

Report to the Future Melbourne (Planning) Committee

Agenda item 6.3

Off-street Bicycle and Motorcycle Parking Review**5 April 2016****Presenter:** Ian Hicks, Acting Manager Urban Strategy**Purpose**

1. To seek authorisation for the Chief Executive Officer to write to the Minister for Planning to inform him of the City of Melbourne's *Off-street Bicycle and Motorcycle Parking Review March 2016* (the Review) and invite his consideration of a proposed planning scheme amendment that implements the key recommendations arising from the Review.

Background

2. The Melbourne Planning Scheme contains a state-wide (VPP) provision, *Clause 52.34 Bicycle Facilities* that sets out bicycle parking rates for a new use or for where the floor area of an existing use is increased. The Planning Scheme also contains requirements for motorcycle parking in a series of schedules to the parking overlays in the Local section of the Melbourne Planning Scheme.
3. The City of Melbourne *Transport Strategy 2012 and Bicycle Plan 2012-16* both state that Council should "amend the planning scheme to require motorcycle and bicycle parking that better match current and predicted use."
4. The City of Melbourne appointed Phillip Boyle Consultants to undertake a review of bicycle and motor cycle parking rates throughout the municipality to assess whether the rates align with current and predicted use. The Review is provided as Attachment 2.

Key issues

5. The Review concludes the usage of bicycles and motorcycles in the municipality is rising. The associated demand for bicycle and motorcycle parking in the City of Melbourne is forecast to at least double by 2031. A key emerging issue is the increase in associated parking demand for bicycles and motorcycles across the State, particularly in the inner Melbourne area.
6. The Review examined the current planning provisions and concluded the current planning scheme provisions were not adequate, that the requirements for bicycle and motorcycle parking should be increased, and that the quality of the spaces and facilities should be better regulated.
7. The Review recommends an increase to the current State-wide bicycle parking provisions for Victoria and to the current City of Melbourne motorcycle parking provisions within the Melbourne Planning Scheme, as well as new provisions to manage the quality of bicycle and motorcycle parking facilities.
8. The Review considered and evaluated other possible solutions to the issues raised such as introducing a new planning provision or a specific schedule into the Melbourne Planning Scheme to address the issues raised by increased demand. It is management's view that this approach is a complicated, costly and time-consuming alternative that would result in the City of Melbourne taking a unilateral approach that would fail to address similar parking demand issues faced by other municipalities, particularly those in inner Melbourne.
9. The Review recommends an increase to the State-wide bicycle parking provisions for Victoria and to the City of Melbourne motorcycle parking provisions within the Melbourne Planning Scheme, as well as new provisions to manage the quality of bicycle and motorcycle parking facilities. It is proposed to achieve this via a Ministerial amendment that introduces a new definition for motorcycle parking in the local overlay, increases the State-wide bicycle parking rates and increases the City of Melbourne motorcycle parking rates.
10. The changes recommended by the Review do not increase the cost or the burden on other municipalities across Victoria because they allow permit proponents to be exempted from the requirement to provide any additional parking, should a particular given municipality wish to exempt a proponent.

Recommendation from management

11. That the Future Melbourne Committee:
 - 11.1. Endorses the findings and recommendations of the *Off-street Bicycle and Motorcycle Parking Review March 2016* (the Review).

- 11.2. Authorises the Chief Executive Officer to write to the Minister for Planning to inform him of the findings and recommendations of the Review and to request consideration of an amendment to the Melbourne Planning Scheme to achieve Council's objectives with regard to bicycle and motorcycle parking in accordance with the options outlined in the body of this report.

Attachments:

1. Supporting Attachment
2. Off-street Bicycle & Motorcycle Parking Review

Supporting Attachment

Legal

1. The proposal will be processed under the provisions of the *Planning and Environment Act 1987*.

Finance

2. The processing of the proposal has been budgeted for in the 2015-2016 Council Budget.

Conflict of interest

3. No member of Council staff, or other person engaged under a contract, involved in advising on or preparing this report has declared a direct or indirect interest in relation to the matter of the report.

Stakeholder consultation

4. Council officers have met with the Department of Environment Land Water and Planning (DELWP) officers to brief them on the project. DELWP recommended Council write to the Minister for Planning to formally invite him to consider the Review's findings and recommendations.
5. The proposal will be processed under the provisions of the *Planning and Environment Act 1987*. Should DELWP run an amendment on behalf of the Minister for Planning, it is likely, but not certain that there will be some form of consultation. Should Council run the amendment, management will undertake normal amendment consultation processes.

Relation to Council policy

6. The proposal aligns with the directions set out in the Council Plan 2013-17, Council's Transport Strategy 2012 and the Bicycle Plan 2012-16.

Environmental sustainability

7. In developing this proposal, all relevant environmental sustainability issues or opportunities have been considered. Improving motorcycle and bicycle parking contributes to Council's environmental sustainability objectives.

Off-street Bicycle & Motorcycle Parking Review

Final Report



City of Melbourne

16 March 2016



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Executive Summary

The City of Melbourne is expecting significant growth in jobs, visitation and residents. To enable this growth the City is working to reduce the number and proportion of trips by private motor vehicle.

The City has committed to a significant expansion in the level of bicycle riding and set modal share and trip targets for bicycles. (Although it is expecting an increase in motorcycle use, the City has not set any targets for the mode.) This approach is proving effective and the usage of both modes is rising.

Today the number of these vehicles parked between the kerb and the building line and on the roadway is growing. As a result the area of footpath and roadway available for other uses is being reduced. This allocation of space to parking is occurring even where the space could be used for higher value activities such as trees, outdoor dining and pedestrian movement (all of which have much greater positive impacts on the City and its community).

There are a number of ways the City can address this situation. One means of influence is the planning scheme through which the City has the opportunity to influence the level of provision for bicycle and motorcycle parking in new and change of use buildings. The relevant Clauses are 52.34 Bicycle Facilities (referred to in this document as Clause 52.34 (Bicycle)) and City of Melbourne schedules to the parking overlay (Clause 45.09) that specify additional requirements to those in 52.06 Car Parking. (This schedule-overlay-clause chain is referred to in this document as Clause 52.06 (Car Parking)).

The question addressed by this report is how might the planning scheme be amended in a way that increases the provision of bicycle and motorcycle parking in these buildings. The question was addressed in the following ways:

- The strategic policy context was identified.
- A forecast was prepared that suggests that the number of bicycles and motorcycles entering the City will double over the next ten years. With minimal growth rates the number of bicycles is likely to rise from 11,000 to 22,000. Many of the strong growth aspirations in the City's cycle plans of five years ago have already been met. Continued growth (based on current trends would result in 36,000 cyclist journey to work trips by 2031. More rapid growth (which could occur if congestion and inner city population increases) could see cyclist demand increase to 54,000 every weekday by 2031.
- The number of motorcycles needing parking in the CBD is expected to increase from 2,680 to 5,000 by 2031.
- An on-site observational survey was conducted by the project team of 92 office, education or residential buildings in the City of Melbourne in order to understand the impact of the current planning requirements.
- An on-line survey was conducted which attracted 159 respondents, mainly residents.
- The planning requirements for motorcycles (Clause 52.06 Car Parking) and bicycles (Clause 52.34 Bicycle Facilities) were evaluated to identify where and how they might best be modified.
- Draft changes to the Clauses were identified.

Survey Results

This report discusses the study in terms of both motorcycles and bicycles. An early finding was that the types of journey typically undertaken is different for each mode and the user groups have different needs in terms of parking and end of trip facilities, these aspect are reflected in the current Victorian Planning Provisions which deal with each mode independently. Therefore in this report the two modes are discussed separately.

Motorcycles

The on-site survey found 116 motorcycles in 40 (43%) buildings in the sample. Offices were the type of building with the highest proportion of motorcycles. Most (64%) motorcycles were parked informally – one quarter (26%) in high-risk locations.

The on-line survey found that most respondents were not motorcycle users (85%). The responses showed a low potential for mode growth – only 16% of non-motorcycle users would consider using a motorcycle in the future. Risk was cited as the main barrier to participation.

The feedback from motorcycle users about parking in buildings reflected the observations. Users reported frustration with the level of provision. The feedback suggested that those who have motorcycles use them regularly and revealed that some residents who are motorcycle users have a car as well.

Bicycles

The on-site survey found 2,399 bicycles unevenly distributed across 5,466 spaces.

The on-site survey found that overall there are two parking places to each bicycle. In practice some buildings have too much parking and some not enough (half the buildings have less parking than is required). In some buildings parking has been provided beyond the requirements of the planning scheme. Informally parked bicycles are common and in risky locations. Bicycles are parked informally when the level of provision, layout or parking systems are inadequate.

Under-provision is associated with residential use and over provision with offices. Other factors beyond the planning requirements influence this outcome including voluntary over-provision, waivers and the provision of parking outside the building.

The on-line survey showed most respondents (77%) owned and used bicycles. 69% of this group had used a bicycle for transport in the last week. There is still potential for mode growth, 8 of the non-bicycle owners (22%) said they would consider using a bicycle as a mode of transport in the future. Risk and theft were the main barriers cited to participation.

