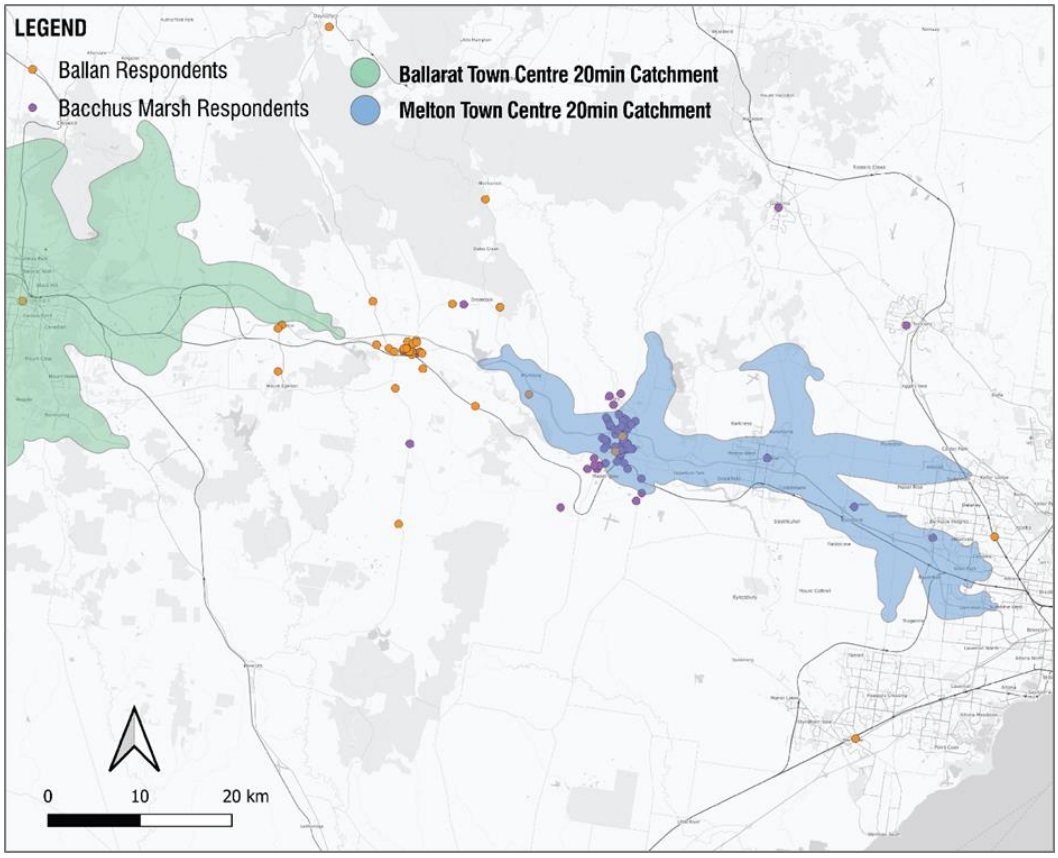
Effective parking management gives people options and choice about where they park and under what conditions (including time or pricing). This aids in providing an enjoyable and stress-free visitor experience but is less important than the 'rural charm' of each town centre.

Woodgrove reduces parking stress by providing way more parking than is typically needed by their customers, thereby ensuring that every customer has a blunt choice about how much time they spend searching for the perfect space, versus how much time they spend walking from an easy to find space. However, that car parking comes at the cost of amenity of the centre. Each visitor's arrival is spent negotiating an expanse of car parking that detracts from the amenity of the centre. It also has a cost in walking time. There are almost zero car spaces located within 100 metres of shops in *Woodgrove*, and some car spaces are 400 metres from the middle of the shopping centre.

However, the amenity proposition is that once inside the shopping centre doors, there are no cars to disturb you or run you over. The sterile and ubiquitous shopping experience in *Woodgrove* is nothing like the unique 'rural charm' that Bacchus Marsh and Ballan seek to retain.

Melton and *Woodgrove's* 20-minute catchment extends well beyond Bacchus Marsh to Myrniong as shown in Figure 5-13 below.

Figure 5-13: Visitor catchments for Bacchus Marsh and Ballan



Source: Movement & Place Consulting (M&PC) In-Centre Intercept Surveys 2019

This also highlights that visitors to Bacchus Marsh who participated in the in-centre intercept surveys have often come from within the Melton catchment and deliberately chosen to come to Bacchus Marsh instead. Council should take care not to copy mistakes made in Melton that make that centre feel more like a suburb of Melbourne and less like the village it once was. A key role Council has to play is through the parking requirements of the Moorabool Planning Scheme, and the way in which any new parking is provided in the town centre.

5.2.5 Optimising economic productivity of parking

As discussed in previous sections, as Moorabool grows, the development of the Bacchus Marsh town centre will be critical to meeting the needs of the Shire community. This involves creating an attractive centre, which utilises its 'country town ambience' but also makes productive use of its economic opportunities and assets. Key to achieving these outcomes will be minimising the amount of future parking required by ensuring any car parking that is provided can be shared by all members of the community and is not provided needlessly.

Retaining exclusive use of a car parking area for one type of user at all times is an inefficient way to manage the resource. Overall the community loses in two ways because:

- Each business needs to pay more to provide car parking which may not be used efficiently (these costs are passed on through business costs and directly affect local economic productivity); and
- The community can only access separate smaller pools of parking spaces and could even need to move their car in order to perform multiple activities in the town centre as part of a single journey.

For example, if the pub, pharmacy, supermarket and post office all had to provide their own separate off-street parking then the prices at all four places would increase. If each of the car parking areas was strictly limited to the users of each business, then customers would need to drive between each business rather than park in one and walk between the other three businesses. Currently, this rarely occurs in the Bacchus Marsh town centre, but could become an issue if new or growing businesses create small private parking pools.

The current Moorabool Planning Scheme requirements generate an expectation that this is the way parking should be provided and used. It is an outdated approach that weakens the local economic vitality of Bacchus Marsh. Instead, parking management should seek to incorporate an understanding of the needs of various parking user groups to increase the efficiency of its usage. This means using the same existing parking facilities with different management systems to redirect users to park in locations that better suit their needs, particularly with regard to the duration of their visit.

Employees within the town centre for instance, need to store their cars for longer periods of time during the day (typically over four hours) and typically travel to the centre several times per week.

The needs of this group of visitors however differ significantly with the needs of people looking to park for shorter periods of time (typically less than one hour) who prefer to park close to the shops they are visiting (because the walk time from their car becomes a significant component of their overall time in the centre). The spaces near popular shops are therefore the premium spaces in the centre. In the recent intercept surveys, it was found that most respondents (57%) spent an hour or less on their visit to Bacchus Marsh town centre; 28% stayed for less than 30 minutes. Many of these visitors were likely seeking premium parking locations a short walk from the shop they were visiting.

These premium spaces should be managed in a way which encourages a high level of visitor turnover. This increases convenience for visitors and economic activity for nearby businesses.

It is estimated that 25% of the parking spaces in Bacchus Marsh are occupied by business owners and employees (who typically park for at least 4 hours). It is highly likely as a result of arriving typically before customers, that they occupy the unrestricted parking spaces to the centre, making them unavailable for four hours or more.

Business owners and employees tend to come from further away (there is less likelihood they live within 1km of the town centre). They therefore tend to drive and seek to store their car during the day. Compared with shorter-term users, they are also likely more willing to walk from their car space to their place of work. The longer walk is a much smaller component of their overall travel time, and is therefore more accepted. Additionally, as parking becomes more occupied over time, employees and business owners also understand that nearby spaces are best used by short term visitors (their customers).

Council's commercial parking permit scheme could be improved to provide more reliable parking options for all employees, in locations that do not negatively impact on the car parking availability for customers including underused private parking areas.

This would create higher levels of parking efficiency, in utilising expensive multi-level parking, whilst ensuring premium spaces located close to shops can be further restricted to maximise turnover as they become less available and customer dissatisfaction increases.

Of all visitors to Bacchus Marsh, 57% spent an hour or less in the centre and 28% spent less than half an hour. This highlights significant potential to provide more very short stay parking bays in premium locations to facilitate greater turnover and sharing of facilities during business hours (including evenings). The ideal locations for these short-stay parking bays will be in locations close to specific businesses such as take-away premises, pharmacies, banks and post offices.

Data was also collected about how much money people tended to spend in the centre. There seems to be some correlation between length of stay and expenditure in the town centre, but it is not a linear correlation and more data would be required to establish the equation and understand if the relationship is causal. Details of the survey data in this regard are provided in Appendix D.

Importantly it is known that people often stay for short periods and they will only walk around the centre if they are comfortable and the centre maintains a high degree of amenity that makes people feel comfortable. It should be possible to ensure that future development of car parking occurs in a manner that protects and enhances these attributes of the town centres.

It should also be noted that businesses in each centre will constantly change based on broader economic trends and community needs. It is important for business owners and Council to monitor the changes as they are occurring. This requires a regular collection of data that is best undertaken within the shop after purchases are made. Council should work with local businesses and traders to help the businesses gather data on their customer segments and aggregate the data into a broader snapshot of the market segments visiting each centre. Council is best placed to coordinate the effort while business owners are best placed to collect the data.

5.2.6 Varying user needs

The varying interests of different parking users and stakeholders are often conflicting and represent part of a critical balance of access, amenity and mobility. For instance, in the Bacchus Marsh town centre, the in-centre intercept survey reflected a range of attitudes towards parking, quality of the urban realm and improvements to pedestrian comfort and safety. When asked for additional comments on the quality of the centre and suggestions for improvements:

- 9% were positive comments on the amenity of the centre; and
- 16% included suggestions to preserve or enhance pedestrian comfort and safety as well as the general amenity of the area such as:
    - *"Barriers at car park near the back of the shopping centre needs looking into. Accident occurrence seems high";*
    - *"Change limit to 40km/h on Main Street during shopping hours";*
    - *"Main Street speed needs to be reviewed for the safety of older people crossing";*
    - *"No parking on Main Street - causes congestion - loading zones";*
    - *"Pedestrian crossings feels very dangerous and the cars sometimes don't stop. Not enough parking"; and*
    - *"Please reduce speed limit on Main Street to 40km/h".*

- 16% of responses pertained to improving vehicle access, such as:
    - *"Wider streets";*
    - *"Town is too big. Too many people and cars. Streets cannot handle the traffic. Congestion in school times"; and*
    - *"Roundabouts on Grant Street and Gisborne Road are very congested."*
- 29% pertained to improving parking facilities. Most of these were suggestions for increasing the car parking. 74% of all respondents were satisfied or extremely satisfied with the space they found on the day of the survey.

Other precincts where there are increasing parking issues include:

- Bacchus Marsh and Melton Regional Hospital, where there are conflicts between providing dedicated employee parking in the precinct but concerns from residents nearby to limit non-resident parking
- Lerderderg Street where there are ongoing traffic pressures from student drop-offs, pick-ups near the Bacchus Marsh Primary School, bus movements, school employee parking and from vehicles accessing the town centre from the north.

5.2.7 Tweaking the time-restrictions to better meet demand

Parking spaces with consistently high demand are currently managed by time restrictions, particularly in premium parking areas such as Main Street. Main Street is mostly managed by 1-hour restrictions, the on-street parking within 300m of the Village maintains more than 15% availability even in peak periods of demand.

These spaces are also used highly efficiently, improving opportunities for parking turnover and higher levels of all-day availability for short term shoppers (58% of the respondents from the survey), providing the availability for potentially 300 cars with 60 spaces. However, time restrictions can be limiting for some who would be happy to pay to park longer in a premium space. Time restrictions also encourage a high level of vehicle movement which can disrupt the flow of pedestrians crossing and disturb the overall amenity. From the survey, some people suggested removing the spaces as they saw higher value in improving safety and comfort for pedestrians crossing the street than for people parking for short periods of time. It is important to recognise that they are one specific market segment and that only about 10% of spaces in strategic locations should be reused at this stage to widen the footpath, plant trees, widen grass verging and/or improve crossing facilities. This would be a worthy investment particularly for restaurants as outdoors seating can significantly improve revenue for the business. A walking study conducted by the City of Melbourne showed that outdoor seating increased revenues for restaurants and cafés by up to $25,000 a year. To put this in perspective, it is estimated that every additional $100,000 makes it cost-effective to hire a new employee.

However, for the remaining 90% of the on-street spaces, varied management of some controls will ensure that the right parking locations are highly suited to key user groups.

Based on the occupancy surveys, existing land use and broader parking needs across the centre, Table 5-1 overleaf specifies suggested minor changes to parking controls in Bacchus Marsh.

Table 5-1: Recommended time-based restriction changes in Bacchus Marsh

Location	Spaces	Current control	Proposed control	Discussion
Bennett St (South side) - west of Gell St	13	1P	2P 10AM-5PM	Aligns with the time restriction of nearby off-street spaces that are better located to the shop entrance. The 2P restriction will also minimise vehicle turnover and overall movements. Council should consider how the current parking alignment located on a bend in the road makes exiting the spaces difficult. This egress difficulty is the main reason to reduce turnover of the spaces. Council could also consider making it all-day paid parking ($0.50 for the whole day), to provide for employees who want to park close to the town centre.
	10	None	1/4P 8AM-10AM	This will provide 10 car spaces for people who are arriving late to start work at 10am on any day of the week
Gell St (both sides) - North of Bennett St	All	1P	4P 10AM-5PM	Provides parking for a casual employee shift on any day of the week
Young St (west side) - South of Bennett St	3	No Standing	Reinstate grass verge	Moving the kerb to match the outstand will reduce the chance of parking in this location and ensure compliance
Young St (west side) - North of Main St	3	1P	Extend footpath	Will increase space for outdoor dining at the Royal Hotel and improve safety of access into BWS drive through
2-4 Young St	All	Loading Zone	No Standing	There are no legal places to park in this section of street due to driveways. If loading zone is required it should be moved to outside 6 Young St
27-33 Young St	ALL	2P	No Restriction	This parking is underutilised and is well located to provide all day employee parking in close proximity to the centre. Council should work with Kindergarten to understand and address parking issues (particularly the timing of kindergarten drop-off and pick-up so that adequate short-stay parking is available for the kindergarten).
30 Young St	Sign is incorrect	No Restriction	2P	This parking is signed as 2P at each end. The sign in the middle needs to be consistent

Location	Spaces	Current control	Proposed control	Discussion
3-7 Graham St	17	1P	2P 9AM-9PM	Provides enough time for people to eat at Flanagans Border Inn Hotel while encouraging turnover so that spaces will become available for people arriving late for dinner between 7-8pm
14 Graham St	5	4P	No Restriction	This parking is underutilised and is well located to provide all day employee parking in close proximity to the centre
7 Gell St	1	Bus Zone (Local buses only)	Bus Zone	Confirm if bus zone needs to be restricted.
97-101 Main St	3	1/2P 8:30AM-5:30PM	1/4P 11AM-10PM	Better align the time limit to the needs of nearby takeaway stores and time of day it is required
31-39 Lerderderg St	ALL	2P	No Restriction	This parking is underutilised and is well located to provide all day employee parking in close proximity to the centre The bus stop can be retained though it seems to duplicate the bus stop on the other side of Rotary Park
2-10 Grant St	8	1/2P	1P 9AM-9PM	Better reflects the surrounding land use. Extend the span of restriction to take account of nearby dance school
61-81 Grant St	6	No Restriction	1P 8AM-4PM Mon-Fril	Better reflects the surrounding land use enabling priority access for short visits to the school during weekdays Should also remove car spaces either side of each eucalypt tree and provide more permeable landscaped surface to help the trees survive
Station St opposite station entrance	10	No Restriction	1/4P 7AM-9AM	This restriction will clear the parking area prior to 8:45AM making it available for late arrivals to park all day closer to the station in time for the 8:53AM train to Melbourne

5.3 Other considerations

Additional considerations that Moorabool Shire can investigate in order to reduce car parking demand and optimise the efficiency of existing parking facilities include:

- Additional disability permit parking will be needed as the population grows;
- Enforcement of non-compliant parking will improve public amenity and safety;
- Fee-based restrictions could be applied to a small number of very specific premium spaces;
- Pedestrian amenity and priority improvements can focus on access within a 1km radius;

- Driveways and car parking can be located to maintain and enhance the 'rural charm' of each town centre;
- Future car parking can be shared between multiple users;
- Larger consolidated areas of parking can be planned for the most appropriate locations; and
- Car parking requirements in the Moorabool Planning Scheme can be reviewed to be more equitable and aligned with Council vision.

These are briefly discussed below.

5.3.1 Monitoring and enforcing non-compliant parking

Recent improvements to local laws around parking enforcement have led to the hiring of a parking enforcement officer. This has led to improved enforcement around parking restrictions. Non-compliant parking causes a range of issues, including:

- Minimise sightlines;
- Greater likelihood of collisions;
- Impacts on pedestrian amenity and safety;
- Impacts on wayside and underground infrastructure;
- Can lead to higher traffic speeds if cars are parked off the roadway; and
- Encourages more people to illegally park and increases risks attached to the practice.

The occupancy survey found a number of areas where parking was consistently non-compliant with the relevant legislation. The response from Council should include education for road users prior to formal enforcement of parking regulations.

5.3.2 Providing additional disability permit parking and access

Currently Bacchus Marsh town centre complies with the BCA requirements for providing accessible parking (which is achieved by dedicating 2% of the total public spaces to users with a disability), as do the hospital and station. As the population grows (and ages) there is a likelihood that the need for disability permit parking spaces will increase. The survey highlighted specific concerns regarding disability parking:

- The availability of disability parking spaces;
- Availability of footpaths connecting to the centre; and
- The presence of obstacles such as signs from local businesses that blocked footpaths and pedestrian crossings.

In addition, there will be an increasing number of people travelling to the town centres by mobility scooter. These people can be catered for with improved pedestrian paths.

5.3.3 Improving pedestrian amenity and priority

As demonstrated in Section 2.2, there are gaps in the footpath networks in Bacchus Marsh and Ballan that make walking difficult, particularly for elderly people, people with a disability or people with a pram or trolley. Ensuring that walking is a viable transport mode can significantly reduce parking demand (and increase local economic expenditure). Note that 25% of the survey respondents in Bacchus Marsh did not use a parking space at all, because they walked to the centre.

Evidence also shows that people who use active transport have higher capacity for spending as they have less car maintenance related costs and it is estimated that a 20-minute walk to work and back

can generate $8.48 into the local economy[20]. Active transport also has added public health, social, environmental and personal financial benefits.

Below are relevant findings from the in-centre surveys in relation to active transport in Bacchus Marsh:

- 25% of visitors walked to the centre, most of these were people that lived within 1.2km of the town centre; and
- 16% of people wanted improvements to access and pedestrian safety.

There are a number of ways that Moorabool Shire can better encourage active transport in the centres of Bacchus Marsh and Ballan:

- Linking up gaps in the footpath network would provide better connectivity for walking and mobility scooters. Our in-centre intercept survey in Ballan found that the lack of connected footpaths was of particular community concern;
- Planting canopy trees will improve pedestrian amenity and shade. This is a significant way that the 'rural charm' and town character can be maintained; and
- Improving pedestrian priority across intersections and busy roads is a key to making pedestrians feel safe and respected.

5.3.4 Growing the primary catchment (1km)

The local economy is most significantly influenced by the number of people living within the centre's primary catchment and their disposable income. This is due to two key factors:

- The further away people live, the more likely it is they will shop somewhere else; and
- The more people spend on housing and transport, the less disposable income they can spend in the local economy (housing and transport each typically account for 25-30% of household expenditure).

Therefore, the highest spenders in the Bacchus Marsh Town Centre are most likely to be those that live close enough to walk to the centre. They might still drive and require parking, but their proximity to the centre makes it much more likely that they will know what goods and services are available in the centre and much more likely that they will consider the local centre as a convenient option.

Therefore a key way that Council can increase the economic viability of the centre is to increase the residential population within 1km of the town centre. There are many built form types that can achieve this outcome. Typically, a significant reason for developers not being interested in providing medium density housing within town centres is the cost of land and the parking requirements (that do not vary from other much cheaper to build locations).

There are over 2,000 parking spaces currently available in the town centre, most of which is vacant outside business hours. If future housing in this area also provides additional parking, it reduces the intensity of any housing that can be provided, increases the cost of each dwelling and reduces the efficiency of the overall parking supply. This in turn, reduces the positive local economic impact that could otherwise be achieved from each residential development. Future residential development within the town centre should therefore not be required to provide car parking for every dwelling (though a developer may provide it if they wish).

[20] The Economic Case for Investment in Walking (Victoria Walks; 2019)

The Bacchus Marsh Structure Plan (2011) highlights the following strategies relevant to further development of the activity centre:

- Locate commercial and residential mixed-use development to the immediate south of Main Street on the existing agricultural land; and
- Locate medium density residential development to the south of Main Street along an active transport corridor.

There are many other ways to encourage people to live within walking distance of the town centre, the analysis above is limited to the parking requirements and the impact they have on local economic activity and vibrancy of the town centre.

5.3.5 Regular review of car parking supply and availability

Car parking supply is determined by how the community want the town centre to feel. Various features that increase amenity in the town centre take up space. Footpaths, outdoor dining, trees and public art all take up space that could otherwise be used for parking. Parking is not a reason (in itself) to visit a particular location, and it does not add to the amenity of an area. High amenity places result in people enjoying their visit to the town centre and provide opportunities and incentives for them to stay longer and return more frequently. If the amenity is high enough, people will find a place to park and walk to the place they want to go.

Court House Place provides a good example in Bacchus Marsh of where wider footpaths, trees and seating have been provided by using space that was formerly used by cars for movement or parking as shown in Figure 5-14 below. The amenity provided in this location would not have been possible if the street was kept open following the realignment of Gisborne Road in the early 2000's.

Figure 5-14: Court House Place, Bacchus Marsh was formerly Gisborne Road

Source: Google StreetView

As the town population grows, more high amenity spaces will be required for the larger population to linger in and enjoy. If these spaces are not provided in the town centre, the population will visit other high-amenity locations (potentially in Ballarat or Melton). Council and the community should therefore regularly review how well the public realm is meeting their expectations in terms of amenity.

If amenity needs to be improved, then additional space and facilities should be provided to make those improvements.

Once a review of the allocation of public realm between various potential uses has been completed, Council will know how much space there is available for car parking. The available parking is then allocated for use by various market segments through application of user-based, time-based or fee-based controls. These controls are typically set following consideration of surrounding land use needs.

The availability of car parking spaces in each area should then be assessed regularly to understand seasonality in demand for car parking and determine any changes that should be made to ensure parking is available for those who need it. It is important that these reviews occur at least once per year, so that parking controls are continually updated to reflect the changing retail dynamics and parking demands.

6. Ballan issues and opportunities

6.1 Existing situation

Ballan has a growing population, and development on the fringe of town. The current population density of Ballan Township (south of the Western Freeway) is around 2.1 people per hectare[21] as reported by idConsulting. Outward geographic growth of Ballan Township is likely to increase reliance on private vehicles and reduce the likelihood of people walking to the town centre. The growth in population within the Township boundary (estimated to be 6,714 by 2041) will increase population density within the Township to 5.6 people per hectare. This will be likely to increase local economic activity and has the potential to keep local transport costs relatively low as many people will have the option of walking to the Town Centre rather than using more expensive transport modes.

6.1.1 Overview of transport in Ballan

The Ballan Town Centre is relatively small (a few hundred metres long) and sits on a relatively flat plateau at the geographic centre of the Ballan Township. Ballan Township currently has a relatively good pedestrian network as shown in Figure 6-1 below.

Figure 6-1: Ballan public and active transport networks

Source: Open Street Map, Moorabool Shire and DOT with M&PC analysis

[21] https://profile.id.com.au/moorabool/about?WebID=110

There two main infrastructure gaps at present:

- To the east and south-east of the Town Centre; and
- In the north east, south of Blackwood Street.

The State government provides two local bus routes currently serving Ballan (each route provides only one service in each direction per day):

- Mt Egerton via Gordon to Ballan and return; and
- Hepburn via Daylesford and return.

Both bus services travel inbound to meet a Melbourne bound train at around 7am, and outbound to meet a train from Melbourne at Ballan around 7pm. Both routes also serve a bus stop near the Ballan Police Station (at a similar time of day). These bus routes are highly unlikely to have any impact on parking availability or economic activity in the Ballan Town Centre.

Regional connections

The Victorian government operate V/Line train services to Ballan. The Western Rail Upgrade has recently been completed and includes a second platform at Ballan Station, additional car parking and additional sections of duplicated track to enable more trains to operate to Ballan and Ballarat each day. Ballan is also served by V/Line coach services on the Western Freeway and the Airport Shuttle Bus between Ballarat and Melbourne Airport.

Ballan Station serves a regional catchment with many people driving a significant distance to the station. According to a 2012 regional station trip survey conducted by DoT, 80% of passengers drove to Ballan Station to board a train, and 20% walked. From the data provided, it is unclear how far the people driving came from. Ensuring that enough parking was available to more regional patrons will become increasingly critical in maximising efficiency of the park and ride facilities.

Survey insights

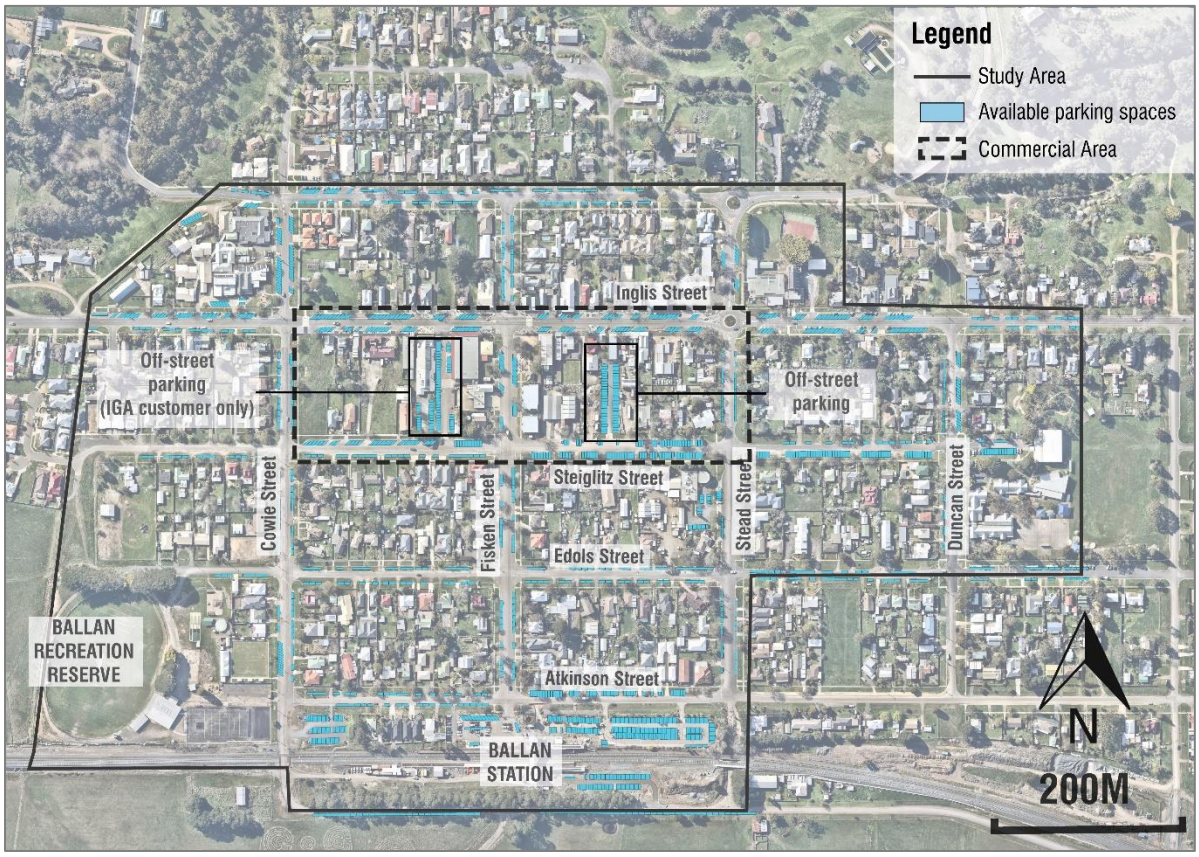
In the Ballan In-Centre Intercept Survey (outlined in Appendix D), 74% of the 67 respondents drove to the centre, 18% walked, 4% were car passengers, 3% took public transport and 1% used other modes such as mobility scooters. Unlike Bacchus Marsh, many respondents who lived within 1km of the Town Centre drove (despite the comparatively good pedestrian network in Ballan). This outcome is probably due to the high levels of parking available (even at peak times).

6.1.2 Ballan parking supply

The parking occupancy survey (outlined in detail in Appendix A) found 1,931 parking spaces within the study area in Ballan as shown in Figure 6-2 overleaf. Most of these spaces are on-street parking spaces which are equally distributed throughout the core township, though there are some off-street car parking facilities for public use:

- Two near Ballan station, one located adjacent with 246 spaces and one located 200 metres to the west of the railway line with 42 spaces, which was significantly underutilised during the occupancy survey; and
- Two in the Ballan shopping strip which together provide 128 spaces. The car park to the east, with 72 spaces, is IGA customer-only parking.

Figure 6-2: Ballan available parking spaces



Source: Nearmap with M&PC data and analysis

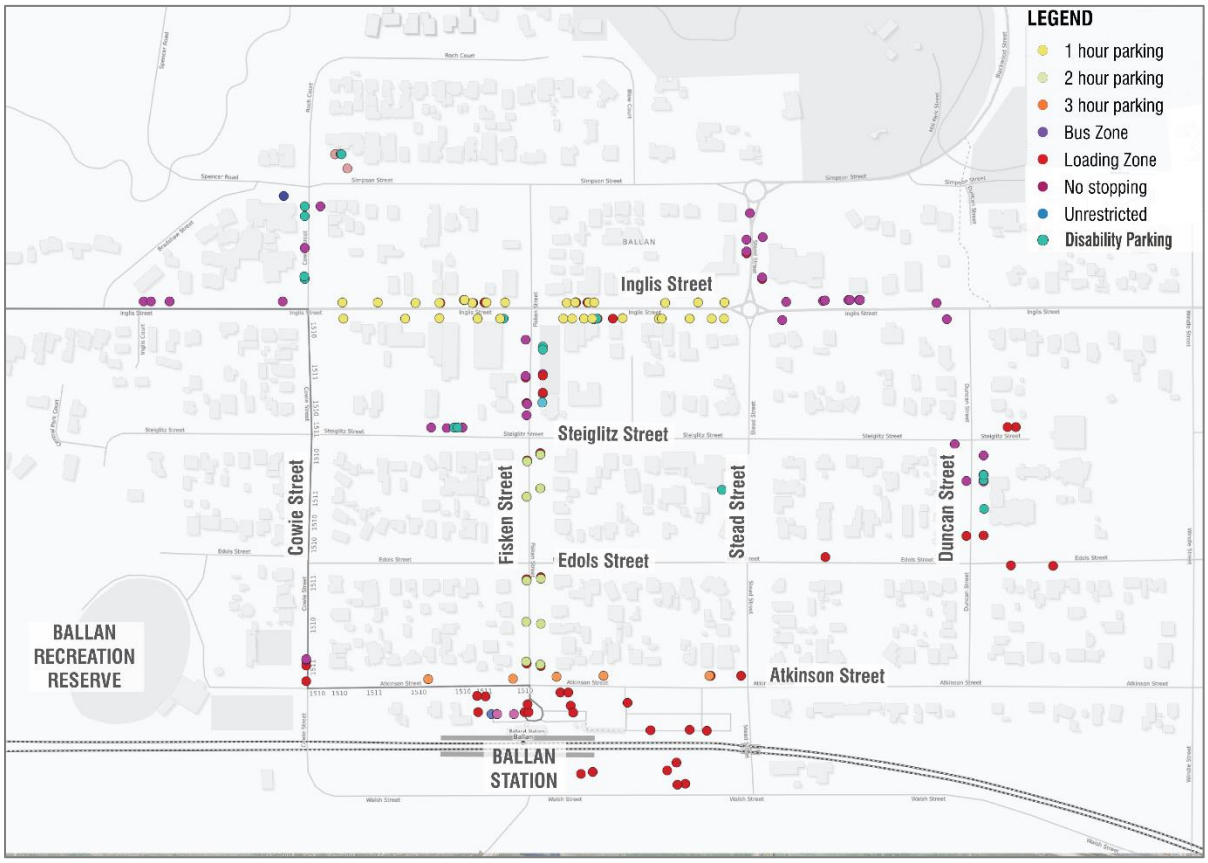
6.1.3 Ballan parking management

Inglis Street and Fisken Street provide around 120 spaces within the town centre. To encourage high levels of turnover and availability for regional visitation, these spaces are restricted by:

- 1-hour parking and loading zones on Inglis Street; and
- 2-hour parking on Fisken Street.

This is illustrated in Figure 6-3 overleaf.

Figure 6-3: Ballan parking signage and restrictions at 12:00 noon on Friday



Source: Open Street Map with M&PC data and analysis

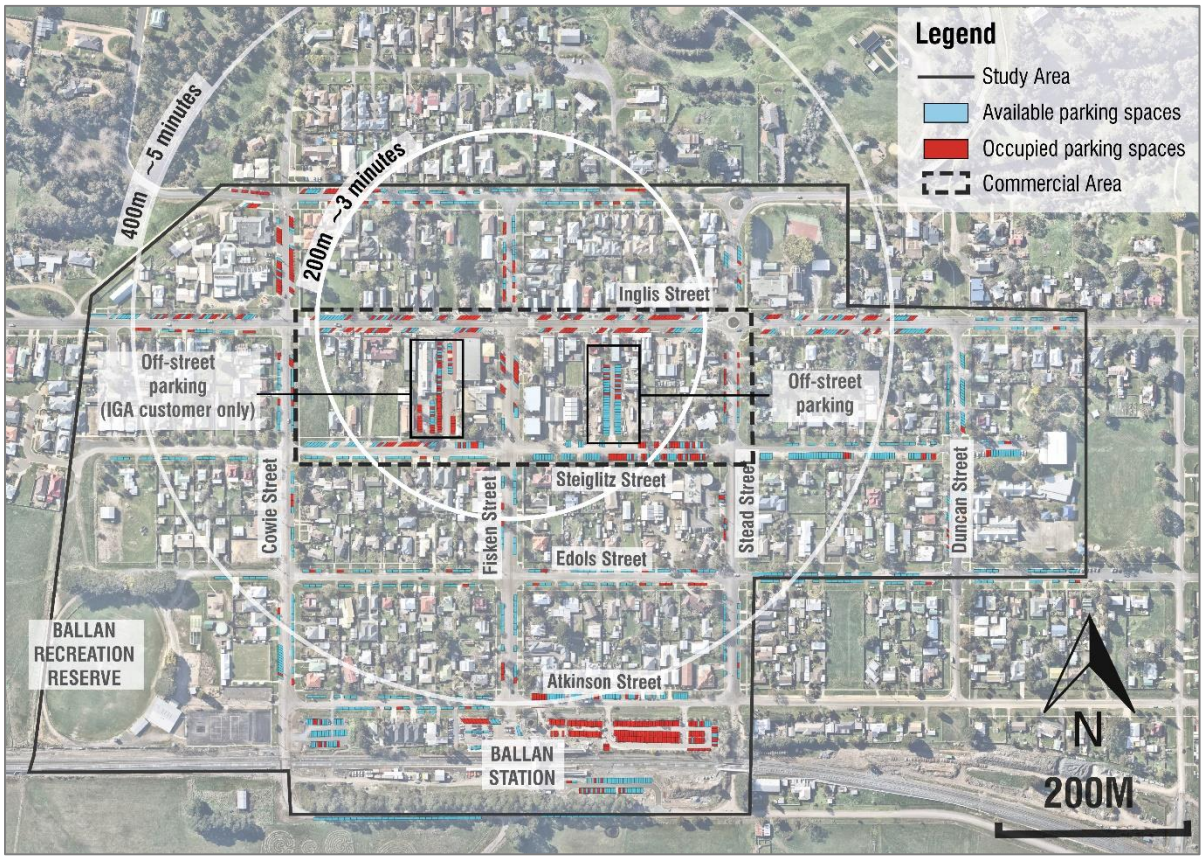
There are few restrictions beyond Fisken and Inglis Streets and parking is mostly unrestricted, with some exceptions around specific institutions such as the Hospital, Primary School and Train Station, which has a bus zone to facilitate bus-train transfers.

6.1.4 Ballan Parking Availability (Occupancy)

Occupancy overall in the Ballan centre was low even in the peak period surveyed (Friday 11:00am-1:00pm) as illustrated in Figure 6-4 below. There was 54% availability of the 523 spaces 400m walking distance or less from the shopping centre area, measured from the intersection between Inglis Street (Old Melbourne Road) and Fisken Street. The pattern of availability was geographically dispersed as:

- 45% availability of 280 spaces 200m from the intersection; and
- 84% availability of 243 spaces between 200m and 400m away.

Figure 6-4: Ballan peak occupancy at 11:00am – 1:00pm on Friday



Source: Nearmap, M&PC Survey conducted Friday 6th December 2019

In the off-street car park near the Station, 26% of the 246 spaces were available between 11:00-1:00pm on Friday. However, this availability was heavily weighted to the southern side of the railway track which was almost full. Of the other 205 spaces 400m away, 86% were available.

These levels of parking availability are typical of this type of town centre environment where unrestricted parking results in the earliest arrivals getting the premium parking spaces. In areas of high demand, premium parking should be available equally to anyone regardless of when they arrive. The only way to achieve this is through restrictions that enable early arrivals to choose to walk slightly further in order to keep the premium space available for someone arriving later.

6.2 Key issues and options

Parking in Ballan is plentiful and the areas of low availability are relatively small – mainly constrained to parking areas close to the Ballan Train Station and major employers such as the Hospital, Council office and Primary School.

Provision of parking in Ballan comes with a range of issues including the following:

- The location of parking can negatively impact on the ambience of Ballan's country town character;
- Driveways negatively impact on the amenity and feel of Ballan;
- Pedestrian amenity and priority requires improvement;
- Growing the local population will increase local economic activity ;
- Premium spaces fill up early and then people arriving later have no choice but to walk further;
- Car parking requirements in the Moorabool Planning Scheme can be reviewed to be more equitable and aligned with Council vision; and
- Additional disability permit parking will be needed as the population grows.

These issues and key recommendations to address them are briefly discussed below.

6.2.1 Maintaining village amenity and feel

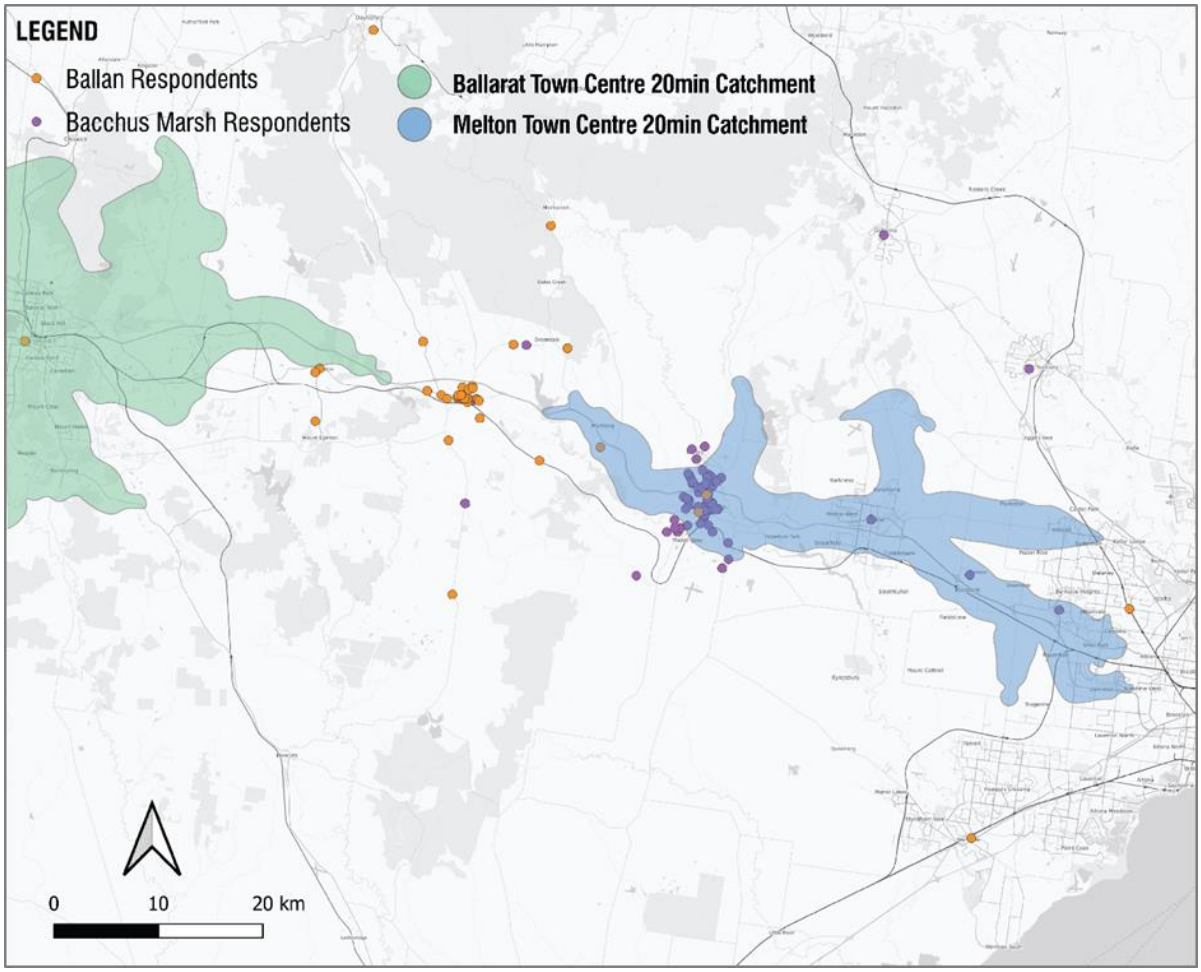
As discussed in Chapter 4 above, parking has a significant impact on how Bacchus Marsh and Ballan feel. People specifically visit each town centre for their 'country ambience'. Part of this ''country ambience'' is tree lined streets of narrow fronted shops that provide a high level of visual interest and diversity in product offer (various goods and services) within an easy walk of parking.

Maintaining this 'rural charm' is essential to the attractiveness of Ballan. It should not try and compete with other centres (even Bacchus Marsh) with regard to parking supply. Both centres can take a smarter approach and compete on being an attractive place, one that people enjoy visiting and want to visit because it is a nicer place to be.

Effective parking management gives people options and choice about where they park and under what conditions (including time or pricing). This aids in providing an enjoyable and stress-free visitor experience but is less important than the 'rural charm' of each town centre.

Melton and *Woodgrove's* 20-minute catchment extends to Myrniong while Ballarat's catchment extends nearly all the way to Ballan as shown in Figure 6-5 overleaf.

Figure 6-5: Catchments of nearby regional centres



Source: Movement & Place Consulting (M&PC) In-Centre Intercept Surveys 2019

This also highlights that some visitors to Ballan have travelled significant distance to the town. Council should take care not to copy mistakes made in Melton that make it feel more like a suburb of Melbourne and less like the village it once was. A key role Council has to play is through the parking requirements of the Moorabool Planning Scheme, and the way in which any new parking is provided in the town centre.