Of those bicycle users who reported on bicycle parking (60%) a third (31%) reported parking overnight suggesting the vehicle was in regular use. A third (34%) reported parking informally, in the apartment, on the balcony or outside. Open-ended comments focused on inadequate provision of parking, inadequate security and poor design of parking such as rails that are difficult to use or located in awkward locations.

The planning requirements (and other factors) have had the impact of providing bicycle parking such that:

- 48% of buildings have ‘room to grow’ for bicycle use (25 – 80% occupancy)
- 16% are over full (>80% occupancy)
- 36% have over provision. (<25% occupancy).

The impact of the Clause can be considered a success if success is defined as aiming to provide ‘room to grow’ while avoiding under provision and being less concerned about under use.

The model of scheme provisions

This study considered changing the type of planning requirement that is currently in place for each mode. The current approach uses a:

- State-wide clause for bicycle facilities
- Local schedule for motorcycle facilities

The Review evaluated a number of possible solutions to the demand for parking and concluded that the use of state-wide clauses and local schedules was the most effective means of resolving the issue while maximising certainty and good planning outcomes.

Motorcycle facilities are best defined in a local schedule. This is because the number and proportion of motorcycle journeys to work across Victoria and in other metropolitan municipalities is significantly lower than motorcycle journeys to the City of Melbourne. A blanket approach to motorcycle parking beyond the City of Melbourne would therefore be inappropriate. Each local Planning Authority can make their own decisions about where motorcycle parking should be required in their jurisdiction.

Bicycle facilities are best defined in the state-wide clause that can be applied to the extent necessary by each Responsible Authority (having due regard to local conditions and the decision making criteria). Many municipalities across the state have similar levels of bicycle ownership and use to the City of Melbourne. Bicycle use is growing rapidly as a core mode for some people and usage rates are directly related to the provision of facilities.

The operation of planning schemes in the state would be negatively impacted if the Victorian Planning Provisions were changed to enable Planning Authorities to adopt a local schedule with different requirements for bicycle facilities. Using local schedules to address Bicycle Parking issues would be less simple to administer. In addition, other municipalities across the State would seek to develop their own (distinct) local schedules each with varying requirements. It is also likely that some areas where increased requirements would be relevant would not be covered by a local Clause. This approach would likely produce a poor outcome for planning across Victoria that does not comply with the objectives of planning in Victoria as stated in the Planning and Environment Act 1987.

The approach taken in 2006 for the introduction of Clause 52.34 (Bicycle Facilities) remains valid today. It provides a state-wide approach that enables Responsible Authorities to require bicycle facilities with appropriate discretion to lower rates or waive requirements where appropriate.

Recommendations

It is recommended that in a local schedule to the overlay Clause 45.09 to the Clause 52.06 Car Parking (relevant to motorcycles) the City of Melbourne seek to:

- Establish the definition of a 'motorcycle parking space' inside a building as 'one equivalent car park' that parks 2 motorcycles.
- Require that these spaces be set aside for motorcycle parking (while allowing other temporary uses until needed by a motorcycle user).
- Increase the rate from 1 (undefined space) in 100 car parking spaces to 1 equivalent car parking space (2 motorcycles) for every 40-car spaces.
- Define the uses and emphasise employment (commuters) rather than dwellings (residents)
- Extend the requirement across the municipality

These recommendations are likely to deliver parking spaces inside buildings for 5,000 motorcycles by 2031, which is consistent with the forecast.

A draft schedule for inclusion in Clause 52.06 Car Parking is provided in Appendix A: Proposed Schedule to the overlay Clause 45.09 to Clause 52.06 (Car Parking)

It is recommended that in Clause 52.34 Bicycle Facilities (relevant to bicycle parking) the City of Melbourne seek to:

- Modify the Decision Guidelines to provide clearer guidance for responsible authorities so that that the importance of bicycle parking is emphasised
- Modify the uses (2 minor changes)
- Increase the rates for users (Employee/resident and Visitor/shopper/student) especially for dwellings. It is recommended that the current rate of '1 for every 5 dwellings' be changed to '1 to each 1 bedroom in a dwelling' with the option to vary with a permit.
- Require a bicycle parking space for each 100m² of Net Floor Area for most uses. Vary the

visitor/shopper/student/spectator rate by the use.

- Change requirements for related facilities such as showers, personal lockers in employment uses
- Change the design guidelines to provide clearer guidance for developers and designers to increase the effectiveness, safety, security and access of the parking that is provided.

These recommendations are likely to deliver a substantial number of parking spaces inside buildings especially in dwellings. The Clause could be changed for the whole State (as many of the recommendations require changing the Victorian Planning Provisions). The clause would then operate similar to the car parking clause in that each Responsible Authority can issue dispensation (a waiver) for facilities that are not required in local instances.

A draft Clause 52.34 Bicycle Facilities is provided in Appendix B: Proposed Clause 52.34 (Bicycle Facilities)

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1. Introduction

1.1. CONTEXT

The question addressed by this report is how might the Melbourne Planning Scheme (and as a consequence the Victorian Planning Provisions) be amended in a way that better provides for bicycle and motorcycle parking in new or change of use buildings. This question sits in the following context. The City of Melbourne is expecting significant growth in jobs, visitation and residents. To enable this growth the City is working to reduce the number and proportion of trips by private motor vehicle.

To this end the City has committed to a significant expansion in the level of bicycle riding and set modal share and trip targets for bicycles (12% mode share by 2030) in the Transport Strategy 2012. (Although it is expecting an increase in motorcycle use, the City has not set any targets for the mode.) This approach is proving effective and the usage of both modes is rising.

One of the ways that the City supports trips by bicycle and motorcycle is to provide parking for these modes between the kerb and the building line – the ‘footpath’ – and in roadways on kerb outstands and central medians. This is unique to Victoria. The increasing use of these modes has lead to more space being set aside for bicycle and motorcycle parking on both footpaths and roads.

There is however a negative consequence to this approach: the expansion of bicycle and motorcycle parking is also reducing the fixed area of footpath and roadway available for other uses such as providing for rising pedestrian numbers on footpaths and public transport on roads. The City is therefore looking for alternative locations in which bicycles and motorcycles can be parked.

One of the alternative locations for parking bicycles and motorcycles is in buildings. (Other alternatives include re-allocating space currently used for car parking on roadways and underground parking similar that provided under the City Square. These alternatives are not considered by this report).

From a planning perspective there are two types of building – existing and planned. The City has the opportunity to influence the level of provision for bicycle and motorcycle parking in this second category. (Consideration of how increased space for parking bicycle and motorcycle could be found in existing buildings through retrofit initiatives, for example, is not considered by this report.)

One of the ways the City can influence the level of bicycle and motorcycle provision in new and change of use buildings is as the ‘planning authority’ (in conjunction with the State Government). This is the focus of this report. (The ways that the City acting as the ‘responsible authority’ can influence outcomes, through negotiation for example, is not considered.)

1.2. AIM

The evidence and advice in this report will enable the City to propose a draft amendment of the planning scheme as envisaged in Action 6.3.6 of the City of Melbourne Annual Plan and Budget 2014-2015¹ and the Transport Strategy 2012². The outcomes may be:

- An amendment to Clause 52.34 in the planning scheme for bicycles led by the Department of Environment, Land, Water & Planning
- A change to the motorcycle parking rates in the local schedules to Clause 45.09 Parking Overlay led by the City of Melbourne
- Introduction of new schedules to allow parking rates to be introduced into areas not currently covered by requirements for motorcycle parking led by the City of Melbourne.

1.3. METHODOLOGY

This project has focused on several building users and uses in the planning scheme as shown in Table 1 below:

Table 1: The level of provision in the survey target group of buildings

USERS	USES
Residents	Dwelling
Students	Education
Short-term (less than four hour) visitors	Retail, Office, Education
Commuters	Office

Source: City of Melbourne & PBA

To understand whether the current planning provisions lead to an appropriate quantity and quality of parking the project has followed three approaches:

1. Data gathering

The project has gathered data on the current level and quality of bicycle and motorcycle parking in buildings through:

- On-site observations
- An on-line survey of building users

2. Strategy review and forecasting

The project has considered the strategic context and forecast what the level of use of these modes might be in the future and therefore how many bicycles and motorcycles may need to be parked including:

- Identifying key aspects of the City's transport strategies and targets including Transport Strategy 2012, Bicycle Plan 2012-16 and the Road Safety Plan 2013-2017.
- Analysing mode share, absolute numbers and other travel data to determine trends in the target modes.
- Identifying and considering key barriers and enablers of adoption of the modes

3. Evaluation of the current planning requirements

The project has evaluated the relevant planning requirements Clause 52.34 Bicycle Facilities and 52.06 Car Parking (motorcycles) to identify changes that might be made to the planning provisions in order to increase the availability and suitability of parking space in buildings. On this basis the report recommends:

- The summary of a broad approach within which a change or a number of changes to the planning scheme would be most effective.
- Specific measures that, if included in the scheme, would be likely to ensure that the quantity and quality of bicycle and motorcycle parking provided in new or change of use buildings is appropriate for the anticipated future.

2. On-site survey

Information and understanding gathered through the on-site survey has informed the recommended changes to the Clauses.