The in-centre intercept surveys found that the country-feel and amenity of the area were something specific that some visitors value highly. In Ballan, 4% specifically commented on the country feel of the town centre. There is an opportunity to test this further and determine if the target market would visit either town centre more or less frequently if the 'rural charm' was improved.

6.2.2 Parking consolidation

As discussed in Section 5.2.2, driveways onto key pedestrian corridors (such as Inglis Street) interrupt the flow of pedestrians and reduce the amenity of the street and town centre for all visitors. Providing small areas of parking for each specific business also frustrates drivers.

This is because many small parking areas make it more difficult to find a car space (particularly if the spaces are in a premium location).

Towns such as Ballarat and Horsham have protected their main street building facades by consolidating parking in the middle of each city block. These larger, shared parking areas are accessed from the rear, and not via driveways onto the main street.

Ballan has never had a fully built out main street. There are only a small number of sites that have parking provided from the rear (such as the Commercial Hotel, IGA and True Value Hardware). Consolidating parking into larger shared areas (such as the parking provided at 62 Steiglitz Street) will help the Town Centre grow efficiently and will maximise local economic productivity.

Larger parking facilities provide greater certainty that there will be a parking space available. This is a very important aspect of maintaining the ease of access that people associate with the 'rural charm' of towns like Ballan.

The appropriate siting of future car parking facilities in Ballan is critical to being able to maintain the 'rural charm' of the Town Centre and to meeting people's desire to park close to their destination. The approach currently used to focus car access from Steiglitz Street and pedestrian access from Inglis Street should be continued.

6.2.3 Improving pedestrian amenity and priority

As demonstrated in Section 6.1.1, there are some gaps in the footpath networks in Ballan that make walking difficult, particularly for elderly people, people with a disability or people with a pram or trolley. Ensuring that walking is a viable transport mode can significantly reduce parking demand (and increase local economic expenditure).

Evidence also shows that people who use active transport have higher capacity for spending as they have less car maintenance related costs and it is estimated that a 20-minute walk to work and back can generate $8.48 into the local economy[22]. Active transport also has added public health, social, environmental and personal financial benefits.

The in-centre surveys found that in Ballan:

- 18% of visitors walked to the centre
- 10% of people wanted improvements to pedestrian safety and the footpath network.

There are a number of ways that Moorabool Shire can improve the Ballan Town Centre pedestrian network:

- Linking up gaps in the footpath network would provide better connectivity for walking and mobility scooters. Our in-centre intercept survey in Ballan found that the lack of connected footpaths was of particular community concern;
- Planting canopy trees will improve pedestrian amenity and shade. This is a significant way that the 'rural charm' and town character can be maintained; and
- Improving pedestrian priority across intersections and busy roads is key to making pedestrians feel safe and respected.

6.2.4 Optimising availability of premium spaces

As discussed in Section 6.1.4, of the 523 spaces within 400m of the intersection between Inglis Street and Fisken Street, the spaces 200m away are over half full (including the IGA customer-only parking) while more nearly all of the spaces 200m-400m away are empty. These levels of parking availability are typical of this type of town centre environment where unrestricted parking results in the earliest arrivals getting the premium parking spaces. In areas of high demand, premium parking should be

[22] The Economic Case for Investment in Walking (Victoria Walks; 2019)

available equally to anyone regardless of when they arrive. The only way to achieve this is through restrictions that enable early arrivals to choose to walk slightly further in order to keep the premium space available for someone arriving later.

As the population of Ballan increases, the demand for the premium spaces (particularly at the train station and Hospital) will increase. Time and user-based restrictions will not cope with the level of demand that arises.

The parking at Ballan Station has recently been upgraded including provision of new car spaces on both sides of the Station. Parking on the northern side of the station will be much more popular than the south due to the location of city bound trains in the morning and the proximity to residential areas.

Studies have shown that Park and Ride spaces are often less available to people who have limited alternatives to driving due to where they live, because they are often occupied by people who live closer but drive because parking is free and abundant[23]. To mitigate this, people living more regionally either have to leave earlier to ensure that they can find a space, or park further away.

Providing an additional choice for people who arrive to the Ballan Station later in the day is important, and can really help people trying to catch a specific train after running errands early in the morning. Identifying the ten on-street spaces closest to the Station entrance and applying a fee-based restriction on them would help anyone arriving later in the day to make up some valuable time and catch an earlier train.

6.2.5 Tweaking the time-restrictions to better meet demand

As discussed, based on the occupancy surveys, existing land use and broader parking needs across the centre the following minor changes to parking controls in Ballan are suggested.

Table 6-1: Proposed changes to time-based restrictions in Ballan

Location	Spaces	Current control	Proposed control	Discussion
35 Cowie St (at Ballan and District Hospital Entrance)	6	No Restriction	2P 8AM-8PM	Provides short stay parking in the premium location at the Hospital entrance during reasonable visiting hours
Inglis St	25%	1P	2P	Parking in Inglis St is relatively underutilised and 25% of the spaces can be extended to 2P bays particularly around the Commercial Hotel and the Estate Agents

6.2.6 Growing the primary catchment (1km)

As discussed in Chapter 5, the local economy is significantly influenced by the number of people living within the centre's primary catchment and their disposable income. This is due to two key factors:

- The further away people live, the more likely it is they will shop somewhere else; and
- The more people spend on housing and transport, the less disposable income they can spend in the local economy.

23 Kimpton, A., Pojani, D., Sipe, N., Corcoran, J. 2019. 'Parking Behaviour: Park 'n' Ride (PnR) to encourage multimodalism in Brisbane', Land Use Policy, vol. 91, pp. 1-16

Therefore, the highest spenders in the Ballan Town Centre are most likely to be those that live close enough to walk to the centre. They might still drive and require parking, but their proximity to the centre makes it much more likely that they will know what goods and services are available in the centre and much more likely that they will consider the local centre as a convenient option.

Therefore, a key way that Council can increase the economic viability of the centre is to increase the residential population within 1km of the town centre. There are many built form types that can achieve this outcome.

A key way that the cost of new dwellings can be reduced is by allowing residents to park cars overnight in the off street parking areas that are used for retail parking during the day. This is currently the case with all on-street parking in Ballan – which is currently unrestricted outside traditional business hours.

6.2.7 Planning Scheme requirements

The Moorabool Planning Scheme currently requires a specific amount of parking to be provided with each development. There is currently an abundant supply of on-street parking in Ballan. This on-street parking supply can cater for significant growth in commercial activity and residential population.

Providing additional off-street car parking is expensive, and directly increases housing costs and reduces the potential for local economic activity to grow. The reduction in economic activity occurs in two ways:

- New development needs to allocate land and finances towards providing parking (increasing the cost of goods and services and dispersing activity); and
- Local residents' disposable income is reduced due to more expensive transport costs and more expensive goods and services.

A key way that Council can increase economic activity and reduce the cost of living in Ballan is to relax the requirement for any development to provide parking (particularly if it is located within 400 metres of the Ballan Town Centre). This would not prohibit any developer from providing their own parking or contributing to shared parking facilities. This would simply mean that if parking is not directly required for the development then the existing on-street and off-street parking supply can be better utilised as a shared community resource.

6.2.8 Disability permit parking and access

Currently Ballan town centre complies with the BCA requirements for providing accessible parking (which is achieved by dedicating 2% of the total public spaces to users with a disability), as does the hospital. The station, however, currently does not and this will become more critical as the availability of spaces, particularly close to the platform (which is required for people with a disability) continues to decrease.

As the population grows (and ages) there is a likelihood that the need for disability permit parking spaces will increase. The survey highlighted specific concerns regarding disability parking with 10% of people commenting on the lack of disability parking accessibility at the station and town centre.

In addition, it is expected that there will be an increasing number of people travelling to Ballan Town Centre by mobility scooter. These people can be catered for with improved pedestrian paths.

7. Other car parking issues in Moorabool Shire

It is preferable to implement a standard approach to car parking management across the entire Moorabool Shire. A standardised approach is fair on everyone and can be simple and transparent.

Starting with a broad understanding of the best use of space in each street, Council and the community should focus on whether space should be used for hard surfaces (like bitumen and concrete) or soft surfaces such as grass and trees. This step is important, as it recognises that there is a finite amount of space, and concreting it all would have a negative impact on the amenity of Moorabool Shire.

Having determined this, Council can then seek to understand the various community uses that could be made of that space. In some cases the space will be used for movement (such as footpaths and roadways) while in other cases the hard surface space will be used for storage facilities and services (such as libraries, meeting rooms, public seating and car parking).

Once the space available for car parking has been determined, Council can consider the various market segments that would like access to each space. Using a hierarchy of users is the best practice approach to this task. A typical hierarchy is shown below:

1. Safety (parking is not permitted on street corners or at fire hydrants)
2. Public Transport Bays
3. Disability Permits Spaces
4. Loading Bays
5. Shoppers and Visitors
6. Employees
7. Residents

This hierarchy needs to be tempered in each geography based on local needs and expectations, but typically if there is a specific need for parking from a user group that is higher on the hierarchy then those needs are filled first. This means that residents in the middle of town centres are typically not provided with on-street car parking, whilst in residential areas where other needs are not present, residents typically have full access to any on-street car spaces.

To ensure each user group has adequate access to parking and access is reliable, Council should implement a full suite of parking management tools including:

1. User-based restrictions
2. Time-based restrictions
3. Fee-based restrictions

These should typically be applied in the order above, as time-based restrictions are not required unless user-based restrictions are unable to cope with the level of demand. If the restrictions are coping, there will always be a car space available in every 20 spaces, or one space on each side of the road in every 40 spaces. This means that people can park within a short walk of their destination at all times.

Ballan provides a good example of this in practice, with user-based restrictions (disabled permit, loading and bus zones) being applied in specific locations, and then time-based restrictions being applied in premium locations.

These premium spaces in particular would have significant general demand from shoppers and employees (and potentially residents) if the time-based restriction were not applied. These controls are all working well to ensure there is parking available in most locations (even premium locations) at all times. Therefore fee-based restrictions are not yet required.

This standardised approach ensures that the parking management framework can cope with any situation and the controls can be tweaked as some places get busier (due to new businesses or facilities opening) and they can also be tweaked if a place becomes less busy (such as if a popular restaurant closes or relocates). This approach can also cater for major events, where parking on-street or on public reserves is appropriate. At a very large event, the people willing to walk further should have fewer restrictions to comply with and the closer the car space is to the event the greater likelihood there is that it will be either allocated to a specific user group, time restriction and spaces very close to the event might require payment of a fee.

7.1 Managing car ownership growth in new precincts

There is a need to reduce the expectations of car ownership in new residential areas that are distant from town centres. This means that new town centres will need to provide access to basic goods and services in new residential areas of Merrimu, Parwan Station and Hopetoun Park. It also means that there should not be significant pressure to provide large amounts of car parking with each dwelling.

Providing more parking than is necessary generates more car ownership and creates more local traffic congestion. Some parking will be required, but developers will understand how much parking is necessary (in order to sell their product), and Council should be more focussed on ensuring that the dwellings are affordable and offer a low cost of living with regard to transport costs.

In addition, the number of car parking spaces that a typical family needs changes as the family composition changes. The same family unit typically starts with one car and purchases more as children get to driving age, then as the children depart the household, the number of cars declines again until typically there is only one car in the household. Catering for these changes over time is not possible if every house has two car spaces. Furthermore, households that only have one or zero cars are forced to buy a house with multiple car spaces (because houses without car parking do not exist).

Where possible (such as in townhouse developments), parking should be provided in shared facilities, so that future residents can increase and decrease their access to parking spaces as they require it.

7.2 Managing parking for events

There are numerous events that are held across Moorabool Shire every year. Key events with consistently large attendances are identified in Table 7-1 below.

Table 7-1: Prominent events in Moorabool Shire

Event	Attendees	Economic Impact
Strawberries and Cherries Festival	10,000	$584,000
Show, Shine and Swap Meet	5,000	$352,000
David Calleja Memorial Car Show	5,000	$336,000
Bacchus Marsh Harvest Festival	5,000	$196,000
Ballan Autumn Festival	8,000	$188,000

Source: Draft Discussion Paper Tourism and Event Strategy for Moorabool Shire (2013)

Major events typically place a significant burden on local road networks and on-street parking near the event site. Often the pressure is so great that specific traffic control devices (and even staff) might be required at peak times. Using the standard approach to applying various restrictions for a temporary period related to the event timing, can ensure that all people can find a car space where they choose to.

This requires an estimate of the car parking demand to be prepared including the likely duration and comparative walking times from the various on-street parking options. User-based restrictions can be applied to ensure that specific users such as people with disabilities, taxis and short drop-offs can park easily. Time-based or fee-based restrictions can then be applied to various areas based on how far they are located from the event site. Signage and pre-event information can make it clear that the restrictions get tighter (or more expensive) as you get closer to the event site. Each driver can then choose where to park based on their own value of time (which typically relates to how many people they have in the car and how much time they are planning on spending at the event).

This approach reduces frustration for a large number of people, because they each get to choose where to park. This approach also assumes that there is always free parking available, at a distance that people are willing to walk from rather than pay a nominal fee.

7.3 Managing visitor parking in smaller towns

In smaller towns like Gordon, Mount Egerton, Myrniong and Wallace there is likely to be a few peak times when parking is at a premium. Typically, the peak times are also limited to specific venues such as the pub on specific nights of the week or at the football oval. These peaks tend to resolve themselves and do not create significant frustration for drivers, as they tend to accept that sometimes are busier than others.

In locations such as these where peaks do not last more than a few hours and are confined to small geographic areas, it is not recommended that broad parking controls be applied. Rather a very site-specific approach should be taken that focusses on user-based controls to ensure that people with disabilities and other specific needs are able to access the premium locations safely and easily.

8. Summary

The following table summarises the discussions from Sections 5, 6 and 7 regarding issues and opportunities for improving parking across Moorabool Shire.

Table 8-1: Issues and opportunities summary

Summary	Issue	Opportunity
Improve pedestrian access and priority to key destinations	• The lack of viability of walking to key destinations is a key reason many people decide to drive and require a parking space • Premium spaces are occupied while many others are available, improving walking around the centre will help disperse parking demand	• Pedestrian amenity and priority improvements can focus on access within a 1km radius of the town centre • At all intersections within this radius pedestrians should be given priority over cars • Pedestrian space should be increased with kerb outstands into unutilised roadspace (particularly in no-standing zones)
Review the amount of public space the community would like to devote to specific public realm improvements	• The public realm is currently dominated by movement and storage of private vehicles • A more attractive public realm is essential to ensuring the town centres remain competitive and able to attract customers	• As the town population grows, more high amenity spaces will be required for the larger population to linger in and enjoy • If these spaces are not provided in the town centre, the population will visit other high-amenity locations (potentially in Ballarat or Melton) • Council and the community should therefore regularly review how well the public realm is meeting their expectations in terms of amenity • If amenity needs to be improved, then additional space and facilities should be provided to make those improvements
Improve pedestrian amenity to spread car parking options and reduce demand for premium spaces by increasing street tree canopy cover, verandas and priority for pedestrians	• Visitors stated a need to improve and protect the village amenity and feel • Driveways interrupt the pedestrian flow and rhythm of commercial areas • Premium spaces are occupied while many others are available	• Improved pedestrian amenity will encourage people to walk to the centre and it will make parking that is slightly further away more attractive • Improve wayfinding around each town centre to facilitate use of peripheral parking areas
Consolidate future car parking in areas to be shared by any member of the public	• The search for parking in smaller parking areas is frustrating and results in more traffic at peak times, because drivers cruise between small areas that are full • Parking utilisation is unevenly distributed throughout the range of available spaces	• Future car parking can be shared between multiple users • Larger consolidated areas of parking can be planned for the most appropriate locations

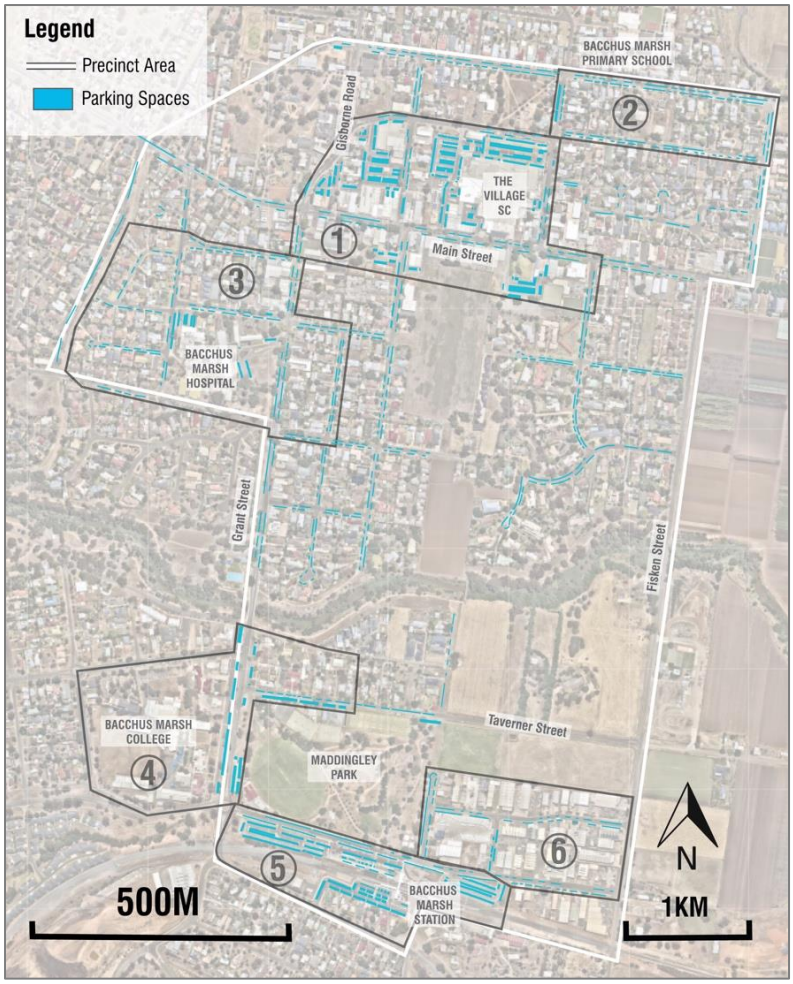
Summary	Issue	Opportunity
Review car parking availability and restrictions on a regular basis	• Business activity changes regularly. Parking controls need to be regularly reviewed to keep up with changes in land use and activity levels	• Council and the community should therefore regularly review how well the car spaces are meeting demands • If areas of parking are too busy, then controls can be tightened, if occupancy is low, then controls can be loosened
Provide alternative (paid) parking options around high demand car storage areas (such as Bacchus Marsh and Ballan Stations)	• Premium spaces are occupied from early in the morning, people currently pay for the best space by getting up early • People with local activities in the morning do not have this option and are forced to walk much longer distances even when they are running late	• Fee-based restrictions could be applied to ten car spaces located closest to the destination • This would optimise their availability for the people who need them most • Most people don't mind walking 50m more than they usually do (which is the impact of keeping premium spaces vacant)
Encourage mixed use development including residential dwellings within the town centre to increase economic activity and reduce reliance on cars	• Mixed use medium density developments increase local economic activity and reduce parking demands • The local economy is influenced by the number of people living in the primary catchment • The further away people live, the more likely it is they will shop somewhere else • More spending on transport equals less disposable income spent in the local economy (transport accounts for over 25% of household expenditure)	• Locate commercial and residential mixed-use development in and around town centres • Identify where parking can be shared between commercial tenants (during the day) and residents (overnight) to avoid providing excess residential spaces which are costly for residents
Educate the public about non-compliant parking and apply more regular parking enforcement	• In some areas, (particularly the Bacchus Marsh industrial park near the station) there are high rates of non-compliant parking • Non-compliant parking is a hazard which reduces road safety and increases infrastructure maintenance costs	• Enforcement of non-compliant parking will improve public amenity and safety, and reduce long-term infrastructure costs • Building public awareness of the need to park in designated bays only will build trust in the system and a clear case for future enforcement of illegal parking
Change the Moorabool Planning Scheme to better reflect the lower rate of parking required in each town centre and Council's vision for economic growth in the centres	• Car parking requirements are currently inequitable – forcing those without a car to subsidise parking for others (at homes, and almost all destinations) • Forcing new businesses to provide more parking weakens the town centre economy by making competing locations (with lower land values) more attractive	• Continue providing waivers for car parking for any development within the town centres • Car parking requirements in the Moorabool Planning Scheme can be reviewed to be more equitable and aligned with Council vision

9. Parking Precinct Plans

Each area has different parking management needs, as summarised in the Parking Precinct Plans provided in Appendix D.

Seven Parking Precinct Plans have been developed to highlight key issues and opportunities at a finer level of detail. These include one in Ballan, and six in Bacchus Marsh shown in Figure 9-1 below. A parking plan for greenfield and PSP town centres should be developed as they are designed.

Figure 9-1: Bacchus Marsh Town Centre Parking Precincts



Source: Nearmap, M&PC Survey conducted Friday 6th December 2019

These precincts each experience high parking demands near key destinations such as:

- Bacchus Marsh Shopping Centre (Precinct 1)
- Bacchus Marsh Primary School (Precinct 2)
- Djerriwarrh Health Services (Bacchus Marsh Hospital) (Precinct 3)
- Bacchus Marsh College (Precinct 4)
- Bacchus Marsh Railway Station (Precinct 5)
- Bacchus Marsh Industrial Area (Precinct 6)

10. Planning for growth – Forecasting future demand

10.1 Strategic outcomes investigated

The 2010 Transport and Parking Strategy included a Parking Precinct Plan for Bacchus Marsh, which incorporated modelling based on land use and calibrated a rate of 3.3 spaces per 100sqm on average (varying on the land use). This was cross-referenced with a survey (which accounted for higher rates of parking than predicted in the default model) and determined that:

- Should floor area increase to 7,000 sqms between 2009-2019, that there would be a need for 231 spaces; and
- Should floor area increase to 13,000 sqms between 2019-2031, that there would be a need for 429 spaces (about the same size as the existing multideck adjacent to *The Village Shopping Centre*).

In Stage 2 of this project, M&PC conducted modelling of the extent to which there would be a shortfall in availability and the mitigating actions that could reduce and address this, if no new parking were required. In the Bacchus Marsh study area, these actions broadly include:

- Increasing intensity of activity in the town centre will increase its ability to compete with other centres and provide the services needed as the population grows;
- Improving pedestrian priority and amenity within 1km of the town centre will help to spread the car parking demand and minimise the overall reliance on cars;
- Reducing car parking requirements for new businesses that locate in the town centre; and
- Focussing any future parking required into large consolidated parking facilities that are shared so the whole community can use them.

In the Ballan Town Centre, mitigating actions broadly include:

- Increasing intensity of activity within 400 metres of Inglis Street;
- Filling gaps in the pedestrian network and improving pedestrian priority;
- Maximising residential growth within 1km of the Town Centre (measured from the intersection of Fisken and Inglis Streets);
- Reducing car parking requirements for new businesses that locate in the town centre; and
- Building future parking in large consolidated shared facilities for the whole community to use.

In the forecasting study conducted as part of this report, we note the following:

- The following three growth scenarios were modelled for specific precincts in Bacchus Marsh and Ballan based on population growth and trip demand and land use variables: high growth, medium growth and low growth;
- The model also tested various mode share scenarios for each precinct and the need for additional spaces based on future demand against existing supply; and
- Multiple recommendations for carparking provision for each growth/car ownership scenario for the next 10, 20 and 30 years, based on the square metre growth of the town centre.

A high growth scenario is reported on below, given uncertainty around post-COVID recovery expectations and the likelihood that local travel and local activity centres will increase in popularity. Key findings related to Bacchus Marsh Town Centre include:

- Under a high growth scenario, given existing trends in trip behaviours – the Bacchus Marsh town centre parking area will experience a shortfall in availability of:
    - 235 spaces by 2036
    - 372 spaces by 2041
- Shortfall in the Bacchus Marsh town centre parking area up to 2031 is minor and can be managed with changes to parking restrictions;
- Parking demand does not breach 15% availability target over the next 21 years in all other parking precincts in the Bacchus Marsh study area; and
- Given the shortfall of 372 spaces by 2041, Council should consider options for consolidating parking in an multilevel facility, to the fringes of the Bacchus Marsh Town Centre Precinct. This will maximise the availability of leasable floor area and urban design and amenity improvements.

Key findings related to Ballan Town Centre include:

- Parking demand within Ballan Town Centre in 2041 is only expected to exceed supply around the Hospital Precinct by 12 spaces. These cars will likely park in other nearby locations.
- This single example of demand exceeding supply in Ballan is minor and can be managed with restrictions and other nearby parking areas.

Given the key findings, the following strategies are recommended to reduce overall parking demand and its associated costs and impacts:

- Council should continue to engage with the community (visitors and businesses), to discuss:
    - Various ways that town centre amenity can be improved;
    - Costs, risks, trade-offs and impacts of increased parking in town centres;
    - How much traffic congestion the community is willing to accept as an outcome of increased parking provision; and
    - Ideas the community has to improve transport choices for all future residents with a focus on reducing traffic congestion and parking demand.
- Parking demand can be reduced by tailoring a policy to meet a mode share shift target using a combination of the following practices (listed by most effective to least effective):
    - Increase residential population within 1km of the Bacchus Marsh centre;
    - Create a maximum parking space limit, based on the adopted mode share target;
    - Set fee-based parking restrictions in premium areas of small costs ($1 an hour);
    - Improve the viability of increased public transport service levels by encouraging growth of businesses and residences along key bus routes; and
    - Improve walking, mobility scooter and bicycle infrastructure, particularly in addressing gaps within 1km of town centres.

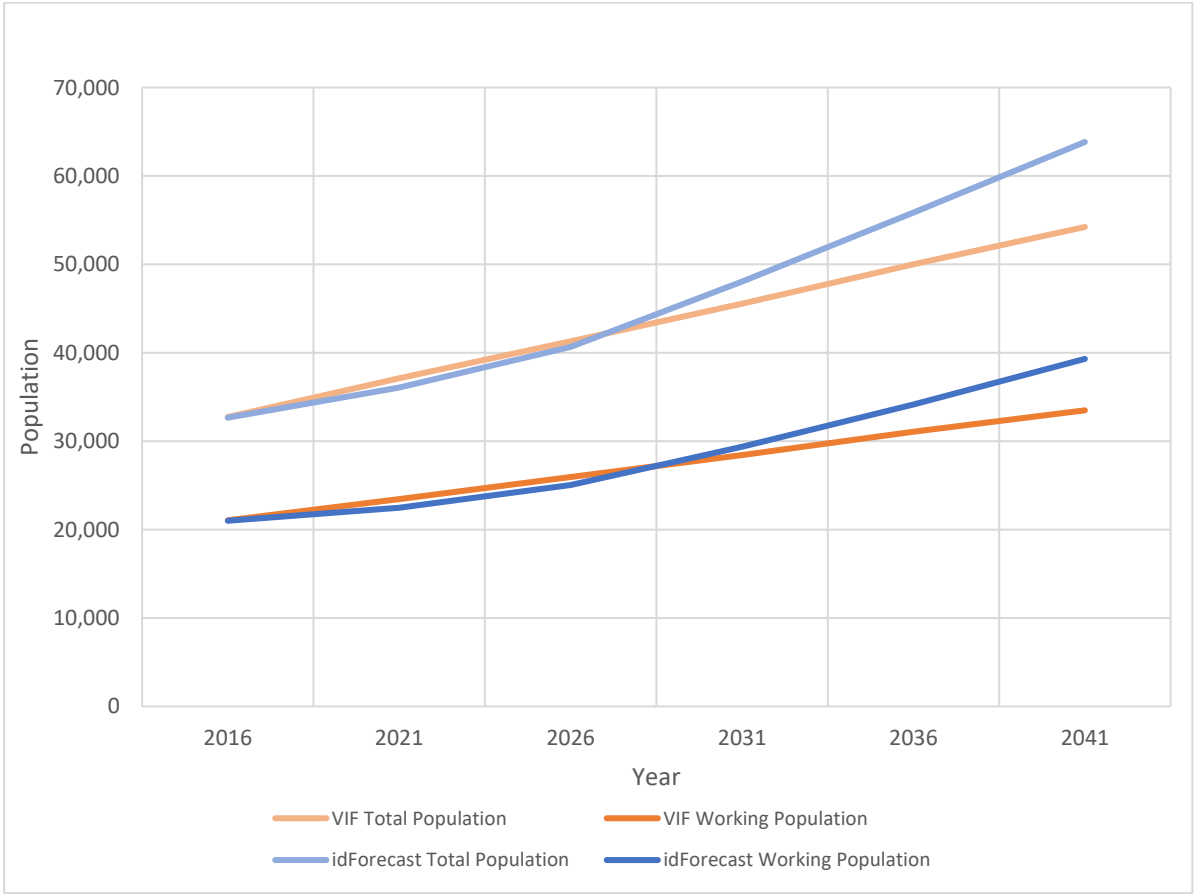
10.2 Population projections

The population projection input was based on Victoria in Future (VIF) (2016) and idForecast (2020) projections for Bacchus Marsh, Ballan and future growth precincts Merrimu and Parwan Station (which are likely to form part of the Bacchus Marsh town centre retail catchment).

The VIF projections are considerably lower than those of idForecast (as shown in Figure 10-1 overleaf), chiefly because the VIF study was conducted in 2016 whereas idForecast update projections on an annual basis and have accounted for up-to-date estimates of future growth precincts. Based on this difference, three scenarios were modelled:

- High growth – using idForecast projections (as shown in Table 10-1 on page 75)
- Low growth – using VIF projections (as shown in Table 10-2 on page 76)
- Medium growth – an average of 'high' and 'low' growth scenarios.

Figure 10-1: Comparing Moorabool population projections (VIF and idForecast)



Source: IdForecast, VIF with M&PC analysis

The substantial point of difference between the two projections is of the rural areas, particularly of the PSPs (given that VIF was modelled before the growth plans were finalised). For instance, Parwan Station is projected to grow to 6,056 according to idForecast and only 2,746 according VIF. Most rural areas are projected by idForecast to grow about twice as high as the VIF forecast. This difference in the location of growth is a key characteristic of car ownership and trips, given that trips from these areas will be largely served by the Bacchus Marsh town centre.

However, residents will lack alternatives to driving due to distance and the cost-ineffectiveness to provide alternative transport infrastructure.

For the base modelling, a consistent mode share input was used for the precincts in each study area Bacchus Marsh and Ballan. This figure was calculated as the average mode share for work trips and trips to the town centres from the trip behaviour survey. In the mode share scenario section, however, the impact of population growth allocation and density on reducing vehicle trip demand will be discussed as a means of reducing parking provision.

Table 10-1: idForecast population projection

Subregion (VIF)	Subregion idForecast	2016	2021	2026	2031	2036	2041
				Total Population			
Bacchus Marsh	Bacchus Marsh	6,610	8,295	10,052	11,633	12,928	13,628
	Darley	8,637	9,234	9,470	9,833	9,762	9,682
	Maddingley	3,539	4,410	5,185	5,438	5,424	5,403
	Merrimu, Hopetoun Park	1,553	1,591	2,365	4,926	8,017	11,426
	Sub-total	**20,339**	**23,530**	**27,072**	**31,830**	**36,131**	**40,139**
Bacchus Marsh Region	Parwan Station	54	48	327	1,840	3,917	6,056
	Ballan	2,452	2,645	3,309	4,191	5,271	6,714
	Rural East	3,866	3,849	3,880	3,962	4,097	4,249
	Sub-total	**6,372**	**6,542**	**7,516**	**9,993**	**13,285**	**17,019**
Gordon(Vic.)	**Rural west**	**5,951**	**5,995**	**6,079**	**6,221**	**6,431**	**6,681**
	Total	**32,662**	**36,067**	**40,667**	**48,044**	**55,847**	**63,839**
				Working Population			
Bacchus Marsh	Bacchus Marsh	3,966	5,051	6,172	7,139	7,935	8,387
	Darley	5,844	5,985	5,963	6,119	6,007	5,918
	Maddingley	2,244	2,670	3,126	3,274	3,270	3,259
	Merrimu, Hopetoun Park	1,010	989	1,531	3,192	5,192	7,454
	Sub-total	**13,064**	**14,695**	**16,792**	**19,724**	**22,404**	**25,018**
Bacchus Marsh Region	Parwan Station	34	27	236	1,225	2,572	3,990
	Ballan	1,517	1,600	2,031	2,567	3,262	4,196
	Rural East	2,553	2,411	2,337	2,291	2,314	2,382
	Sub-total	**4,104**	**4,038**	**4,604**	**6,083**	**8,148**	**10,568**
Gordon(Vic.)	**Rural west**	**3,831**	**3,731**	**3,639**	**3,555**	**3,598**	**3,722**
	Total	**20,999**	**22,464**	**25,035**	**29,362**	**34,150**	**39,308**

Source: IdForecast

Table 10-2: VIF population projection

Subregion VIF	Subregion idForecast	2016	2021	2026	2031	2036	2041
				Total Population			
Bacchus Marsh	Bacchus Marsh	6,821	8,714	10,531	11,728	12,883	13,464
	Darley	8,913	9,700	9,921	9,913	9,728	9,565
	Maddingley	3,652	4,633	5,432	5,482	5,405	5,338
	Merrimu, Hopetoun Park	1,603	1,671	2,478	4,966	7,989	11,288
	Sub-total	**20,989**	**24,717**	**28,362**	**32,090**	**36,006**	**39,655**
Bacchus Marsh Region	Parwan Station	51	47	291	1,293	2,173	2,746
	Ballan	2,302	2,572	2,947	2,946	2,924	3,044
	Rural East	3,629	3,742	3,455	2,785	2,272	1,927
	Sub-total	**5,982**	**6,360**	**6,694**	**7,024**	**7,368**	**7,717**
Gordon(Vic.)	**Rural west**	**5,761**	**6,042**	**6,238**	**6,433**	**6,628**	**6,858**
	Total	**32,732**	**37,120**	**41,294**	**45,547**	**50,002**	**54,229**
				Working Population			
Bacchus Marsh	Bacchus Marsh	4,096	5,358	6,556	7,338	8,054	8,361
	Darley	6,035	29	251	1,259	2,611	3,978
	Maddingley	2,318	6,349	6,334	6,290	6,097	5,900
	Merrimu, Hopetoun Park	1,043	2,832	3,321	3,365	3,319	3,249
	Sub-total	**13,492**	**14,568**	**16,462**	**18,253**	**20,081**	**21,488**
Bacchus Marsh Region	Parwan Station	32	27	210	837	1,351	1,655
	Ballan	1,422	1,573	1,803	1,754	1,713	1,740
	Rural East	2,394	2,370	2,075	1,565	1,215	988
	Sub-total	**3,848**	**3,970**	**4,088**	**4,155**	**4,279**	**4,382**
Gordon(Vic.)	**Rural west**	**3,710**	**3,890**	**4,026**	**3,997**	**4,047**	**4,168**
	Total	**21,050**	**22,428**	**24,576**	**26,405**	**28,407**	**30,039**

Source: IdForecast & VIF with M&PC analysis

10.3 Precinct land use and trip demand factors

The vehicle trip demand modelling varied based on specific factors based on the destination land use, the parking precinct area and of the estimated catchment. Five key destination types were identified within the Bacchus Marsh and Ballan study areas:

- Health
- Primary & secondary education
- Retail
- Commuter parking (V/Line Stations)

The parking areas for these key destinations were determined by the acceptable walking distance from a parked car to the primary destination. Acceptable[24] distance between final destination of the trip and the available parking has been defined as:

- 300 metre radius from retail and commercial areas
- 300-400 metre radius from medical precincts and schools
- 300-500 metre radius from train stations

These distances are only for indication. Consequently, for Moorabool Shire Parking study project, the acceptable distance listed above are used as an upper range. The process in general has been to establish a parking supply boundary for each activity and then ensure that the boundary falls within the acceptable distance.

The following aspects and sources have been considered in development of the acceptable walking distance from a parking space to the user's final destination:

- Bus stop pedestrian accessibility - 400 metres stop spacing for bus stops as per the Moorabool Planning Scheme[25];
- Acceptable walking distance per type of trip given in 'Cycling and walking: the grease in our mobility chain'[26]; and
- The need to cross busy roads.

For these reasons, not all the available public parking in the study area is considered "useful" for the various destinations being considered. This is simply a reflection that for some destinations parking that is within the study area might still be "too far away" from any public destination to be considered worth using when visiting that destination.

The modelling also accounted for parking demand for each area based on existing usage - using results of the parking occupancy survey which are shown in Table 10-3 overleaf.

[24] *Approximately 80% acceptability rate*

[25] *Moorabool Planning Scheme: Clause 18.02; and Public Transport Guidelines for Land Use and Development (Victorian Government, 2008)*

[26] *Schaap, Nina & Harms, Lucas & Kansen, Maarten & wust, hans. (2016). Cycling and walking: the grease in our mobility chain.*

Table 10-3: Bacchus Marsh and Ballan parking supply and demand

Activity Type	Supply (Dec 2019)		Demand (Dec 2019)	
	On-Street	Off-Street	On-Street	Off-Street
Bacchus Marsh				
Health (Medical)	204	116	86	34
Retail/Shopping	399	1,029	186	712
Education	131	107	20	42
• *Bacchus Marsh Secondary*[27]	*0*	*107*	*0*	*42*
• *Bacchus Marsh Primary*[28]	*131*	*0*	*20*	*0*
Commuter (train)	319	628	121	325
Total (% against total in study area)	1,053 (52%)	1,880 (99%)	**413 (68%)**	**1,113 (99%)**
Total in Study area	**2,034**	**1,891**	**611**	**1,126**
Ballan				
Health (Medical)	105	6	64	0
Retail/Shopping	493	47	187	20
Education	165	14	31	0
• *Ballan Primary*	*122*	*0*	*31*	*0*
• *Ballan Childcare*	*43*	*14*	*14*	*0*
Commuter (train)	498	276	46	189
Total (% against total in study area)	1,261 (82%)	343 (79%)	328 (87%)	209 (90%)
Total in Study area	1532	436	376	233

Source: M&PC parking occupancy survey (Dec 2019). Excluding staff parking, private parking, disabled parking, and loading/taxi/bus zones.

As shown in Table 10-3 above, parking demand varied substantially based on precincts. The modelling therefore accounted for additional factors for some precincts (primarily retail and commuter parking) based on land use characteristics, a summary of these characteristics and of the destination parking areas, is provided below.

When considering each land use, it is tempting to refer back to the requirements of Clause 52.06 of the Victorian Planning Provisions (a state-wide provision within the Moorabool Planning Scheme). It is not possible to calculate what parking requirement would be required for each use because the required data (total floor areas and employee counts) are not available.

However, Clause 52.06 applies across the whole of Victoria and provides the highest rate of parking imaginable for any given use. These are based on a range of assumptions that undermine the basis of rate in Clause 52.06 (including data where users do not pay for the parking) and result in every Council providing waivers for new or expanding businesses in recognition that the rates in the clause are flawed and cannot be applied evenly to all locations across Victoria.

[27] *Only including parking spaces available at Grant Street*

[28] *Only including parking spaces available at Lerderderg Street*

10.3.1 Health

Vehicle trip demand for health was calculated based on population projections and existing trip behaviours for each study area (Bacchus Marsh and Ballan), given that health-based land use developments and trip generation are predominantly determined by population growth. The precinct areas are defined in Figure 10-2 and Figure 10-3 overleaf.

Figure 10-2: Bacchus Marsh Medical Precinct parking area29

Source: Nearmap with M&PC Analysis

Figure 10-3: Ballan Medical Precinct parking area

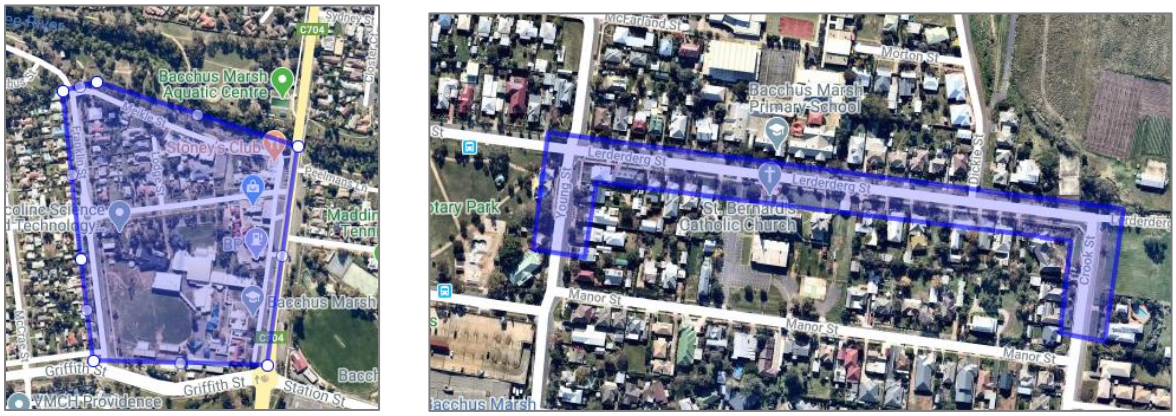
Source: Nearmap with M&PC Analysis

[29] *Excluding the off-street parking at aged care*

10.3.2 Primary & secondary education

Similarly to health, vehicle trip demand for primary and secondary education was calculated based on population projections and existing trip behaviours for each study area (Bacchus Marsh and Ballan). The precinct areas are defined in Figure 10-5 and Figure 10-4 below.

Figure 10-4: Bacchus Marsh Secondary (left)[30] and Primary (right) school parking areas



Source: Nearmap with M&PC Analysis

Figure 10-5: Ballan Child Care (left) and Primary school (right) parking areas

Source: Nearmap with M&PC Analysis

[30] *Excluding the off-street parking at aged care*

10.3.3 Retail

Modelling trip demand for the retail centres of Bacchus Marsh and Ballan accounted for the potential additional floorspace that would become viable as the populations of their respective catchments increase.

The additional floorspace was used indicatively as the model input for commercial intensification and potentially diversification and their consequent attraction of additional trips (particularly vehicle trips for residents beyond 2km of the centres).

- Retail floor space projection at Bacchus Marsh Town Centre and Ballan Town Centre are extracted from 'Moorabool Shire Retail Strategy 2041'
    - Current retail floor space survey result (2014) is assumed compatible with 2019 travel demand; and
    - Linear projection (capped by $2m^2$ per population) are to be made for where population projection exceeds available information.

The projected floorspace increase is summarised in Table 10-4 and Table 10-5 below.

Table 10-4: Current and future retail floorspace at Bacchus Marsh Town Centre

	Current retail floorspace (2014, 21,620 residents[31]), sq.m	Potential floorspace (25,000 residents) sq.m	Potential floorspace (30,000 residents) sq.m	Potential floorspace (35,000 residents) sq.m	Potential floorspace (40,000 residents) sq.m
Total (BM, TC) (excluding Vacant)	29,420 (26,510)	47,000	60,000	70,000	80,000

Source: Nearmap and M&PC analysis

Table 10-5: Current and future retail floorspace at Ballan Town Centre

	Current retail floorspace (2014, resident of 7,350[32]), sq.m	Potential floorspace (8,200 residents) sq.m	Potential floorspace (9,700 residents) sq.m	Potential floorspace (11,500 residents) sq.m
Total (Ballan TC) (excluding Vacant)	5,030 (4,870)	6,200	8,250	8,500

Source: Nearmap and M&PC analysis

The retail parking areas referred to in the model projections is shown in Figure 10-6 and Figure 10-7 overleaf.

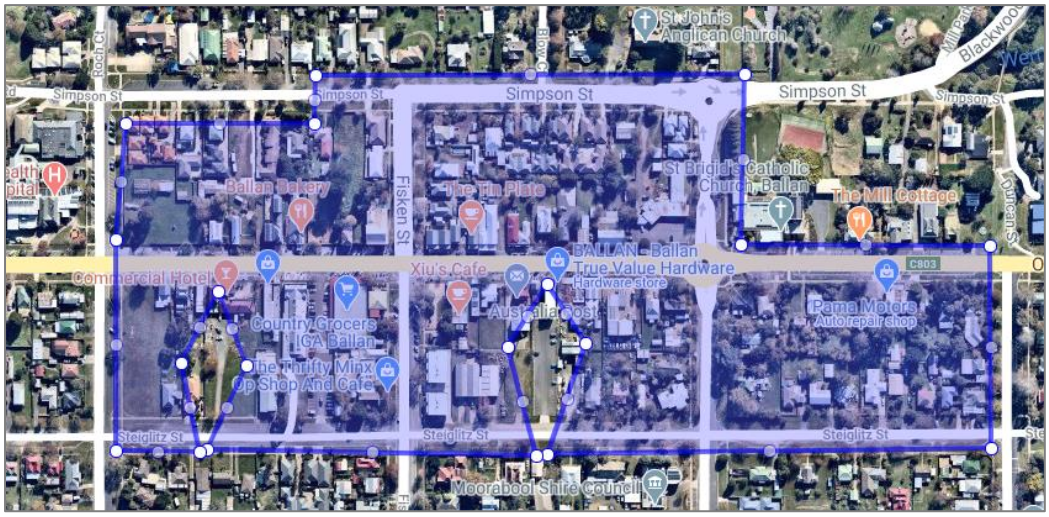
[31] *'Bacchus Marsh Region' population*

[32] *'Central Moorabool' population*

Figure 10-6: Bacchus Marsh Town Centre parking area

Source: Nearmap with M&PC Analysis

Figure 10-7: Ballan Town Centre parking area



Source: Nearmap with M&PC Analysis

10.3.4 Commuter

Vehicle trip demand for commuter parking at Ballan and Bacchus Marsh stations accounted for the projection of V/Line patronage, based on historical data. The study area for these stations are shown in Figure 10-8 and Figure 10-9 below.

Figure 10-8: Bacchus Marsh Station commuter parking area

Source: Nearmap with M&PC Analysis

Figure 10-9: Ballan Station commuter parking area

Source: Nearmap with M&PC Analysis

From the 2012 station survey conducted by DoT (then PTV), it was shown that 50% of trips to the station were made by private vehicle. In Ballan, this was about 75%. Given the current trip behaviours and annual patronage (boardings and alightings) shown in Table 10-6 overleaf, it is likely that vehicle trip demand to Bacchus Marsh Station will increase by about 15% in 2026 and 48% by 2041.

Table 10-6: V-line patronage forecast (Yearly)

	2016	2021	2026	2031	2036	2041
Bacchus Marsh Station	307,109	324,993	352,246	381,785	413,801	446,183
Ballan Station	99,743	108,051	113,487	119,198	125,196	130,332

Source: M&PC projections based on historical V-line patronage

10.4 Future growth scenarios and parking availability shortfall

As previously discussed, the modelling projects three growth scenarios to predict future shortfalls in parking availability in peak conditions based on the demand for vehicle trips (given existing mode share trends). This share is modelled anticipating 74% of trips to the Bacchus Marsh study area being made by car and 79% of trips to Ballan Town Centre being made by car.

International literature suggests that a shortfall in parking supply is indicated when there is less than 15% availability in peak conditions. However, this figure is more relevant in some situations and less relevant in others.

When considering a small number of spaces in close proximity to a specific destination the availability percentage can decrease without affecting perceptions of the centre. For example on a single level of *The Village Shopping Centre* car park there are just over 200 car spaces. Having 20 spaces always available on one of these levels at peak times, will still provide certainty for anyone wanting to park in that location. This is an availability percentage of 10%.

Similarly when considering an even smaller area, having 2 in 40 spaces available at the front of the Train Station will be sufficient to cater for late arrivals. This is an availability percentage of 5%. There is no hard and fast rule about what availability targets should be sought for various parking locations, times of day or durations. We have therefore based the modelling on maintaining 15% availability across wide areas, recognising that in smaller areas the parking will be managed to allow more vehicles to park at the peak time and achieve a lower rate of availability.

Projections have been made for each census year between 2016 and 2041, indicating when additional parking might be required into the future. It is recommended that Council be informed by the high growth scenario, particularly given uncertainties around a post-COVID recovery (which is already largely associated with higher rates of vehicle use and policy push towards expectations of higher population growth post-COVID).

10.4.1 Bacchus Marsh

In Bacchus Marsh, it is projected that there will be a shortfall in availability for off-street parking in the retail precinct by 2026 in all scenarios as shown in Table 10-7 overleaf. Even in a high growth scenario, off-street parking in the Bacchus Marsh retail precinct is the only location in Moorabool that could experience a shortfall in parking by 2041.

The high growth scenario predicts the following shortfalls for off-street parking in the Bacchus Marsh retail precinct:

- 4 spaces by 2026
- 79 spaces by 2031
- 235 spaces by 2036
- 372 spaces by 2041

There is capacity for this shortfall to be managed without additional supply, given that the on-street spaces have at least a 100-space availability in peak times until 2031.

By 2031, there could be developments with new transport modes such as autonomous vehicles or aerial vehicles. These could change the way people travel and how parking spaces may be used. COVID-19 has highlighted some levels of travel reductions that are likely to continue such as increased working from home and increased home deliveries. It would therefore be prudent for Council to establish best practice parking management over the next decade and then review the parking demand forecasts in 2031 with the expectation that some additional parking facilities might be required in the subsequent decade.

Additional parking supply to meet 2036 and 2041 shortfalls is likely to be required if growth projections are achieved and all other conditions remain similar to the present day (note that in particular business mix and technology could significantly alter parking demand in the long term).

Table 10-7: Projected Bacchus Marsh parking demand

Destination (parking area)	On/off street	2016 demand	2021 demand	2026 demand	2031 demand	2036 demand	2041 demand	Existing supply	85% Capacity
High growth									
Commuter	on	121	127	141	150	163	175	**319**	**271**
	off	325	342	378	402	437	470	**628**	**534**
Retail	on	186	202	230	249	290	328	**399**	**339**
	off	712	775	**879**	**954**	**1,110**	**1,257**	**1,029**	**875**
Secondary	on	0	0	0	0	0	0	**0**	**0**
	off	42	45	52	61	74	89	**107**	**91**
Primary	on	20	23	25	32	40	47	**131**	**111**
	off	0	0	0	0	0	0	**0**	**0**
Health	on	86	93	106	128	151	173	**204**	**173**
	off	34	37	42	51	60	69	**116**	**99**
Medium growth									
Commuter	on	121	128	141	149	162	173	**319**	**271**
	off	325	344	380	401	434	465	**628**	**534**
Retail	on	186	204	230	244	280	312	**399**	**339**
	off	712	780	**882**	**933**	**1,071**	**1,196**	**1,029**	**875**
Secondary	on	0	0	0	0	0	0	**0**	**0**
	off	42	44	53	59	67	77	**107**	**91**
Primary	on	20	22	24	30	35	40	**131**	**111**
	off	0	0	0	0	0	0	**0**	**0**
Health	on	86	93	106	123	141	159	**204**	**173**
	off	34	37	42	49	56	63	**116**	**99**
Low growth									
Commuter	on	121	129	142	149	161	171	**319**	**271**
	off	325	346	381	400	432	461	**628**	**534**
Retail	on	186	205	231	239	270	297	**399**	**339**
	off	712	784	**885**	**914**	**1,032**	**1,137**	**1,029**	**875**
Secondary	on	0	0	0	0	0	0	**0**	**0**
	off	42	44	53	57	60	67	**107**	**91**
Primary	on	20	22	24	27	31	33	**131**	**111**
	off	0	0	0	0	0	0	**0**	**0**
Health	on	86	94	106	119	132	145	**204**	**173**
	off	34	37	42	47	52	57	**116**	**99**

Source: IdForecast & VIF with M&PC analysis

The projected rates of shortfall in the retail area in Bacchus Marsh are substantially lower than the mandatory provisions specified in Clause 52.06. The excess parking generated if Clause 52.06 rates continue to apply will be significant, as will the costs and negative impacts.

Even if Column B rates were applied through a Parking Overlay, it is estimated that at a minimum there would be an excess of about 1,400 spaces, assuming a high growth scenario with no mode shift,

which is about five times the shortfall. This is shown in Table 10-8 overleaf showing rate comparisons for key land use examples.

Table 10-8: Clause 52.06 Column B rates comparison with 2041 shortfall rates

Land Use	Column B Rates	2041 BM retail area high growth scenario shortfall rate[33] (per specified car parking measure)	Car Parking Measure
Art and craft centre	3.5	~0.74	To each 100 sqm of net floor area
Bar	3.5	~0.74	To each 100 sqm of leasable floor area
Restaurant	3.5	~0.74	To each 100sqm of leasable floor area
Supermarket	5	~0.74	To each 100sqm of leasable floor area
Shop	3.5	~0.74	To each 100sqm of leasable floor area
Total estimate of additional parking provision by 2041	>1,770	372	Total for 50,580sqm of additional retail floorspace (high growth scenario)

Notes: Column B applies if any part of the land is identified as being within the Principal Public Transport Network Area (State Government of Victoria, August 2018); or a schedule to the Parking Overlay or another provision of the planning scheme specifies that Column B applies. Currently no Parking Overlay applies Column B rates to any area in Bacchus Marsh, as such developments must comply with Column A rates.

The impacts of excessive parking have been discussed comprehensively throughout the report, particularly in chapter 2 (particularly section 2.1). One significant impact is the strain of mandatory parking provision on local economic development. Section 4.1.2, discusses waiving the parking requirements as part of each permit application in the town centres. As the Responsible Authority, Council has a responsibility to limit excessive parking on a case-by-case basis when assessing planning permit applications (as required by Clause 52.06 and the objectives of Planning in Victoria within the Planning and Environment Act 1987).

This study recommends that Council develop an internal policy or framework, clearly demarcating areas where parking provision should be reduced (using Bacchus Marsh Town Centre Precinct boundaries as a guide). Parking could be reduced to at least 20% of the required amount under Column B rates of Clause 52.06.

Given the shortfall predicted for 372 spaces by 2041, an optimal outcome for the whole community is for Council to consolidate any future parking that is required into a multi-level communal facility, rather than allowing businesses to create small parking areas on an ad hoc basis. This facility would be best financed by the whole community (Council) and paid for by future users (not ratepayers).

[33] *Rates based on predicted shortfall of 372 spaces as summarised in section 10.4.1 from the results shown in Table 10-7; and projection of 80,000sqm total retail floor area (50,580sqm additional to the existing 29,420sqm) as per the high growth scenario of 40,000 people by 2041 (as shown in Table 10-1 and Table 10-4). Rate assumes all land uses have equal leasable floor area.*

This will optimise the availability of land in the town centre for new businesses (or extensions) or for public open spaces. Multi-level parking construction typically costs between $800 and $1,300 per sqm in Melbourne (excluding land costs, stamp duty and other taxes)[34]. Each space typically takes up 35sqm, for the parking bay itself (17sqm) and to accommodate vehicle access (18sqm per bay), costing each space about $35,000-$45,000 to construct. A facility with 372 spaces would likely cost around $15,000,000 to construct, in addition to land costs, stamp duty and taxes.

Council should also consider managing the design and provision of parking to ensure spaces are consolidated in facilities to the fringe of the Town Centre precinct. This would maximise available space for new businesses and urban design improvements to enhance the centre's overall economic competitiveness. It would also reduce vehicle movements in areas which should prioritise pedestrian safety and amenity.

As a priority, Council should seek to preserve and enhance the Town Centre's 'rural charm' and pedestrian amenity & safety. To this end, Council could consider discussing what contributions businesses and developers would be willing to make, based on their savings from parking provision. Council should also consider Bacchus Marsh's post-COVID recovery when discussing possible contributions for access and amenity improvements like parking, footpaths, tree plantings and other treatments.

Should Council opt for an internal policy or framework rather than a Parking Overlay, it is critical that such a policy or decision-making framework is transparent to all businesses and developers.

As the centre continues to grow, Council should monitor waiver permit activity and consider whether the costs associated with creating a Parking Overlay continue to outweigh waiver administration costs. The process of creating a Parking Overlay (which requires a Planning Scheme Amendment) can typically take up to two years, with substantial legal and professional costs (typically in the order of $500,000 or more). The process also risks delay inside the Minister's Office and the likelihood that when gazetted, the Amendment could be several years out of date.

As the parking supply increases, it will induce higher volumes of vehicle trips, with implications for congestion, safety & amenity for all road users and risks to altering the built form fabric. Council should revise its Bacchus Marsh LATM to determine the maximum local road network capacity that can be achieved while improving safety and priority for pedestrians and bicycle riders within the existing road reserves. This will be crucial detail that helps Council officers and the community to understand the finite limits that should be placed on parking within the town centres.

10.4.2 Ballan

Ballan is not expected to experience a shortfall in parking availability before 2036 (as shown in Table 10-9). From 2036, relatively low shortfalls are anticipated in the commuter, retail and health parking areas. These include:

- 12 off-street spaces in the commuter parking area by 2036 and 38 by 2041;
- 4 off-street spaces in the retail parking area by 2041; and
- 10 on-street spaces in the health area by 2036 and 28 by 2041.

[34] *RLB 2020. Rider's Digest 48th ed.: Building Cost Ranges: Construction Rates: Car Park: Open Deck Multi-Storey: Melbourne p. 20-21*

In the commuter parking area, there is predicted to be significant on-street capacity of at least 195 spaces in 2041. Additional parking is therefore likely not required, though parking should be managed to provide all-day parking spaces in nearby streets, with a small number of fee-restricted parking spaces (such as ten spaces available for $1 per day) within close proximity to the Station to meet this demand.

In the retail parking area, there is on-street capacity to meet the four-space shortfall. It should also be noted that while both areas have been modelled independently, the actual demand will typically balance across areas provided the parking management processes and tools are aligned. These nearby on-street spaces are currently time-restricted and Council could consider altering restrictions to being fee-based by 2041 to provide a market for longer parking at a price (particularly for the four spaces within 50m of the IGA) to meet this demand.

In the health parking area, the 10-space shortfall should be managed in a way which prioritises patient parking (particularly for patients with a disability) and visitor parking. Parking for staff should be allocated on-street, more than 400m away to meet employee car-storage needs. Worker permits could be issued to manage this allocation and guarantee employee parking.

With this management, no additional spaces are essential in Ballan over the next twenty years. Council could reduce parking requirements in Ballan Town Centre for businesses during this time where appropriate. Council could also consider amending the Planning Scheme to create a Parking Overlay with a zero parking minimum requirement or maximum parking requirement, following initial reduction trials.

Table 10-9: Projected Ballan parking demand

Destination (parking area)	On/off street	2016 demand	2021 demand	2026 demand	2031 demand	2036 demand	2041 demand	Existing supply	85% Capacity
High growth									
Commuter	on	34	35	37	41	44	49	**287**	**244**
	off	189	193	208	225	**247**	**273**	**276**	**235**
Retail	on	187	212	248	281	340	410	**493**	**419**
	off	20	23	27	30	36	**44**	**47**	**40**
Kindergarten [35]	on	14	14	16	19	23	28	**43**	**37**
	off	0	0	0	0	0	0	**14**	**12**
Primary	on	31	32	38	47	60	75	**122**	**104**
	off	0	0	0	0	0	0	**0**	**0**
Health	**on**	64	65	74	85	**99**	**117**	**105**	**89**
	off	0	0	0	0	0	0	**6**	**5**
Medium growth									
Commuter	on	34	35	37	39	41	44	**287**	**244**
	off	189	195	207	216	229	**245**	**276**	**235**
Retail	on	187	213	243	255	282	317	**493**	**419**
	off	20	23	26	27	30	34	**47**	**40**
Kindergarten	on	14	14	15	16	17	20	**43**	**37**
	off	0	0	0	0	0	0	**14**	**12**
Primary	on	31	33	36	39	44	51	**122**	**104**
	off	0	0	0	0	0	0	**0**	**0**
Health	**on**	64	66	72	77	84	**93**	**105**	**89**
	off	0	0	0	0	0	0	**6**	**5**
Low growth									
Commuter	on	34	35	37	37	37	38	**287**	**244**
	off	189	197	206	206	208	212	**276**	**235**
Retail	on	187	213	237	229	223	224	**493**	**419**
	off	20	23	25	25	24	24	**47**	**40**
Kindergarten	on	14	14	14	12	11	11	**43**	**37**
	off	0	0	0	0	0	0	**14**	**12**
Primary	on	31	33	34	30	28	27	**122**	**104**
	off	0	0	0	0	0	0	**0**	**0**
Health	on	64	67	71	69	68	69	**105**	**89**
	off	0	0	0	0	0	0	**6**	**5**

Source: IdForecast & VIF with M&PC analysis

[35] No occupancy was recorded during any period of the study. Based on this, modelling assumes people continue to park elsewhere in future. Potentially, this parking area could offset up to 12 spaces for demand and shortfall in other areas, like retail before reaching 85% capacity.

10.5 Bacchus Marsh mode shift scenarios

Given that the projections discussed in the previous subsection were based on existing trip behaviours (where on average 74% of trips in Bacchus Marsh are made by private vehicle), additional models were also calibrated to investigate futures based on a shift from vehicle use to other modes.

The following mode shift scenarios were tested in the Bacchus Marsh high growth model:

1. Low mode shift: 2% shift to other modes by 2026 (72% trips made by vehicle) and 5% shift by 2041 (69% trips made by vehicle)
2. Medium low shift: 5% shift to other modes by 2026 (69% trips made by vehicle) and 10% shift by 2041 (64% trips made by vehicle)
3. High mode shift: 10% shift to other modes by 2026 (64% trips made by vehicle) and 15% shift by 2041 (59% trips made by vehicle)

The resulting projections in shortfall based on these various scenarios is shown in Table 10-10 overleaf.

In the low mode shift scenario, shortfall in the retail parking area is manageable without additional supply until 2036. There is a shortfall of 53 spaces by 2031, though given the on-street parking capacity of 93 available spaces, this can be addressed by ensuring that the 40 spaces closest to retail destinations are fee-restricted (similar to Horsham with low rates of $1 per hour given that over half of the in-centre visitor survey respondents stay for less than an hour). Availability rates of 10% rather than 15% may also be considered for on-street parking, particularly for spaces within 100m of key destinations. To ensure a 10% availability consistently throughout the year in periods of peak demand, Council should review the demand of premium areas and incrementally increase (by 50 cents a year) the price where availability becomes too low and decrease the price where availability is higher than 15%.

In the high mode shift scenario, parking shortfall can be managed until 2041. In 2041, with appropriate management, the requirement for additional supply would still be minimal. The shortfall of 125 spaces (to maintain an average 15% availability in peak times) can be mostly offset to on-street parking areas using appropriate restrictions in premium areas. Alternatively, many (if not all) of the on-street parking spaces could be consolidated into new off-street parking facilities, freeing up space for additional leasable area and amenity improvements. Regardless of how parking is managed, 14% respondents of the in-centre survey would change trip behaviours and 17% would go elsewhere or not make the trip at all rather than park further away if finding a parking space became ‘too difficult’ (either too expensive, too short a time limit or completely unavailable). If parking is managed well and viable alternatives for making the trip are provided, there will be an increasing demand for trips to the centre and up to 14% may switch modes. Most importantly, ensuring that a high proportion of future residents live within a walking distance to the centre. To ensure that a high mode shift is achievable within 35 years, the biggest changes would have to be made in the next 5-10 years.

In considering the economic, financial, social and environmental needs of the community and impacts of additional parking (which have been discussed throughout this parking study report), Council should set a mode-share target based on these scenarios and set parking requirement minimums (and potentially maximums) accordingly. Vehicle trip demand can be reduced using a number of strategies outlined in the following section.

Table 10-10: Projected Bacchus Marsh parking demand (mode shift scenarios)

Destination (parking area)	On/off street	2016 demand	2021 demand	2026 demand	2031 demand	2036 demand	2041 demand	Existing supply	85% Capacity
High growth, low mode shift									
Commuter	on	121	127	137	146	152	163	**319**	**271**
	off	325	342	368	391	407	438	**628**	**534**
Retail	on	186	202	224	242	270	306	**399**	**339**
	off	712	775	856	**928**	**1,035**	**1,172**	**1,029**	**875**
Secondary	on	0	0	0	0	0	0	**0**	**0**
	off	42	45	51	59	69	83	**107**	**91**
Primary	on	20	23	24	31	38	44	**131**	**111**
	off	0	0	0	0	0	0	**0**	**0**
Health	on	86	93	103	125	141	162	**204**	**173**
	off	34	37	41	49	56	64	**116**	**99**
High growth, medium mode shift									
Commuter	on	121	127	131	140	141	151	**319**	**271**
	off	325	342	353	375	378	406	**628**	**534**
Retail	on	186	202	214	232	251	284	**399**	**339**
	off	712	775	820	**889**	**960**	**1,087**	**1,029**	**875**
Secondary	on	0	0	0	0	0	0	**0**	**0**
	off	42	45	48	57	64	77	**107**	**91**
Primary	on	20	23	23	30	35	41	**131**	**111**
	off	0	0	0	0	0	0	**0**	**0**
Health	on	86	93	99	119	130	150	**204**	**173**
	off	34	37	39	47	52	59	**116**	**99**
High growth, high mode shift									
Commuter	on	121	127	122	130	130	140	**319**	**271**
	off	325	342	327	348	348	375	**628**	**534**
Retail	on	186	202	199	215	231	262	**399**	**339**
	off	712	775	761	825	**885**	**1,002**	**1,029**	**875**
Secondary	on	0	0	0	0	0	0	**0**	**0**
	off	42	45	45	53	59	71	**107**	**91**
Primary	on	20	23	21	28	32	38	**131**	**111**
	off	0	0	0	0	0	0	**0**	**0**
Health	on	86	93	92	111	120	138	**204**	**173**
	off	34	37	36	44	47	55	**116**	**99**

Source: IdForecast & VIF with M&PC analysis

10.6 Strategies to diversify mode share in Bacchus Marsh

The report has identified and discussed a number of best practice and evidence-based approaches to reducing parking demand and managing supply effectively. Low mode shift and high growth will result in the shortfalls outlined in section 10.4, while higher mode shifts (under the medium and high shift scenarios) will reduce overall shortfall in parking availability. At this stage, given Council's commitments to facilitate growth in areas like Underbank and Stonehill (beyond walking distance to Bacchus Marsh Town Centre), a medium mode shift scenario is likely to be more achievable than a high mode shift scenario. To achieve a reduced proportion of trips made by vehicle, particularly to the Bacchus Marsh town centre, Council should select a mode shift target and tailor the parking policy accordingly, using the following strategies.

10.6.1 Increasing population density and local economic activity

Currently, trips to the centre are made by driving because other alternatives such as walking, catching public transport or riding a bicycle are far less viable. This is primarily due to the geographic sparsity of residential populations, in that many people travel further than 1.6km to make their trips. Studies in Australia have shown that over 65% of walking trips were made within 800m, where only 18% of walking trips were made beyond 1.6km[36]. Study respondents were reported to be 3.2 times as likely to walk to a town centre if it were 1km or less away, compared to those living beyond 1km[37].

In Bacchus Marsh, of the respondents who lived 1km from the town centre, 50% walked – making up a substantial proportion of walking trips (25% of the total). Just over 2,200 people live within this catchment and given that the town centre meets most essential needs (groceries, shopping, primary education, admin errands, health) it is likely that at least 1,000 residents make their twice-weekly trips by walking. As the population grows, increasing the population within 1km catchment, will be the most significant factor in growing the share of walking trips and reducing parking demand.

The viability for new businesses to open substantially depends on the growth of residential catchments (particularly within 800m). An increase in population therefore means an increase and higher diversity of available services and amenities, meeting more trip needs within an immediate area. A study from Monash (using case studies from outer-suburban Melbourne) shows for example that an additional 3,500 residents within 400m would create viability for another block of local shops[38].

The population within the Bacchus Marsh township is projected to grow by this amount over the next five years, as the centre's parking demand increases by 100 spaces. If this growth of 3,500 residents were located within 1km of the centre rather than beyond it, not only would it create viability for a number of additional jobs, it will also likely remove the need for 50 parking spaces by 2031 (as 50% of trips would likely continue to be made by walking) meaning additional parking would not be needed until 2036. This would be by far the most effective strategy in achieving the high mode shift scenario, particularly when implemented amongst other strategies outlined in subsections below. Facilitating half of this growth (even over a longer period of time) would likely assist Council achieve the low mode shift scenario by 2041. At this stage, a significant proportion of Bacchus Marsh's population growth will be accommodated in areas beyond 1km from the town centre (such as Underbank and Stonehill

36 *Identifying, creating, and testing urban planning measures for transport walking: Findings from the Australian national liveability study –(Badland. et al.; 2017)*

37 *As above*

38. *20-minute Neighbourhood - Living local research project. Monash University - (Grodach, Kamruzzaman, Harper; 2020)*

estates). Given this, it is likely that a medium mode shift scenario will be more achievable, though this would depend significantly on the adoption of recommended parking policies and transport improvements (discussed in following sections).

Population density is also a critical factor for the viability (and effectiveness of) infrastructure which supports alternative means of transport such as:

- Higher public transport service levels;
- Capital works (footpaths, bicycle paths and facilities); and
- Improvements to the public realm.

Moorabool Shire should work closely with DELWP and the VPA in the staging of new greenfield growth precincts Merrimu and Parwan Station to support viable densities for 20-minute cities. Ensuring the viability for a number of new businesses to open close to the residential growth areas will provide new residents with more local, active transport trip options and will reduce overall trip demand to the Bacchus Marsh town centre.

This will be particularly relevant for Parwan Station, where the 2020 VPA PSP guidelines state a target for 30 dwellings per developable hectare within 800m from public transport and 20 dwellings per developable hectare of the remaining area. This is based on a studies from RMIT and University of Western Australia, that showed that a minimum of 25 dwellings per hectare generally creates a feasible catchment for local shops and provide conditions that make walking to essential trips viable[39].

A previous target of the VPA greenfield guidelines in 2012 (then-Growth Areas Planning Authority) was to ensure 80%-90% of new dwellings in greenfield developments were located within 1km of a town centre to guarantee viability of a supermarket and close access for residents. In setting a mode share target, Council should adopt an advocacy position to encourage a substantial proportion of future growth to occur within 1km of the centre, as per these guidelines. New greenfield developments should also be facilitated in this way to reduce demand for longer trips (and most likely vehicle trips) to the Bacchus Marsh town centre for essential errands.

In addition to significantly reducing parking demand, promoting residential and commercial growth and diversification within 1km of the existing town centre will also provide the following benefits:

- Household savings on costs of living (particularly car ownership and use);
- Increased local economic activity and job growth;
- Social benefits;
- Health and wellbeing benefits;
- Reduced congestion and increased levels of access; and
- Reduced emissions.

[39] *Living liveable? RESIDE's evaluation of the "Liveable Neighborhoods" planning policy on the health supportive behaviors and wellbeing of residents in Perth, Western Australia – (Hooper, et al.; 2010)*

10.6.2 Parking policies

As discussed in the literature review and throughout the report, the following policies are effective ways of reducing overall vehicle trip demand in combination with improvements to the viability of other modes:

- **Parking maximums** – setting maximum requirements of parking (rather than minimums) based on the community's mode share target is a highly effective way to reduce vehicle trip demand.

  A key difference between the 1km catchment of Ballan town centre and the Bacchus Marsh centre is that in Ballan only 20% of trips are made by walking. The Ballan catchment has arguably better walking conditions than that of Bacchus Marsh, given that the area:

  - Has excellent topographical conditions (ie. Flat)
  - Has excellent footpath coverage
  - Has many intersections and small blocks (which is highly conducive for walking)
  - Has low traffic volumes
  - Has a substantial street tree canopy.

  A key factor of this 80% vehicle preference therefore is not due to a lack of alternatives, but that parking in Ballan is abundant (there was about a 40% availability of premium areas in peak conditions) and local roads have a lot of capacity. The abundance of free parking is proven to induce vehicle trip demand and capping provision is a much better indicator of a market, given the apparent trade-offs people need to consider when making a transport decision.

  As discussed in the literature review, studies around the world (including a case study in Australia) have shown setting parking maximums can reduce parking demand by 20%. As discussed in section '9. Parking Precinct Plans', the community should be engaged to set a maximum number of cars (and spaces) in the centre by 2036 and decide how they should be funded and financed to promote community ownership in addressing town centre improvement decisions.

- **Fee-based parking restrictions** – Bacchus Marsh and Ballan currently have a substantial amount of restricted parking based on time limits. This is effective for promoting turnover in meeting the needs of a significant share of the parking market. Fee-based restrictions in areas of high demand is an effective way of reducing demand and creating higher availability for markets who are willing to pay. Where applied, it typically (with cases from around the world including Australia) reduces vehicle trip demand by 10%-30%, depending on the price[40] (as discussed in the literature review). If fee-based restrictions (even for modest amounts) applied to the 100 (of the 1,000) spaces that are most utilised, it could result in an up to a reduction in demand of up to30 spaces in peak conditions (depending on the viability of other modes).

[40] *Parking Pricing Implementation Guidelines (Litman; 2013)*

Parking maximum and fee-based parking policies have been implemented in outer-Melbourne suburbs such as Frankston and Victorian regional towns such as Horsham to reduce overall vehicle demand. Horsham (as previously discussed) charges $1 an hour for spaces in premium areas in the town centre and this has been highly effective in maintaining availability in these areas without the need for additional supply.

10.6.3 Improve public transport levels of service

Evidence on the impact of improving levels of service for public transport on patronage is well-documented. The Australian Department for Infrastructure, Transport, Regional Development and Communications (DITRDC) estimates that on average in Melbourne, if bus levels of service are increased by 10% (a change of a service every 30 minutes to one every 27 minutes), patronage increases by 10% on average depending on the time of day (improving service levels non-peak periods is more effective)[41]. For Bacchus Marsh, it would mean that if service levels were doubled and headway was halved (from every 30 minutes to every 15 minutes) throughout the day, it could be expected that the share of public transport trips would shift up by up to 1% (and down for vehicle share), which is halfway to achieving the low mode shift scenario. Improving service levels is one of the more effective ways of improving patronage, but is highly cost-ineffective without a viable catchment.

Improving patronage depends significantly on the catchment of population within 800m of the service (where 65% of walking trips are generally made) and the directness of the routes to retail destinations in the town centre. Population density, housing diversity, a mix of jobs and housing and closeness to activity centres are all factors which support higher levels of bus patronage and make higher levels of bus service viable to provide[42]. As a guide, using evidence from Australia and globally, the following minimum residential and job densities are recommended (within 800m of bus stops of selected routes) to support increases in service levels in Bacchus Marsh[43]:

- Bus every 20-30 minutes (0.7% shift up for public transport trip share) - 20 dwellings p/ha // 50 residents & jobs combined p/ha
- Bus every 10-15 minutes (2% shift up for public transport trip share) - 30 dwellings p/ha // 80 residents & jobs combined p/ha
- Rapid bus transit, every 5-9 minutes (6% shift up for public transport trip share) - 45 dwellings p/ha // 100 residents & jobs combined p/ha

High levels of public transport service and short headways are not only associated with reduced vehicle trip demand, but has also been proven to be associated with rates of lower car ownership. Recent research estimates that a 10% increase in service levels results in a 1% increase in zero car households within 800m of the service. This would reduce not only the need for parking in the centre, but also the need for garages and housing costs, particularly for households who cannot afford a car and experience housing stress.

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[41] *Transport elasticity database: ID 110 Bus and Tram elasticity values: Melbourne and Preston - (Bureau of Infrastructure and Transport Research Economics (BITRE), division of DITRDC, Commonwealth of Australia, data from 1980)*

[42] *Addressing transit mode location bias in built environment-transit mode use research - (Aston, et al.; 2020)*

[43] *Guide based on findings on minimum residential and job densities discussed in: Planning for transit oriented development in Australian Cities research - (Newman; 2007); Bus Coach Industry Policy Paper 4 on 20-minute cities; and 2020 VPA PSP guidelines for greenfield developments*

10.6.4 Improve walking and bicycle infrastructure

Unlike predicting public transport usage, it is difficult to predict the impact of various factors on increasing rates of walking and riding a bicycle – particularly given preference is impacted significantly by the abundant availability of parking, despite the presence of 'walkable' or 'ridable' factors (as previously discussed). As previously discussed, typically most walking trips are made within 1km and only 18% of walking trips are made beyond 1.6km, meaning that with even the best conditions, walking infrastructure improvements beyond this catchment will likely be cost-ineffective in shifting trip demand[44]. Higher rates of population density and proximity to larger, more diverse commercial and civic centres are the most significantly associated factors with walking.

Other factors include[45] [46]:

- Permeable blocks with multiple active frontages (<120m between each activity or pedestrian intersection);
- Street connectivity (high number of three-way pedestrian priority intersections);
- Footpaths and bicycle paths;
- Street trees and street furniture; and
- Bus shelters.

The improvement of these factors within 1km of the town centres will be the most cost-effective ways to increase the share of walking trips. Footpaths and seating are required for DDA compliance however and encourage trips to school, local shops and amenities recreational trips which are largely beneficial for health and wellbeing.

Bicycle riding catchments are typically larger, where most trips are made within 3km and some within 6km. Key to improving rates of riding is confidence (particularly in feeling safe), comfort (especially shading), interest & enjoyment (riders feel a sense of place along the journey with art, natural features or points of interest along the way) and having direct routes to key destinations with end of the ride facilities (particularly bicycle parking).

As discussed in section 5.1.1 of this car parking study report, very few riders feel confident in sharing the road in typical Bacchus Marsh traffic conditions while over 80% feel confident when provided a dedicated bike lane. In the trip behaviour survey, when asked '*If finding a parking space becomes too difficult how else would you make the trip?*', no respondent of the survey indicated that they would ride a bicycle. Given this, it seems unlikely that the share of bicycle trips to the centre will increase considerably, though infrastructure which supports riding will likely increase ridership to school, local shops and amenities and for recreation.

Driving costs are far more significant to people's decision to ride a bicycle than the availability and quality of bicycle infrastructure. The provision and management of parking is a critical factor in this equation. If parking is abundant, unrestricted and close to one's destination, there is a significant chance vehicle trip demand will far exceed bicycle trip demand. Even if bicycle riding routes are safe, direct, interesting and comfortable.

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[44] *Identifying, creating, and testing urban planning measures for transport walking: Findings from the Australian national liveability study –(Badland. et al.; 2017)*

[45] *Living liveable? RESIDE's evaluation of the "Liveable Neighborhoods" planning policy on the health supportive behaviors and wellbeing of residents in Perth, Western Australia – (Hooper, et al.; 2010)*

[46] *As above*

As an example, 50% of people living within 1km (walking distance) of the Bacchus Marsh town centre walked. In Ballan, where most residents live within 1km of the centre and have arguably much better walking conditions than in Bacchus Marsh, only 20% walked while 80% drove. In Bacchus Marsh, parking is generally more costly to visitors than parking is to visitors of Ballan. Walking mode share rates provide a clear indication of the impact of driving cost, given the significant preference of walking over bicycle riding for trips in Moorabool.

Appendix A. Car park occupancy survey

M&PC undertook a survey of all existing available parking spaces within the main activity centres of Bacchus Marsh and Ballan – the study areas are shown in Section 1 (Figure 2-2 and Figure 2-3).

The survey was undertaken by:

1. Creating GIS shapefiles for Bacchus Marsh and Ballan within the study areas, which contain polygons representing all estimated available parking spaces (off-street and on-street). This was done from a desktop analysis using up-to-date high definition aerials
2. Conducting an on-site audit during the following time periods in Bacchus Marsh and Ballan:
3. Friday 6th December 2019 (fine weather, min. 10°C – max. 18°, partly cloudy):
    - 9:00am-10:00am
    - 11:00am-1:00pm
    - 3:00pm-5:00pm (Bacchus Marsh only)
4. Saturday 21st December 2019 (fine weather, min. 13°C – max. 20°, partly cloudy):
    - 9:00am-10:00am
    - 11:00am-1:00pm
    - 3:00pm-5:00pm (Ballan only)
5. Inputting the findings into the GIS shapefile, labelling each space with a "Y" (for confirmed occupancy in a given time period) or "N" (for a confirmed vacancy in a given time period). This presented a clear geographic layout of occupancy patterns for each study time period which informed the issues and options analysis

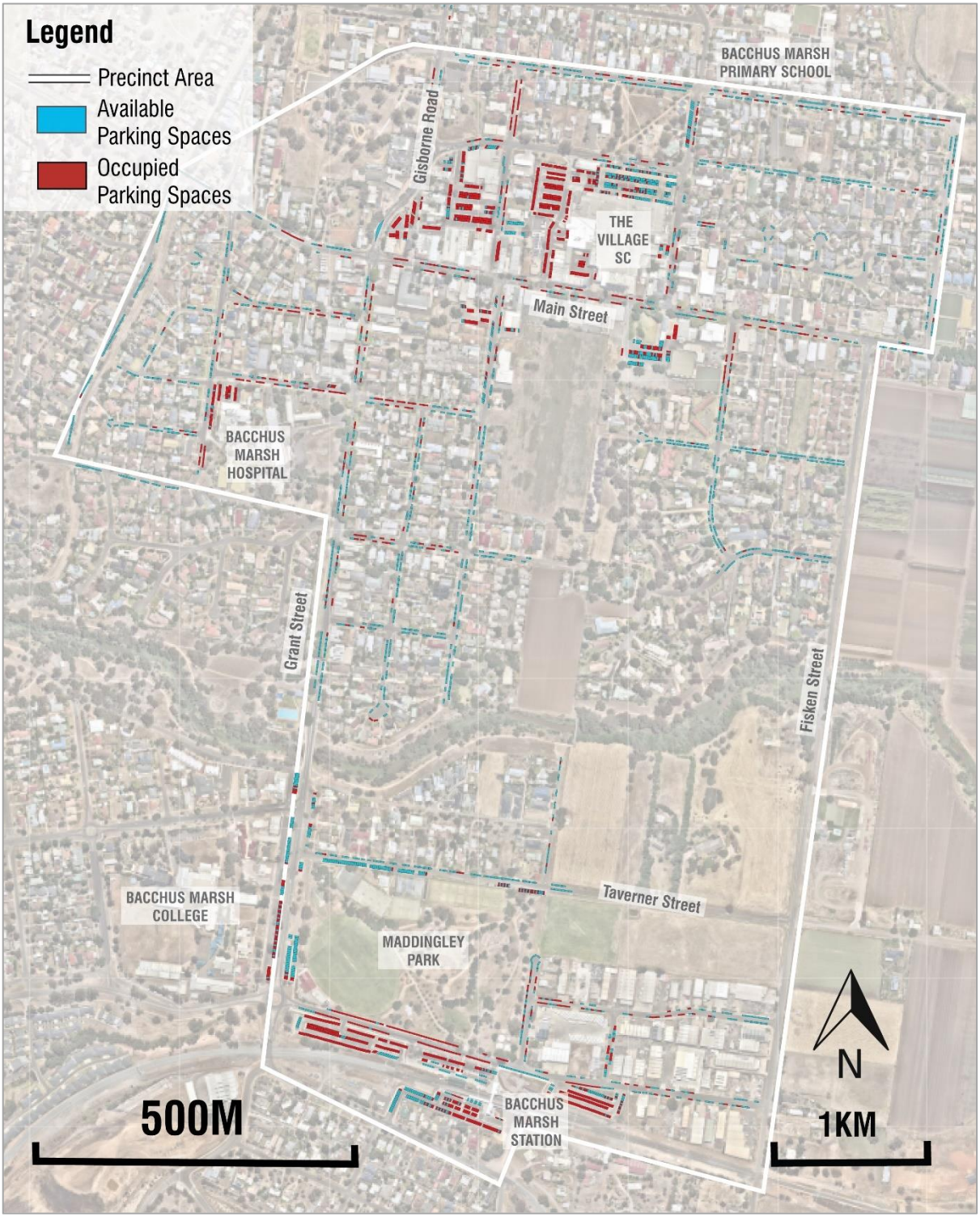
The time periods were selected to give a clear representation of occupancy levels across periods of low and high demand. This was also confirmed through a desktop analysis including using satellite aerial photographs to observe parking occupancy from various days during 2019.