2.1. ON-SITE SURVEY TARGET GROUP

The on-site survey was conducted in 2015 based on a sample of 724 buildings from the CLUE database provided by the City of Melbourne.

The sample was defined as 'buildings that had been issued a new or 'change of use' permit since 2009'. It was judged that Clause 52.34 Bicycle Facilities, which came into effect in 2004, would have directly influenced decisions made in relation to all of these buildings.

The sample was filtered:

- Buildings under 4 storeys and/or less than 2,000 Gross Floor Area (GFA) were removed.
- The primary building use was determined by the largest GFA space use. Buildings that were not 'residential/accommodation, offices, education and retail' were excluded. This reduced the data set to 120.

This group of 120 buildings were the targets of the on-site survey. The on-site survey target group has the following characteristics:

- There is car-parking data for all buildings.
- Half (60) have dwellings.
- Two of the buildings have no bicycle parking data.
- The sample includes a range of provision as described in Table 2 below.
- The sample is spread across at least four years as described in Table 3 below.

Table 2: The level of provision in the survey target group of buildings (CLUE database)

PROVISION	BICYCLE	MOTOR VEHICLE
Parking provided	40	79
No parking provided	78	41
One type of parking provided but not the other	9	46

Source: City of Melbourne with PBA analysis

Table 3: The distribution of the survey target group of buildings by year

YEAR	TOTAL	WITH BICYCLE	% OF TOTAL	AVERAGE SPACES (FOR THOSE WITH SPACES)
2009	35	12	29%	144
2010	39	15	33%	78
2011	36	13	30%	30
2012	6	0	5%	0
2013	4	2	3%	105
2014	0	0	0%	N/A

Source: City of Melbourne with PBA analysis

2.2. THE DATA SET FOR THE ON-SITE SURVEY

The on-site survey target group of 120 buildings was reduced to 92 because:

- Twenty-six building owners or managers (22%) were inaccessible or reluctant to allow access.
- Permission was denied to enter a police station.
- One address in the data could not be found on the street.

The 92 buildings in the on-site survey target group (77%) included:

- Total Dwellings 5,710
- Total Office GFA 454,493 m²
- Total Retail GFA 83,383 m²
- Education:
 1. Total Staff 3,644
 2. Total Students 16,153

The 92 buildings were entered and the level of bicycle parking provision and use observed.

Another nine buildings were surveyed. These additional buildings were of similar character to those on on-site survey target group and were adjacent or nearby to buildings in the group. It was decided not to include this additional data in the sample, as the buildings had not been selected in the sample. Trials were run using the larger data set and found that the data was consistent.

2.3. SURVEY IMPLEMENTATION

The City of Melbourne wrote to the owners and managers of the buildings in the survey target group. After the letter had been received the surveyor approached the on-site representative of the building owner or manager and requested permission to survey the parking provision in the building.

The survey took place over a three-week period from 31 August to 22 September 2015. The surveys were generally conducted in between 0830 – 1700 each day. As a result the number of bicycles at residences may be under represented, if for example, a resident used their bicycle during the day.

At each site the surveyor filled out an iPad based form and took photographs. The structure of the observation is in Appendix G: On-site and on-line survey questions.

As part of this survey a number of photographs were taken. A link to the photo library has been provided to staff of the City of Melbourne.

2.4. RESULTS FROM THE ON-SITE SURVEY

The on-site survey provided data on actual parking provision (whether more, less or as required by Clause 52.34 Bicycle Facilities) and actual bicycles parked.

Installed parking

- Total bicycle spaces required in accordance to the Clause were estimated to be 7,254 for the 92 buildings.
- 5,466 bicycle parking spaces were observed in the 92 buildings.

Overall there are two parking places to each bicycle

Observations found 2,399 bicycles parked in the 92 buildings.

There were more bike spaces than parked bikes.

- 5,466 bicycle parking spaces
- 2,399 parked bicycles

The average occupancy was 56% and the median occupancy was 43%. However the average and median occupancy are misleading, as the bicycles were not spread evenly across the parking areas.

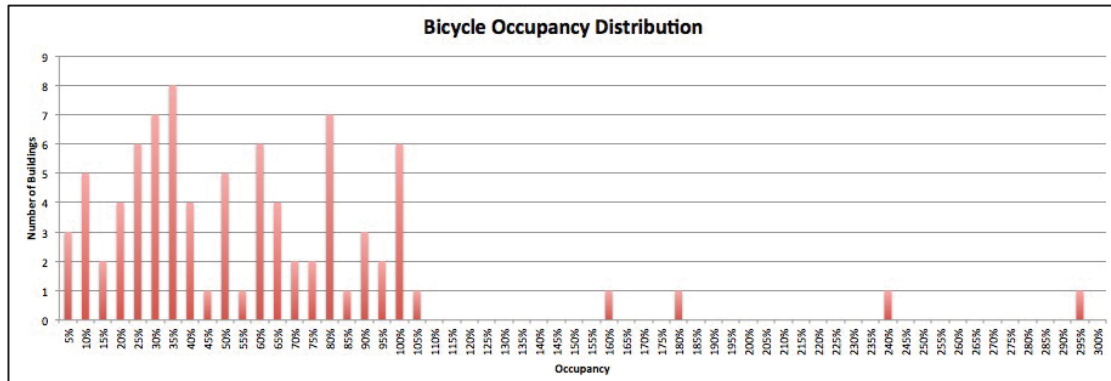
Some buildings have too much parking and some not enough

Of the buildings that provided bicycle parking (76) 'Half (54%) are less than half full and half (46%) are more than half full'.

- 21% had an occupancy of 80% or greater
- 54% had an occupancy of 25% – 80%
- 25% had an occupancy of less than or equal to 25%

The occupancy ranged from 0 – 300% and all 5% occupancy increments between 0 – 100% were represented as shown in Figure 1 below.

Figure 1: Distribution of occupancy in 5% increments from 0% to 300%



Source: PBA analysis

Half the buildings have less parking than required

Over half (48/92) of the buildings were found have less parking than required by the Clause. Some have no bicycle parking.

There are places with no bikes and no bike parking: 16 buildings (17%) buildings did not provide bicycle parking. In this group:

- Seven are hotels with low or occasional demand for bicycle parking
- Four are old/heritage buildings with limited space or no basement
- Three has demand for bicycle parking based on observed parked bicycles or commentary by the building manager
- One building has a personal garage for each tenant

Some buildings have provided more than the required amount of bicycle parking and some less

40 buildings (40%) have provided more than the required level of parking while 48 (52%) have provided less. Of the 48 that provided less, twelve did not provide any parking at all.

The occupancy data comes into focus when the buildings are divided into two categories: 'more than required' and 'less than required' based on the level of provision. Table 4 shows that both groups include buildings with over and under occupancy.

The occupancy categories are defined as:

- >80% under provision (or 'overfull')
- 25% - 80% ideal – 'room to grow'
- <25% over provision (or under used)

It is not surprising that some of the buildings that provided less parking than is required suffer from high occupancy levels but so do some buildings that have provided more parking that is required. The data also shows that some who have gone beyond the requirements have over provided but there are also buildings that have provided less than is required with under used parking.

Table 4: The level of provision in the on site survey target group of buildings

LEVELS OF PROVISION	OVER PROVISION (OCCUPANCY < OR = 25%)	ROOM TO GROW (OCCUPANCY 25% - 80%)	INADEQUATE PROVISION (OCCUPANCY > OR = 80%)
More bicycle parking than required	14	21	5
Less bicycle parking than required	5	20	11

Source: PBA analysis

Education has a big impact

Half of these spaces 3,198 (44%) were required at education for students even though education uses/buildings are only 10% of total buildings and only 227 spaces (3%) are required for education employees. Other provision was as follows:

- Office: 1,933 bicycle parking spaces (27%)
- Residential: 1,673 bicycle parking spaces (23%)
- Retail: 275 bicycle parking spaces (4%)

Residential uses are more likely to be under provided

Some buildings have more bicycles than parking places. The on-site survey only investigated the car park area. If residents had bicycles in their apartments, they would not have been included in the survey and the level of under provision would be higher.

Under provision is more common in residential uses and rare in offices as shown in Table 5 below.

Table 5: Instances of inadequate and zero provision of bicycle facilities

LEVELS OF PROVISION	INADEQUATE PROVISION (OCCUPANCY >80%)	ZERO PROVISION (VPP WAIVER)	TOTAL BUILDINGS WITH PRIMARY USE OF THIS TYPE	PROPORTION WITH INADEQUATE PROVISION
Residential Space	12	8	52	38%
Education Space	3	0	9	33%
Retail Space	0	1	3	33%
Office Space	1	3	28	14%
Total	16	12	92	

Source: PBA analysis

Over provision is more common in offices

Some buildings (25%) have more parking places than bikes and the facilities are underused (<25% occupancy) as shown in Table 6 below.

Table 6: Over provision

TYPE OF USE	OVER SUPPLY (OCCUPANCY <25%)	TOTAL BUILDINGS WITH PRIMARY USE OF THIS TYPE	PROPORTION WITH INADEQUATE PROVISION
Residential Space	5	52	10%
Education Space	1	9	11%
Retail Space	1	3	33%
Office Space	12	28	43%
Total	19	92	

Source: City of Melbourne with PBA analysis

Informally parked bicycle are common and in risky locations

10% of parked bikes are parked informally:

- Three quarters of informally parked bikes are in high-risk locations.
- Informally parked bikes indicate inadequate provision by quantity or design
- 22% of buildings in the sample had informally parked bicycles.

These bicycles were parked informally for two reasons:

- Almost half the informally parked bikes are in a building where the parking is almost full:
 3. The parking occupancy is above 80% but below 100% (4 buildings)
 4. The parking occupancy is above 100% (5 buildings)
- When there is available parking (occupancy <80%) and bikes are parked informally (11 buildings out of 20) one reason could be inadequate facility design (although it complies with the VPP).
 5. Eight of the eleven buildings with informally parked bicycles and occupancy <80% had parking systems with inadequate centres

CLUE estimates of installed bicycle parking

The CLUE data for the 92 buildings in the survey was an estimate of installed bicycle parking based on information provided by building owners and managers to the City of Melbourne that was self-reported over time. This self-reported data indicated there were an estimated 2,519 bicycle spaces within the 92 buildings included in the survey. The survey, which involved independent inspections of each building, found 5,466 bicycle parking spaces in the 92 buildings. The discrepancy is likely to have arisen from an under-reporting of spaces by building owners and managers. Council has since implemented changes to the CLUE methodology to increase the accuracy of the CLUE data.

2.5. THE IMPACT OF THE CLAUSE

In the light of the results of the on-site survey it is possible to consider whether the 2004 Clause 52.34 Bicycle Facilities can be seen to have been a success.

To make this judgement a definition of success is needed. (No definition of success was set in 2004 when Clause 52.34 Bicycle Facilities was introduced). This definition – or a similar one – can then be used to inform the design of any future changes to the planning scheme.

The risks in setting requirements in a Clause are:

- Settings that are too high, either for the time of setting or in the future, may lead to low value investments – requiring space to be set aside and parking facilities installed in areas where the usage is low. (The risk of over provision). The risk of over provision is born by the building owners and users and can be mitigated by considered assessments that allow partial or full waivers of the requirements at particular sites.
- Settings that are too low may generate a significant opportunity cost by facilitating buildings with inadequate bicycle parking preventing the mode from reaching its potential and/or leading to many bicycles being parked outside. (The risk of under provision). This risk is born by the wider community and, once a building has been approved under the planning scheme, cannot easily be mitigated.

In between these two risks is the category of ‘just right’. Unfortunately ‘just right’ will not be a fixed point. From the point of view of the planning scheme considering buildings will be in service for fifty years or more, the setting will need to anticipate the future relevance and growth of the mode over the fifty year life of the buildings approved by the planning scheme.

The forecast below suggests that the bicycle is on an upward trajectory and as the population increases and road and public transport congestion increases, the need for an ‘efficient walking machine’, as Jan Gehl calls the bicycle, will grow into a necessity. This suggests that the planning requirements need to anticipate growth – avoiding under provision but risking over provision.

The middle category could perhaps be described as ‘room to grow’ and the three categories defined as follows:

- Room to grow: Allow the mode ‘room to grow’ by providing adequate parking in buildings for those who are using bicycles or might take up the use of bicycles. Define ‘room to grow’ as 25% - 80% occupancy. Attempt through the Clause to maximise the proportion of buildings in this category.
- Under provision: Avoid a high proportion of buildings with under provision so that parking is not displaced outside and the use of the mode is not suppressed because parking is not available. Define this as 80% occupancy or greater. Attempt through the Clause to minimise the proportion of this category.
- Over provision: Avoid a high proportion of buildings with significant over provision as the space or investment could be put to better use. Define this as less than 25% occupancy. (A bicycle parking facility that is three quarters empty today will not be more than half full in ten years if usage doubles.) Attempt through the Clause to minimise the proportion of this category.

In practice it will be difficult – considering all the variables and unknowns – to correctly anticipate the growth and relevance of the mode.

An economic valuation of the three categories would enable a cost benefit assessment that would reveal the comparative costs and benefits of varying the proportions of the three categories. Revealing, for example, whether the risk of under provision and suppressed bicycle use is greater in value than the risk of investments in assets that are underused.

An economic assessment is beyond the scope of this report, but a strategic assessment is straightforward. From a strategic point of view the City of Melbourne would probably prefer to have some underused parking in some buildings in exchange for bicycle mode growth, avoided over crowding in building bicycle parking and more available space outside the building.

On this basis it could be decided that (for the City of Melbourne) ‘room to grow’ is the most desirable and ‘overfull’ is the least desirable category. This definition of success would allow the rates to be set to ‘get the best outcome’. One consequence of a better outcome defined in this way will be an increase in over provision – not desirable but the least undesirable outcome.

2.5.1. Comparing the survey to the 2004 settings

Using the definition of success outlined above and the data gathered in the on-site survey it is possible to assess the effectiveness of the 2004 settings in the planning provisions.

Table 7 below shows two scenarios using this definition of success based on the on-site data.

Table 7: What if scenarios to illustrate success

CATEGORIES	SCENARIO ONE	SCENARIO TWO	ACTUAL OBSERVED 2015
	If there had been no additional voluntary provision	If the Clause had required double the parking in dwellings	
Under provision >80% occupancy	33%	14%	16%
Room to grow 25% - 80% occupancy	27%	37%	48%
Over provision <25% occupancy	40%	49%	36%

Source: PBA analysis

The 2004 requirements

Scenario One shows actual bicycles observed against the parking requirements in the Clause (using gross floor area (GFA) data from CLUE) for the buildings in the sample (rather than the parking that was actually provided). In this scenario, no building has more than the 2004 requirements while some have less (for various reasons).

The outcome is that ‘room to grow’ is the smallest proportion and that one third of the buildings do not have enough bicycle parking. The risk of overprovision has been minimised and as a result there is under provision. As noted above, the on-site survey found that dwellings are associated with under provision.

Changing the rate

Scenario Two shows actual bicycles observed against adjusted parking requirements in the Clause for the buildings in the sample. In this scenario the requirement for dwellings was doubled (and assumed to have been complied with). This change to the requirements provides a better outcome than Scenario One. This single change has increased the proportion of buildings with ‘room to grow’ and reduced over crowding. It has also increased the proportion of buildings that

have over provided. In this scenario the risk of under provision has been avoided and as a result there is a higher proportion of over provision.

A number of these scenarios have been run (not shown) using the data from the on-site survey. It is difficult to set rates that increase the middle 'room to grow' category while simultaneously shrinking both the top and bottom categories.

Voluntary provision

Column Three 'Actual Observed' shows what happened. Using the suggested definition of success it can be said that Clause 52.34 Bicycle Facilities has been a success. Half the buildings have room to grow, just over a third have over provision and 16% have under provision.

It is important to note that this outcome has not been due solely to the requirements in the Clause (Scenario One). As noted above many buildings have more parking than is required. The increased provision has come about at different stages – at construction or at one or more times during use. Some building uses – employment for example – are more likely to have had additional parking installed as employees are able to influence the level of service provided by an employer who can in turn influence the building manager or owner. This could be a reason why the survey found over-provision in offices. Residents find it harder to influence the Owners Corporation and this could be reflected in the under provision observed for that use – even where usage is demonstrated and desired.

It is important to note that the City has the opportunity to influence the level of voluntary provision by means outside the planning scheme.

Waivers and under provision

Voluntary increases in provision has been balanced by situations where the requirements of the Clause have been formally waived, and where requirements have been, according to anecdotal feedback, avoided during construction or removed afterwards. From a planning point of view non-compliance is unlikely to be revealed and there are unlikely to be significant sanctions.

The City has the opportunity to increase scrutiny of applications for waivers as well as ensuring that commitments that have been made under the planning scheme have been fulfilled.

Other factors

The provision and usage of bicycle parking inside a building is influenced by a number of factors that were not studied during the site survey. These include:

- The evolution of inner urban employment and living including perceptions and expectations. It is unlikely that a building completed in 2004 would have the same bicycle parking provision as a building completed in 2014. It is also unlikely that people moving into an inner city apartment will have the same expectations as people did ten years before.
- The transport context of the building. A building on a popular and accessible bicycle route, such as Swanston Street, is likely to have and provide more parking than is required by the Clause. A similar building on King Street for example, could be expected to have less.
- The provision of parking around the building will influence the level of provision and use inside the building. Figure 2 shows parking for one hundred bicycles on the kerbs to the north and west of an 'education' building in Carlton. At the moment the City is simultaneously 'requiring' parking in buildings through the planning scheme and 'providing' parking on kerbs through the bicycle plan. These two approaches are not linked through a shared strategy.

Figure 2: Parking at University of Melbourne Law School



Source: Google Street-view

2.5.2. Observed motorcycles

The on-site survey identified 116 motorcycles at 40 sites (43% of 91 buildings). The buildings participating in the survey included:

- 15 Office buildings (45% of a possible 33)
- 19 Residential buildings (31% of a possible 60)
- 3 Residential/retail buildings (25% of a possible 12)
- 3 Education buildings (27% of a possible 11)

Few conclusions can be drawn from this limited data.