Bacchus Marsh parking availability by date and time period

Figure 10-10: Bacchus Marsh available parking spaces

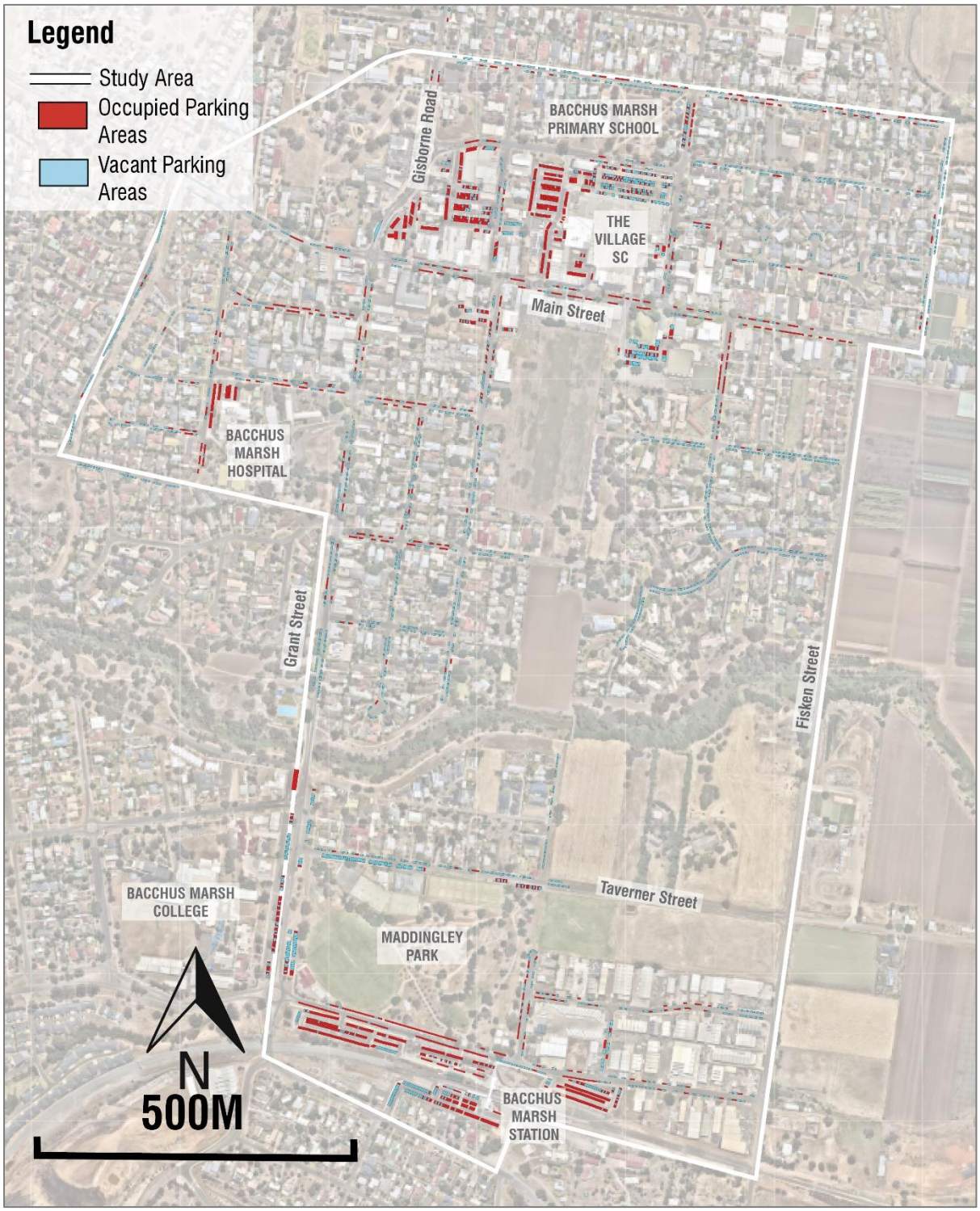
Source: Nearmap, M&PC Survey Friday 6th December 2019

Figure 10-11: Bacchus Marsh parking availability at 9:00am – 10:00am Friday



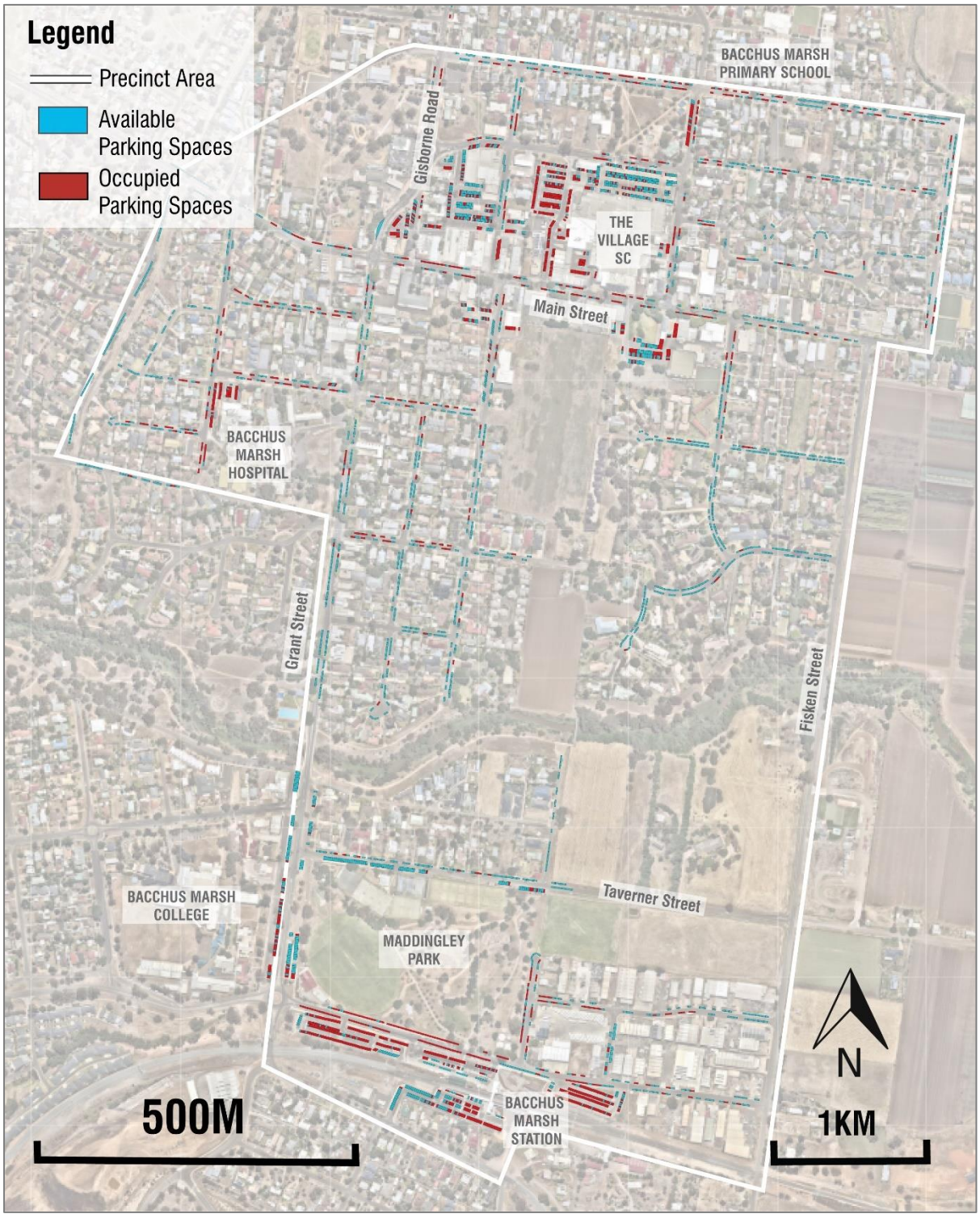
Source: Nearmap, M&PC Survey Friday 6th December 2019

Figure 10-12: Bacchus Marsh parking availability at 11:00am – 1:00pm Friday



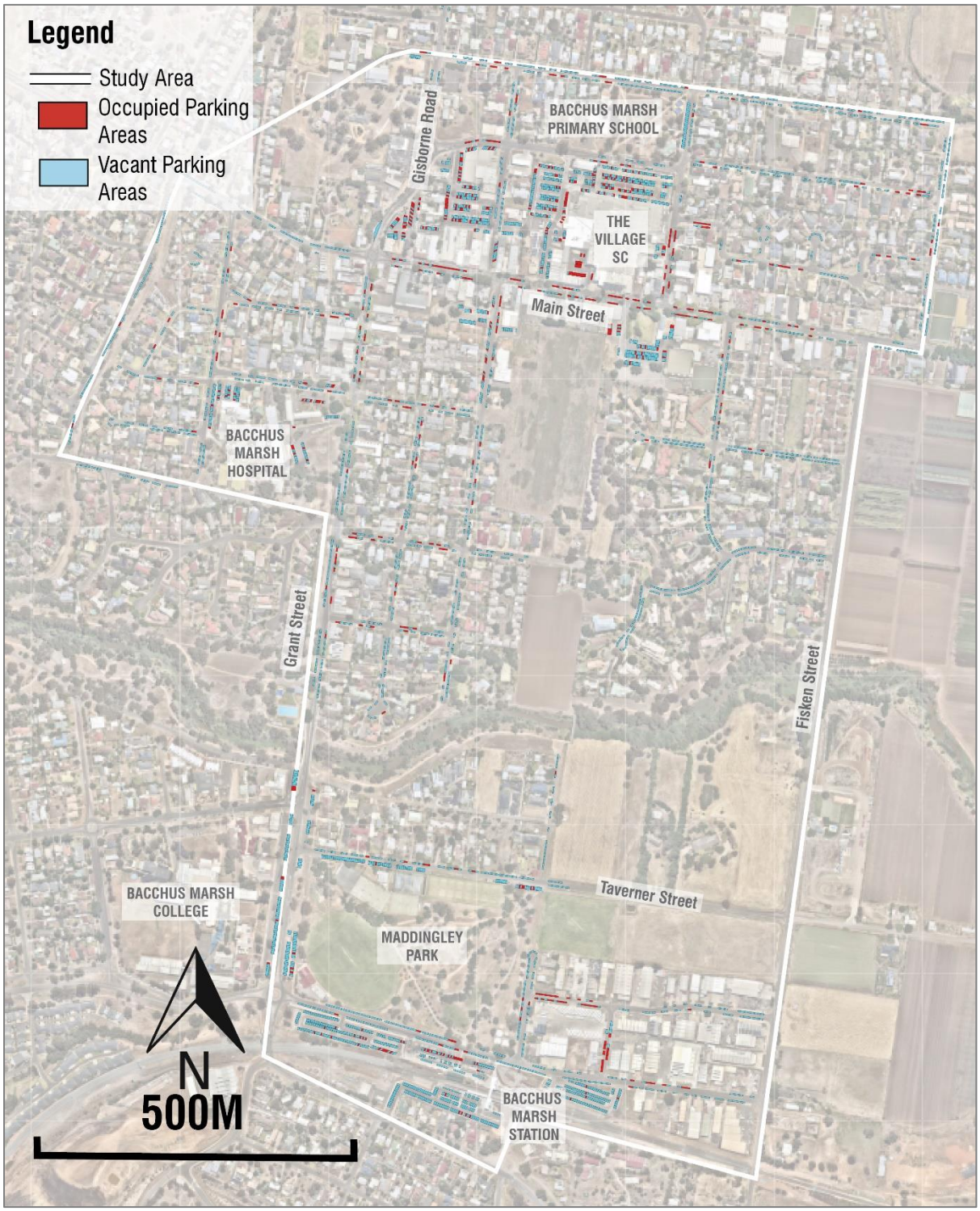
Source: Nearmap, M&PC Survey Friday 6th December 2019

Figure 10-13: Bacchus Marsh parking availability at 3:00pm – 5:00pm Friday



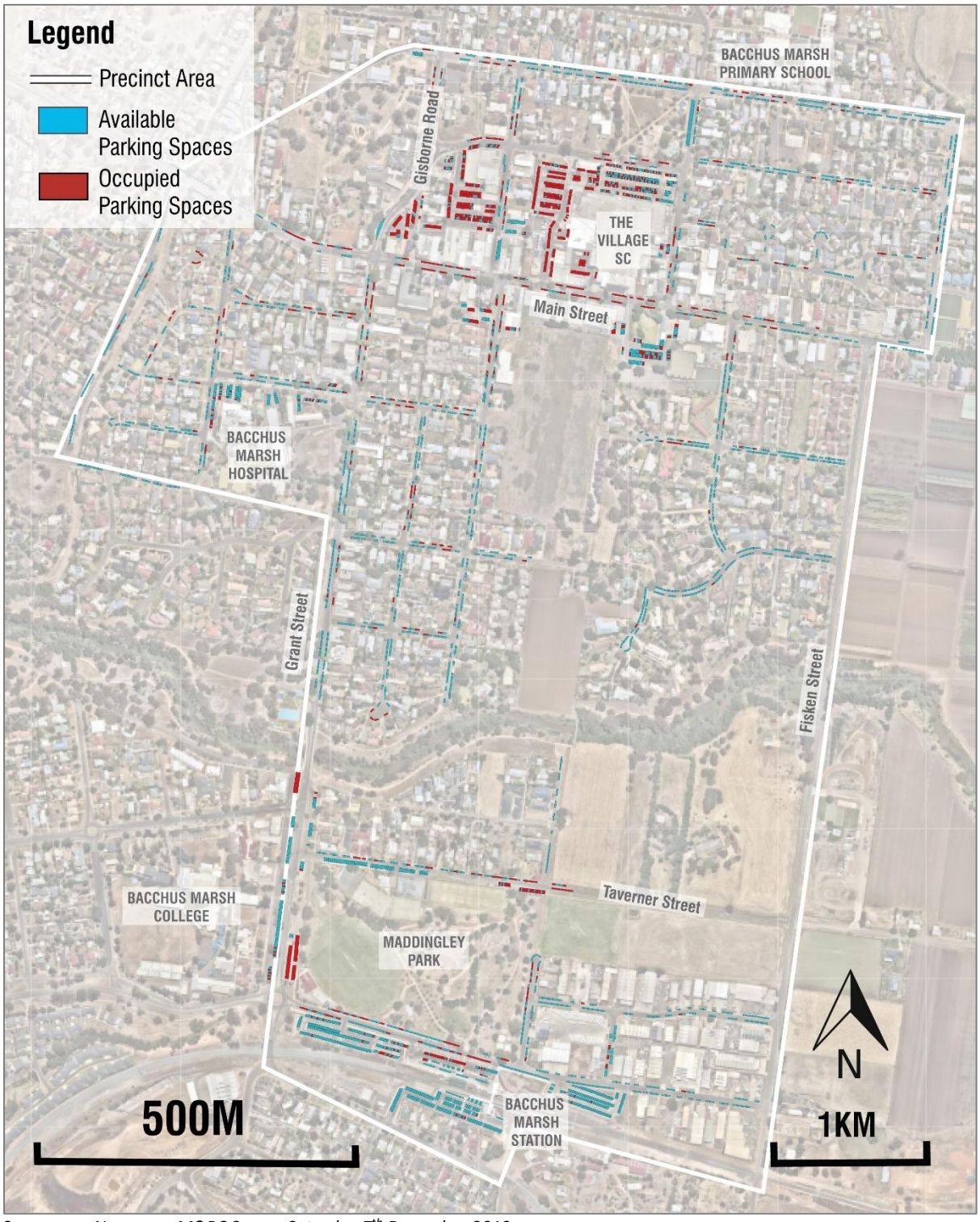
Source: Nearmap, M&PC Survey Friday 6th December 2019

Figure 10-14: Bacchus Marsh parking availability at 9:00am – 10:00am Saturday



Source: Nearmap, M&PC Survey Saturday 7th December 2019

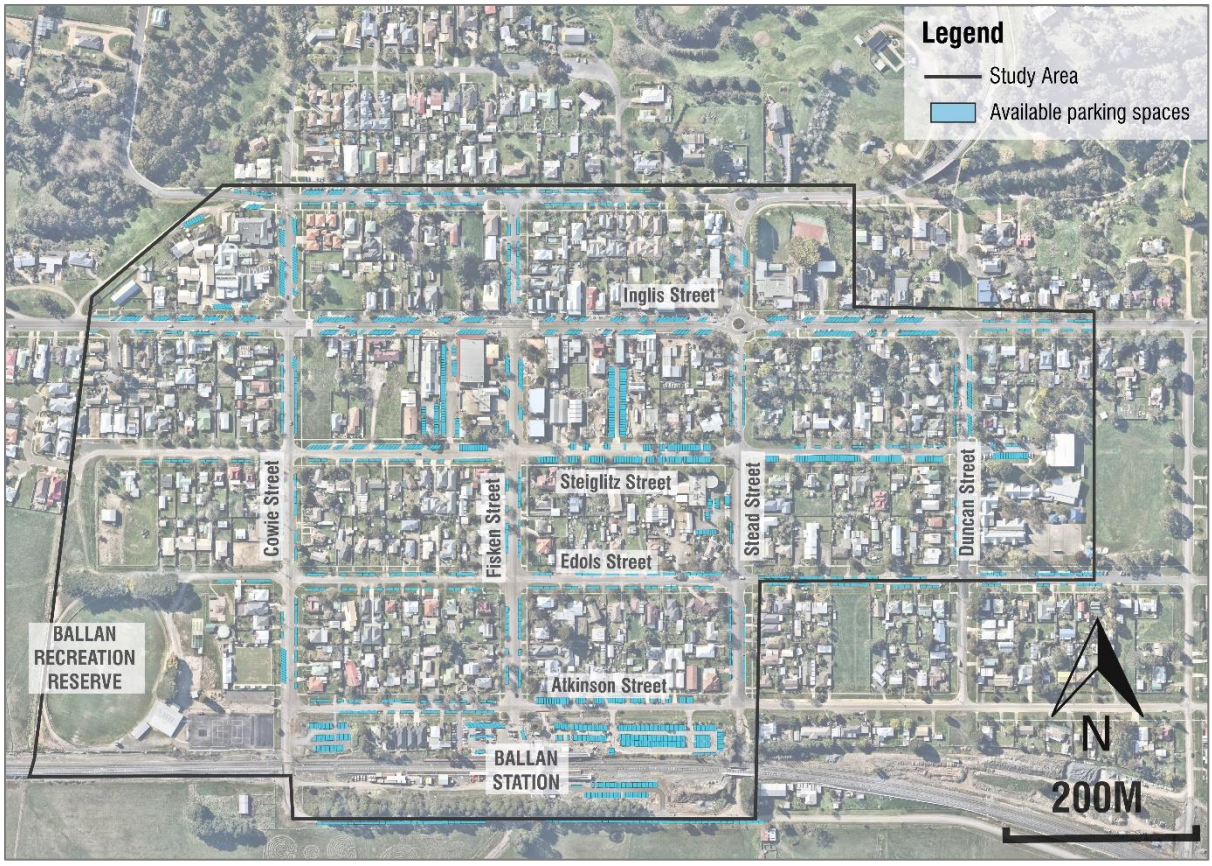
Figure 10-15: Bacchus Marsh parking availability at 11:00am – 1:00pm Saturday



Source: Nearmap, M&PC Survey Saturday 7th December 2019

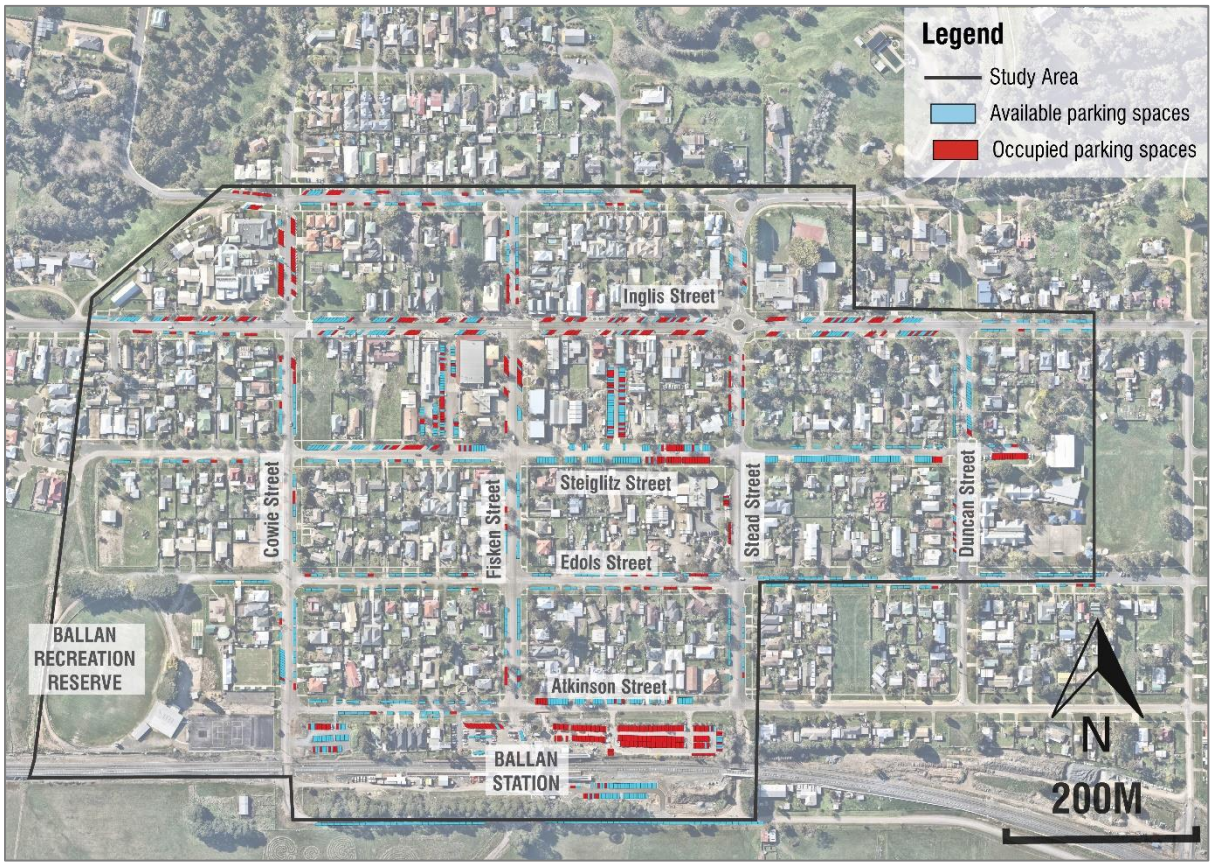
Ballan parking availability by date and time period

Figure 10-16: Ballan parking available spaces



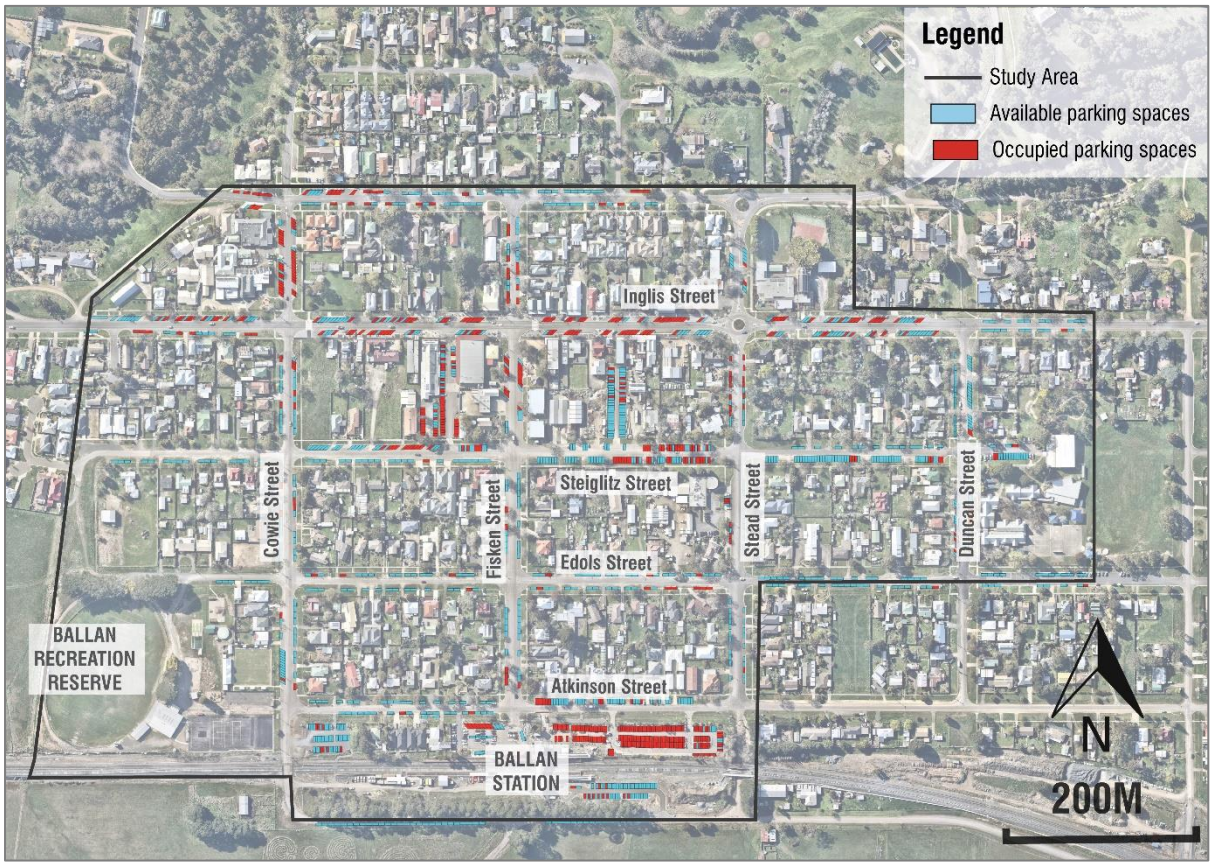
Source: Nearmap, M&PC Survey Friday 6th December 2019

Figure 10-17: Ballan parking availability at 9:00am – 10:00am Friday



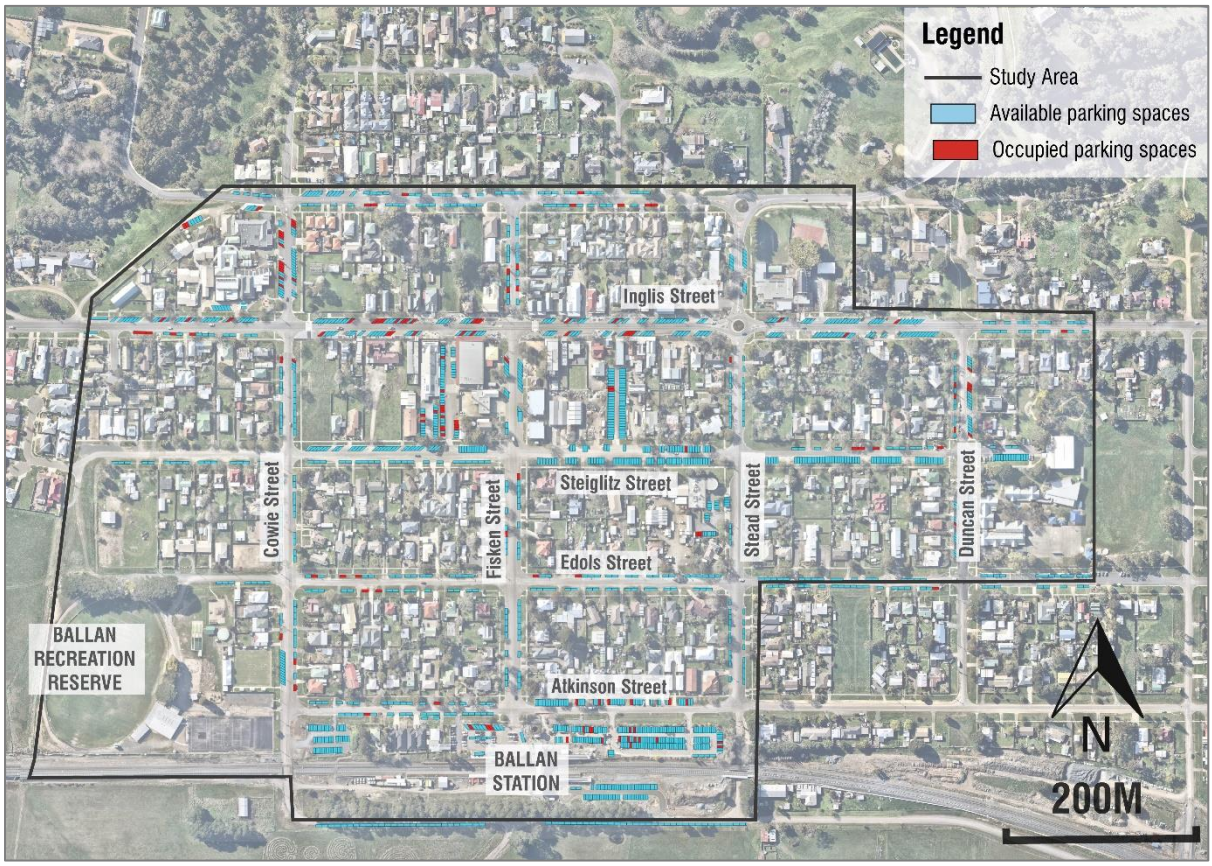
Source: Nearmap, M&PC Survey Friday 6th December 2019

Figure 10-18: Ballan parking availability at 11:00am – 1:00pm Friday



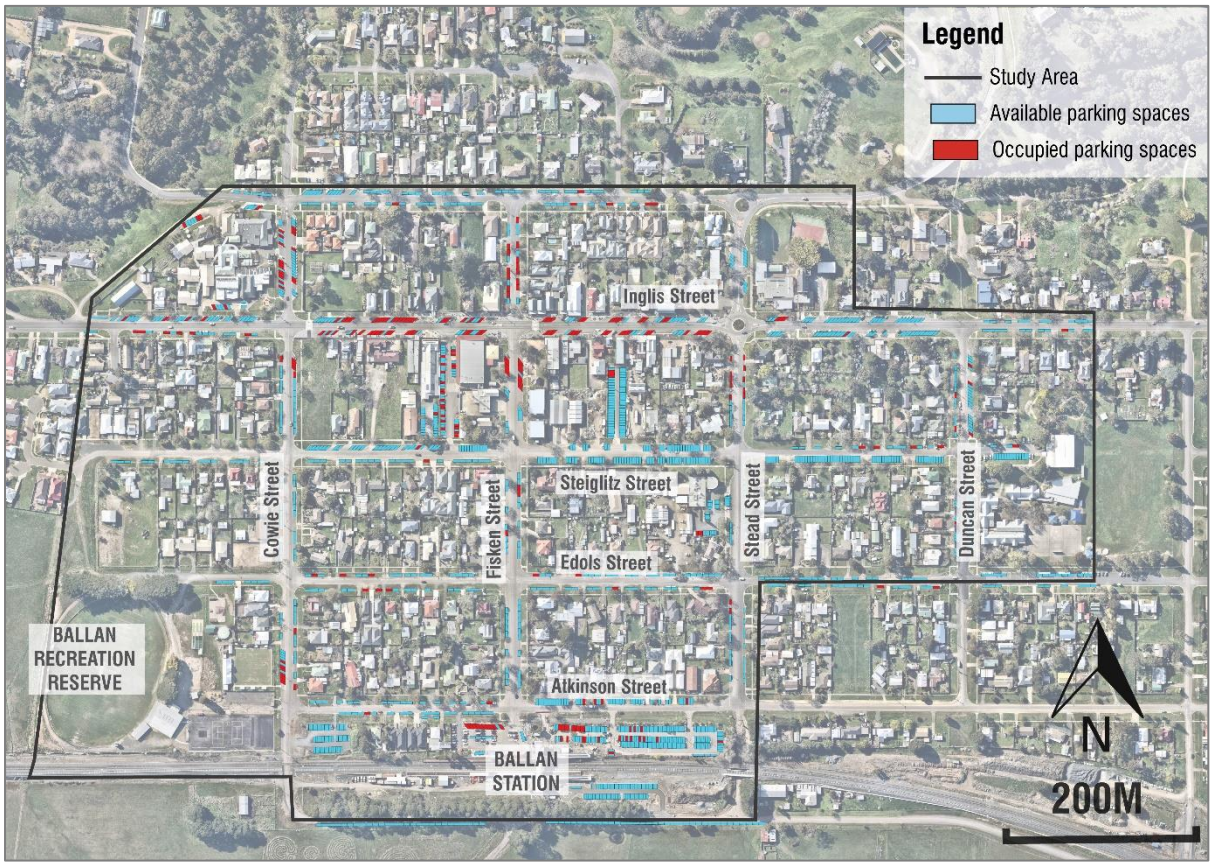
Source: Nearmap, M&PC Survey Friday 6th December 2019

Figure 10-19: Ballan parking availability at 9:00am – 10:00am Saturday



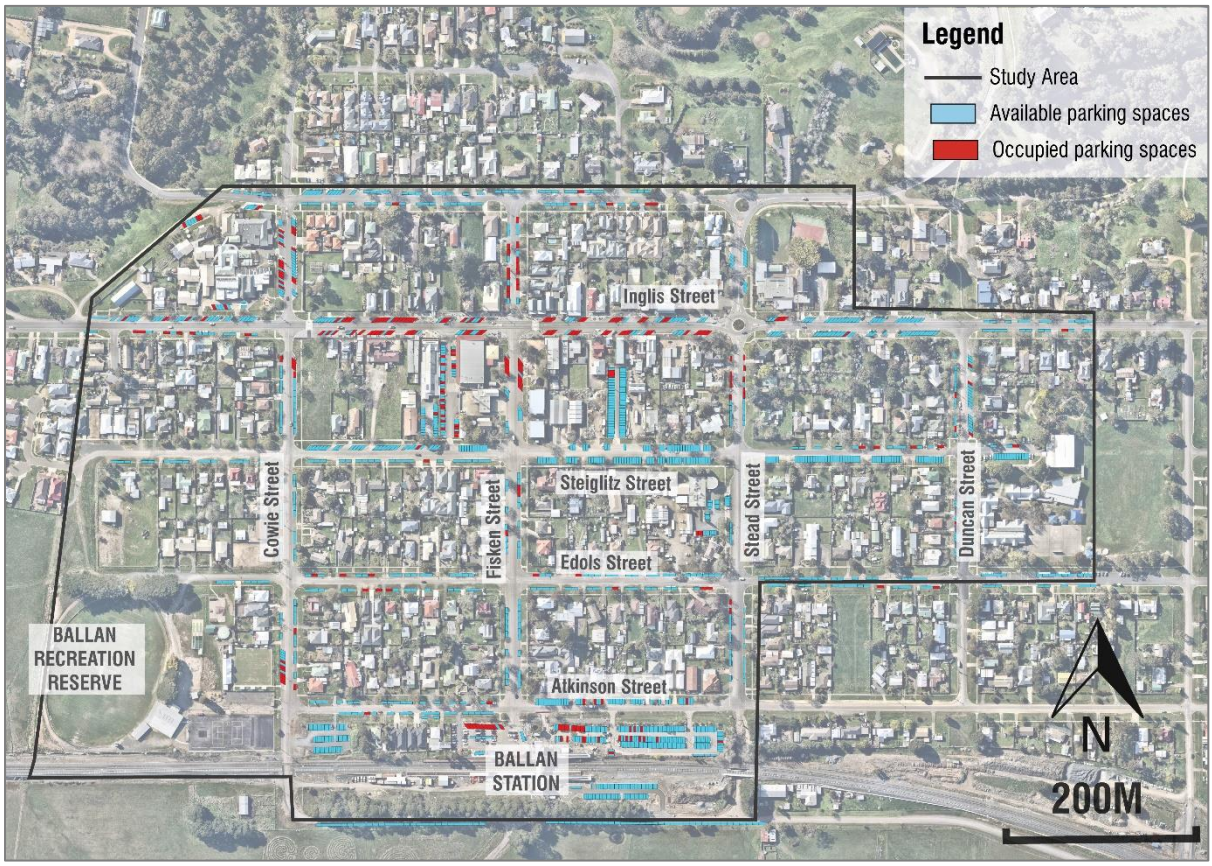
Source: Nearmap, M&PC Survey Saturday 7th December 2019

Figure 10-20: Ballan parking availability at 11:00am – 1:00pm Saturday



Source: Nearmap, M&PC Survey Saturday 7th December 2019

Figure 10-21: Ballan parking availability at 3:00pm – 5:00pm Saturday



Source: Nearmap, M&PC Survey Saturday 7th December 2019

Appendix B. Parking availability

The spreadsheets show the availability of all surveyed parking spaces in each time period surveyed. The table also provides a count and percentage for the minimum parking availability surveyed and the average. Where availability is below 15%, the value is highlighted red, showing areas where parking management should be improved to make spaces more available. The spreadsheets also show the applicable restrictions to each of the parking areas indicated by signage or ground markings. The following abbreviations are used:

- P5MIN – 5-minute parking
- P10 – 10-minute parking
- 0.25P – 15-minute parking
- 0.5P – 30-minute parking
- 1P – 1-hour parking
- 2P – 2-hour parking
- 3P – 3-hour parking
- 4P – 4-hour parking
- BZ – Bus Zone
- RES – Reserved (primarily for prams – e.g. at the ground level of the multideck to the rear of *The Village*)
- COM – Commercial vehicles only
- LZ – Loading Zone
- PZ – Permit Zone
- TAXI – Taxi Zone
- NS - No standing
- NP - No parking
- UN - Unrestricted (no restriction/sign)
- DP - Disability parking
- 2DP – 2-hour Disability Parking

Table 10-11: On-street parking availability in Bacchus Marsh

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Bennett Street	From Gell Street to Young Street	BZ	BZ	BZ	2	2	2	1	2	2	1	50.00	83.33
		DP	DP	DP	1	1	1	1	1	0	1	0.00	83.33
		2P: 08:30-17:30	2P: 08:30-17:30	UN	14	5	7	3	9	2	10	14.29	42.86
	From Gisbourne Road to Gell Street	UN	UN	UN	9	3	2	5	2	1	7	11.11	37.04
		1P: 08:30-17:30	1P: 08:30-17:30	UN	13	9	5	6	9	6	10	38.46	57.69
Bond St	From Bond Street to Fisken Street	UN	UN	UN	46	28	25	20	42	34	41	43.48	68.84
Boyes Close	From Taverner Street to Werribee River	UN	UN	UN	22	18	22	22	21	22	21	81.82	95.45
Church Street	From Main Street to Gisborne Road	2P: 08:30-21:00	2P: 08:30-17:00	UN	17	9	2	4	6	3	11	11.76	34.31
Clarinda Street	From Gulline Close to King Street	UN	UN	UN	1	0	0	0	1	0	0	0.00	16.67
		0.5P	0.5P	0.5P	28	8	4	4	27	23	23	14.29	52.98
		DP	DP	DP	2	1	0	0	1	1	2	0.00	41.67
	From Madden Drive to Gulline Close	UN	UN	UN	17	17	17	15	17	17	17	88.24	98.04
	From Main Street to Milbank Street	UN	UN	UN	13	12	11	12	11	12	11	84.62	88.46
	From Margaret Drive to Gulline Close	UN	UN	UN	10	1	1	1	10	8	9	10.00	50.00
	From Turner Street to Millbank Street	UN	UN	UN	12	8	6	6	8	9	9	50.00	63.89
		2P: 08:30-17:30	2P: 08:30-17:30	UN	2	1	0	0	0	0	1	0.00	16.67

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Closter Court	From Closter Court to Waddell Street	UN	UN	UN	23	21	21	21	22	19	22	82.61	91.30
Crook Street	From Lerderderg Street to Candeloro Street	UN	UN	UN	50	45	47	42	46	48	48	84.00	92.00
	From Main Street to Candeloro Street	UN	UN	UN	16	15	13	10	16	16	16	62.50	89.58
Ellerslie Court	McGrath Street	UN	UN	UN	30	30	30	29	30	29	30	96.67	98.89
Gell Street	From Bennett Street to Lerderderg Street	1P: 08:30-17:30	1P: 08:30-17:30	UN	21	0	0	6	18	15	20	0.00	46.83
	From Main Street to Bennett Street	1P	1P	1P	1	0	0	0	1	1	1	0.00	50.00
		BZ	BZ	BZ	1	1	1	1	1	1	1	100.00	100.00
		LZ	LZ	LZ	2	2	1	2	2	2	2	50.00	91.67
		DP	DP	DP	3	0	1	0	2	3	2	0.00	44.44
		1P: 08:30-17:30	1P: 08:30-17:30	UN	10	3	3	6	10	6	10	30.00	63.33
		0.5P: 08:30-17:30	0.5P: 08:30-17:30	UN	7	0	0	0	5	7	6	0.00	42.86
		0.25P: 08:30-17:30	0.25P: 08:30-17:30	UN	1	0	0	0	1	1	1	0.00	50.00
		2P: 08:30-21:00	2P: 08:30-17:00	UN	5	3	2	5	4	2	4	40.00	66.67
Gisborne Road	From Bennett Street to Lerderderg Street	UN	UN	UN	18	6	5	4	12	8	8	22.22	39.81
	From Lerderderg Street to Patterson Street	UN	UN	UN	5	3	3	3	5	2	5	40.00	70.00
	From Main Street to Church Street	BZ	BZ	BZ	1	1	1	1	1	1	1	100.00	100.00
Graham Street	From Closter Court to Waddell Street	UN	UN	UN	69	64	64	60	62	65	63	86.96	91.30

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
	From Main Street to Waddell Street	UN	UN	UN	11	8	8	7	10	8	11	63.64	78.79
Graham Street	From Main Street to Waddell Street	2P	2P	2P	1	1	1	1	1	1	1	100.00	100.00
		1P: 08:30-17:30	1P: 08:30-17:30	UN	26	18	13	18	15	11	16	42.31	58.33
		4P: 08:30-17:30	4P: 08:30-17:30	UN	18	12	12	14	11	12	18	61.11	73.15
Grant Street	From Main Street to Milbank Street	LZ	LZ	LZ	1	1	1	1	1	1	1	100.00	100.00
		0.5P: 08:30-17:30	0.5P: 08:30-17:30	UN	8	1	5	3	5	1	6	12.50	43.75
		1P: 08:30-19:30	1P: 08:30-19:30	UN	6	3	3	3	4	2	4	33.33	52.78
	From Peelmans Lane to Sydney Street	UN	UN	UN	1	1	1	1	1	1	1	100.00	100.00
		BZ	BZ	BZ	1	1	1	1	1	1	1	100.00	100.00
		2P: 08:30-17:00	2P: 09:00-12:30	UN	25	24	25	17	24	25	25	68.00	93.33
	From Pilmer Street to Waddell Street	UN	UN	UN	26	18	18	21	25	26	25	69.23	85.26
		BZ	BZ	BZ	2	2	2	2	2	2	2	100.00	100.00
		2P: 08:30-17:00	2P: 09:00-12:30	UN	7	3	6	5	7	5	7	42.86	78.57
	From Sydney Street to Pilmer Street	UN	UN	UN	5	3	4	3	1	3	4	20.00	60.00
		2P: 08:30-17:00	2P: 09:00-12:30	UN	23	17	18	18	19	19	21	73.91	81.16
	From Turner Street to Millbank Street	1P: 08:30-17:30	1P: 08:30-17:30	UN	21	10	11	14	13	14	19	47.62	64.29
Gulline Close	Clarinda Street	UN	UN	UN	25	21	18	14	24	24	23	56.00	82.67
King Street	From Clarinda Street to Queens Crescent	UN	UN	UN	13	12	11	10	11	10	10	76.92	82.05

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Lerderderg Street	From Crook Street to Dickie Street	P10: 08:00-09:30, P10: 14:30-16:00	UN	UN	22	16	15	17	20	22	22	68.18	84.85
	From George Street to Young Street	2P: 08:30-17:30	2P: 08:30-17:30	UN	29	20	21	11	28	27	26	37.93	76.44
	From Gisbourne Road to Gell Street	BZ	BZ	BZ	2	2	2	2	2	2	2	100.00	100.00
		2P: 08:30-17:30	2P: 08:30-17:30	UN	21	14	15	15	15	13	15	61.90	69.05
	From Gisbourne Road to George Street	2P: 08:30-17:30	2P: 08:30-17:30	UN	26	21	22	20	19	23	21	73.08	80.77
	From Young Street to Dickie Street	UN	UN	UN	1	1	1	1	1	1	1	100.00	100.00
		BZ	BZ	BZ	1	1	1	1	1	1	1	100.00	100.00
		DP	DP	DP	2	2	1	1	2	1	2	50.00	75.00
		P10: 08:00-09:30, P10: 14:30-16:00	UN	UN	45	34	28	22	43	37	40	48.89	75.56
		NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	6	4	3	3	6	4	6	50.00	72.22
		P10: 08:00-09:00, 2P: 09:00-15:00, P10: 15:00 to 15:30	UN	UN	1	1	0	1	1	0	1	0.00	66.67
Lord Street	From Main Street to Simpson Street	UN	UN	UN	42	23	16	27	36	35	33	38.10	67.46
	From Simpson Street to McGrath Street	UN	UN	UN	38	37	38	38	36	37	38	94.74	98.25
Madden Drive	From Main Street to White Avenue	UN	UN	UN	44	43	41	44	42	42	42	93.18	96.21
Mahoney Court	Malcolm Street	UN	UN	UN	5	5	5	5	5	5	5	100.00	100.00
Main Street	From Clarinda Street to Madden Drive	UN	UN	UN	8	5	7	8	8	8	8	62.50	91.67

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Main Street	From Convent Lane to Grant Street	UN	UN	UN	1	1	1	1	1	1	1	100.00	100.00
		1P: 08:30-17:30	1P: 08:30-17:30	UN	10	9	8	3	10	3	1	10.00	56.67
	From Convent Lane to Grant Street	0.5P: 08:30-17:30	0.5P: 08:30-17:30	UN	3	1	1	2	3	3	1	33.33	61.11
	From Fisken Street to Crook Street	UN	UN	UN	13	11	10	11	13	13	13	76.92	91.03
	From Fisken Street to Lord Street	BZ: 08:00 to 08:30, BZ: 15:30 to 16:00, 2P: 08:30-17:30	2P: 08:30-17:30	UN	6	6	2	6	6	6	6	33.33	88.89
		2P: 08:30-17:30	2P: 08:30-17:30	UN	30	12	5	25	20	21	24	16.67	59.44
	From Grant Street to Gell Street	DP	DP	DP	1	0	0	1	1	0	1	0.00	50.00
		1P: 08:30-17:30	1P: 08:30-17:30	UN	26	8	10	7	9	4	14	15.38	33.33
		0.5P: 08:30-17:30	0.5P: 08:30-17:30	UN	1	1	1	1	1	1	0	0.00	83.33
		0.25P: 08:30-17:30	0.25P: 08:30-17:30	UN	4	0	4	2	2	2	1	0.00	45.83
	From Lidgett Street to Stamford Close	UN	UN	UN	16	16	16	16	16	16	16	100.00	100.00
	From Stamford Close to Convent Lane	UN	UN	UN	15	8	11	9	15	9	13	53.33	72.22
	From Young Street to Graham Street	UN	UN	UN	3	1	0	1	0	0	0	0.00	11.11
		1P: 06:00-18:00, TAXI: OVERNIGHT	1P: 06:00-18:00, TAXI: OVERNIGHT	TAXI: OVERNIGHT	2	2	0	2	1	0	1	0.00	50.00
		DP	DP	DP	2	1	0	2	2	1	2	0.00	66.67
		1P: 08:30-17:30	1P: 08:30-17:30	UN	35	6	7	8	9	3	13	8.57	21.90
	From Lord Street to Young Street	UN	UN	UN	11	8	7	4	5	5	11	36.36	60.61

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Main Street	From Lord Street to Young Street	DP	DP	DP	1	1	1	0	1	1	1	0.00	83.33
		0.5P: 08:30-17:30	0.5P: 08:30-17:30	UN	8	4	4	6	1	2	8	12.50	52.08
Malcolm Street	From Young Street to Crook Street	UN	UN	UN	28	23	21	20	19	20	20	67.86	73.21
	From Young Street to Mahoney Street	UN	UN	UN	8	4	4	4	2	5	6	25.00	52.08
Manly Court	Malcolm Street	UN	UN	UN	6	6	6	6	6	6	6	100.00	100.00
Manor Street	From Crook Street to Young Street	P10: 08:00-09:00, 2P: 09:00-15:00, P10: 15:00 to 15:30	UN	UN	68	64	64	54	57	58	52	76.47	85.54
McGrath Street	From Fisken Street to Ellerslie Court	UN	UN	UN	76	74	75	73	76	75	75	96.05	98.25
Millbank Street	From Grant Street to Clarinda Street	2P: 08:30-17:30	2P: 08:30-17:30	UN	36	17	13	18	28	22	29	36.11	58.80
Park Street	From Bond Street to Fisken Street	UN	UN	UN	70	42	46	47	47	68	69	60.00	75.95
Pilmer Street	From Closter Court to Waddell Street	UN	UN	UN	27	20	18	18	22	20	21	66.67	73.46
	From Grant Street to Standfield Street	UN	UN	UN	13	3	2	4	8	13	11	15.38	52.56
Queens Cres	From Clarinda Street to King Street	UN	UN	UN	13	12	12	13	11	9	6	46.15	80.77
Reddrop Street	From Bond Street to Fisken Street	UN	UN	UN	15	8	11	11	5	12	15	33.33	68.89
Simpson Street	From Fisken Street to Lord Street	UN	UN	UN	50	48	48	47	48	48	49	94.00	96.00
	Lord Street	UN	UN	UN	30	27	29	28	29	23	26	76.67	90.00
Standfield Street	From Closter Court to Waddell Street	UN	UN	UN	51	42	43	44	43	41	41	80.39	83.01

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Station Street	From Bond Street to Reddrop Street	UN	UN	UN	21	13	12	13	21	21	19	57.14	78.57
		DP	DP	DP	2	2	2	2	2	2	2	100.00	100.00
	From Bond Street to Reddrop Street	2P: 08:00-18:00	UN	UN	7	6	4	3	7	7	7	42.86	80.95
Station Street	From Griffith Street to Taverner Street	RES: 08:00-16:00	UN	UN	1	1	0	1	1	0	1	0.00	66.67
		2P: 08:00-16:00	UN	UN	9	9	9	9	9	9	9	100.00	100.00
	From Parwan Road to Bond Street	UN	UN	UN	74	6	3	3	67	43	47	4.05	38.06
		DP	DP	DP	1	1	1	1	1	1	0	0.00	83.33
	From Reddrop Street to Fisken Street	UN	UN	UN	34	24	25	26	27	33	34	70.59	82.84
Staughton Court	From Clarinda Street to Staughton Court	UN	UN	UN	4	4	4	4	4	0	4	0.00	83.33
Sydney Street	From Closter Court to Waddell Street	UN	UN	UN	14	14	14	13	10	10	10	71.43	84.52
	From Grant Street to Standfield Street	UN	UN	UN	11	9	9	9	8	10	9	72.73	81.82
Taverner Street	From Boyes Close to Fisken Street	UN	UN	UN	10	10	10	10	10	2	3	20.00	75.00
	From Grant Street to Boyes Close	UN	UN	UN	135	117	117	121	123	96	82	60.74	80.99
Turner Street	From Grant Street to Clarinda Street	2P	2P	2P	29	9	16	12	27	25	27	31.03	66.67
		1P: 08:30-17:30	1P: 08:30-17:30	UN	4	1	2	2	2	2	4	25.00	54.17
		2DP	2DP	2DP	1	0	1	0	1	0	1	0.00	50.00
Waddell Street	From Closter Court to Waddell Street	2P: 08:30-17:30	2P: 08:30-17:30	UN	14	12	11	10	12	10	12	71.43	79.76

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Waddell Street	From Grant Street to Standfield Street	2P: 08:30-17:30	2P: 08:30-17:30	UN	18	4	6	9	13	10	15	22.22	52.78
Young Street	From Lerderderg Street to Manor Street	DP	DP	DP	1	1	1	0	1	1	1	0.00	83.33
	From Lerderderg Street to Manor Street	2P: 08:30-17:30	2P: 08:30-17:30	UN	31	23	15	6	30	30	27	19.35	70.43
	From Main Street to Bennett Street	UN	UN	UN	2	1	1	2	1	2	2	50.00	75.00
		LZ	LZ	LZ	1	1	1	1	0	1	1	0.00	83.33
		1P: 08:30-17:00	1P: 08:30-17:00	UN	19	10	10	9	5	10	14	26.32	50.88
Grand Total					**2107**	**1466**	**1425**	**1419**	**1744**	**1626**	**1756**	**67.35**	**74.64**

Table 10-12: Off-Street parking availability in Bacchus Marsh

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Church Street	122 Main Street	DP	DP	DP	1	0	0	0	1	1	0	0.00	33.33
		2P: 08:30-21:00	2P: 08:30-17:00	UN	10	5	4	2	7	0	4	0.00	36.67
	110 Main St	2P: 08:30-21:00	2P: 08:30-17:00	UN	30	17	4	3	11	2	18	6.67	30.56
Gell Street	Foodworks (15 Gell Street)	DP	DP	DP	8	4	7	4	6	1	5	12.50	56.25
		2P: 08:30-21:00	2P: 08:30-17:00	UN	140	13	8	102	102	23	83	5.71	39.40
		0.5P: 08:30-21:00	0.5P: 08:30-17:00	UN	5	1	1	2	2	1	1	20.00	26.67
		0.25P: 08:30-21:00	0.25P: 08:30-17:00	UN	5	0	0	4	3	1	4	0.00	40.00
Graham Street	3 Graham St	UN	UN	UN	36	6	14	17	15	14	26	16.67	42.59
Grant Street	80-88 Grant St	UN	UN	UN	18	14	17	17	17	16	16	77.78	89.81
	59 Grant St	UN	UN	UN	13	9	0	0	10	0	1	0.00	25.64
	Maddingley Park Reserve	UN	UN	UN	47	41	38	38	44	6	6	12.77	61.35
Grant Street Service Road	Bacchus Marsh College	UN	UN	UN	48	19	20	18	45	42	45	37.50	65.63
		PZ: 08:00-16:00	UN	UN	9	1	4	2	8	5	9	11.11	53.70
	61-63 Grant St	DP	DP	DP	2	2	2	2	2	2	2	100.00	100.00

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Grant Street Service Road	61-63 Grant St	2P: 08:30-17:30	2P: 08:30-17:30	UN	22	21	18	21	22	22	20	81.82	93.94
		P5MIN: 08:00-17:30	P5MIN: 08:30-17:30	UN	5	5	5	5	5	5	5	100.00	100.00
Public Hall Parking	Public Hall and RSL (193-197 Main St)	UN	UN	UN	90	52	64	47	78	64	86	52.22	72.41
		DP	DP	DP	4	2	3	2	4	2	4	50.00	70.83
Shopping Centre Parking	Shell Fuel ((160-192 Main St))	UN	UN	UN	154	0	3	21	132	10	58	0.00	24.24
	ALDI (160-192 Main St)	UN	UN	UN	70	0	0	1	51	0	12	0.00	15.24
		DP	DP	DP	4	0	0	1	1	0	1	0.00	12.50
	Anytime Fitness (160-192 Main St)	UN	UN	UN	36	3	5	16	30	2	13	5.56	31.94
	Multideck (160-192 Main St) Rooftop	UN	UN	UN	241	176	180	194	190	141	188	58.51	73.93
	Multideck (160-192 Main St) Ground Floor	2P	2P	2P	175	8	17	24	12	41	41	4.57	13.62
		DP	DP	DP	8	1	2	2	3	4	2	12.50	29.17
		RES	RES	RES	19	2	4	6	6	17	7	10.53	36.84
	Subway (160-192 Main St)	UN	UN	UN	6	0	0	1	0	0	0	0.00	2.78
		1P	1P	1P	16	0	1	0	1	0	3	0.00	5.21
		DP	DP	DP	2	0	0	1	0	0	1	0.00	16.67
Turner Street	Hospital (13 Turner St)	UN	UN	UN	46	8	4	9	39	39	44	8.70	51.81

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday			Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	PM	AM	Noon	PM		
Turner Street	2 Turner St	UN	UN	UN	10	1	1	2	4	7	6	10.00	35.00
		DP	DP	DP	2	1	1	1	1	1	1	50.00	50.00
	Lake Imaging (25-35 Grant St)	UN	UN	UN	14	3	1	3	9	14	14	7.14	52.38
Station Parking	Northern station parking	UN	UN	UN	400	50	56	52	358	342	346	12.50	50.17
		BZ	BZ	BZ	4	4	0	4	4	4	4	0.00	83.33
		DP	DP	DP	12	3	6	6	12	11	11	25.00	68.06
		RES	RES	RES	16	8	4	5	14	13	14	25.00	60.42
		TAXI	TAXI	TAXI	3	3	1	3	3	3	0	0.00	72.22
		P5MIN: 08:00-17:30	P5MIN: 08:30-17:30	UN	4	4	0	1	3	3	3	0.00	58.33
	Southern station parking	UN	UN	UN	153	67	71	81	148	149	149	43.79	72.44
		DP	DP	DP	7	7	6	6	7	7	7	85.71	95.24
		P5MIN	P5MIN	P5MIN	3	1	0	2	3	3	3	0.00	66.67
Grand Total					**1898**	**562**	**572**	**728**	**1413**	**1018**	**1263**	**29.61**	**48.79**

Table 10-13: On-Street parking availability in Ballan

Street	Road Segment	Parking Restrictions			Supply	Available Parking					Min %	Avg %
						Friday		Saturday				
		Weekday	Saturday	Sunday		AM	Noon	AM	Noon	PM		
Atkinson Street	From Cowie Street to Fisken Street	3P: 06:00-18:00	UN	UN	8	8	8	7	7	6	75.00	90.00
		NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	28	26	26	27	27	28	92.86	95.71
	From Duncan Street to Stead Street	UN	UN	UN	41	38	37	37	37	39	90.24	91.71
	From Duncan Street to Windle Street	UN	UN	UN	39	39	39	38	36	39	92.31	97.95
	From Stead Street to Fisken Street	3P: 06:00-18:00	UN	UN	38	35	33	32	34	38	84.21	90.53
	From Windle Street to Jopling Street	UN	UN	UN	20	18	17	18	19	19	85.00	91.00
Blow Court	Blow Court	UN	UN	UN	4	4	4	4	1	3	25.00	80.00
Bradshaw Street	From Inglis Street to Spencer Street	UN	UN	UN	7	3	3	5	4	7	42.86	62.86
Cowie Street	From Atkinson Street to Edols Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	27	24	24	24	18	16	59.26	78.52
	From Edols Street to Steiglitz Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	20	16	16	20	19	20	80.00	91.00
	From Inglis Street to Simpson Street	UN	UN	UN	40	2	6	26	23	31	5.00	44.00

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday		Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	AM	Noon	PM		
Cowie Street	From Inglis Street to Simpson Street	DP	DP	DP	2	1	1	2	2	2	50.00	80.00
	From Inglis Street to Steiglitz Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	24	16	17	22	18	21	66.67	78.33
Duncan Street	From Atkinson Street to Edols Street	UN	UN	UN	16	13	14	15	11	14	68.75	83.75
	From Steiglitz Street to Edols Street	DP	DP	DP	3	3	3	3	3	3	100.00	100.00
		NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	29	17	15	28	28	28	51.72	80.00
	From Steiglitz Street to Inglis Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	34	32	32	26	29	27	76.47	85.88
Edols Street	From Cowie Street to Edols Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	7	7	7	7	7	7	100.00	100.00
	From Duncan Street to Stead Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	37	36	36	36	35	36	94.59	96.76
	From Duncan Street to Windle Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	39	37	38	39	39	39	94.87	98.46
	From Fisken Street to Cowie Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	35	30	31	30	29	31	82.86	86.29
	From Stead Street to Fisken Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	40	28	30	38	35	37	70.00	84.00
	Jopling Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	17	14	15	17	15	17	82.35	91.76

Street	Road Segment	Parking Restrictions			Supply	Available Parking						
						Friday		Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	AM	Noon	PM		
Fisken Street	From Atkinson Street to Edols Street	2P: 08:00-18:00	UN	UN	21	17	17	21	21	20	80.95	91.43
Fisken Street	From Edols Street to Steiglitz Street	2P: 08:00-18:00	UN	UN	18	16	16	16	15	18	83.33	90.00
	From Inglis Court to Cowie Street	UN	UN	UN	1	1	1	1	1	1	100.00	100.00
	From Inglis Street to Simpson Street	UN	UN	UN	22	13	11	18	9	20	40.91	64.55
	From Inglis Street to Steiglitz Street	UN	UN	UN	18	2	5	17	5	15	11.11	48.89
		BZ	BZ	BZ	3	3	2	3	3	3	66.67	93.33
Inglis Street	From Duncan Street to Windle Street	UN	UN	UN	43	42	41	42	40	41	93.02	95.81
	From Fisken Street to Cowie Street	DP	DP	DP	1	1	1	1	0	1	0.00	80.00
		1P: 09:00-17:30	1P: 09:00-12:00	UN	58	35	25	41	21	44	36.21	57.24
	From Fisken Street to Stead Street	DP	DP	DP	1	0	0	1	0	1	0.00	40.00
		1P: 09:00-17:30	1P: 09:00-12:00	UN	48	10	11	42	19	37	20.83	49.58
	From Inglis Court to Cowie Street	UN	UN	UN	29	15	17	26	25	26	51.72	75.17
		NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	14	6	7	9	8	12	42.86	60.00
	From Lay Street to Jopling Street	UN	UN	UN	49	49	49	49	48	49	97.96	99.59

Street	Road Segment	Parking Restrictions			Supply	Available Parking						
						Friday		Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	AM	Noon	PM		
	From Stead Street to Duncan Street	UN	UN	UN	57	30	31	54	53	54	52.63	77.89
Inglis Street	From Stead Street to Duncan Street	BZ: 08:00-09:30, BZ: 14:30-16:00	UN	UN	3	1	2	3	3	3	33.33	80.00
	From Bradshaw Street to Old Geelong Road	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	13	10	7	11	9	11	53.85	73.85
	From Inglis Court to Bradshaw Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	1	1	1	1	1	1	100.00	100.00
Roch Court	Simpson Street	UN	UN	UN	13	12	13	13	12	13	92.31	96.92
Simpson Street	From Bradshaw Street to Cowie Street	UN	UN	UN	9	1	1	8	8	9	11.11	60.00
	From Cowie Street to Fisken Street	UN	UN	UN	16	9	7	16	16	16	43.75	80.00
	From Fisken Street to Cowie Street	UN	UN	UN	25	18	18	22	24	24	72.00	84.80
	From Stead Street to Fisken Street	UN	UN	UN	29	25	24	24	24	24	82.76	83.45
Stead Street	From Atkinson Street to Edols Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	21	20	20	21	19	21	90.48	96.19
	From Edols Street to Steiglitz Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	19	11	13	19	17	17	57.89	81.05
	From Inglis Street to Simpson Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	12	10	10	12	12	12	83.33	93.33
	From Inglis Street to Steiglitz Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	21	7	8	20	11	21	33.33	63.81

Street	Road Segment	Parking Restrictions			Supply	Available Parking							
						Friday		Saturday			Min %	Avg %
		Weekday	Saturday	Sunday		AM	Noon	AM	Noon	PM		
Steiglitz Street	Duncan Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	17	2	14	17	16	17	11.76	77.65
Steiglitz Street	From Cowie Street to Cooper Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	13	10	13	13	13	13	76.92	95.38
	From Duncan Street to Stead Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	68	64	61	64	64	68	89.71	94.41
	From Fisken Street to Cowie Street	DP	DP	DP	1	1	0	1	1	1	0.00	80.00
		NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	59	44	43	59	57	58	72.88	88.47
	From Stead Street to Fisken Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	79	48	44	78	79	79	55.70	83.04
Walsh Street	From Cowie Street to Denholms Road	UN	UN	UN	27	27	27	27	27	27	100.00	100.00
	From Windle Street to Denholms Road	UN	UN	UN	92	90	90	92	92	92	97.83	99.13
Windle Street	From Inglis Street to Steiglitz Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	24	24	24	24	24	24	100.00	100.00
	From Steiglitz Street to Edols Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	15	15	15	15	15	15	100.00	100.00
Grand Total					**1515**	**1137**	**1141**	**1402**	**1288**	**1416**	**75.05**	**84.28**

Table 10-14: Off-Street parking availability in Ballan

Street	Road Segment	Parking Restrictions			Supply	Available Parking					Min %	Avg %
						Friday		Saturday				
		Weekday	Saturday	Sunday		AM	Noon	AM	Noon	PM		
Atkinson Street	SE of Atkinson St x Cowie St	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	42	28	35	42	42	42	66.67	90.00
Inglis Street	139 Inglis St	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	51	31	16	38	31	33	31.37	58.43
	143 Inglis Street	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	21	15	7	18	20	21	33.33	77.14
Station Parking	Station parking north	UN	UN	UN	171	8	8	156	144	149	4.68	54.39
		BZ	BZ	BZ	3	3	3	3	3	3	100.00	100.00
		TAXI	TAXI	TAXI	1	1	1	1	1	1	100.00	100.00
		NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	14	4	6	11	4	6	28.57	44.29
	Station parking south	UN	UN	UN	57	49	46	57	57	57	80.70	93.33
Steiglitz Street	62 Steiglitz St	NS: 08:00-09:30, NS: 14:30-16:00	UN	UN	56	38	46	54	53	56	67.86	88.21
Grand Total					**416**	**177**	**168**	**380**	**355**	**368**	**40.38**	**69.62**

Appendix C. Audit of parking control signage

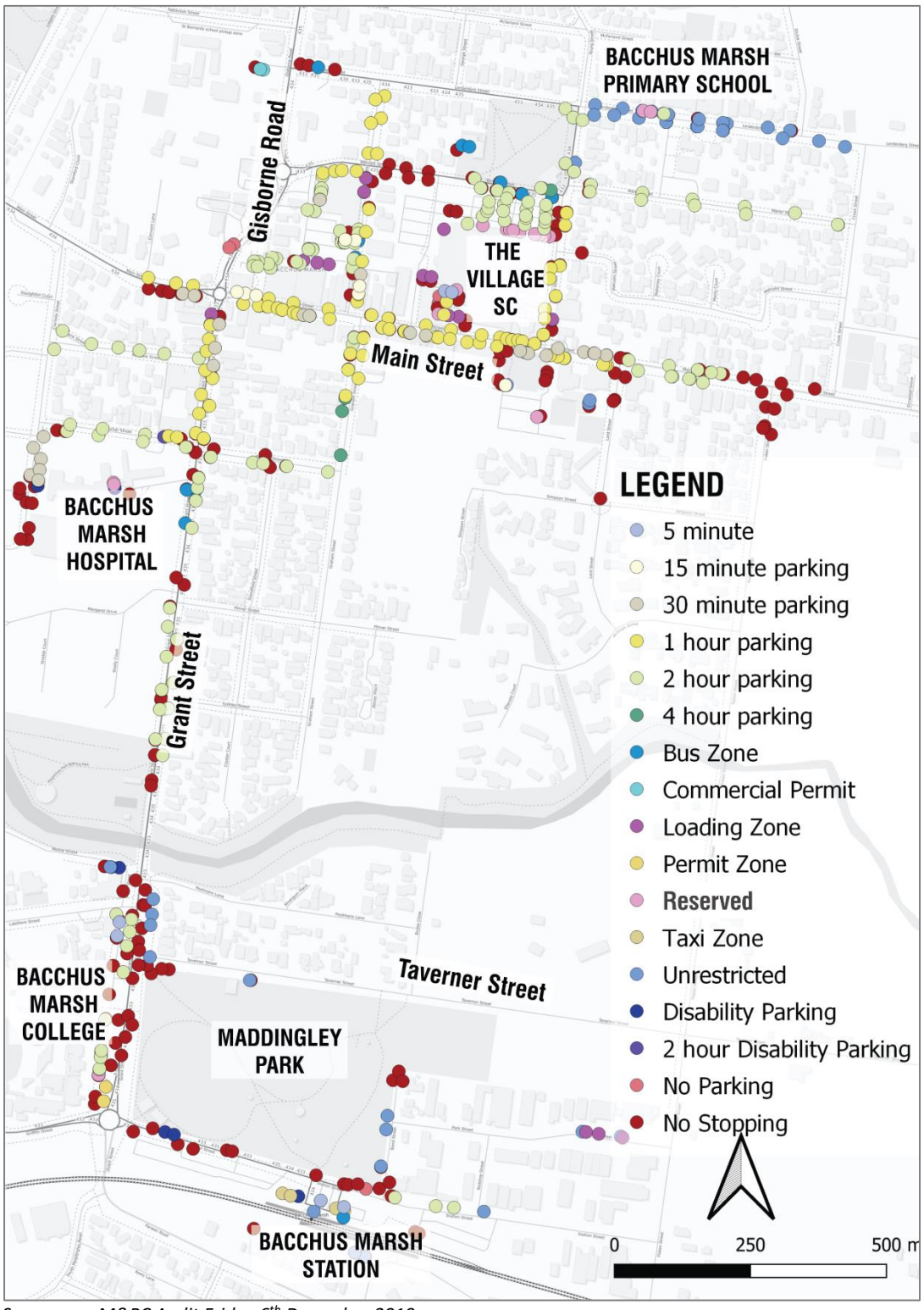
M&PC conducted an audit of all on-street and off-street parking restriction signs in the study areas of Bacchus Marsh and Ballan. This took place over the following dates:

- Friday 6th December 2019
- Saturday 21st December 2019

The survey was conducted using software from SPOT parking to easily geo-reference the locations and photographs of the signs. M&PC analysed each sign to confirm its location and the parking controls it applies.

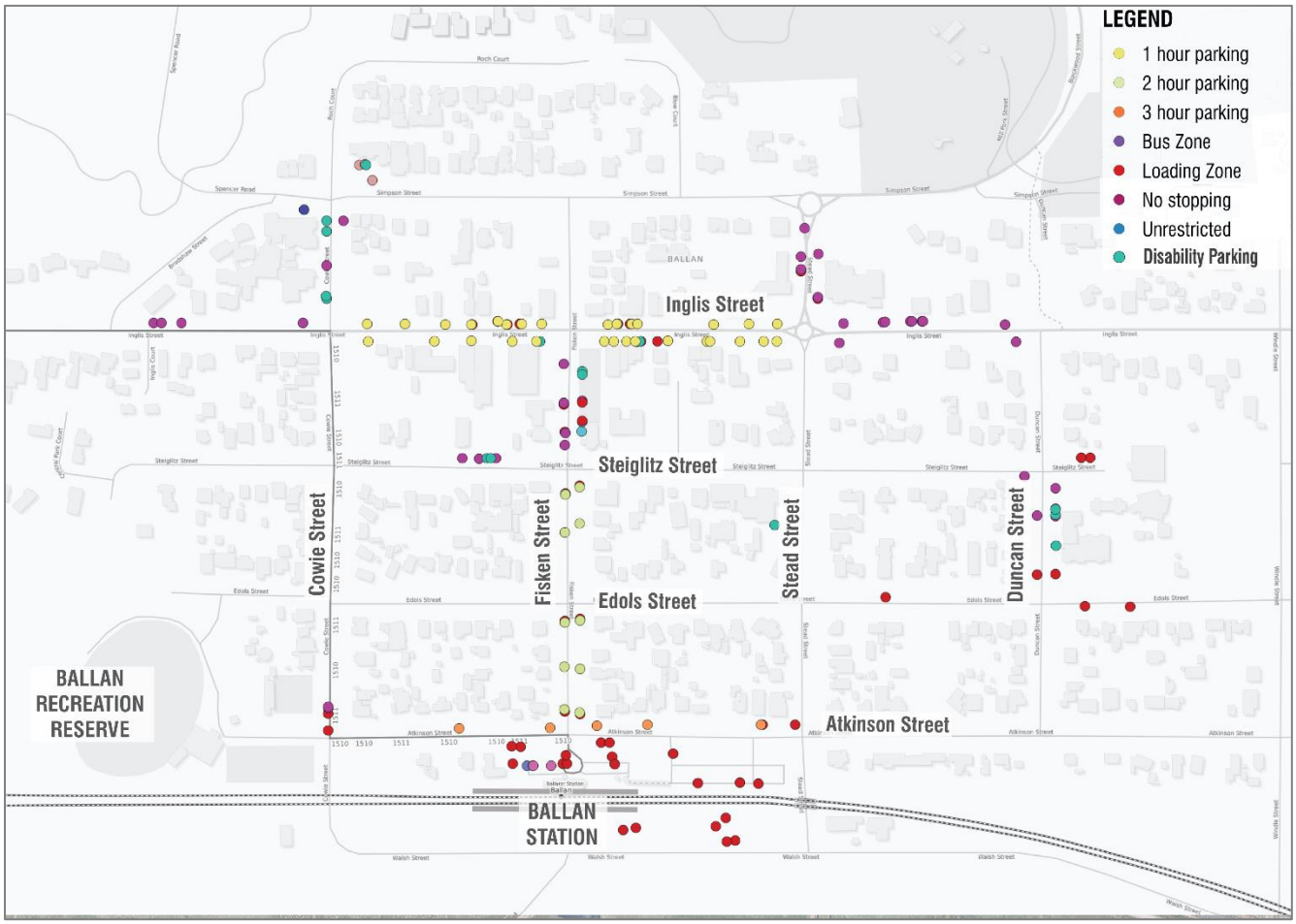
The role that specific parking controls have on facilitating access to each Town Centre is examined in more detail in each of the parking precinct plans in Appendix D.

Figure 10-22: Bacchus Marsh parking restrictions (Friday at 12:00pm)



Source: *M&PC Audit Friday 6th December 2019*
Notes: *This matches the typical signage during weekday hours between 8:30am-5:30pm*

Figure 10-23: Ballan parking restrictions (Friday 12:00pm)



Source: *M&PC Audit Friday 6th December 2019*
Notes: *This matches the typical signage during weekday hours between 8:30am-5:30pm*

Appendix D. Parking Precinct Plans

Moorabool Car Parking Precincts Overview

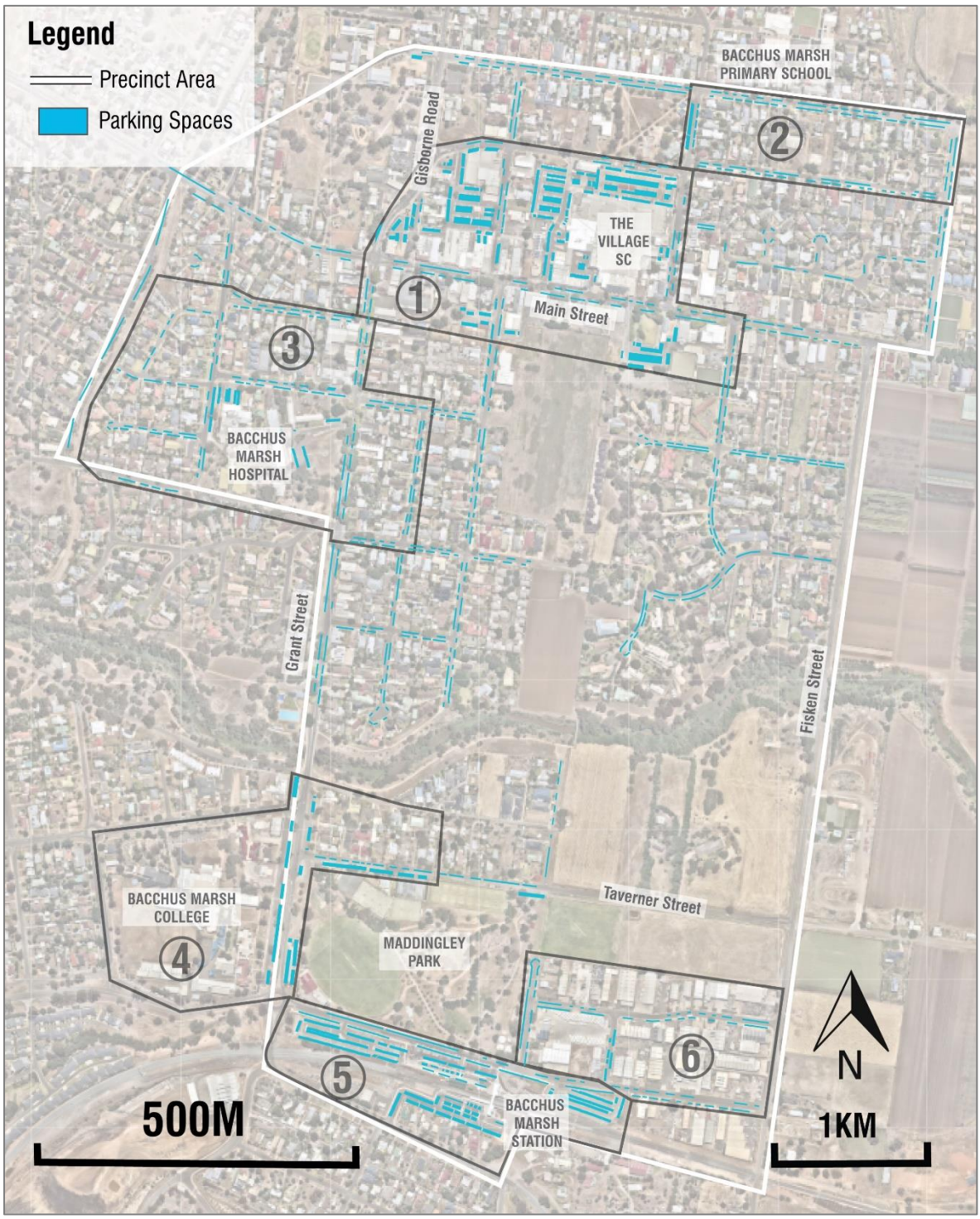
As discussed in the Moorabool Shire Car Parking Study report, Bacchus Marsh is the local economic hub and a regional centre for government services. There are some retail, administration, health and education services in small townships such as Gordon and Ballan. The two train stations in the municipality are also located in Bacchus Marsh and Ballan.

These areas as discussed in the report serve the regional demands for rapidly growing peri-urban communities. Many residents of Bacchus Marsh live beyond a reasonable walking distance from the Main Street. Public transport and riding a bicycle have relatively low market share compared to driving. To remain competitive the activity centres of Bacchus Marsh and Ballan need to improve the pedestrian amenity of each centre and provide appropriate parking management (in terms of availability and quality).

In Bacchus Marsh, there are 6 key parking precincts (or 'hotspots') in Bacchus Marsh which are identified in Figure 9-1 below. These precincts each experience high parking demands near key destinations such as:

- Bacchus Marsh Shopping Centre (Precinct 1)
- Bacchus Marsh Primary School (Precinct 2)
- Djerriwarrh Health Services (Bacchus Marsh Hospital) (Precinct 3)
- Bacchus Marsh College (Precinct 4)
- Bacchus Marsh Railway Station (Precinct 5)
- Bacchus Marsh Industrial Area (Precinct 6)

Figure 10-24: Bacchus Marsh Parking Precincts



Source: Nearmap, M&PC Survey conducted Friday 6 December 2019

Ballan Town Centre and the Railway station (Precinct 7) have much higher levels of parking availability. This means that there is currently opportunity to implement parking management controls to ensure the adoption of efficient future parking behaviours.

Each of these areas have different parking management needs and priorities which are summarised in the sections below.

Bacchus Marsh Town Centre

Key features of access to Bacchus Marsh Town Centre include:

- There are about 2,201 available spaces within 500m of *The Village*

  Access to Bacchus Marsh is dominated by cars (over 70% of visitors arrive by car), and pedestrians (25% of visitors walk to the centre).

- Some time-based and user-based restrictions apply, but typically parking is free and abundant
  - Main Street parking is limited to 1hr during weekdays and Saturdays 8:30am and 5:30pm
  - Off-street parking spaces are typically unlimited, while some (those in highest demand locations) have a 2 or 4-hour limit from 8:30am-5:30pm (Mon-Sat)

  Parking is provided for people with disabilities in line with industry standards.

A map of the Parking Precinct for Bacchus Marsh Town Centre is shown in Figure 10-25 below.

Figure 10-25: Bacchus Marsh Town Centre Parking Precinct

Source: M&PC Survey conducted Friday 6 December 2019

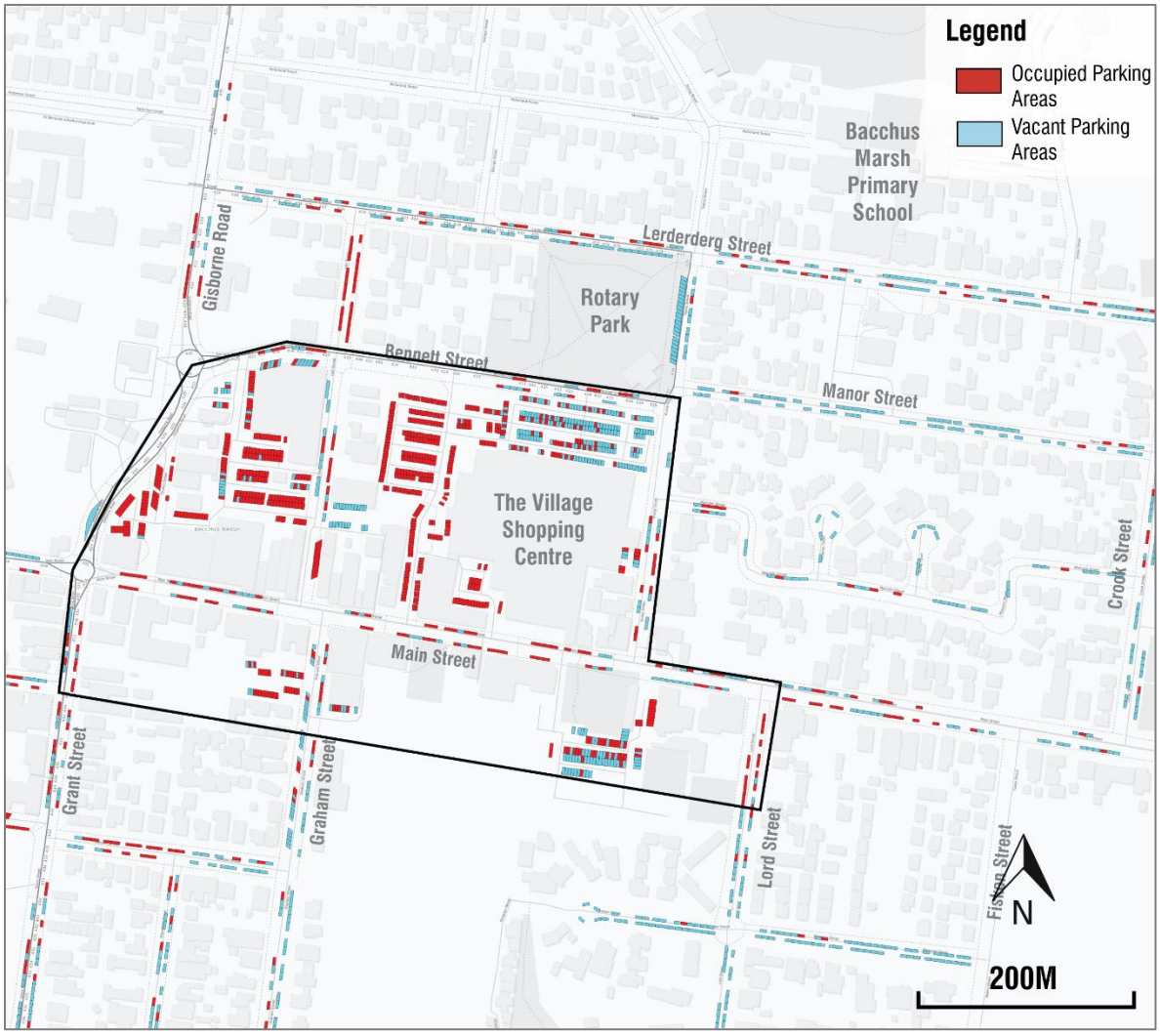
Premium locations are busy while parking spaces a bit further away are almost always available. A map of the Parking Availability at the busiest time of the week is shown in Figure 10-26 below.

- Visitors stated a high level of satisfaction with the parking space they found. Only 84% were either satisfied, extremely satisfied or neither all with their parking in Bacchus Marsh Town Centre
- If they could not find a parking space most people (69%) said they would just park further away and 17% would consider walking or riding a bicycle

Within the precinct, there have been 10 crashes over the last 5 years, including two incidents of pedestrians being hit by cars on Main Street and one crash resulting in a serious injury near the Gell Street and Main Street intersection. This means on average there is a crash every 6 months in the centre.

- Bacchus Marsh competes with other retail centres in the region including *Woodgrove* (Melton) and Ballarat. It is currently competitive with these centres in terms of amenity and easy access

Figure 10-26: Precinct 1: Parking availability (Friday 11:00am-1:00pm)



Source: M&PC Survey conducted Friday 6 December 2019

Most current visitors to Bacchus Marsh live within 20-minutes' drive of both Woodgrove and Bacchus Marsh. Despite Woodgrove having more services and more parking, people frequently travel to Bacchus Marsh because they enjoy the amenity and ambience of the centre. The village ambience and amenity was frequently mentioned by respondents as a key feature of the centre that Council should maintain and improve.

Parking is currently used by 70% of visitors, and it therefore underpins local economic activity. However, more parking will not generate more activity – because the amount of local economic activity is related to population, domestic disposable income and amenity of the centre (how attractive it is to people). Visitors who cannot find their 'perfect' space are happy to walk a bit further through the village.

Parking is the element of Bacchus Marsh that has the lowest amenity. While parking makes various parts of the centre easy to access, car parking also reduces the amenity of those locations. Using cars to travel short distances (which parking availability encourages) also reduces the disposable household income that is available in the community. There is a need to balance parking provision with other features that improve the attractiveness and economic vitality of Bacchus Marsh town centre.

There are a range of competing user priorities in the centre such as:

- Traders and employees who would like to be able to park their car for long periods of time, multiple times a week
- Customers who would like to park close to the centre for a short period of time (typically for less than an hour)
- Customers who are pedestrians who would like to see reduced vehicle movements on Main Street and improvements to the centre which prioritise pedestrian movement, access and amenity

Currently, new or growing businesses are required to pay a high cost for additional parking, either by providing the spaces on land they control or paying an average $10,500 per space to Council. Constructing an at grade car parking space costs around $3,500 per space, but the cost of the land in Bacchus Marsh Town Centre is around $30-50,000 per car space (including accessways but not including interest on a loan). It is therefore a significant burden on new businesses or expansion of existing businesses. There is also a significant difference in cost based on the location of the land, which is much higher in the Town Centre than elsewhere in Bacchus Marsh.

The following key issues were discussed in the June 2021 community consultation (see Appendix F):

- Excessive parking provision requirements for dwellings within 1.2km of the Town Centre
- There are several various opportunities to use the vacant lot behind Flanagan's Border Inn, though it is not owned by Council. The lot is currently poorly maintained and in poor condition
- Illegal parking in front of the Bacchus Marsh Fire Station which hinders emergency vehicles and makes staff parking unavailable
- Lack of clear and consistent tourist bus parking area
- Safety issues for pedestrians crossing:
    - Main Street and Grant Street intersection
    - Gisborne Road and Bennett Street intersection.

Recommendations

Given these issues, the following is recommended:

1. **Explore opportunities to improve Main Street amenity** - From the survey results, many respondents indicated a desire to see Council enhance pedestrian safety and priority in Main Street. These responses also generally included feedback for maintaining the town centre's "country ambience". This 'rural charm' can be enhanced and protected by improving pedestrian comfort and safety in Main Street.

   By converting up to 10% of the existing 93 parking spaces on Main Street to footpath and landscaping, Council can achieve a significant improvement in the streetscape. These targeted changes will improve pedestrian amenity, canopy tree cover and reductions in pedestrian crossing distances that improve safety and priority.

   The nine parking spaces most suitable for conversion are located at the front of Council owned or State-owned properties, specifically the Court House, Eddie Toole Place and the former library site at 193-197 Main Street. The car spaces are typically time-restricted to 1-hour between 8:30am-5:30pm and all are near public spaces that will benefit from having additional landscaped area.

   Some of these could be completed as temporary demonstration projects, which if successful could be converted to more longer-term installations. Careful consideration should be given to determining which spaces are least useful for car drivers, and most useful as additional space for public gathering and landscaping.

2. **Improve active transport connections to the centre** - Improving access to the centre by walking or bicycle riding is likely to result in higher economic benefits in addition to requiring less additional parking provision. Gaps in the footpath, bicycle and trail networks, (particularly within easy walking distance to the centre) reduce the number of people walking and increases pressure on car parking in the centre. Critical gaps in the networks include:

   - Between Werribee River and the town centre (such as the southern end of Lord Street)
   - Margaret Drive and the nearby streets
   - Works are underway to extend Lerderderg Track along the Southern Rural Water Channel from Clifton Drive to Werribee River, though this will not link to Main Street
   - Priority movement at intersections and across streets and through car parking areas
   - Northern parts of Maddingley, along all streets on either side of Griffith Street
   - Underbank estate to Bacchus Marsh's west
   - Areas north of Masons Lane and south of Western Freeway

   Addressing these gaps will make it easier for people to walk to Bacchus Marsh and will reduce pressure on car parking in the town centre. Of all visitors, 28% walk to the centre. This means that only 0.72 car spaces are required per visitor (assuming an occupancy of one visitor per car).