Not many motorcycles are parked in buildings

- Motorcycles in the CBD are rarely parked in buildings.
- A surface street survey by PBA found that 1,041 (Tues 7 Jul 2015) motorcycles parked within the CBD. Many of these were clustered around offices.

Employment is a key use

- The data suggests that motorcycle parking is most strongly associated with employment.
- As noted below in the forecast, the level of motorcycle ownership of residents of the City of Melbourne is low.

Informal parking

- A majority of the motorcycles were parked informally 63.79% (74) one quarter of those (19 – 25.68%) in high-risk locations.
- Informal parking suggests that little formal parking is available. This interpretation is supported by the responses to the on-line survey.

2.6. PHOTOGRAPHS FROM THE ON-SITE SURVEY

As part of the on-site survey photographs were taken at each site.

The photographs indicate where the ‘quality’ (rather than the quantity) of parking is inconsistent with usability, standards and guidelines or the planning scheme.

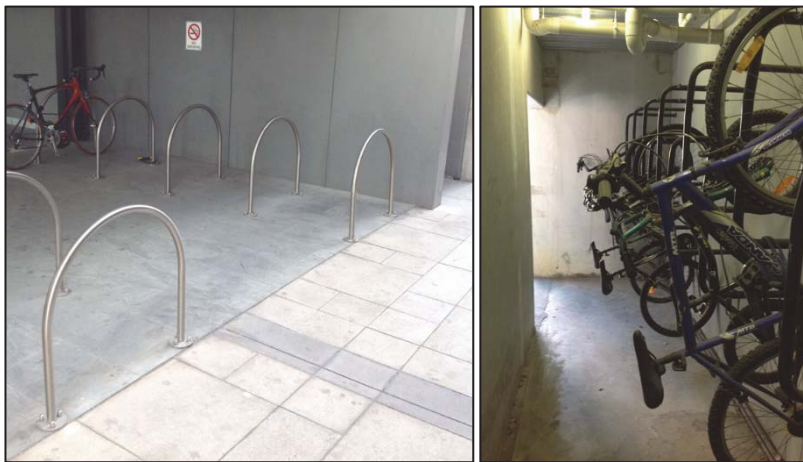
In Figure 3 below the parking is well laid out (between bicycles and for access) and there is a variety of parking systems (hanging and standing bicycles). This, we can imagine, is the parking envisaged by the Clause – space efficient and well used.

Figure 3: High quality bicycle parking

Source: PBA

Unfortunately many sites have poor quality parking. Some typical shortcomings are listed below. The shortcomings in provision, design and execution have been incorporated into the recommendations for changes to the Clauses.

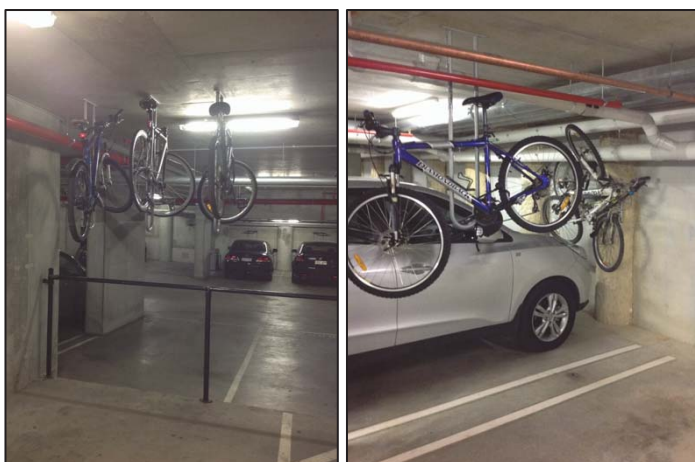
Figure 4: Shortcomings of bicycle parking observed in the on-site survey



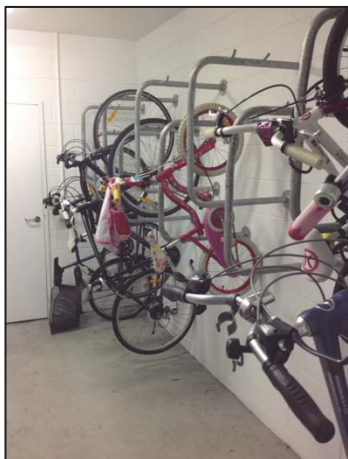
Inadequate setbacks from walls and pedestrian area



Parking system does not support the bicycle at two points (stability) and does not permit locking (security)



Parking too high off the ground – lifting injury risk and does not permit locking (security)



System not suitable for use (child's bicycle on an adult system)



System not understood by users. (Also more bicycles than spaces provided)

Figure 5: High risk informal parking observed in the on-site survey



Fire and access risk

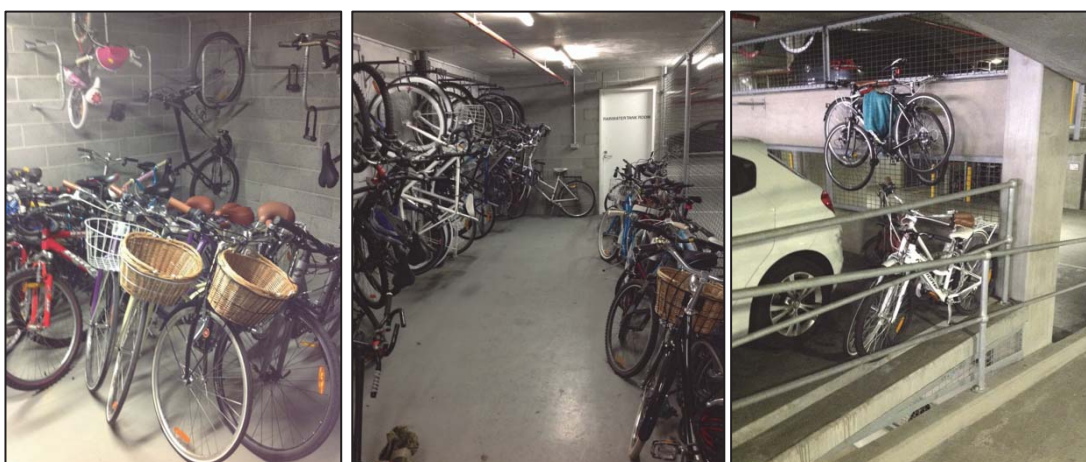


Fire risk

Figure 6: Mismatch of provision and use observed in the on-site survey



Short term and longer term underuse



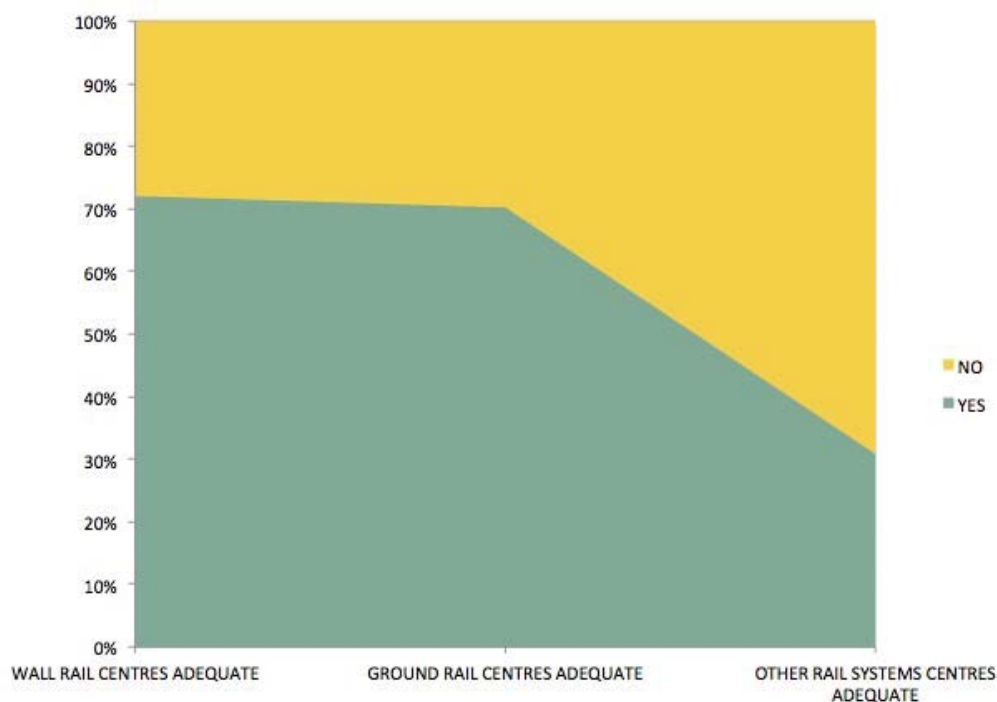
Inadequate provision by quantity, type of system and location

2.7. QUALITATIVE OBSERVATIONS FROM THE ON-SITE SURVEY

As part of the on-site survey a qualitative assessment was made at each site. The charts below indicate where the ‘quality’ (rather than the quantity) of parking is inconsistent with usability, standards and guidelines or the planning scheme.

Many (though not all) wall and ground rails are being installed correctly as highlighted by Figure 7 below.

Figure 7: Proportion of correctly installed rails by ‘centres’



Source: PBA analysis

Other systems including ‘toast racks’ are sometimes manufactured with inadequate centres. This is why the ‘other’ category has rated poorly. An example of a ‘toast rack’ is provided in Figure 8 below.

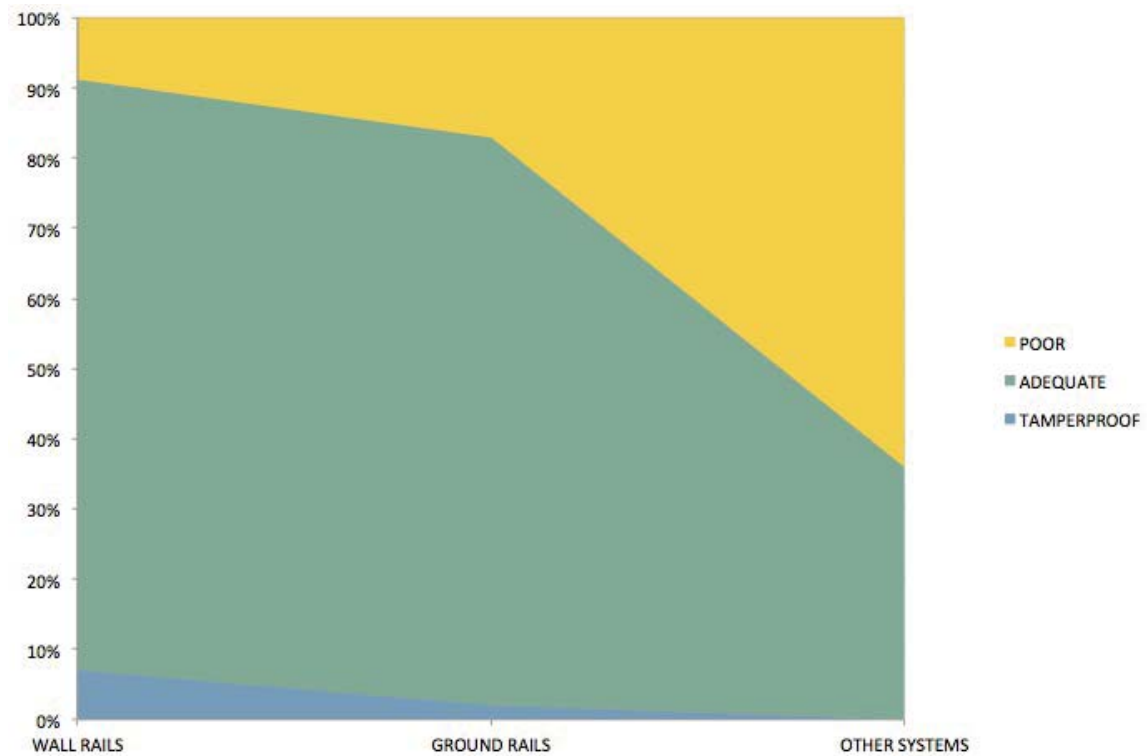
Figure 8: A ‘toast rack’ with inadequate centres (preventing 100% occupancy from ever occurring)



Source: Street Furniture UK

Figure 9 below shows the proportion of rails that have been installed securely. Poorly secured rails will work loose under load and will fail to support the bicycle.

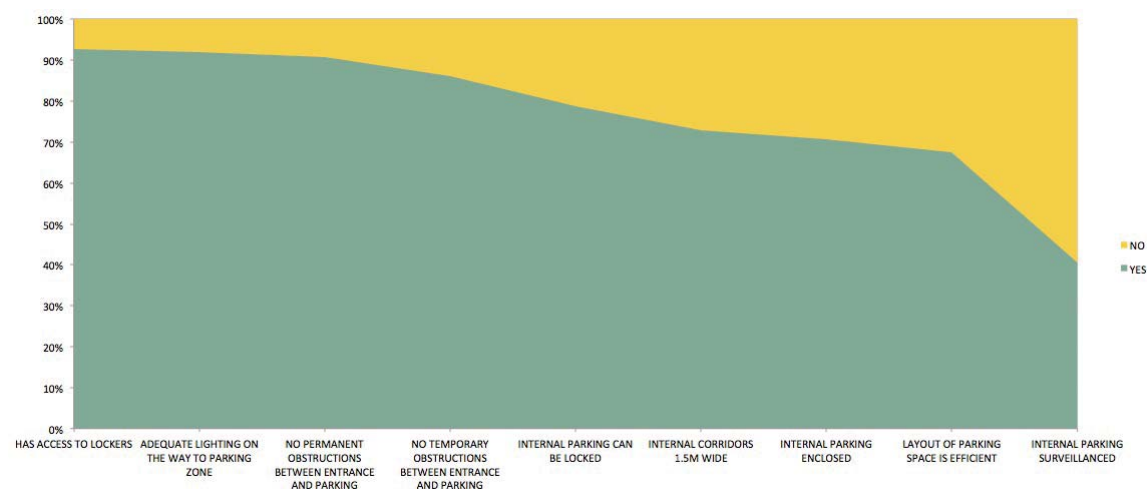
Figure 9: Proportion of correctly installed rails by 'fixing'



Source: PBA

The majority of bicycle parking facilities were found to have adequate installation and features as shown in Figure 10 below.

Figure 10: Proportion of correctly installed rails by 'fixing'



Source: PBA

Most (>80%) installations have good quality, including:

- Access to lockers
- Lighting



- Absence of obstructions
- Ability to lock the bicycle

Many (>70%) installations:

- Are enclosed
- Have adequate corridors
- Efficient layouts
- In general only half the parking has suitable surveillance.

3. On-line user survey

Information and understanding gathered through the on-line survey has informed the recommended changes to the Clauses.

The on-line survey was sent to the building managers of the buildings in the sample. The building managers were asked to pass the survey link to the building users.

- 159 responses were received between 7 July and 24 August 2015.
- 143 responses (89%) were from residents.
- 20 from employees (12.5%)

The structure of the survey is in Appendix H: A selection of on-line survey comments – bicycle parking.

3.1. SURVEY OF MOTORCYCLE USE

Most respondents (85%) did not own or use a motorcycle.

Current motorcycle users

24 (15%) of the respondents owned a motorcycle. Twenty had used it in the previous week. These users reported on their parking:

- 75% of these motorcycle users said that they parked their motorcycle in the building overnight and during work hours, which suggests that the vehicle is only used for some trips. Four reported parking only overnight suggesting the vehicle was in regular use.
- Half would prefer to park in the car park in a marked space.
 6. Parking was available to 75% of users in a marked or informal space within the building.
- Half would prefer to park on the footpath or road.
 7. 25% reported parking on the footpath.
- Most (65%) reported that motorcycle parking was difficult because spaces were difficult to find, not in convenient locations, not sheltered or secure. Three reported under ‘other’:
 8. ‘There is nowhere to park it! It is jammed in my one allocated parking space in the building with my car! If I put it anywhere else I get a letter from the building manager’
 9. ‘Normally ok but as not on title could be issue if others need space’
 10. ‘Building manager doesn't approve of parking outside spaces’.

Further comments revealed:

- The desire for more motorcycle parking space
- Some motorcycle users also have a car and, depending on the ‘building rules’, either are or aren’t allowed to ‘double park’ it in their car space.
 11. Some use leftover space. ‘At present lucky to have space. All other space has been allocated to cars, visitors and additional bicycle parking’.
 12. Frustration at the planning requirements: ‘They only factored in a space the size of a car for motorcycles for the entire building. That's space for about seven motorcycles for a building with over 200 apartments. It's beyond frustrating as some people store their bikes there so a shift worker like myself who uses my motorcycle daily usually can't find a space. It's terribly thought out.’

Potential for mode growth

19 of the non-motorcycle owners (16%) said they would consider using a motorcycle as a mode of transport in the future. For this group of non-motorcycle users the factors that would make them more likely to ride a motorcycle were related to scenarios in which risk was reduced, or prices of other modes increased or travel times of other modes increased. If all these people took up motorcycle riding the proportion of non-riders would fall to 73%.

- 26% of respondents would not use a motorcycle because of risk (safety).
- 25% of the 'potential motorcycle user' group said that better parking provision would be a factor in their decision. One respondent said 'No room to park in the building as I already have a car and only one car space'.

3.2. BICYCLE USE ON-LINE SURVEY

Most respondents (77%) owned and used bicycles. 69% of this group had used a bicycle for transport in the previous week.

Current bicycle users

73 (60%) of the bicycle owners reported on their parking. 46 of these bicycle users (63%) said that they parked their bicycle in the building overnight and during work hours, which suggests that the vehicle is only used for some trips. 23 (31%) reported parking only overnight suggesting the vehicle was in regular use.