   Investing in walking produces many various kinds of benefits, from social, environmental, public health, financial and economic benefits. Investments in walking infrastructure have been shown by many studies to provide significant benefits for every dollar invested. This is because walking trips save households money they would otherwise spend on driving. It is estimated instead that 70% of these savings are spent locally, meaning that encouraging people to walk to the centre generates both health benefits and increases local economic expenditure. A good example of investing in walking is the new 'wombat crossing' in Bennett Street connecting Rotary Park to the Village Shopping Centre.

Currently there is a very low number of people riding bicycles to the centre. This is likely due to the lack of adequate priority and safety provided to bicycle riders. Installing separated cycling lanes on roads such as Grant Street, Main Street and Gisborne Road will broadly improve access from all areas of Bacchus Marsh. Prioritising these roads in improving cycling safety will make it substantially more viable for people to ride a bicycle to the shopping centre, and will reduce future pressure on parking spaces.

3. **Encourage multi-storey mixed-use development within 1km of the Town Centre** - Providing options for people to live close to the centre, makes it easier for more people to walk to shops and reduces pressure on car parking in the centre. Of the 28% of trips that were made by active transport to the centre, the majority lived within 1km as shown in Figure 10-27 overleaf. Increasing the number of residents within this area as well as the number of services will likely mean more people will walk than drive as the centre grows, requiring less parking.

Figure 10-27: Bacchus Marsh Shopping Centre Respondents Mode of Travel

Source: In-centre intercept survey conducted by M&PC (2019) with M&PC analysis

Housing location has a significant impact on car ownership. In 2016, 1 in 10 households within 2km of the centre did not own a car, according to the ABS Census. This was the highest rate of zero car ownership across the Shire. The benefits associated with no car ownership include:

- Increased health benefits from incidental activity
- Financial benefits for households saving $300 per week for not owning or using a car – which in turn increases local economic activity
- Reduced pressure for on-street car parking in the centre
- More productive use of space for economic activity within the town centre

Encouraging population growth within 1km of Bacchus Marsh town centre is a key way to reduce pressure on town centre car parking while increasing local economic activity. To support this growth, Council should consider forming an internal policy to reduce parking requirements for new residential developments within 1kmof the Town Centre. This internal policy should be made clear to developers and the community.

4. **Provide permits to traders and employees to guarantee some spaces for long-term daily use** - Employees within the town centre need to store their cars for longer periods of time during the day (typically over four hours) and typically travel to the centre several times per week.

   This group of visitors directly competes with people looking to park for shorter periods of time (typically less than one hour) who prefer to park close to the shops they are visiting (because the walk time from their car becomes a significant component of their overall time in the centre). The spaces near popular shops are therefore the premium spaces in the centre.

5. **Provide bus/coach bays in Main Street** - By converting three car spaces on Main Street to a bus bay in a strategic location, these coaches can provide tourists with direct access to local shops and cafés. Once established, Council could further advertise to other coach routes which currently travel straight through to Ballarat, to stop through via the Bacchus Marsh town centre.

   In order to better integrate local public transport options in the shopping centre, Council could consider advocating bus route changes that better serve Main Street, using these future bus bays. This is likely to make it more intuitive for passengers travelling between the shopping centre, station, Maddingley or Darley enhancing the visibility of public transport as a viable option and consequently ridership – further reducing parking demand.

6. **Improve pedestrian access & safety at key intersections (Main Street & Grant Street; and Gisborne Road & Bennett Street) –** access to the Town Centre from western residential areas by walking or bicycle riding could be improved by ensuring pedestrians have priority when crossing at these intersections.

7. **Explore opportunities for engaging with traders to inform them of alternative forms of infrastructure investment -** Given that parking represents a significant investment for traders who either provide it or pay for it to be waived, it is essential that they are engaged in making decisions about parking, access and amenity in the centre.

   The findings of the Moorabool Shire Car Parking Study report should be used to inform traders in the Bacchus Marsh centre to make decisions about the future of the centre. Traders should also be encouraged to help track the origin of their customers and the transport modes they use to access Bacchus Marsh Town Centre. This information will help traders to understand the balanced approach that needs to be taken with respect to managing parking and encouraging walking.

8. **Monitor and enforce compliance to existing restrictions** - Ensuring general adherence to the existing parking restrictions will help to maximise turnover and economic activity in premium locations. Council should continue its role in educating the public about road safety and parking compliance to reduce double parking, use of nature strips for parking, parking in CFA reserved spaces, parking in front of emergency vehicle driveways and other illegal parking activities.
9. **Monitor occupancy into the future and investigate potential for providing additional spaces** – Council should continue to monitor parking occupancy following changes to parking management, using the geographic shapefiles created from the study.

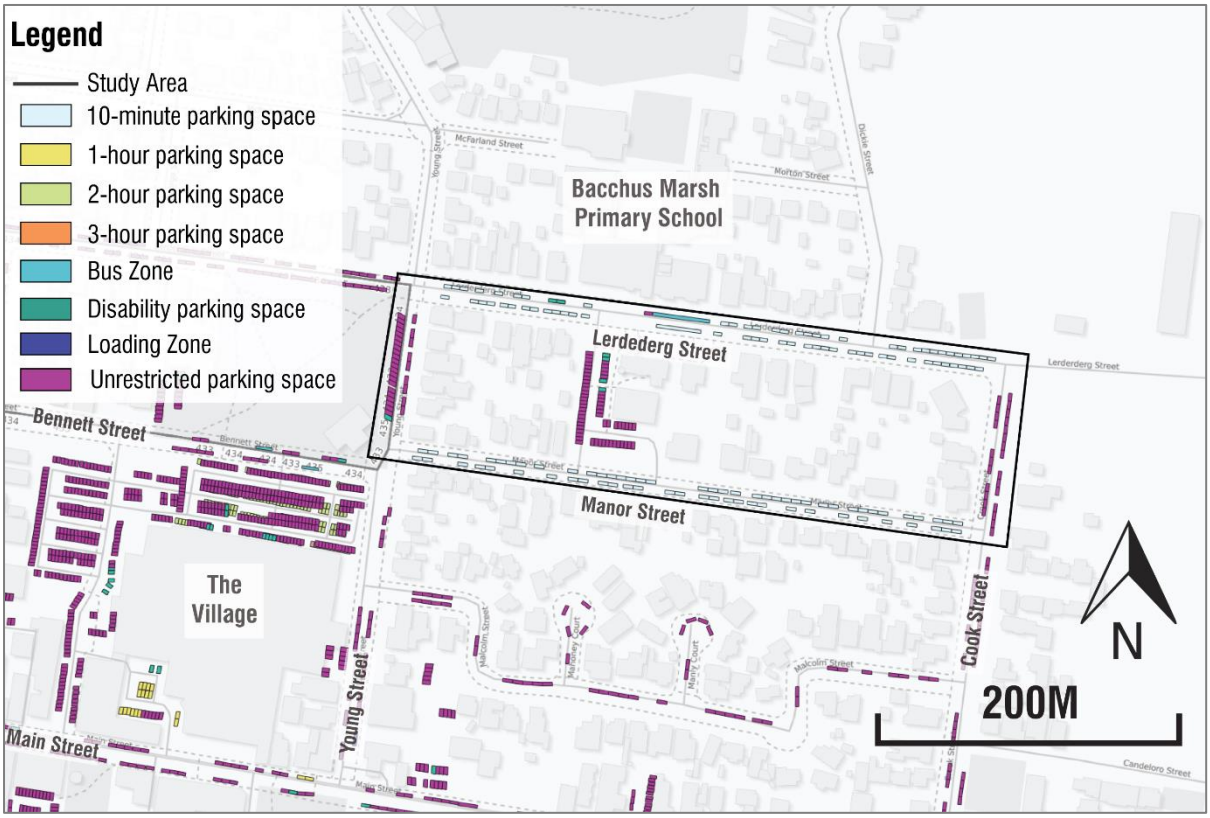
   As occupancy consistently reaches 85% across each small parking area, it will become necessary to reinvestigate alternative ways of reducing parking demand and providing additional parking spaces.

   Given the shortfall predicted for 372 spaces by 2041, Council could consider consolidating any future parking that is required into a multi-level communal facility, This facility would be best financed by the whole community (Council) and paid for by future users.
10. **Determine maximum local road network capacity –** Council should revise its Bacchus Marsh LATM to determine the maximum local road network capacity that can be achieved while improving safety and priority for pedestrians and bicycle riders within the existing road reserves. Council should also set a mode shift target in Bacchus Marsh to reduce private vehicle mode share by supporting uptake of other transport.

Bacchus Marsh Primary School

The main entrance to Bacchus Marsh Primary School is on Lerderderg Street. Other school entrances exist in McFarland Street and Young Street. However, as a result of high demand in Lerderderg Street, parking in the area before and after school hours is limited to 10-minute drop-offs or pick-ups. The area surrounding the school is shown in Figure 10-28 below, which also highlights the parking spaces within the town centre area on the southern boundary of the school site.

Figure 10-28: Bacchus Marsh Primary parking restrictions (8:00am-9:30am)



Source: M&PC Survey conducted Friday 6 December 2019

The Bacchus Marsh Local Area Traffic Management Plan (2019) identified that around this area, there is substantial congestion during the morning peak between 8:00-9:00AM which also impacts the wider traffic network, particularly Young Street and Gisborne Road from the Lerderderg Street intersection.

The study also found that the off-street parking facilities in the school were insufficient to meet demand for daily car storage for staff parking. In order to ensure parking for teachers and to de-congest Lerderderg Street and Young Street, Council and the School have previously discussed creating a car park on Masons Lane Reserve. Masons Lane Reserve is located to the immediate rear of the school and the proposal included 57 new spaces and pathways for access to the school.

However, this was likely to cost the school and Council a total of $470,000 or over $8,000 per space (not including land costs). To pay for this cost and ongoing maintenance, every space would need to generate $5 of revenue per school day for 30 years. Alternatively, the existing approach of spreading the car parking demand around the surrounding streets can be achieved at no additional cost.

The key parking issues can be briefly summarised as:

- High volume of vehicle movements on Lerderderg and Young Streets
- Difficulties for students crossing Lerderderg Street, aside from the existing crossings
- General local traffic congestion in peak times, particularly the morning between 8:00AM-9:00AM caused by high levels of pick-up and drop-off activity in front of the Primary School
- Overfilling of existing staff car park
- Additional provision of spaces away from Lerderderg onto Masons Lane Reserve poses a significant cost burden for School, the community and Moorabool Shire Council.

The following key issues were discussed in the June 2021 community consultation (see Appendix F):

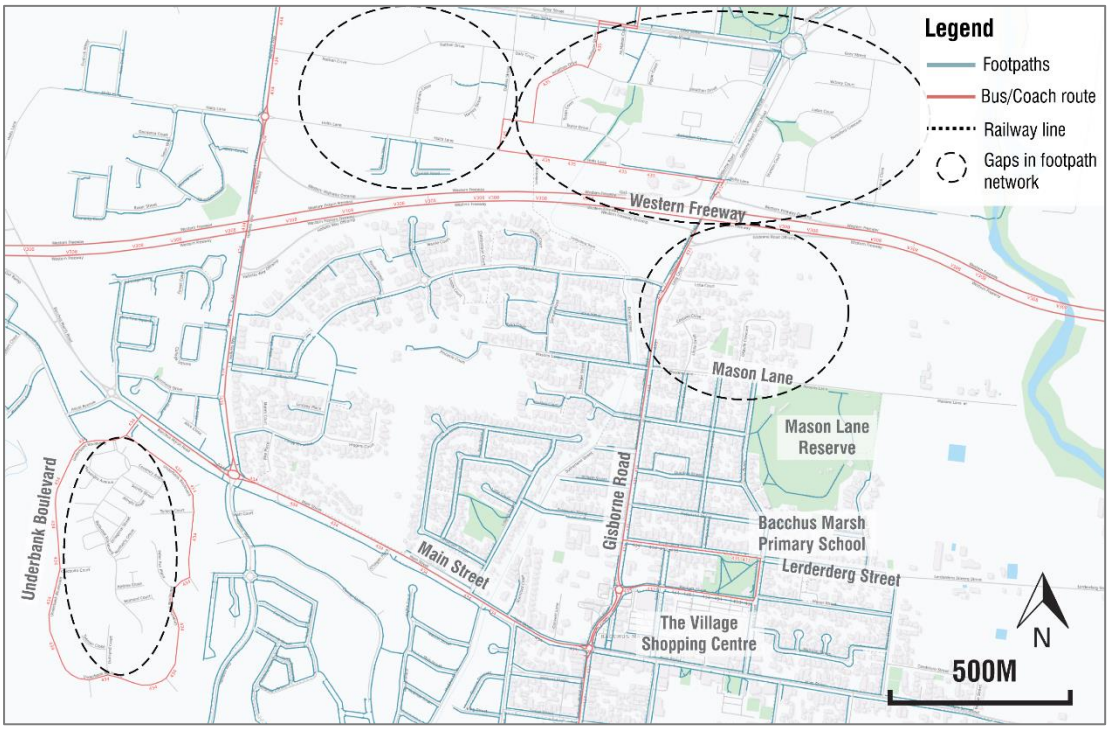
- Lack of available staff parking near the school
- Many drivers perform dangerous manoeuvres on Lerderderg Street (U-turns and parking over driveways) due to lack of available areas to drop-off/pick-up students
- Poor parking compliance (some parked cars encroach multiple parking spaces, limiting availability)
- Many drivers exceed the standing time restrictions (10 minutes) in peak times (particularly in the afternoon – 2:30 to 4:00pm), limiting availability
- Some community members requested longer time periods than the standing time restriction limit
- Young Street is unsafe for all users (particularly pedestrians crossing) due to excessive vehicle movements
- Conflicting parking needs for residents and Primary School staff in areas near the school
- Conflicting needs for limited road space along Young Street and Lerderderg Street (two-way traffic and on-street parking)
- Safety issues with the following intersections, due to excessive on-street parking:
    - Young Street & McFarland Street
    - Lerderderg & Dickie Street.

Recommendations

The following is recommended:

1. **Maintain and enhance bus priority –** The existing on-street bus zones should be retained and future opportunities to improve bus movement priority on Lerderderg Street could be explored. This would ensure that students or staff arriving by bus are not delayed by local private traffic congestion, making it more viable as an alternative to driving. The stops could also potentially benefit from improvements such as a bus shelter with seating and shading.
2. **Encourage more students to walk and ride bicycles to school –** There are a number of gaps in the local footpath network, particularly north of Masons Lane Reserve as shown in Figure 10-29 overleaf.

Figure 10-29: Gaps in the footpath network near Bacchus Marsh Primary School



Source: Council asset data with M&PC analysis

Improving this catchment to include footpaths, crossings and potentially wayfinding could improve the level of safety and comfort students experience when walking to school. Similarly, for students in other areas catching the bus, each stop should be connected to the footpath network and include a seat and shelter. Making these options more viable will mean that some families will be more confident sending their children to school without needing to drive them, reducing the demand for excessive vehicle movements on Lerderderg Street in mornings and afternoons.

Council should also provide safe crossings along Lerderderg and Young Streets, particularly at the following intersections:

- MacFarland and Young Streets; and
- Lerderderg and Young Streets.

Council should continue to work with Bacchus Marsh Primary School to improve access arrangements and travel choices. Council could improve access to the Reserve by improving crossing facilities along Young Street, particularly at intersections with Masons Lane, Dickinson Street and Dugdale Street. Council could also investigate options to reduce vehicle movements on Lerderderg by enforcing one-way eastbound traffic at peak periods.

3. **Demarcate parking spaces clearly and enforce parking compliance** – community comments identified that vehicles parked in multiple on-street spaces is a common issue, limiting overall availability. Council should clearly paint lines to demarcate available on-street spaces and ensure parked vehicles comply through enforcement.

4. **Work with St Bernard's Parish Centre to investigate ways to use the off-street parking lot for pick-ups between 2:45pm-3:45pm** – there are about 50 off-street spaces belonging to the Parish Centre. These spaces could offset some demand for parking along Lerderderg and Dickie Streets. Vehicles could enter and exit via Manor Street & Bennett Streets, easing pressure on Young and Lerderderg Streets. It would be imperative if implemented to ensure that students could safely cross Lerderderg to get to the Parish Centre.

Parking permits could be issued as pre-paid passes at the start of each year, with proceeds going to the Parish Centre. The passes should specify limits to maximise turnover and should be enforced by Council.

5. **Enable all-day car storage on the surrounding streets (rather than in off-street locations) –** It is recommended that future daytime car storage for teachers be facilitated in surrounding on-street locations including Lerderderg and Young Streets around Rotary Park and on the northern side of Manor Street (particularly outside St Bernard's Church). This is essential to reducing the cost to the community and the impact of travel time on teaching and learning outcomes.

   It is also recommended that Council not spend money on building parking facilities that do not have a financial return or in locations of low intensity. If parkland (such as Masons Lane Park) was to be used to create additional car storage facilities, the optimal location would be closer to the town centre (such as on Rotary Park) where the car parking could be better utilised and a higher financial and economic return on the investment can be realised.

Djerriwarrh Health Services (Bacchus Marsh Hospital)

Djerriwarrh Health Services are key employment centres for Moorabool Shire and provide health services at a regional level. Parking in the precinct is shared by various market segments with competing parking needs including:

- Employees who require long-term car storage (over 4 hours) on a daily basis
- Patients with being dropped off for day surgeries or longer stays and need very short stay parking close to their destination
- Patients with short appointments (less than an hour) who seek a parking space relatively close to the hospital or specific ancillary health service they are visiting
- Patients with longer appointments (over an hour in length) some of whom need to be close to their destination and others who can walk a moderate distance
- Visitors who could stay for short periods or for up to 4 hours
- Nearby residents who would like space to be available for visitors and their own cars

Currently, there are 144 off-street parking spaces in the hospital precinct shown in Figure 10-30 below.

Figure 10-30: Bacchus Marsh Hospital parking restrictions (8:30am-5:30pm)

Source: M&PC Survey conducted Friday 6 December 2019

User-based and time-based controls are applied to these spaces in order to serve various market segments, including:

- 110 spaces are for patients of the hospital
- Some of these spaces are reserved for particular services of the hospital such as the 14 spaces for customers of the Lake Imaging centre
- 28 spaces for staff, mostly district nurses
- 6 spaces for patients with a disability

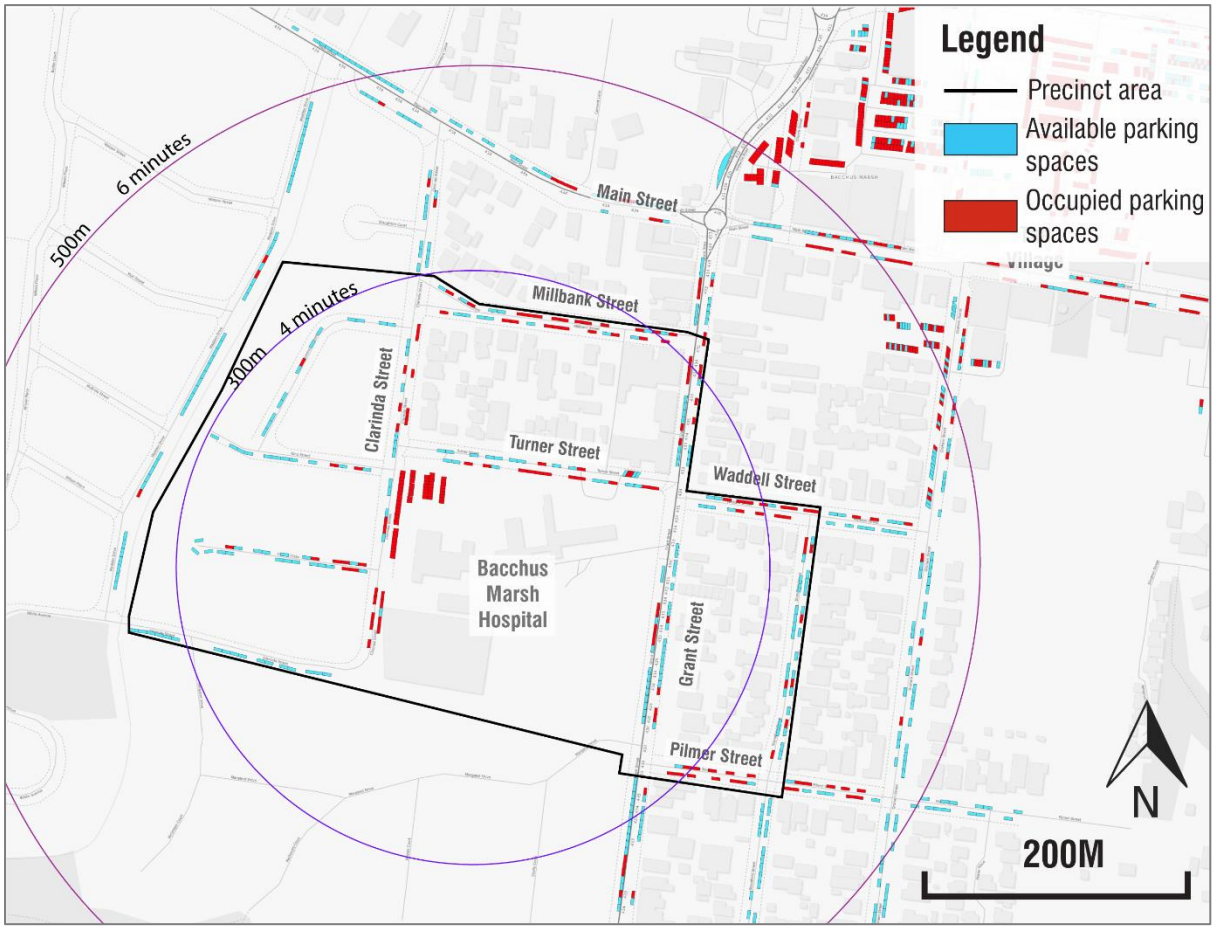
In some cases, these parking spaces designated for specific users were fully occupied at peak times.

In addition, there are about 200 on-street parking spaces within 500m of the very middle of the Hospital and Health Centre. These spaces do not tend to be restricted and are therefore shared amongst the various market segments. An exception is Turner Street where all parking is restricted to 2 hours or less and a single side of Grant, Millbank and Waddell Streets where parking is restricted to 2 hours or less (or residents).

Generally the surveys found parking to be available in all locations. The highest rates of occupancy (indicating that the availability of parking in these areas should continue to be monitored) occurred in:

- Clarinda Street (south of the Turner Street intersection)
- Turner Street.

Figure 10-31: Bacchus Marsh Hospital parking availability (Friday 11:00am – 1:00pm)



Source: M&PC Survey conducted Friday 6 December 2019

In addition to these parking spaces, there are many more spaces slightly beyond the arbitrary catchment mapped above. Many employees would be comfortable walking slightly longer distances and would understand the need to do so in order to increase their daily exercise and long term health outcomes.

There is also public transport access to the hospital, including bus Routes 433, 434 and 435 which each travel along Grant Street to and from the Bacchus Marsh Station, connecting with the V/Line services.

Current restrictions provide relatively good parking management through a variety of time-based and user-based restrictions generally reflecting the proximity to various facility entrances. below.

For example, disability permit parking is located close to building entrances in Clarinda Street and Turner Street. Time-based restrictions are applied in:

- Clarinda Street between Turner Street and Gulline Close - mostly restricted by 30 minute parking
- Turner Street - mostly restricted by 2-hour parking except for five spaces outside of the medical centre which provide 1 hour parking and disability parking (limited for 2 hours).

Clarinda Street south of Gulline Close and Gulline Close itself both do not have any time or user-based restrictions and over half of the 40 spaces closest to the hospital in this location were available (24/40 spaces were available) at the peak time.

The following key issues were discussed in the June 2021 community consultation (see Appendix F):

- Lack of parking available in Hospital Precinct overall
- Lack of parking availability along the west end of Pilmer Street (between Grant Street and Stanfield Street) from 8:30am to 5:00pm. This may be due to employee parking
- Perceptions of safety risks when dining in trial parklets on Grant Street (which have since been removed)
- Cost-barriers to business development along Grant Street, due to parking provision requirements.

Recommendations

Given the need to maximise the efficiency of the existing parking facilities, the following is recommended:

1. **Improving pedestrian safety and priority across Clarinda Street, King Street and Turner Street** – These two intersections are currently designed in a manner that inhibits pedestrian movement and encourages higher speed car movement. King Street provides a connection to the Rural Water Channel that could become a useful pedestrian link for employees and visitors to use for access to the health precinct. Improving pedestrian comfort across these intersections is a key way to encourage those trips to be completed by walking and reduce pressure on nearby car parking.
2. **Monitor demand for additional disability parking** – As activity in the health precinct increases and the regional population grows, there will be increasing need for disability permit parking spaces in close proximity to key entrances to health facilities. Council should monitor these demands and aim to provide 1 disability permit space for every 40 parking spaces that are occupied during peak times.
3. **Tweak the time-based restrictions to meet a wider range of customer needs –** Many of the market segments have different needs for parking with regard to time and walking distance. This is not required immediately but is expected to be required as activity in the health precinct increases. Council should consider applying 2-hour time restrictions for on-street parking along the west end of Pilmer Street (between Grant Street and Stanfield Street). Council should also consider applying 4 hour time restrictions on the:
    - West side of Clarinda Street to the south of Turner Street

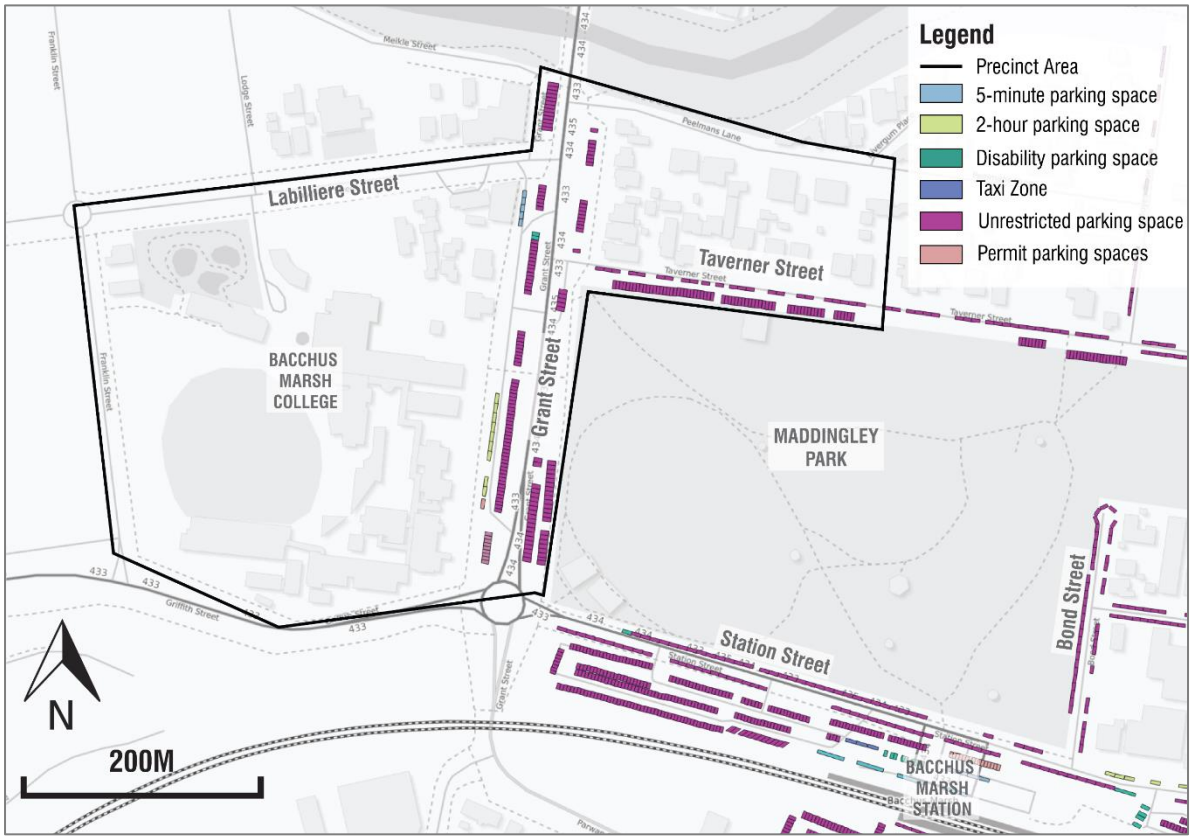
- East side of Clarinda Street south of the hospital entrance.

4. **Reduce parking for new or growing businesses along Grant Street –** Council should set an internal policy to reduce parking requirements for future developments (including changes of use or building extensions), based on the abundant provision of on-street parking nearby.
5. **Improve nearby bus stops** – The bus stops on Grant Street and Turner Street are basic in design including a hard-stand area and tactile ground surface indicators. Given their location as the nearest stop to the Hospital, it would be good to investigate providing a bus shelter and seating with a back and armrest. Improving the provision of facilities at these bus stops could reduce the pressure on car parking in the surrounding area.

Bacchus Marsh College

The Bacchus Marsh College precinct includes a drop-off and pick-up area in the service lane in front of the main school entrance in Grant Street as shown in Figure 10-32 below.

Figure 10-32: Bacchus Marsh College parking restrictions (8:30am-5:30pm)



Source: M&PC Survey conducted Friday 6 December 2019

The school is also served by a set of six bus bays on the northern side of Griffith Street with entry via Franklin Street. There are some parking restrictions in Franklin and Labilliere Streets that typically limit parking during the school arrival and departure peaks so that the amount of space available can be shared by the maximum number of parents.

Traffic congestion occurs during the morning and afternoon, due to the volume of students who are driven to school. These pressures are likely to increase over time, and increased parking management will be required as they do.

The College is located close to the Bacchus Marsh Station and is served by all three bus routes in Bacchus Marsh. Some staff and students arrive at the school by train, and many students travel on the local bus or school special bus services.

There are many gaps in the footpath network surrounding the College (as shown in Figure 10-33 overleaf) as well as a lack of clear access points from Franklin and Labilliere Streets. The existing signalised pedestrian crossing of Grant Street is located at the northern boundary of the school, and provides good connectivity for those living in areas to the east of Grant Street, north of Maddingley Park (and Werribee River). However, the signals do not assist people coming from the Station or from areas south of the railway line. These people need to cross Grant Street at the roundabout intersection with Griffith Street and Station Street. This is a relatively unsafe situation in the morning peak with a mixture of traffic types (including large freight vehicles), and high volumes of traffic (including school arrivals by car).

Providing higher levels of pedestrian connectivity, including sufficient wayfinding, safety crossings, footpaths and other active transport infrastructure will mean more families would feel more confident enabling their children walking or riding a bicycle to school.

Figure 10-33: Gaps in the footpath network near Bacchus Marsh College

Source: Council asset data with M&PC analysis

The College currently has bicycle parking facilities, which enables a number of students to ride bicycles to school. However, there are many gaps in the bicycle network particularly to the west of the College and along Grant Street.

The following key issues were discussed in the June 2021 community consultation (see Appendix F):

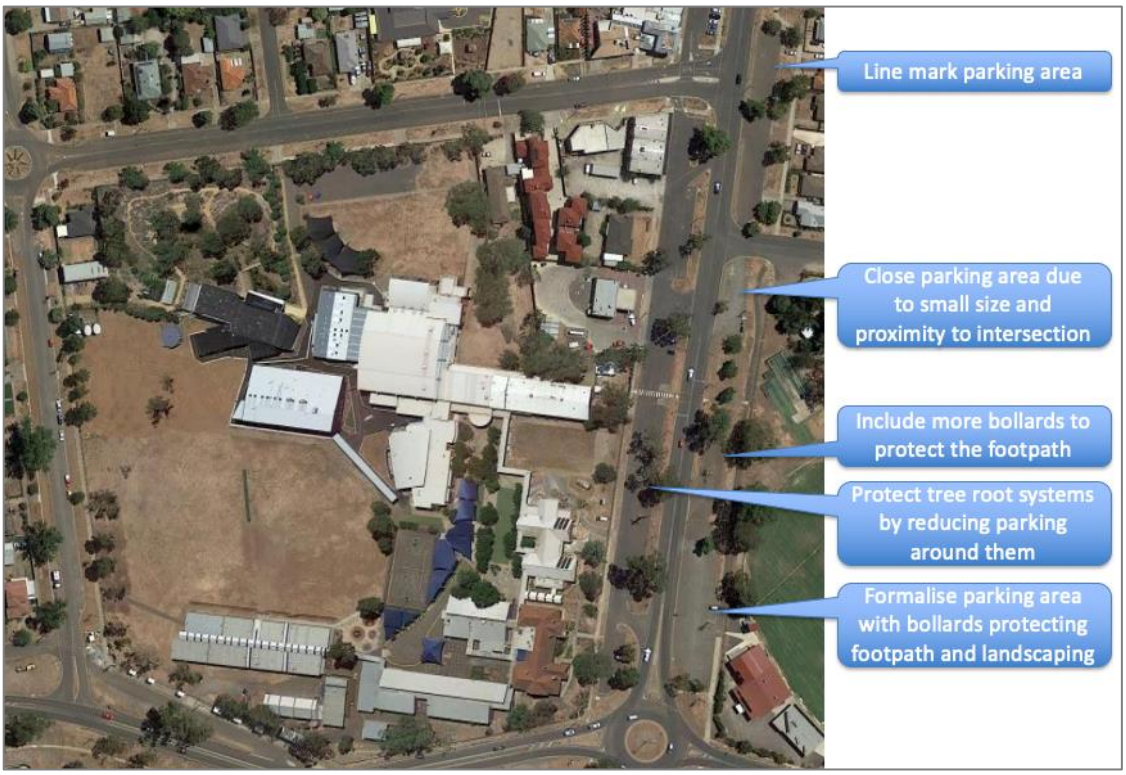
- Difficulties safely crossing Werribee River to link river paths from Grant Street
- Several issues with on-street parking near Stoney's including:
  - Poor condition of line markings
  - Unspecified issues with disabled parking
- Lack of safe crossing facilities on the Grant Street and Griffith Street intersection
- Lack of disability parking available at the Bacchus Marsh College Grant Street entrance
- Poor pedestrian safety along Taverner Street, when accessing Maddingley Park and nearby recreational facilities
- Lack of safe crossing facilities between Maddingley Park and Boyes Close/River Bridge
- Residents near the Precinct are able to walk to Bacchus Marsh Station, Bacchus Marsh College, open space, recreational facilities and town centre. Residents also have abundant parking availability overnight nearby. However, these households are required to provide at least one parking space, limiting housing affordability.

Recommendations

Given these issues, the following is recommended:

1. **Improve pedestrian and bicycle rider priority to key nearby locations –** Pedestrians and bicycle riders need to be given safer routes with greater priority in order for parents to trust that their children will arrive at school safely. Critical locations where road designs should enhance pedestrian and bicycle rider safety include:
    - High quality bicycle facilities at the intersection between Grant, Griffith & Station Streets
    - Potential trial of fully-protected bicycle infrastructure similar to the intersection of Albert & Lansdowne Streets in East Melbourne
    - The signalised pedestrian crossing of Grant Street should be improved to include bicycle lanterns and the zebra crossing of Grant Street Service Road should be improved to include bicycle priority across the crossing
    - A pedestrian bridge across Werribee River adjacent to the road bridge
    - Pedestrian crossings along Taverner Street linking Maddingley Park and Werribee River
    - A shared path (bicycles and pedestrians) is currently being designed to link Stonehill to Grant Street using the kerbside (where the footpath would be). This will be funded using developer contributions. In future, the path should be upgraded to include raised priority crossings for every cross-street along its length
    - The intersection of Labilliere and Lodge Streets should be designed to include a table-top and pedestrian "wombat" crossings across all legs of the intersection
    - Continue to work with Bacchus Marsh College to improve access arrangements and travel choices
    - These improvements will reduce pressure on parking in the surrounding area and will improve transport choices for the whole community.
2. **Increase the availability of disability permit parking spaces at the Grant Street entrance of Bacchus Marsh College –** As identified by members the community, there is a lack of available disability parking at the entrance of the College. The College should consider the needs of school students and their parents/guardians and reserve additional spaces accordingly.
3. **Reduce parking requirements for new dwellings within 800m of Bacchus Marsh Station –** Households in this area are able to walk to Bacchus Marsh Station, recreational facilities and many essential services. They also have abundant parking available overnight. Given this, Council should consider forming an internal policy to reduce parking requirements for new dwellings 800m from the station. This policy should be made clear to developers and the community.
4. **Formalise and improve parking on the east side of Grant Street –** Grant Street is used by some school staff for all day parking. There are several informal and formal parking areas on the eastern side of Grant Street (outside Maddingley Park) that have a significant impact on amenity and safety for pedestrians. It is recommended that these areas be reduced in size and formalised with clear signage regarding where parking is permitted and additional bollards to prevent drives from encroaching on footpaths and landscaped areas. A general concept plan for the area is shown in Figure 10-34 overleaf.

Figure 10-34: Concept for improving parking on the east side of Grant Street



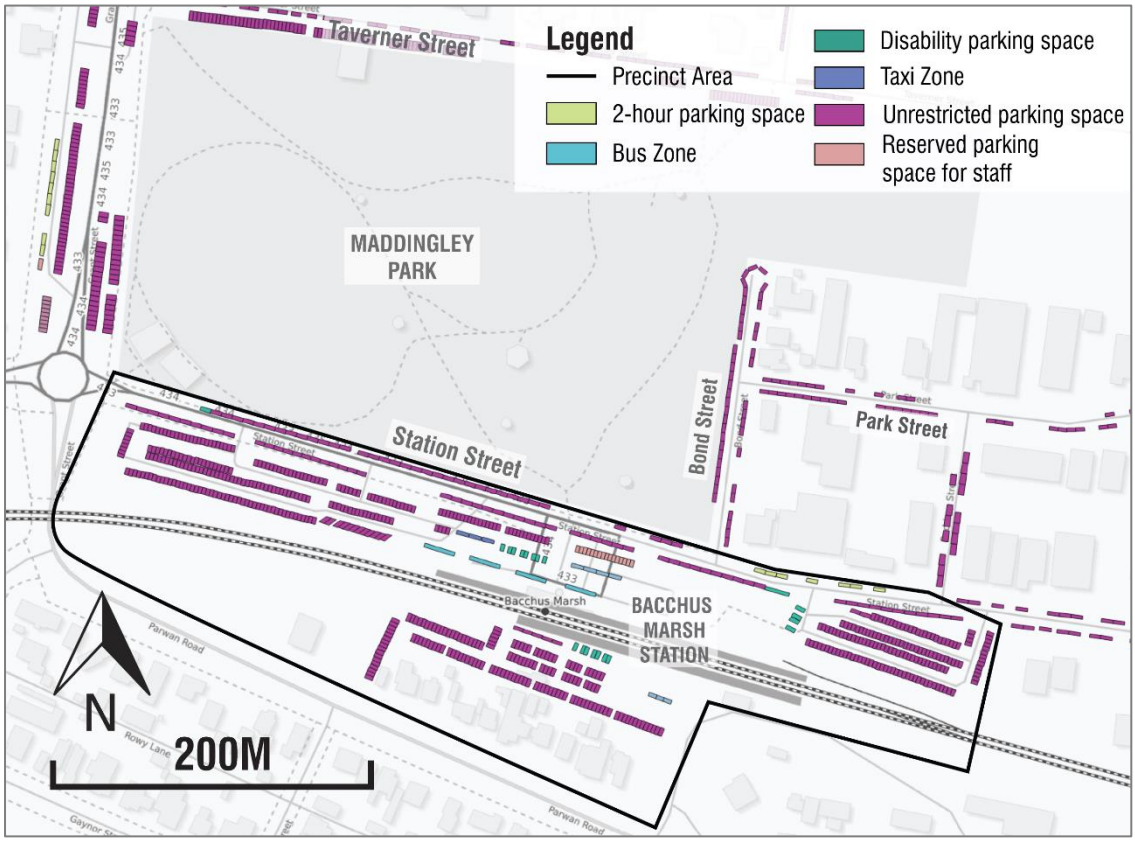
Source: Google Maps with M&PC analysis

Community members have also identified that the off-street parking spaces near Stoney's are not clearly delineated, given that the line marking has eroded. These lines should be re-painted and maintained.

Bacchus Marsh Railway Station

There are 793 parking spaces located within 200m of the station as shown in Figure 10-35. In these areas, most of this parking is off-street and unrestricted. The spaces nearest to the station entrance are restricted to 5min parking or pick-up/drop-off zones and bus and taxi zones.

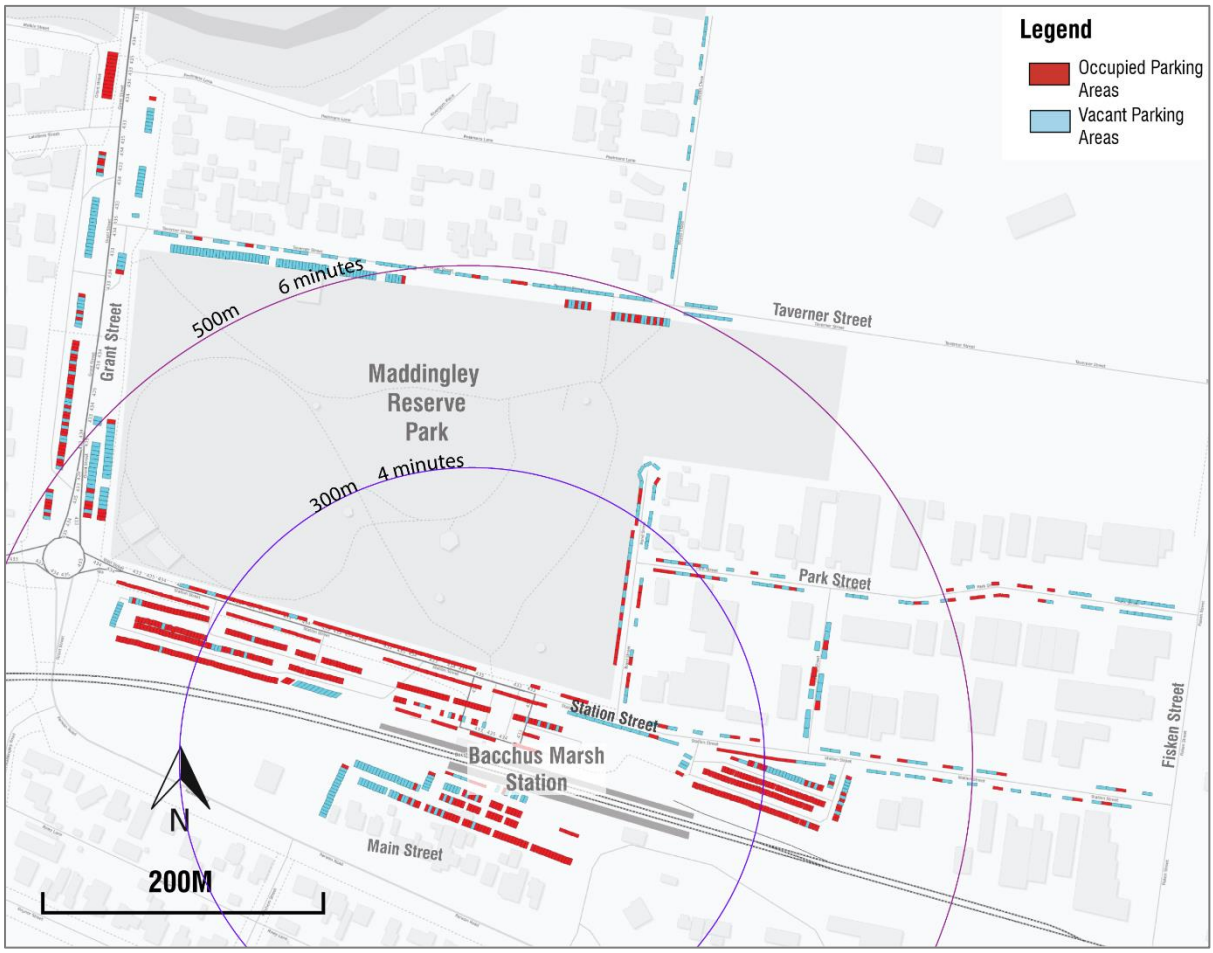
Figure 10-35: Bacchus Marsh Station parking restrictions (8:30am-5:30pm)



Source: M&PC Survey conducted Friday 6 December 2019

The peak parking occupancy around Bacchus Marsh Station on a Friday (in December) is shown in Figure 10-36 overleaf. The survey includes the 155 spaces added in November 2019 as part of the Regional Rail Revival project.

Figure 10-36: Bacchus Marsh Station parking availability (Friday 11:00am-1:00pm)



Source: M&PC Survey conducted Friday 6 December 2019

This highlights that much of the new parking supply is occupied with some spaces available on the southern side of the railway line and at the very end of the car parking areas (with the exception of disability permit parking close the station entrance. This image also highlights that the 60 on-street car spaces Station Street (between Grant Street and Bond Street) provided by Council are well utilised.

As growth continues, it will be critical to have a robust management plan which adequately caters for various users, including those that arrive at the station later in the day or running late to catch their train.

Over 1,000 people use Bacchus Marsh Station each weekday. A 2012 passenger survey conducted by DOT found that 50% of passengers accessed the station by car, 25% walked and 25% caught the bus or rode a bicycle. It is unknown from this survey where these trips originated from. However, studies have shown that Park and Ride spaces are often less available to people who have limited alternatives to driving due to where they live, because they are often occupied by people who live closer but drive because parking is free and abundant.

To mitigate this, people living further away must choose between leaving home earlier to ensure that they can find a space, or park further away. In future, this will include many of the new residents of the Merrimu and Parwan growth areas or Precinct Structure Plans (PSPs). Parwan station could cater for some local demand, but for many Bacchus Marsh will be their closest station with many more facilities (including more car parking) than Parwan.

Recommendations

Given the need to maximise the efficiency of the existing parking facilities, the following is recommended:

1. **Tweak existing time restrictions on Station Street close to the station entrance –** Given the current scheduling of the V/Line services, a relatively cost-effective measure to improve parking efficiency would be to introduce 15-minute parking on Station Street, just opposite the station entrance to clear the parking area prior to 8:45am. This will make the spaces available for late arrivals to park all day closer to the station in time for the 9:00 am train.

2. **Improve availability by implementing paid parking areas in premium spaces -** As the population of Bacchus Marsh increases, the demand for the premium spaces at the train station will increase. Time and user-based restrictions will not cope with the level of demand that arises. The only other tool that can assist to manage the spaces that are in highest demand is fee-based restrictions.

   Providing parking close to the station entrance for people who arrive later in the day is important, and is of significant assistance to people trying to catch a specific train after running errands early in the morning. Identifying the ten on-street spaces closest to the Station entrance and applying a fee-based restriction to them would help anyone arriving later in the day to make up some valuable time and potentially catch an earlier train.

   Placing a fee on just these spaces would mean they are not the first spaces filled by early risers (those drivers would simply walk the 30 metres from the nearest free car space. The 10 premium spaces would remain available for people arriving much later in the day or those who are running late for their train (in which case the reduced walk is worth paying for). This fee would not be extended to all parking in the area (as that would defeat the purpose).

   The fee does not need to be high, just enough to give people the choice of walking a bit further or paying the fee. The initial fee would not generate any significant financial return for Council and it would only increase if the car spaces were regularly full at 12 noon.

3. **Improve active transport connectivity –** As shown in Figure 10-37 below there are gaps in the footpath network in residential areas within 1km of the station.

Figure 10-37: Gaps in the footpath network near Bacchus Marsh Station

Source: Council asset data with M&PC analysis

Over 50% of respondents in the Bacchus Marsh town centre survey who lived within 1km of the centre with adequate walking infrastructure walked. Improving the connections within the same catchment of the station and potentially including wayfinding signage assisting people to understand the proximity of the station, could see a similar benefit in mode share.

VicRoads have planned bicycle connections via Station Street, though these have yet to be completed. Advocating for these changes to be prioritised as well as providing adequate bicycle parking facilities (which is substantially more cost-effective than car parking to provide) will also likely result in a reduction of car parking demand. Other specific improvements that could be investigated by Council include:

- Provision of a wombat style zebra crossing across Station Street at the entrance to Maddingley Park aligned with the pedestrian access to the Station
- Improve the shared path connection from the station entrance to Boyes Close and the Werribee River pedestrian bridge including a 3m paved path through Maddingley Park and along Boyes Close
- Provide a 3m wide footpath on the western side of Lord Street and northern side of McGrath Street to link with the linear parkland path and the bridge across the Werribee River connecting to Boyes Close
- Improve wayfinding signage from Main Street to the Station via Lord Street and McGrath Street
- High quality bicycle facilities at the intersection between Grant, Griffith & Station Streets
- Potential trial of fully-protected bicycle infrastructure similar to the intersection of Albert & Lansdowne Streets in East Melbourne
- The signalised pedestrian crossing of Grant Street should be improved to include bicycle lanterns and the zebra crossing of Grant Street Service Road should be improved to include bicycle priority across the crossing. A shared path (bicycles and pedestrians) is currently being designed to link Stonehill to Grant Street using the kerbside (where the footpath would be). This will be funded using developer contributions. In future, the path should be upgraded to include raised priority crossings for every cross-street along its length

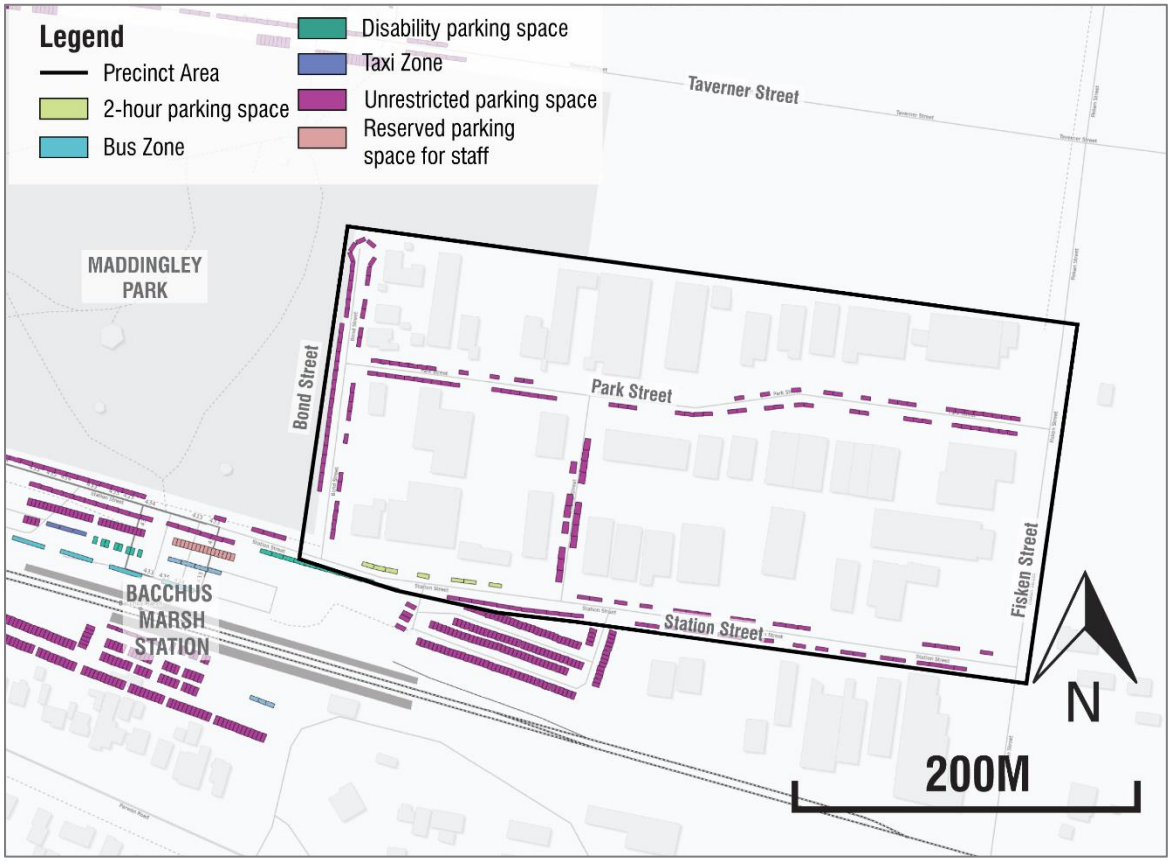
4. **Monitor and improve accessibility –** Parking at the station currently complies with the expectations regarding accessible parking (which is achieved by dedicating 2% of the total public spaces to disability permit parking). The recent upgrades to the station have also included new footpaths and visible markers for kerb cuts and crossing facilities within the off-street car park near the station's entrance. As the population grows (and ages) there is a likelihood that the need for disability permit parking spaces will increase. Occupancy of disability permit parking spaces at the station should be monitored so that additional spaces can be installed prior to anyone with a disability being forced to park a much greater distance from the station entrance.

   Widening footpaths that lead to the station so that people using mobility aids such as mobility scooters do not feel the need to use mobility scooters on the roadway. This is critical to maintaining and improving safety of the road network.

Bacchus Marsh industrial area

The industrial area located near the Bacchus Marsh Station is a key employment area near Bacchus Marsh Station. Many of these industries include freight operations and as such, have minimal space to accommodate employee parking on-site. There are some off-street parking spaces associated with the train station as shown in Figure 10-38 below.

Figure 10-38: Industrial Park parking restrictions (8:30am-5:30pm)

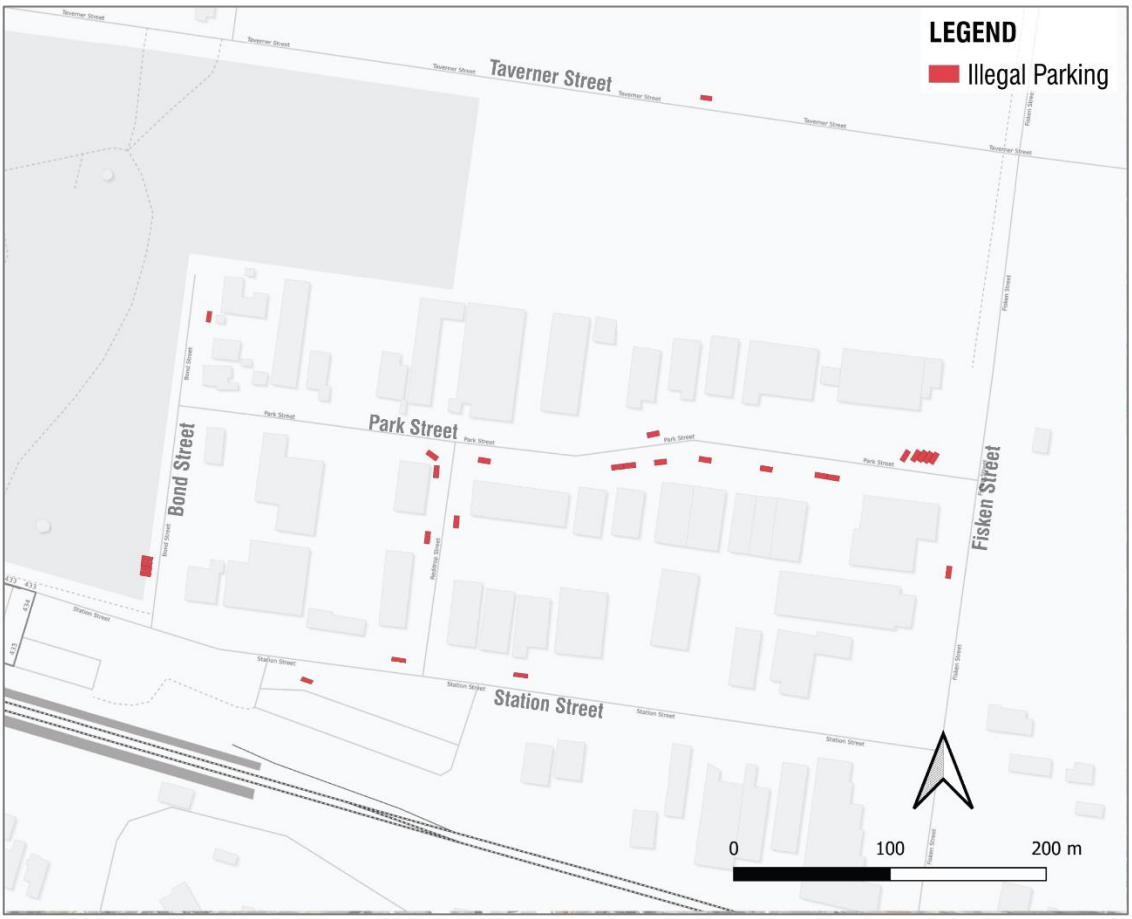


Source: M&PC Survey conducted Friday 6 December 2019

While the streets are designed to be wide enough to accommodate freight vehicles, employee parking on-site can limit freight vehicle manoeuvres and potentially other on-site operations. The layout of on-site parking and historical lack of on-street parking enforcement leads to many drivers parking illegally, mounting the kerb (locations are shown in Figure 10-39 below). This illegal parking makes pedestrian access difficult and dangerous. There have only been two accidents over the last 5 years in the area, both in 2015 involving car crashes and minor injuries. Reducing the rate of illegal parking is an important element that will improve safety of the overall road network in the area.

This is the only significant area close to the town centre that has significant illegal parking activity. It is therefore suggested that prior to enforcement becoming stricter, a period of public education be provided such that drivers who are currently parking illegally are made aware of the fact and advised how they should be parking. Essentially this could constitute a warning system that provides a 3-month period and one or two warnings per driver during which people can get used to the rules being applied in the industrial estate.

Figure 10-39: Illegal parking in Bacchus Marsh Industrial Park



Source: M&PC Survey conducted Friday 6 December 2019

Recommendations

To maximise the efficiency of freight movements, safety and overall legal compliance, the following is recommended:

1. **Educate employers and employees about safe parking practices** – develop a parking brochure or obtain a generic "how to park" brochure from VicRoads or another Victorian local government. These can then be printed and distributed together with an official warning on the windscreen of cars that are illegally parked in the area.

   If necessary, visit specific employers to advice of the parking regulations and the fact that enforcement of the rules in the area is commencing.

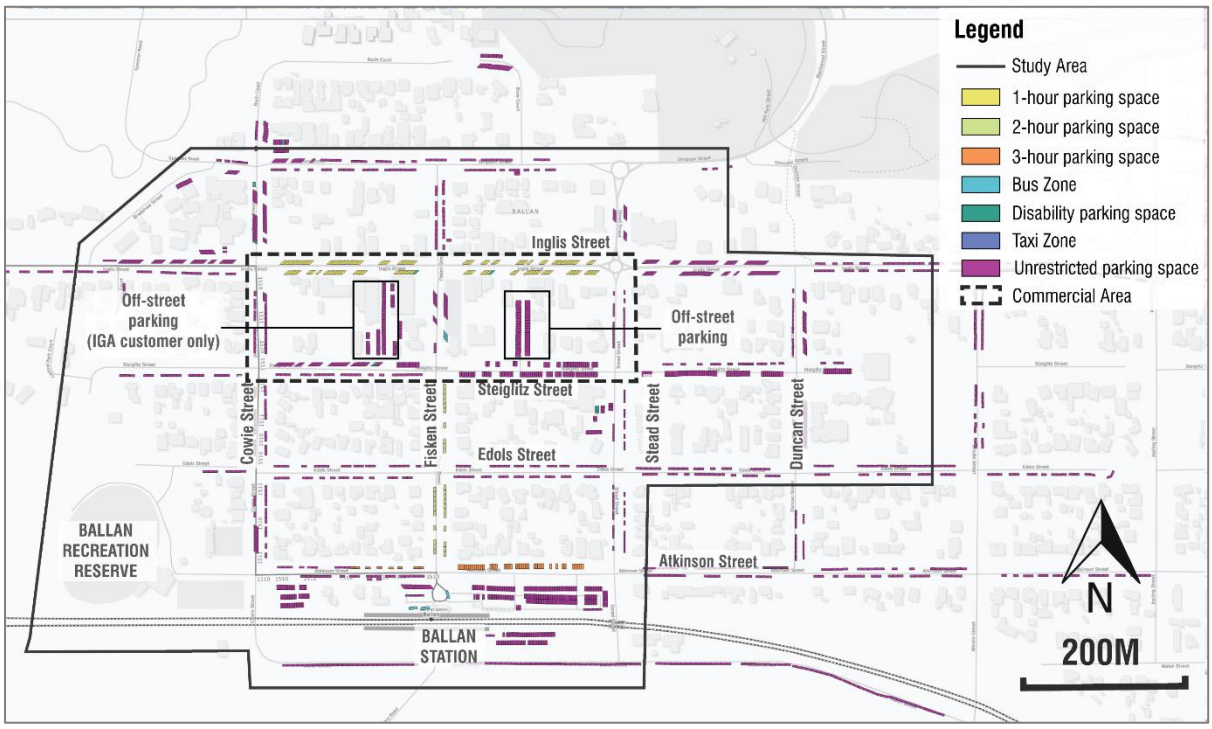
2. **Develop a plan to provide footpaths in the industrial estate** - Provision of footpaths is essential to meeting Council's obligations under the Disability Discrimination Act. The only other way to provide for safe disability access is to make the streets a formal "Shared Zone" with a 10km/h speed limit. The Shared Zone approach is less practical in an industrial estate, and therefore footpaths should be provided on at least one side of each road in the area.

   Ensuring that pedestrians can more around the area safely is a key requirement that helps to reduce pressure on parking in the area generally. For example there are many public gyms in the area. Providing safe active transport (pedestrian and bicycle facilities in this area would reduce car dependency for these businesses and relieve pressure on car parking.

Ballan Town Centre & Railway Station

Parking in Ballan is plentiful, and the areas of low availability are relatively small – mainly constrained to parking areas close to the Ballan Train Station and major employers such as the Hospital, Council office and Primary School. The available on-street and off-street parking spaces in the core township area are shown in Figure 10-40 below.

Figure 10-40: Ballan Town Centre parking restrictions (8:30am-5:30pm)



Source: M&PC Survey conducted Friday 6 December 2019

The parking occupancy survey found 1,931 parking spaces within the study area in Ballan as shown in Figure 10-40 above. Most of these spaces are on-street parking spaces which are equally distributed throughout the core township, though there are some off-street car parking facilities for public use:

- Two near Ballan Station, one located adjacent with 246 spaces and one located 200 metres to the west of the railway line with 42 spaces, which was significantly underutilised during the occupancy survey; and
- Two in the Ballan shopping strip which together provide 128 spaces. The car park to the east, with 72 spaces, is IGA customer-only parking.

Inglis Street and Fisken Street provide around 120 spaces within the town centre. To encourage high levels of turnover and availability for regional visitation, these spaces are restricted by:

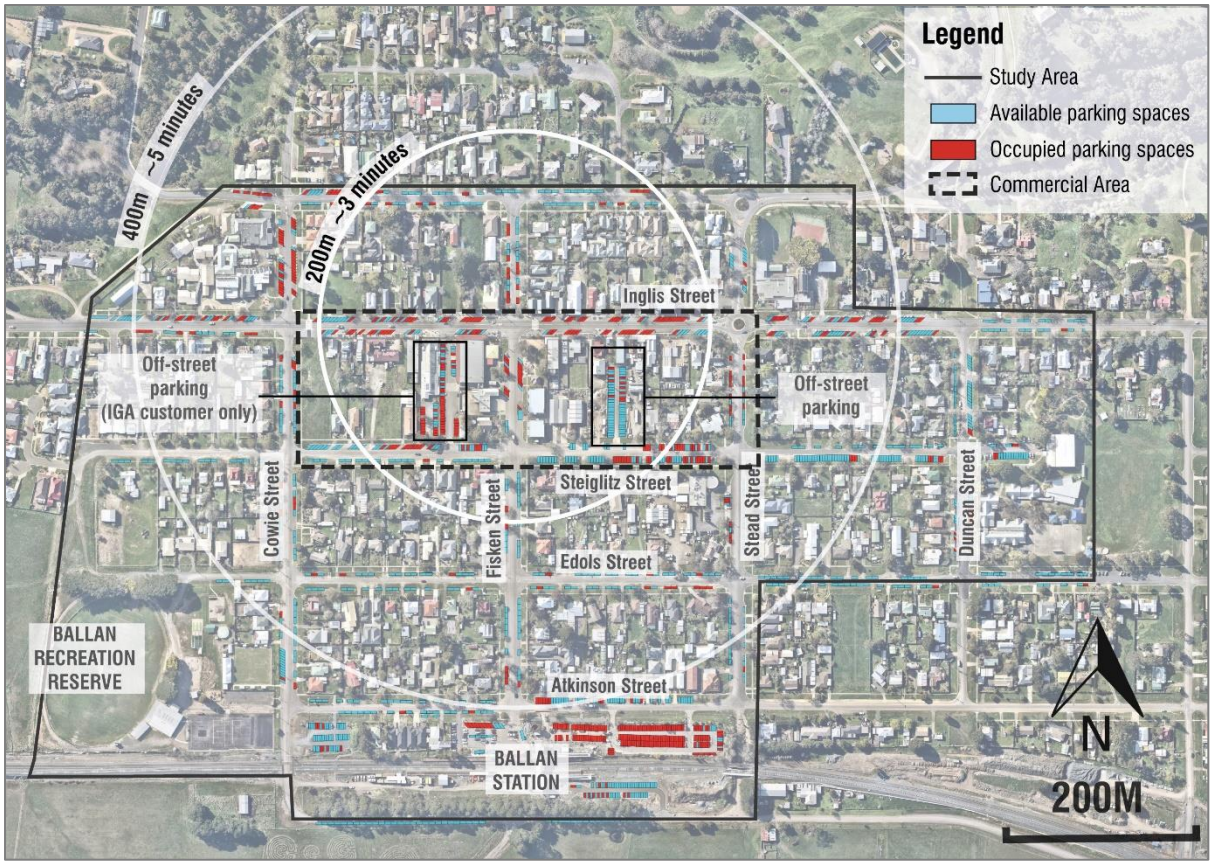
- 1-hour parking and loading zones on Inglis Street; and
- 2-hour parking on Fisken Street.

There are few restrictions beyond Fisken and Inglis streets and parking in other areas is mostly unrestricted, with some exceptions around specific institutions such as the Hospital, Primary School and Train Station.

Occupancy of car parking in Ballan town centre was low even in the peak period as shown in Figure 10-41 below. This shows there was 54% availability of the 523 spaces 400m walking distance or less from the shopping centre area, measured from the intersection between Inglis Street (Old Melbourne Road) and Fisken Street. The pattern of availability was geographically dispersed as:

- 45% availability of 280 spaces 200m from the intersection; and
- 84% availability of 243 spaces between 200m and 400m away.

Figure 10-41: Ballan Town Centre availability (Friday 11:00am-1:00pm)



Source: M&PC Survey conducted Friday 6 December 2019

In the off-street car park near the Station, 26% of the 246 spaces were available between 11:00-1:00pm on Friday. However, demand was heavily weighted to the northern side of the railway track which was almost full. Of the other 205 spaces within 400m of the station entrance, 86% were available.

These levels of parking availability are typical of this type of town centre environment where unrestricted parking results in the earliest arrivals getting the premium parking spaces. In areas of high demand, premium parking should be available equally to anyone regardless of when they arrive. The only way to achieve this is through restrictions that enable early arrivals to choose to walk slightly further in order to keep the premium space available for someone arriving later.

Provision of parking in Ballan comes with a range of issues including the following:

- The location of parking can negatively impact the ambience of Ballan's country town character.
    - People specifically visit the town centre for their 'country ambience'. Part of this 'rural charm' is tree lined streets of narrow fronted shops that provide a high level of visual interest and diversity in product offer (various goods and services) within an easy walk of parking.
    - Some visitors to Ballan have travelled significant distance to the town such as from areas such as Myrniong, Gordon, Ballarat, Daylesford, Blackwood and even Melbourne. Council should be careful not to copy mistakes made in Melton that make it feel more like a suburb of Melbourne and less like the village it once was.
    - The in-centre intercept surveys found that the country-feel and amenity of the area were something specific that some visitors value highly with 4% of visitors specifically commenting (unprompted) on the country ambience of the town centre.
- Driveways negatively impact on the amenity and feel of Ballan:
    - Driveways onto key pedestrian corridors (such as Inglis Street) interrupt the flow of pedestrians and reduce the amenity of the street and town centre for all visitors.
    - Providing small areas of parking for each specific business also frustrates drivers. This is because many small parking areas make it more difficult to find a car space (particularly if the spaces are in a premium location).
- Pedestrian amenity and priority requires improvement:
    - There are some gaps in the footpath networks in Ballan that make walking difficult, particularly for elderly people, people with a disability or people with a pram or trolley. Ensuring that walking is a viable transport mode can significantly reduce parking demand (and increase local economic expenditure).
    - Evidence also shows that people who use active transport have higher capacity for spending as they have less car maintenance related costs and it is estimated that a 20-minute walk to work and back can generate $8.48 into the local economy[47].
    - Active transport also has added public health, social, environmental and personal financial benefits.
    - The in-centre surveys found that in Ballan:
        - 18% of visitors walked to the centre; and
        - 10% of people wanted improvements to pedestrian safety and the footpath network.
- Premium spaces fill up earliest and people arriving later have no choice but to walk further:
    - In areas of high demand, premium parking should be available equally to anyone regardless of when they arrive. The only way to achieve this is through restrictions that enable early arrivals to choose to walk slightly further in order to keep the premium space available for someone arriving later.

[47] The Economic Case for Investment in Walking (Victoria Walks; 2019)

- As the population of Ballan increases, the demand for the premium spaces (particularly at the train station and Hospital) will increase. Time and user-based restrictions will not cope with the level of demand likely to arise.
- The parking at Ballan Station has recently been upgraded including provision of new car spaces on both sides of the Station. Parking on the northern side of the station will be much more popular than the south due to the location of city bound trains in the morning and the proximity to residential areas.
- Studies have shown that Park and Ride spaces are often less available to people who have limited alternatives to driving due to where they live, because they are often occupied by people who live closer but drive because parking is free and abundant[48]. To mitigate this, people living more regionally either have to leave earlier to ensure that they can find a space, or park further away.

- Car parking requirements in the Moorabool Planning Scheme can be reviewed to be more equitable and aligned with Council vision; and
- Additional disability permit parking will be needed as the population grows.

The following key issues were discussed in the June 2021 community consultation (see Appendix F):

- On-street spaces on Main Street are unavailable during peak times. These spaces may be used by Town Centre employees and traders for car storage
- Lack of available disability parking spaces on Inglis Street (Main Street)
- Perception of reduced parking availability due to provision of parklets on a trial basis, which since been removed
- Trader perceptions of reduced parking availability in premium areas from installation of pedestrian amenity treatments
- Illegal parking activity in driveways and private property
- Poor lighting and sense of security when walking to the Steiglitz Street Council off-street parking area from Inglis Street
- Lack of awareness of high parking availability in Council Steiglitz Street off-street parking area during all times of the day.

Recommendations

Given these issues, the following is recommended to more efficiently manage the existing facilities to improve town centre attractiveness and reduce further demand for parking provision:

1. **Consolidate parking into large facilities to reduce vehicle activity in pedestrian environments -** Larger parking facilities provide greater certainty that there will be a parking space available. This is a very important aspect of maintaining the ease of access that people associate with the 'rural charm' of towns like Ballan. They also reduce the need for smaller car parking areas and driveways.

   Towns such as Ballarat and Horsham have protected their main street building facades by consolidating parking in the middle of each city block. These larger, shared parking areas are accessed from the rear, and not via driveways onto the main street.

[48] Kimpton, A., Pojani, D., Sipe, N., Corcoran, J. 2019. 'Parking Behaviour: Park 'n' Ride (PnR) to encourage multimodalism in Brisbane', Land Use Policy, vol. 91, pp. 1-16

Ballan has never had a fully built out main street. There are only a small number of sites that have parking provided from the rear (such as the Commercial Hotel, IGA and True Value Hardware). Consolidating parking into larger shared areas (such as existing council owned off-street car park at 62 Steiglitz Street) will help the Town Centre grow efficiently and will maximise local economic productivity.

The appropriate siting of future car parking facilities in Ballan is critical to being able to maintain the 'rural charm' of the Town Centre and to meeting people's desire to park close to their destination. The approach currently used to focus car access from Steiglitz Street and pedestrian access from Inglis Street should be continued.

2. **The Steiglitz Street Council off-street parking area could be used for trader car storage –** Given the high levels of availability in this parking area, traders should be encouraged to park in this area to increase the availability of spaces near shops for customers. Council could issue permits, to guarantee employees a space and monitor availability into the future. Council should improve the lighting in the car park as well as provide adequate signage to ensure that the area is visible to drivers.
3. **Improve the pedestrian network -** There are a number of gaps in Ballan's pedestrian network as shown in Figure 10-42 below.

Figure 10-42: Ballan Town Centre footpath network gaps

Source: M&PC Survey conducted Friday 6 December 2019

Recommended improvements to the Ballan Town Centre pedestrian network include:

- Linking up gaps in the footpath network would provide better connectivity for walking and mobility scooters. In-centre intercept surveys in Ballan found that the lack of connected footpaths was of particular community concern;

- Planting canopy trees will improve pedestrian amenity and shade. This is a significant way that the 'rural charm' and town character can be maintained; and
- Improving pedestrian priority across intersections and busy roads is key to making pedestrians feel safe and respected.

These should be investigated and a broad long-term plan of pedestrian improvements should be developed and implemented. This will reduce car dependency and provide more transport options for local travel. This in turn will increase local economic expenditure and reduce pressure on existing parking spaces.

4. **Tweaking the time-restrictions to better meet demand –** in areas of high demand such as near the Hospital and on Inglis Street, there are opportunities to make minor changes to the restrictions to more effectively meet demand.

   Based on the occupancy surveys, existing land use and broader parking needs across the centre the following minor changes to parking controls in Ballan are suggested in Table 10-15 below.

Table 10-15: Proposed changes to time-based restrictions in Ballan

Location	Spaces	Current control	Proposed control	Discussion
35 Cowie St (at Ballan and District Hospital Entrance)	6	No Restriction	2P 8AM-8PM	Provides short stay parking in the premium location at the Hospital entrance during reasonable visiting hours
Inglis St	25%	1P	2P	Parking in Inglis St is relatively underutilised and 25% of the spaces can be extended to 2P bays particularly around the Commercial Hotel and the Estate Agents
Atkinson St	10	3P residents excepted	¼P 6AM-8AM Unrestricted thereafter	Provides long-stay parking for commuters arriving late to Ballan Station that are much closer to the station entrance than the farthest reaches of the commuter car park

5. **Improve parking management in Ballan Station as demand increases from residential growth -** Ballan Station serves a regional catchment with many people driving a significant distance to the station. According to a 2012 regional station trip survey conducted by DoT, 80% of passengers drove to Ballan Station and 20% walked. In addition there are bus services that connect to Ballan Station from Mt Egerton via Gordon and from Hepburn via Daylesford. From the data provided, it is unclear how far train passengers tended to travel from to get to the station. Ensuring that travellers from beyond the Ballan urban area have good access to the train station will become increasingly important as local residential growth increases local parking demands.

   Studies have shown that Park and Ride spaces are often less available to people who have limited alternatives to driving due to where they live, because they are often occupied by people who live much closer but drive because parking is free and abundant. To mitigate this, people living more regionally either have to leave earlier to ensure that they can find a space, or park further away.

Providing an additional choice for people who arrive to the Ballan Station later in the day is important and can really help people trying to catch a specific train after running errands early in the morning. In future the ten on-street spaces closest to the Station entrance may require fee-based restrictions to ensure anyone arriving later in the day can make-up some valuable time and catch their train without the heightened concern associated with not knowing how far they might need to walk to get to the station.

6. **Encourage medium to high-density mixed-use development in and around the town centre -** The local economy is significantly influenced by the number of people living within the centre's primary catchment and their disposable income. This is due to two key factors:

   - The further away people live, the more likely it is they will shop somewhere else; and
   - The more people spend on housing and transport, the less disposable income they can spend in the local economy.

   Therefore, a key way that Council can increase the economic viability of the centre is to increase the residential population within 1km of the town centre. There are many built form types that can achieve this outcome, such as townhouses or small apartment buildings. Development of these 'medium-density' types in streets immediately near the centre are supported by the Ballan Strategic Directions.

   A significant way that the cost of new dwellings can be reduced is by allowing residents to park cars overnight in the off-street parking areas that are used for retail parking during the day. This is currently the case with all on-street parking in Ballan – which is currently unrestricted outside traditional business hours.

7. **Improve Planning Scheme requirements for parking -** The Moorabool Planning Scheme currently requires a specific amount of parking to be provided with each development. There is currently an abundant supply of on-street parking in Ballan. This on-street parking supply can cater for significant growth in commercial activity and residential population.

   Providing additional off-street car parking is expensive, and inefficient when there is surplus parking in the area already. The cost of building car spaces directly increases the cost of development and reduces local economic growth because:

   - New development needs to allocate land and finances towards providing parking (increasing the cost of goods and services and dispersing activity); and
   - Local residents' disposable income is reduced due to more expensive transport costs and more expensive goods and services.

   A key way that Council can increase economic activity and reduce the cost of living in Ballan is to relax the requirement for any development to provide parking (particularly if it is located within 400 metres of the Ballan Town Centre). This would not prohibit any developer from providing parking or contributing to shared parking facilities. This would simply mean that if parking is not directly required for the development then the existing on-street and off-street parking supply can be better utilised as a shared community resource.

8. **Review Parking Permit Policies** – Often residents complain about parking in their street for a range of reasons related to how areas that are highly utilised for parking look and feel. Almost all properties in Ballan have enough on-site space to park several cars. There should not be any need to reserve on-street spaces for residents' use.

   If there are legitimate concerns about the impact of parking on road safety, streetscape amenity, visitor access or vegetation (such as the impact on tree roots) these can be addressed through a range of controls including some time-based restrictions (2P or 4P will typically work for visitors

including tradespeople), or reduction in the space allocated to parking (such as with new kerb and channel) or safety based restrictions (such as no standing zones).

Therefore the existing resident parking permit system in Ballan should be reviewed and potentially replaced by more targeted allocation of road-space and parking controls to meet community expectations.

Appendix E. Community Engagement and Insights

Insights were gained from surveys with visitors to each town centre. The processes and insights are outlined below.

In-centre intercept surveys

The M&PC survey team conducted in-centre intercept surveys in Bacchus Marsh (Main Street) and Ballan (Inglis street) town centres. The team were positioned at locations where pedestrian activity was highest, such as near the Gell Street and Graham Street intersections in Bacchus Marsh or the intersection of Fisken Street and Inglis Street in Ballan. The team asked passers-by a set of survey questions regarding trip behaviours of people visiting each town centre.

The survey was introduced to respondents as one relating to overall improvements to the centre so that respondents were able to provide deeper insights about how local economic activity can be improved. Broadly, the survey was designed to gain insights into:

- Trip mode;
- Parking satisfaction;
- Anticipated response to loss of parking availability;
- Trip purpose;
- Likely number of places visited;
- Likely time spent in the centre;
- Likely expenditure;
- Home locality and nearest cross-street; and
- Demographic information including age and gender.

The following were all of the questions asked by the survey:

1. How did you get here today?
2. How satisfied were you with the parking space you found?
3. If it becomes to difficult to find a parking space, how would you make this trip?
4. How often do you come here?
5. What is the main purpose of your trip today?
6. How many places do you expect do visit in this shopping centre before you go home?
7. Are you likely to drive between these places in the shopping centre?
    a. Why?
8. How much time do you intend to spend in this shopping centre before you go home?
9. How much money do you intend to spend in this shopping centre?
10. What is your age?
11. What is your gender?
12. Which centre are you shopping at today? (Ballan or Bacchus Marsh)
13. Is there anything else you would like to add?

The surveys were conducted in areas of high foot traffic during the following days and time periods:

- Tuesday 3rd December between 10:00am and 3:00pm (in Bacchus Marsh only);
- Thursday 5th December between 10:00am and 2:00pm (in Bacchus Marsh only);
- Friday 6th December between 9:30am and 2:00pm (in Bacchus Marsh and Ballan); and
- Saturday 21st December between 9:30am and 2:00pm (in Ballan only).

Across both centres, there were 194 respondents, composed of 67 in Ballan, 117 in Bacchus Marsh and 10 invalid or incomplete results.

The intercept survey was conducted in accordance with best practice from the Transportation Research Board[49] and from other peer-reviewed research[50].. The survey sought to exclude persons under 18 years of age, for ethical reasons, which resulted in an under-representation of age groups under 25. There was a small over-representation of the age group 55-74, which was anticipated due to the under-representation of younger groups and likely because of factors such as perceived available time. For example, most respondents between 24 and 55 were working or spending a short amount of time in the centre, whereas respondents over 55 mostly did not work and spent longer periods of time.

Overall, in our judgement the survey achieved a reasonable level of demographic representation and no re-weighting of the results was necessary.

Bacchus Marsh In-Centre Intercept Survey

From the survey in Bacchus Marsh, we found:

- Access to Bacchus Marsh activity centre is dominated by driving:
  - 69% of people drove
  - 25% walked
  - 4% were car passengers
  - 1% took public transport
  - 1% used other modes such as mobility scooters
- The majority of people who drove were either satisfied or extremely satisfied (74%) with their parking, whilst 17% were either dissatisfied or extremely dissatisfied and 9% were neither satisfied nor dissatisfied
- When asked '*If finding a parking space becomes too difficult how else would you make the trip?*', most respondents (64%) answered that they would park further away, while 11% said that they would go elsewhere for the trip. Other responses included:
  - Walk (10%)
  - Catch public transport (7%)
  - Would not make the trip at all (6%)

[49] Travel Survey (Griffiths; Richardson; Lee-Gosselin, TRB)
[50] Measuring transportation at a human scale: An intercept survey approach to capture pedestrian activity (Schneider, 2013 *Journal of Transport and Land Use)*

- The respondents reported a range of reasons for visiting the centre. These included:
  - Groceries (23%)
  - Admin (e.g. bank) (20%)
  - Other shopping (13%)
  - Social (e.g. lunch) (13%)
  - Work (11%)
  - Recreational (9%)
  - Medical (5%)
- 85% of respondents said that they visit the centre at least twice a week, whilst 57% said that they visit 4 times a week or more
- Most respondents (63%) expected to visit 2 or 3 places in the centre before going home
  - 33% expected to visit 2 places
  - 30% expected to visit 3 placess
  - 21% expected to visit 4 or more places
  - 11% expected to visit only one place
  - 5% were passers-by and did not expect to visit any place
- The amount of time spent in the centre was highly varied across respondents, however:
  - 58% spend an hour or less
  - 21% spend 1-2 hours
  - 10% spend 2-4 hours
  - 11% spend over 4 hours in the centre
- 89% of respondents who drove stated that they would walk between various places in the centre. Of the 11% who were likely to drive between places in the centre, the reason with the highest response was *'I load my car with goods to save me carrying them around'* (33%). Other responses included:
  - *"It's easier"*
  - *"It's on the way"*
  - *"[places are] too far between and [I have] little time"*
- With regard to expected expenditure:
  - 50% expected to spend $30 or less (10% spent $0)
  - About 19% expected to spend between $31-$50
  - A further 14% expected to spend between $51-$100
  - A further 9% expected to spend between $120-$200
  - The remaining 4% expected to spend over $200, with most of that group anticipating to spend between $950-$1,500 for less usual trips such as getting tyres fitted or paying bills
- The average expected spending per respondent was $48.56

- On average, people who spent more time in the centre were likely to spend more money (up to a threshold of 45 minutes). Respondents who spent the following times in the centre, spent the following on average:
    - ≤15 minutes $15.23
    - 16-30 minutes $20.50
    - 31-45 minutes $55.91
    - 46-60 minutes $53.61
    - 61-90 minutes $89.23

- In Bacchus Marsh most respondents parked for less than an hour (57%)
    - 15% parked for 15 minutes or less
    - 10% of respondents parked for more than 4 hours

- Most respondents (59%) live locally (within 1.5 kilometres). Other catchment areas included:
    - Darley (17%)
    - Local townships such as Gordon, Parwan and Rowsley (10%)
    - Maddingley (4%)
    - Melton (4%)
    - Other areas such as Sunbury, St Albans and Werribee (5%)

Ballan In-Centre Intercept Survey

From the survey in Ballan, we found:

- Access to Ballan town centre is dominated by driving:
    - 74% of people drove
    - 18% walked
    - 4% were car passengers
    - 3% took public transport
    - 1% used other modes such as mobility scooters

- The majority of people who drove were either satisfied or extremely satisfied (83%) with their parking, whilst 12% were dissatisfied, and 4% were neither satisfied nor dissatisfied
- When asked '*If finding a parking space becomes too difficult how else would you make the trip?*', nearly all respondents (98%) answered that they would park further away. The remaining 2% said that they would go elsewhere for the trip
- People reported a wide range of reasons for visiting Ballan including:
    - Personal administrative errands (such as bank or post office) (23%)
    - Other shopping (23%)
    - Social (e.g. lunch) (17%)
    - Groceries (14%)
    - Work (11%)
    - Recreational (5%)

- The regularity of visits was assessed by asking respondents how often the visit the centre:
  - 39% of respondents visit the centre twice a week
  - 35% visit four times a week or more
  - 11% said they visit once a week
  - 5% said they visit once or a few times a month
  - 11% said that they visit once or a few times a year

- Most respondents (70%) expected to visit 2 or more places in the centre before going home
  - 5% had visited zero places and were just passing through
  - 26% expected to visit one place
  - 29% expected to visit 3 places or more

- Of the respondents who drove, 91% stated that they would walk between various places in Ballan town centre. Of the 9% who were likely to drive, reasons why included:
  - *"I have a disability"*
  - *"It's easier since I work here"*
  - *"I walk but I use a walking stick and can't do distances"*
  - *"Too far to walk"*

- With regard to expected expenditure:
  - 18% expected to spend $0
  - 70% expected to spend $0 - $30
  - 7% expected to spend $ 30-$100
  - 5% expected to spend $100-$200

- There seems to be some correlation between length of stay and expenditure, but it is not a linear correlation and more data would be required to establish the equation and understand if the relationship is causal. On average, people who spent more time in the centre were likely to spend more money (up to a threshold of 45 minutes). Respondents who spent the following times in the centre, spent the following on average:
  - ≤15 minutes $10.00
  - 16-30 minutes $34.67
  - 31-45 minutes $75.00
  - 46-60 minutes $37.14
  - 61-90 minutes $44.00

- In Ballan the duration of stay was typically less than
  - Most respondents parked for less than an hour (69%)
  - About half (47%) parked for 45 minutes or less
  - 8% of respondents parked for more than 4+ hours

- Most respondents (61%) live locally (within 1.5 kilometres)
  - 21% live in nearby towns such as Gordon and Mount Egerton
  - 9% live in metropolitan Melbourne - such as St Albans and Werribee
  - 5% live in Ballarat
  - 3% live in Bacchus Marsh.