Few of the bicycle users parked outside (4 less than 1%). Of those who parked inside:

- 46 were in formal parking (23 in a locked cage or room)
- 13 parked informally.
- 6 in the apartment and 2 on the balcony
- 1 in their car park and 1 in a remote control access garage

Comments included:

- 2 bikes - 1 parked in un-lockable cage inside building, other inside my apartment
- [I park] In my unit as it is unsafe even in the secure apartment cage (multiple times)
- [I park] In my apartment- there's not enough space in the bicycle room
- There is limited space in the car park's 'bike room'. As such to access your bike when it's in this room you have to clamber over other people's bikes. As such it's safer to keep my bike within my apartment
- The bike parking room is overflowing and is too small for the size of the building
- There are approximately 20 bike hooks in our secure carpark. This is not enough for the three storey building as evidenced by the number of bikes left insecurely in car spaces and on balconies.

Open ended comments focused on inadequate provision (24), inadequate security (5), poor design (9). Typical comments by bicycle users can be seen Appendix H: A selection of on-line survey comments – bicycle parking.

Potential for mode growth

Eight of the non-bicycle owners (22%) said they would consider using a bicycle as a mode of transport in the future. The main reasons cited by those who would not consider the mode were risk and theft. For the users and potential users reduced risk was the key factor constraining increased use. Better weather and better end of trip facilities were ahead of the cost and performance of other modes as barriers.

4. The Strategic context

Information and understanding from the strategic context has informed the recommended changes to the Clauses.

4.1. OVERVIEW

The City of Melbourne is expecting significant growth in jobs, visitation and resident numbers.

To enable this growth the City is working to reduce the number and proportion of trips by private motor vehicle. Within this strategic direction it has identified bicycle and motorcycles as two modes that contribute to the aim.

The City has committed to a significant expansion in the level of bicycle riding articulating modal share and trip targets for bicycles. Although it is expecting an increase in motorcycle use, the City has not set any targets for the mode.

One of the consequences of this growth will be significant increase in pedestrian traffic especially on streets in the central city.

The current level of bicycle and motorcycle use and the related footpath parking is already putting pressure on the limited footpath space in the CBD. The pedestrian growth added to the intended and expected increases in bicycle and motorcycle use will exacerbate this problem.

For this reason the City has committed in a number of Strategies to review planning scheme bicycle parking rates for new building developments so that some of the current and future parking demand can be met off-street.

This section identifies the relevant sections of the Transport Strategy 2012, the Road safety strategy 2013 – 2017 and the Bicycle Strategy 2012 – 2016 that articulate these positions.

4.2. EMPLOYMENT AND POPULATION GROWTH

Melbourne Transport Strategy 2012

The City of Melbourne Transport Strategy 2012 identifies:

- A 25% increase in the number of jobs (from 430,000 in 2011 to more than 540,000) by 2030
- A doubling of the City of Melbourne residential population to 180,000
- A 50% increase in the number of people coming into the municipality (to over 1.2 million) each weekday for work, recreation, education, and other purposes by 2030.

Bicycle and motorcycle commuting trips bring people into their jobs in the City as well as those coming into the City for work and recreation. The report considers access to three employment sectors: knowledge/services, education and retail. These three types of employment are reflected in the planning scheme as the uses of: office, education and retail.

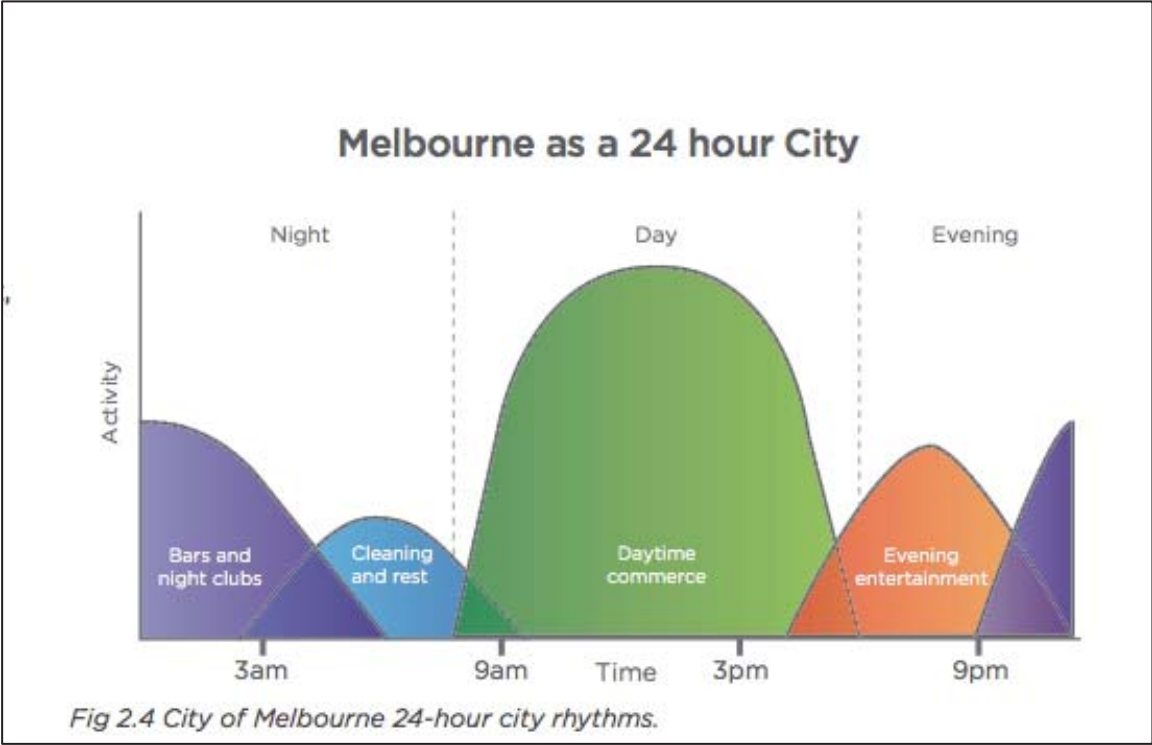
The Transport Strategy identifies the knowledge/services economy (finance, insurance, personal, property and business services) in Melbourne's central city as a key area of jobs growth.

The Strategy states that to secure this growth in employment the City will need to develop high levels of transport accessibility. When high densities are enabled by very good transport connections these industries thrive through greater economies of operation, increased rates of knowledge transfer and innovation, and higher levels of specialisation.

Education and retail sectors support 40,000 jobs in the City of Melbourne – around 10% of the total.³ These employment categories account for 18% of the jobs in Greater Melbourne and Victoria.⁴ Although the employment categories are relatively small, both categories support large-

scale visitation to the City by students and for shopping, entertainment and special events as symbolised in Figure 11 below.

Figure 11: Melbourne as a 24-hour City



Source: *Transport Strategy 2012 - Planning for future growth*

The Strategy notes that Melbourne’s productivity growth has been falling in recent years, in part due to constraints on its transport system. Figure 12 below shows the high ‘effective jobs density’ in the centre of the City of Melbourne.

Figure 12: Effective job density



Source: *Transport Strategy 2012 Planning for future growth*

The Strategy notes that jobs in these areas are supported by accessibility. Future expansion will rely on improved accessibility by train, tram services and walking. It notes that improvements to the transport system, including developing seamless pedestrian links between public transport stops and stations and the land uses on, and abutting, the street network, will be a major focus for the City of Melbourne's investment and advocacy.

When bicycles and motorcycles are parked on the footpath these 'seamless links' can be disrupted.

Supporting resident population growth

The Transport Strategy notes that residential growth in the City is mostly in high-density apartments. Many new residential developments now have low or zero off-street parking.

The majority of residents in the City of Melbourne do not own a car (there are only 31 cars owned for every 100 residents). Most residents in the municipality have good access to walking and bicycle routes as well as tram, train, bus and car share services. As a result a high proportion of apartment residents in the municipality's two main urban renewal areas walk to work – 34% in Docklands and 48% in Southbank.

The growth in the resident population has been supported by initiatives in the 2006 City of Melbourne Transport strategy including:

- Lower rates of car parking provision in new residential developments
- Better management of on-street resident parking
- Expanded car sharing facilities

The 2012 Strategy noted that future urban renewal would be designed to provide similar or better levels of access by public transport, walking and cycling.

In particular the 2012 Strategy noted the importance of parking management including that on-street parking is tightly managed to ensure cars associated with these new residential developments do not use the on-street parking as a de facto private parking space.