Appendix F. Consultation Report

CONSULTATION REPORT

MOORABOOL CAR PARKING STUDY JUNE 2021

Executive Summary

The consultation was conducted online over a four week period, with 810 views of the Have Your Say webpage and 57 individual comments, and 78 likes and dislikes of those comments.

The majority of engagement related to the Bacchus Marsh area (95%), and was largely within identified precincts, confirming the initial work undertaken in identifying key areas of car parking issues. In particular, the area around Bacchus Marsh Primary School received the most comments from residents, employees and parents.

Nearly 30% of the comments related to improvements to the pedestrian environment through safety and improved connections across roads.

Comments received will be used to further develop the recommendations and content of the Car Parking Study and Policy

Engagement Goals, Objectives

The purpose of the engagement was to ensure that the Car Parking Study and Car Parking Policy best reflect the needs of the community. We were seeking initial feedback about existing parking issues, proposed changes to parking signage, and some of the proposed actions of the study.

Consultation Negotiables

- The responses will be used to inform the proposed recommendations which are presented to Council.
- The responses may provide new information on parking issues, or suggestions for implementation of infrastructure or parking controls which could be incorporated into the recommendations
- The responses may indicate community opposition to particular recommendations which may need to be removed
- The responses may indicate better communication of changes is required

Consultation Non-negotiables

- Parking regulations existing either under road rules or local laws are unable to be changed, e.g. parking on nature strips, parking of heavy vehicles on residential properties or residential streets
- It's unlikely that council will provide large quantities of new parking e.g. multi-deck car parking in activity centres
- It's unlikely that resident permit parking restrictions in streets will be introduced solely based on community feedback, except in locations where the need is clear, and there are no conflicting needs
- Ensuring safety will have the first priority in any outcomes, which may be car accident prevention or pedestrian/cyclist/vulnerable road user safety, regardless of community feedback

CONSULTATION REPORT

MOORABOOL CAR PARKING STUDY JUNE 2021

Consultation period

26 April - 24 May

Webpage visits

Have Your Say
810 views, 320 document downloads and 57 marker pin-drops and comments

Media outreach

Moorabool News
27 April 2021
11 May 2021
Advertisement of consultation on two Tuesdays at the start and middle of the consultation period.
Circulation of MN is 12,500 copies weekly plus online distribution

The following text was included in the advertisement –
"*Council has been working on a Moorabool Car Parking Study to measure parking needs, changes that can be made, and ways of better managing parking and trips. Consultants have taken surveys of parking usage in Bacchus Marsh and Ballan, and interviewed shoppers in both centres.*
Potential actions to improve parking in precincts in Bacchus Marsh and Ballan have been provided, and we would like to know what you think. More broadly, we would value your feedback on general parking issues across the Shire, to assist in understanding parking supply and management.
We want your feedback! You can have your say on our website until 24 May https://moorabool.engagementhub.com.au/ or print copies are available from Council offices"

Moorabool News Articles

'Help Council with Car Parking'	May 4 2021
'Park that thought'	June 7 2021

Moorabool Council Facebook Page

13th May	**reach** 1456	**engagement** 148

Business Growth & Innovation Facebook Page

April 28th	**reach** 413	**engagement** 34
May 11th	**reach** 226	**engagement** 19

Business E-news newsletter

12th May	**reach** 402	**engagement** 27

CONSULTATION REPORT

MOORABOOL CAR PARKING STUDY JUNE 2021

Project area

The relevant consultation area is the entire Shire of Moorabool area, including small towns and settlements, as well as the bigger towns, as outlined in purple in Figure 1.

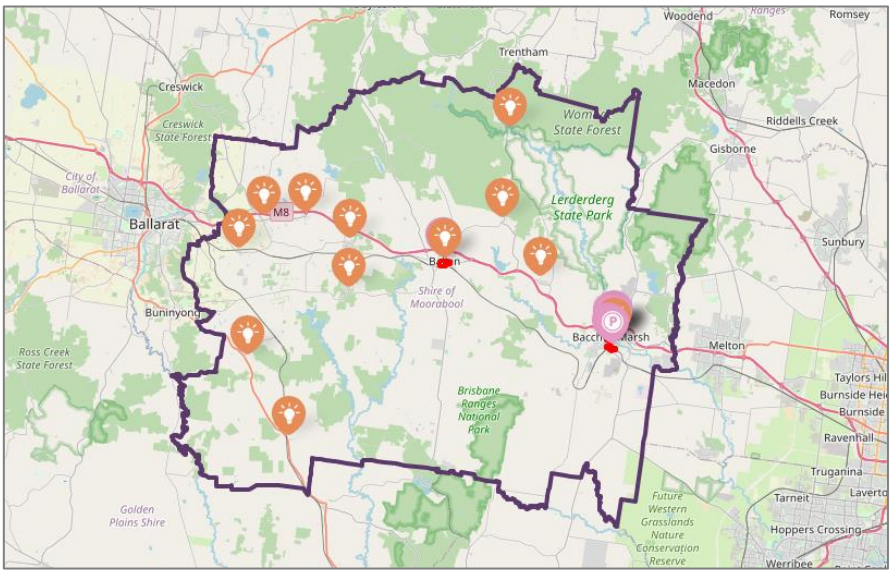


Figure 1: Car Parking Study Area - Entire Shire

Activity across the Shire

The heatmap below illustrates the location of responses across the Shire. Responses were only received in Ballan and Bacchus Marsh, with a much higher level of responses in Bacchus Marsh shown by the larger 'hotspot.'

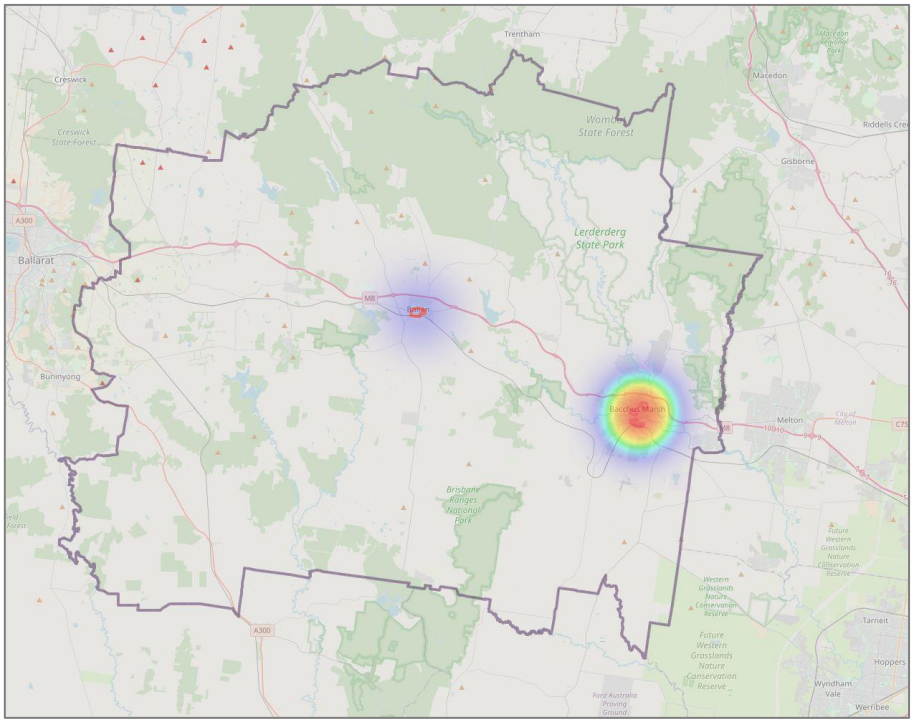


Figure 2: Response heatmap

The heatmap for Bacchus Marsh shows that comments were centred around Grant Street, Main Street and the Bacchus Marsh Primary School. This is consistent with the previous focus areas identified in Bacchus Marsh based on community communications with Council. Some areas with known issues such as the hospital and Park St industrial areas had limited engagement in this consultation. Potentially commuter changes as a result of COVID19 have resulted in reduced current parking usage and pressure in these areas.

Figure 3: Response heatmap Bacchus Marsh

Interactive Online Mapping

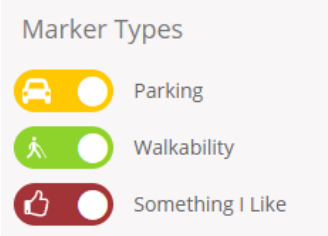


Figure 4: Themed Comment Icons

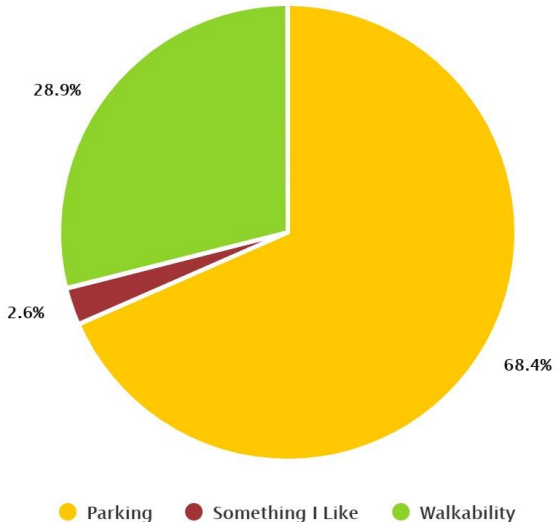


Figure 5: Marker Comment distribution

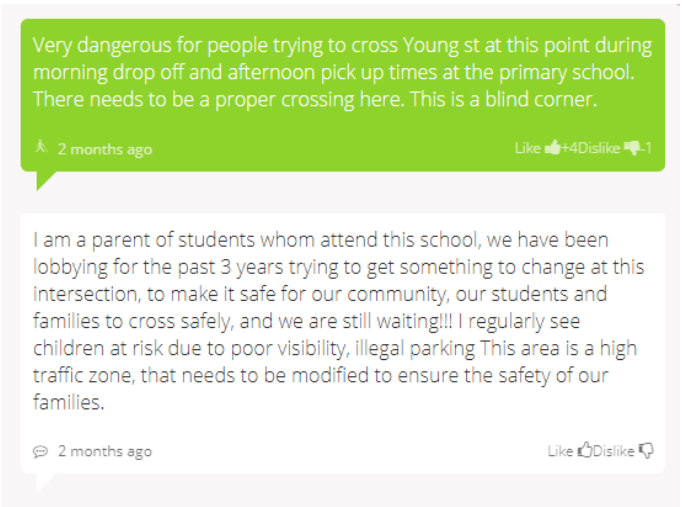


Figure 6: Example issues and suggestions

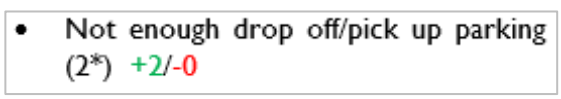


Figure 7: likes and dislikes on comments

An interactive online mapping tool was used to provide a spatially navigable consultation process, where the community could immediately see where changes were proposed, as well as areas where others had identified issues or positive aspects.

The community were invited to provide their thoughts by dragging an icon to a particular location and making a comment to identify future opportunities, existing issues or areas where suggestions would not work. There were three themed icons they were able to select from (**Figure 4**), and these covered matters related to car parking, getting around on foot or on footpaths, and a broader 'Thumbs up' intended for things which may not have been easily categorised, but which the respondents may want to draw attention to as positive solutions for further investigation by Council.

While the majority of comments related to car parking issues, over 30% of the comments were about walking, relating to safety and access ('something I like' and 'walkability' comments combined) (**Figure 5**).

Comments have been sorted in the following tables into columns of 'issues,' and 'suggestions' for resolving the issues. **Figure 6** shows how comments on the interactive map included both issues and suggestions, as well as 'like' and 'dislike' reaction buttons below each comment.

Where comments were similar, they have been combined and the count is shown as a number in brackets with an *, e.g. ***(2*)*** is two comments relating to the same issue in the same general location.
Respondents were also encouraged to interact with comments left by other respondents by liking/disliking and adding their own thoughts. This reflected how popular/unpopular an idea is, and the reactions have been captured in the following table summaries by the '+' and '-' symbols (e.g. **Figure 7** summarises an issue, and records the two 'likes' and zero 'dislikes' that issue received).

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Bacchus Marsh

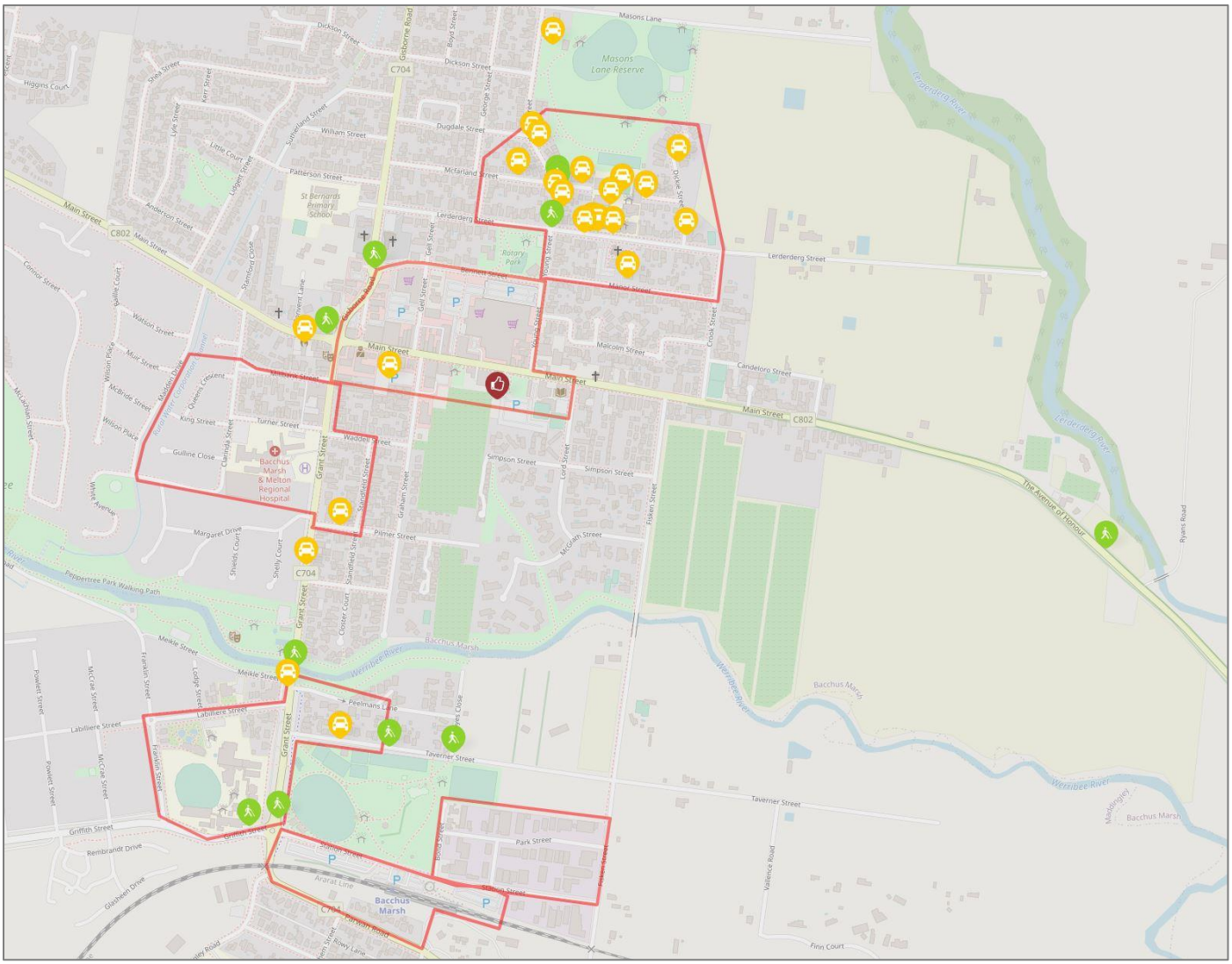

Figure 8: All Bacchus Marsh comments

Bacchus Marsh General

Location	Issue (number of times mentioned*) and +likes/-dislikes	Suggestion
Moon Reserve	• Walkability between BM and Moon Reserve is extremely poor +1/-0	• Safe off road link would allow walkers and cyclists to visit stores/farms/orchards and Moon Reserve

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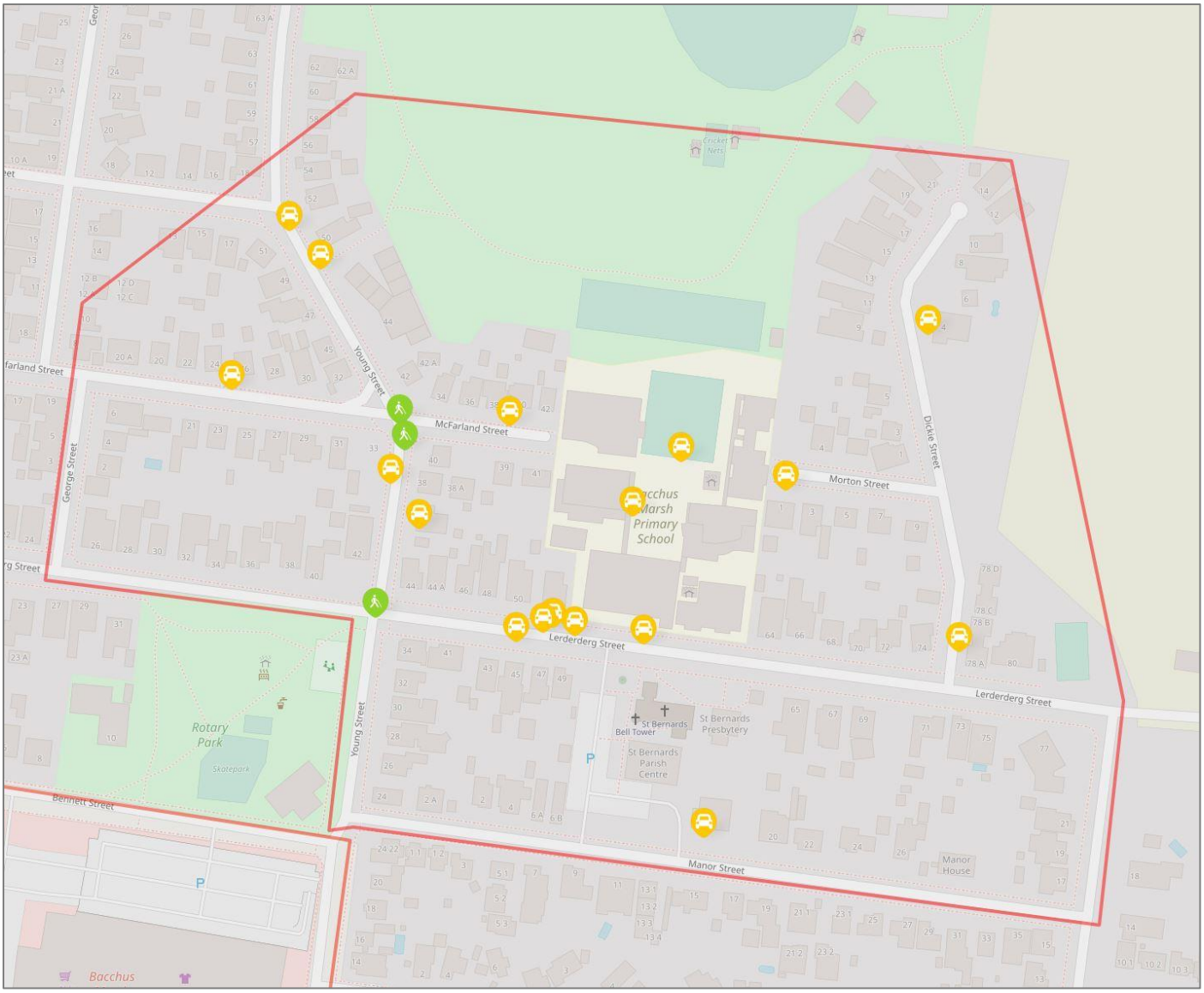

Figure 9: Bacchus Marsh Primary School comments

Bacchus Marsh Primary School Precinct

Location	Issue (number of times mentioned*) and +likes/-dislikes	Suggestion (number of times mentioned* and +likes/-dislikes)
Bacchus Marsh Primary School grounds	• Not enough drop off/pick up parking (2*) +2/-0 • Not enough staff parking	• Provide more parking onsite
Lerderderg St	• Many parents performing dangerous U-turns during pickups, and parking over driveways +6/-0	• Enforce the no-U turn signage • Park closest to office should be converted to 5 min drop off area in AM • Kiss & Go area for older children in AM

	• No areas for parents to park for 2-5 minutes and accompany child to office, no kiss & go area +4/-0 • Parking spaces are not being used efficiently, i.e. one car parking in space which could fit three +9/-0 • 2:30-4pm 10 min parking is taken up by parents sitting in idling cars from 2:30pm for longer then 10 minutes +2/-0 • Need more parking and longer time limits +2/-0	• Painted lines indicating parking spaces on-street • Frequently enforce 10 minute parking areas • Start 10 min parking areas from 2pm • Make street one way eastbound
St Bernards	• Lack of car parking for Bacchus Marsh Primary School	• Use car parking near Parish Centre, or St Bernards Car park between 2:45pm and 3:45 pm, and pay the Church a contribution from School Fees. +2/-0
Masons Lane Reserve	• Lack of car parking for Bacchus Marsh Primary School	• Provide school parking in Masons Lane Reserve (3) +1/-0
Young Street	• Intersection with Lerderderg St is unsafe for children and families crossing, as well as hard for drivers to navigate traffic • Street is narrow and essentially one lane when cars are parked on eastern side +2/-2 • Cars entering/exiting off-street school drop off area are not giving way to pedestrians on footpath, or vehicles on Young Street • Driveways are blocked by cars waiting to access the off-street drop off area +2/-0	• Remove parking +2/-0 • Don't remove parking or make it one way +0/-1 • Make street one way southbound • A stop sign at drop off area entry • Keep Clear line marking around driveways (north end)
Dickie Street	• Residents find they do not have adequate on-street parking due to teachers parking there, as well as access issues due to narrow road width (2*) +2/-4 • Teachers find this the closest unrestricted location to BMPS, with Masons Lane too far to walk carrying equipment and materials (2*) +3/-0 • On street parking close to intersection with Lerderderg St forces cars entering Dickie St to drive on the wrong side of the road, where they cannot see oncoming traffic due to bend in street +1/-0	• Should have parking permit restrictions • Teachers should park at Masons lane • Teachers should continue to be able to park on this street • Staff parking on school site should be provided if parking on Dickies Lane is restricted (2*)

McFarland Street	• Parking should be restricted to one side of the street along here as it's narrow and busy during school times (western end). +1/-0 • Intersection with Young St is very dangerous for people to cross due to blind corner and traffic, Pedestrian crossing warning signs are old and not clearly visible (3*) +5/-1 • 2 disabled parking spaces for student dropoff are not enough (2*) +2/-0	• Parking restriction on western end of street on one side • Increase number of disabled parking spaces • Crossing installed at McFarland and Young Street Intersection • Replace pedestrian crossing warning signs with more visible signage
Manor Street		• Encourage longer PM pickup parking to wait on Manor Street
Morton Street	• Very little teacher parking close to the school +1/-0	• Provide parking for teachers

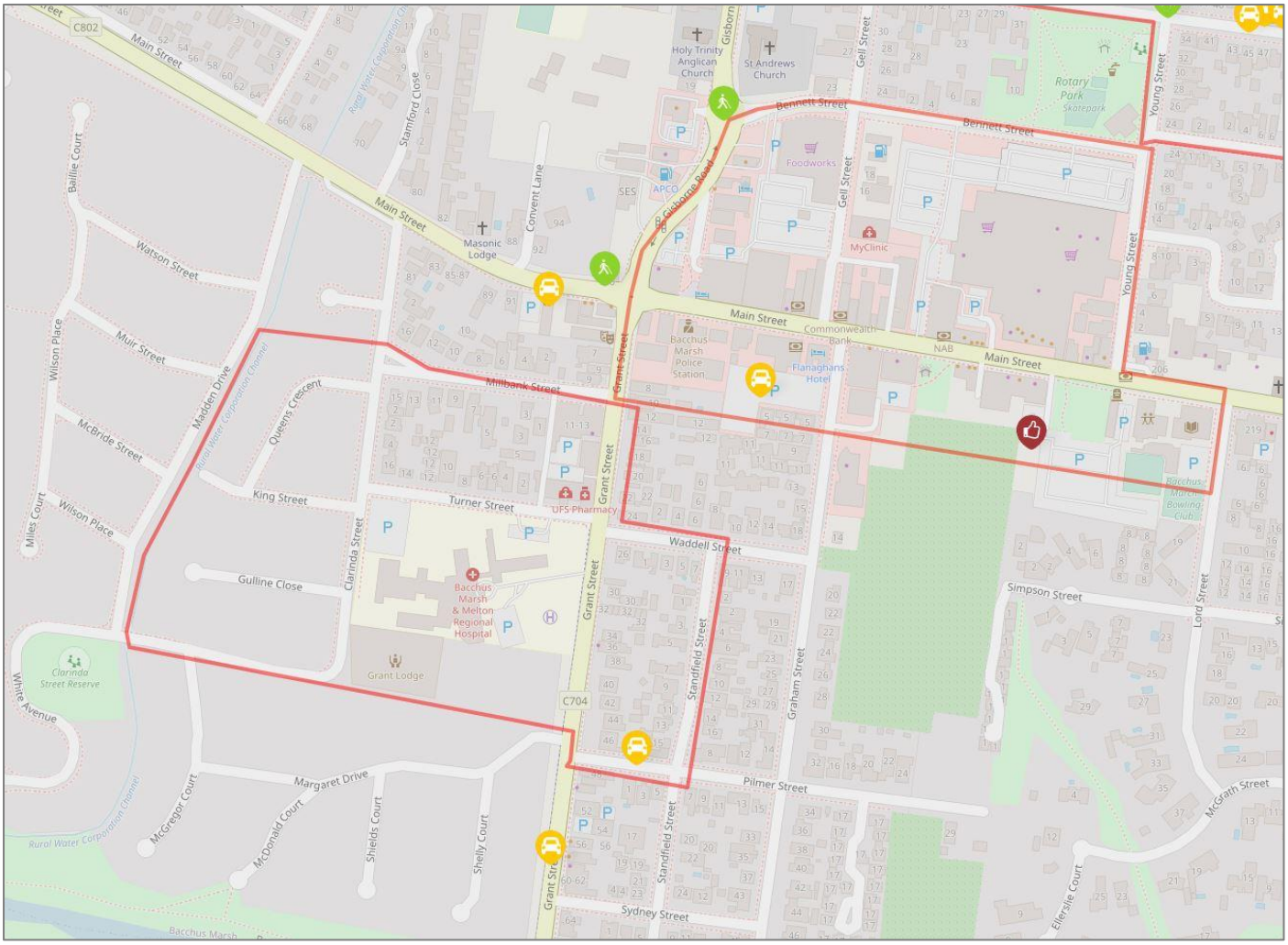

Figure 10: Bacchus Marsh Town Centre & Hospital Precinct comments

Bacchus Marsh Town Centre

Location	Issue (number of times mentioned*) and +likes/-dislikes	Suggestion (number of times mentioned* and +likes/-dislikes)
Bacchus Marsh Town Centre	• Dwellings in serviced walkable areas need to provide parking, which drives car usage and reliance, in contradiction to Council's health and environment objectives	• Support a reduction in car parking requirements for residences within 1.2km of Town Centre and/or train station+2/-1
Vacant lot behind Flanagan's	• Council sold this land, which is used for parking regularly • Is poorly maintained and full of potholes	• Would be a valuable public parking area • Repair potholes
Bacchus Marsh Fire Station	• CFA requires its on and off street parking for its members. Parking is	• better marking and signage for the CFA parking on-street

	used by non-members, and entrance is blocked by parked vehicles +1/-0	• More enforcement of on and off-street illegal parking in CFA spaces by non-CFA members
Main St and Grant St Intersection	• Roundabout is unsafe for pedestrians	• Pedestrian crossing upgrade required
Gisborne Rd and Bennett St Intersection	• Roundabout is unsafe for pedestrians, particularly children	• Pedestrian crossing upgrade required
Town Centre	• Locations for tourist bus parking are not clearly evident	• Allocate an area for tourist bus parking and ensure that this location is made known, via Visitor Information Centre or Council Website

Bacchus Marsh Hospital Precinct

Location	Issue (number of times mentioned*) and +likes/-dislikes	Suggestion (number of times mentioned* and +likes/-dislikes)
Pilmer St (west end)	• Pilmer st from Grant St to Stanfield St is full during business hours with staff from Grant St businesses parking from 8.30am until after 5pm +0/-1	• Parking spaces should be 2hr in this block as seen in Waddell St and Sydney St.
Hospital Precinct	• Not enough parking in the general area	• Hospital Helipad should be turned into car parking and Helicopter landing moved to Oval
Grant St	• Parklets (on street dining) are unsafe due to trucks and traffic	• Remove parklet (on street dining)
Grant St Mixed Use Zone	• Businesses are required to provide off-street parking which has limited growth	• Support retail and entertainment uses along Grant St by allowing on-street and Peppertree Park parking to be used by businesses and count towards parking requirements

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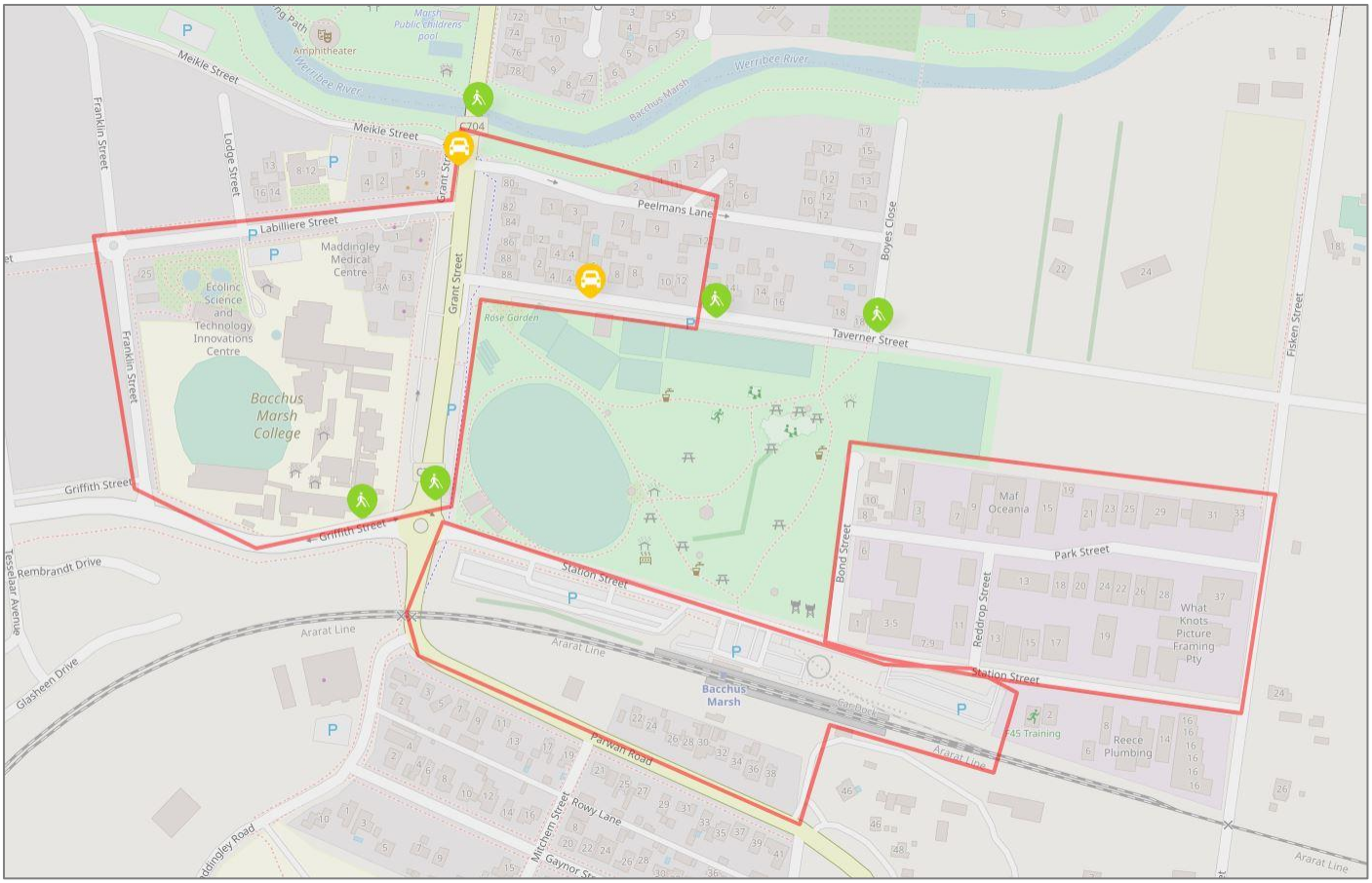

Figure 11: Bacchus Marsh College, Station and Industrial Precinct comments

Bacchus Marsh College Precinct

Location	Issue (number of times mentioned* and +likes/-dislikes)	Suggestion (number of times mentioned* and +likes/-dislikes)
Grant St and Werribee River	• Pedestrians cannot safely cross the river to link river paths	• Pedestrian bridge either side of road bridge +0/-1
Stoney's on-street car parking	• Line marking is in poor condition • Unspecified issue with disabled parking	• Maintenance of on-street parking signage/marking +1/-0
Grant St and Griffith St Intersection	• Very dangerous for pedestrians crossing here +4/-0	• Improve pedestrian crossings • No right turn into South Maddingley Rd at school drop off and pick up times +1/-0
Bacchus Marsh College Grant Street entrance	• One disabled parking spaces for student drop-off are not enough	• Increase disabled parking spaces for student dropoff

Taverner Street	• Street is unsafe for all ages and abilities to access Maddingley Park, Tennis, Netball, Rose Garden etc, • Residential area is well connected to town centre, station and public open space, but dwellings are required to provide onsite parking • Pedestrian crossing needed between Maddingley Park and Boyes Close/River bridge +2/-0	• Mark formal parking bays, footpaths and kerb and channel between Grant St and Fisken St +3/-0 • Reduce onsite parking requirements for houses in Taverner St • Provide pedestrian crossing of Taverner St linking park and river

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Ballan

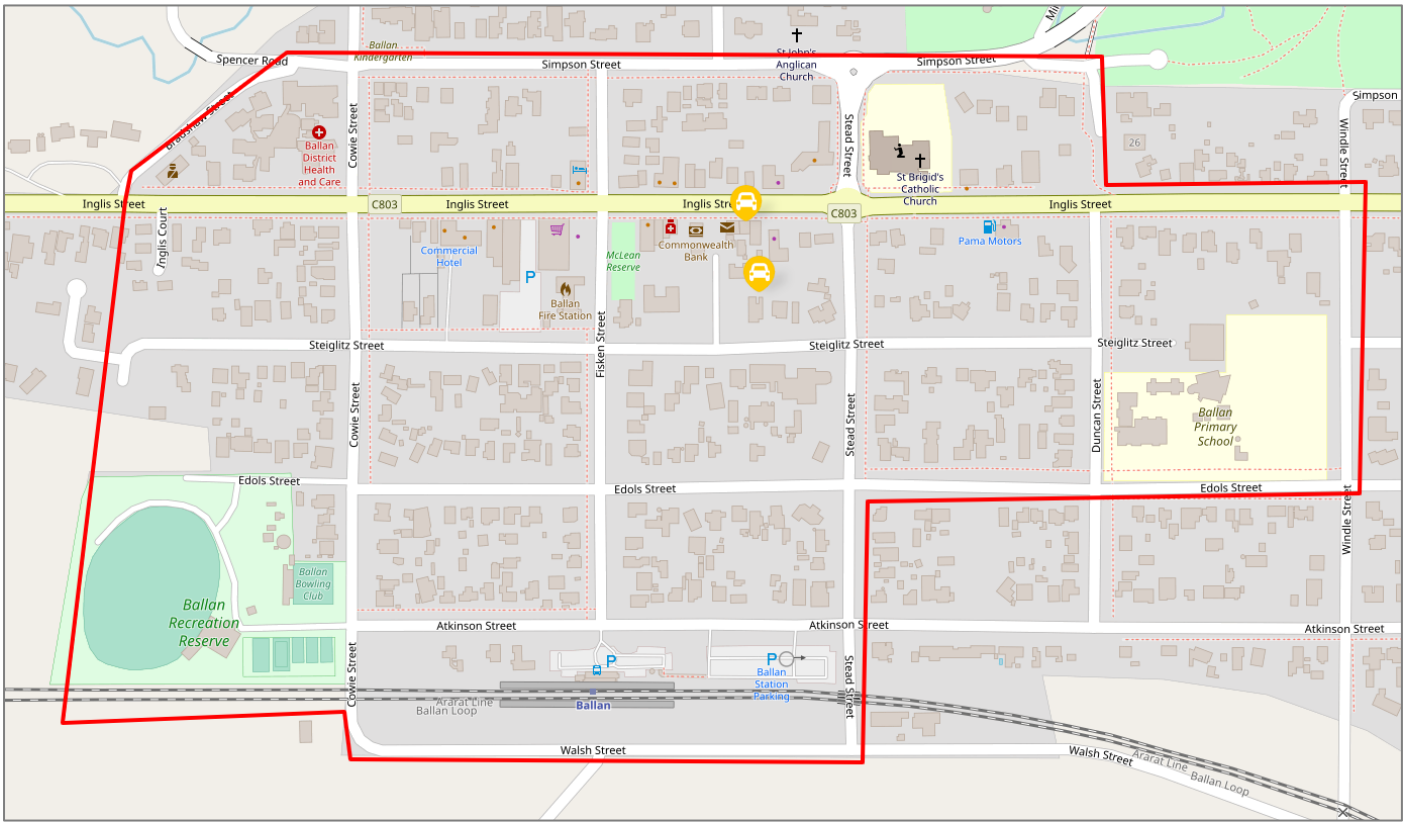

Figure 12: Ballan Precinct comments

Ballan Precinct

Location	Issue (number of times mentioned*) and likes/dislikes	Suggestion (number of times mentioned*) and likes/dislikes
Inglis Street	• Business owners parking on Main Street take up parking which should be used by customers (2*) +2/-0 • No extra disabled parking spots have been provided, though the standard parking was increased during streetscape upgrades • 4 spots have been taken away for parklets (café seating)	• No business owner should park on the Main St. • Businesses should have off-street parking
Kontek Real Estate	• Parking should not have been removed from this location as it is a high demand area and there has been an increase in illegal parking in driveways and private property	• Islands should have been put in front of cafes rather than removing parking in front of other businesses
Steiglitz St Council Car Park	• Lighting is poor and don't feel safe at night walking from Inglis Street • Many visitors and even locals are not aware of this carpark	• Improve lighting • Improve signage to alert drivers on Inglis Street of the location of parking

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Potential Parking Restriction Changes

Limited comments were received on the potential restriction (signage) changes proposed in Bacchus Marsh.
Only locations where comments, likes or dislikes were received are listed below.
No comments were received on the two potential changes in Ballan. It should be noted that the potential changes at 2-10 Grant Street and 97-101 Main St will be directly impacted by Regional Roads Victoria works on the Main Street intersection signalisation and may not be able to be implemented.

Further direct consultation or notification should be conducted before implementation of any potential change, where there is a directly affected stakeholder.

Location	Change Description (and likes/dislikes)	Comment from community
Bennett St outside Foodworks	• Change 13 spaces from 1P to 2P 10AM-5PM. This aligns with the time restriction of nearby off-street spaces that are better located to the shop entrance.	• "The parking along Foodworks is not necessary and causes a bottleneck situation, and becomes worse when people are trying to leave the parking space"
Gell St (both sides) - North of Bennett St.	• Change all parks from 1P to 4P 10AM-5PM which provides parking for a casual employee shift on any day of the week +1/-0	• No written comment received
Bus Zone at 7 Gell Street	• Sign reads 'Bus Zone (Local buses only)'. Change to 'Bus Zone' as local buses do not use this bus stop. The stop is used by the Melbourne Airport Shuttle bus.	• "The Airport Shuttle from Ballarat picks you up from the stop on Gisborne Road near APCO & SES"
Young Street outside Royal Hotel/BWS	• Change 2 spaces 1P to footpath extension. Extend footpath to increase space for outdoor dining at the Royal Hotel and improve safety of access into BWS drive through. +1/-0	• No written comment received
Station St opposite station entrance	• 10 spaces to change from no restriction to 15min parking 7AM-9AM. This restriction will clear the parking area prior to 8:45AM leaving it available for drop-offs for early trains, and provide some later travellers the ability to park close to the entrance +2/-0	• No written comment received
3 spaces at 97-101 Main St	• Change 3 spaces at 97-101 Main St from 1/2P 8:30AM-5:30PM to 1/4P 11AM-10PM to better align the time limit to the needs of nearby takeaway stores and time of day it is required +1/-0	• No written comment received
2-10 Grant St	• Change 8 spaces on 2-10 Grant St from 1/2P to 1P 9AM-9PM. This better reflects the surrounding land use. Extend the span of restriction to take account of nearby dance school. +0/-1	• No written comment received
27-33 Young St	• Change all from 2P to No Restriction. This parking is underutilised and is well located to provide all day	• "Let it remain at 2P to support access for drop-off and pick-up kindergarten kids"

	employee parking in close proximity to the centre +0/-2	• "This area is primarily utilised by families who drop-off and pick-up children from Young St Kinder. Many of these families have pre-school children in tow. These families need to remain the priority users of these spaces. Therefore the time restriction is essential."
31-39 Lerderderg St	• Change all spaces on 31-39 Lerderderg St from 2P to No Restriction. This parking is underutilised and is well located to provide all day employee parking in close proximity to the centre. The bus stop can be retained +4/-0	• No written comment received

Conclusion

This community consultation will inform the recommendations of the Car Parking Study, as well as issues to be addressed in the Car Parking Policy.

The majority of engagement related to the Bacchus Marsh area (95%), and was largely within identified precincts, confirming the initial work undertaken in identifying key areas of car parking issues. In particular, the area around Bacchus Marsh Primary School received the most comments from residents, employees and parents.

Nearly 30% of the comments related to improvements to the pedestrian environment through safety and improved connections across roads.

The next steps are for draft Car Parking Study and Car Parking Policy documents to be prepared and presented to Council, and then consulted on with the public.