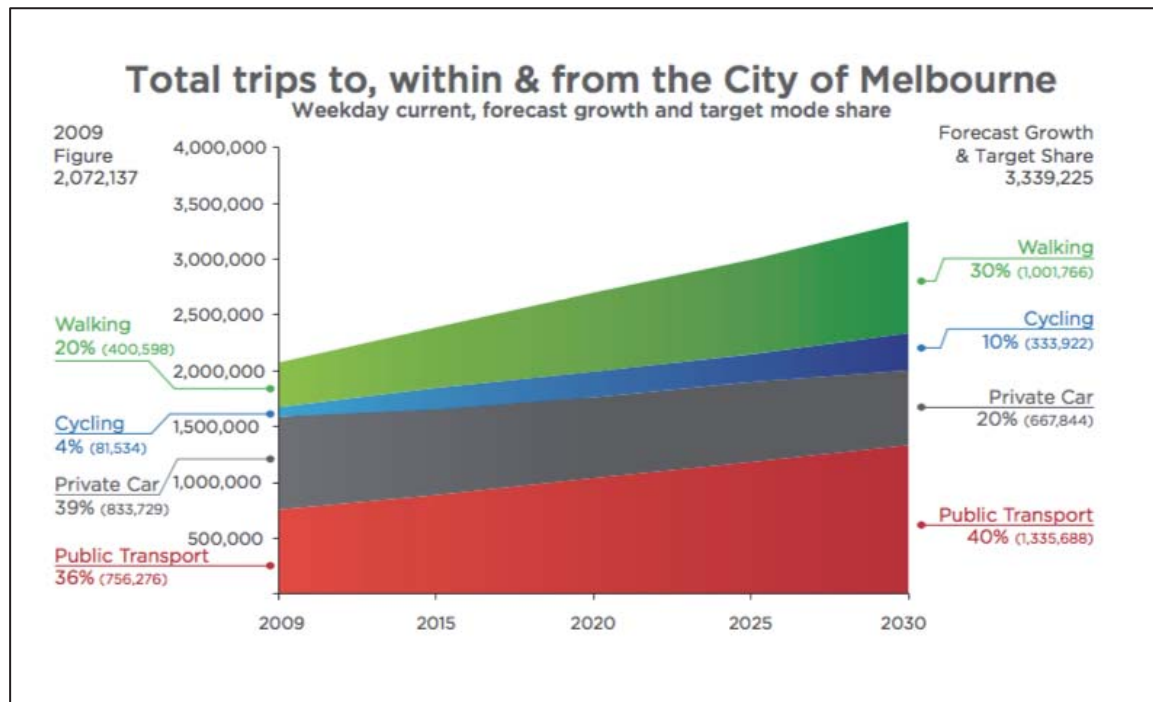
Potential changes to parking inside structures are noted by the Strategy. When parking spaces in buildings can be avoided, buildings can be developed in a more intensive manner. The cost of apartments without car parks will also be lower. Car parking in buildings that is not needed can be put to other uses and the Strategy notes that there is an opportunity for new parking capacity to be constructed in a way that facilitates this potential reuse.

4.3. SHARE TARGETS

In response to the residential, employment and visitation growth the Transport Strategy set mode share targets for the main modes to, within and from the City of Melbourne. No mode share targets were set for motorcycle trips.

The Transport Strategy set the target of an additional 252,388 bicycle trips per day (four times the current number). In mode share terms it is expected that the share of all trips made by bicycle will increase from 4% (in 2009) to 10% by 2030 as shown in Figure 13 below.

Figure 13: Transport Strategy 2012 mode share targets



Source: *Transport Strategy 2012 Planning for future growth*

Road safety strategy 2013 - 2017

The Road Safety Strategy does not set mode targets for pedestrians, bicycle riders or motorcyclists. The Strategy views these three modes as ‘having a key role in the future prosperity, liveability and sustainability of the city’. The Strategy notes a number of issues that are relevant to this report:

- That motorcycling is linked to reduced car ownership and use.⁵
- That ‘motorcyclists feel welcomed and supported through safe, comfortable roads, and on-street and off-street parking’.
- That growth in the Central City will increase use of motorcycles and this will put pressure on existing infrastructure.⁶
- That it is appropriate to investigate restricting or reducing the movement of motor- vehicles in areas and streets with high pedestrian/cycling activity.

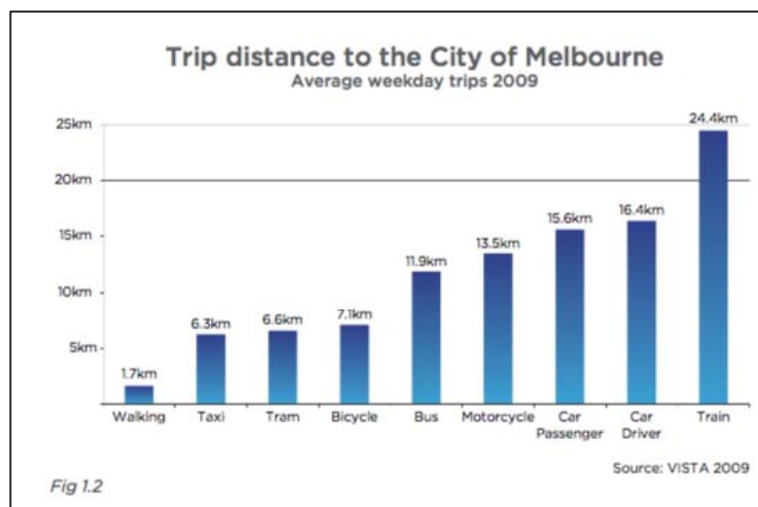
Bicycle Strategy 2012 – 2016 mode share targets

The targets from the Transport Strategy were reflected in the Bicycle Strategy 2012 – 2016. Specifically the Bicycle Strategy aims to increase:

- Weekday bicycle trips to, from and within the municipality to 6% (an increase of at least 40,000 trips)
- Local bicycle trips under 7km by 15%. [In 2009, 12% of trips under 7km were by bicycle as shown in Figure 14 and Figure 15 below. A 15% increase in this share would take the bicycle share to 14%]
- The share of vehicles entering the central city during the morning peak that are bicycles to 15%.

It is likely (though has not been confirmed) that the bicycle mode share targets articulated in the Strategy have been met to date.

Figure 14: The average bicycle trip to the City of Melbourne is 7km VISTA



Source: *Bicycle Strategy 2012 - 2016*

Figure 15: Bicycle Strategy 2012 VISTA data

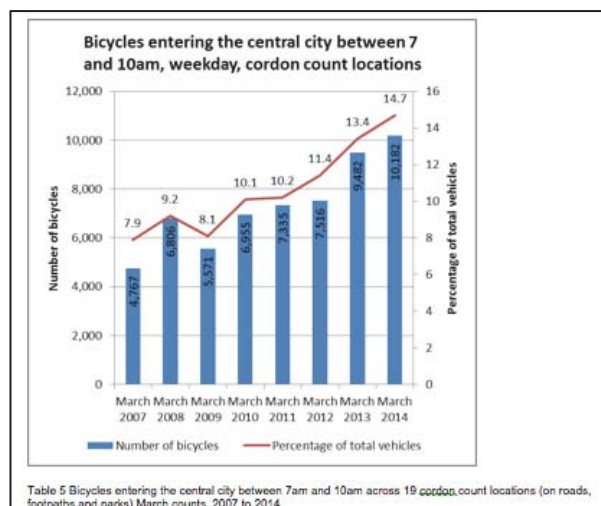
Table 1 – Mode of trips to, within and from the city by cumulative travel distance on weekdays (Source: VISTA 2009)

	0-2 km	2-7 km	7-20 km	> 20 km	TOTAL
CAR	12%	44%	50%	45%	40%
BICYCLE	2%	10%	4%	0%	4%
WALKING	79%	6%	0%	0%	19%
PUBLIC TRANSPORT	7%	40%	46%	55%	37%

Source: *Bicycle Strategy 2012 - 2016*

The City of Melbourne cordon counts, see Figure 16 below, show that the number of bicycle riders coming through the cordon has doubled since 2009.

Figure 16: Data analysis of Bicycle and Motorcycle Use in the City of Melbourne



Source: *City of Melbourne*

4.4. DISCUSSION OF PARKING IN STRATEGIES

Transport Strategy 2012

The Transport Strategy is concerned to ‘ensure pedestrian access and movement is not unduly affected by the use of footpath space for trading, dining, motorcycle parking and other activities’.

It also notes that ‘the provision of on- and off-street secure bicycle parking has not kept pace with the growth in cycling. This deters people from cycling and results in bicycles cluttering footpaths which are needed by growing numbers of pedestrians.’

Motorcycles

The Strategy notes that parking is a key issue for motorcyclists. ‘In Victoria, motorcycles can be legally parked on the footpath (unless otherwise signed) as long as the motorbike does not obstruct pedestrians, delivery vehicles, public transport users or parked cars.’

‘While this is beneficial for motorcycle riders, it can have drawbacks in terms of pedestrian access, safety and amenity in the CBD. Continuing growth in pedestrian numbers will put increased pressure on footpath parking for motorcycles. The following actions are identified:

- Consultation with user groups
- Use of VicRoads’ guidelines
- Increase the supply of motorcycle parking in congested areas to reduce the need to park on footpaths and prohibit motorcycle parking where it obstructs walking, or other complementary activities.
- Amend the planning scheme to require motorcycle parking provision at a rate that better matches the levels of current and predicted use.⁷

Bicycles

The Strategy notes that ‘the single state-wide bicycle parking provision rate is not adequate for the high employment density, and transport characteristics of the municipality.’ A key part of the solution is that ‘more bicycle parking is constructed in new buildings’. In particular that ‘workplaces and educational institutions need secure bicycle parking and facilities for long- stay users.’ The Strategy sets two priority actions:

- Work with the State government to review planning scheme bicycle parking rates for new building developments.
- Work with bicycle advocacy groups, transport management associations and employers to encourage the installation of good workplace end of trip facilities.

The Strategy sets the policy goal that:

- The planning scheme is amended to increase provision of off- street bicycle parking in inner Melbourne by 2016 (the term of the 2012- 2016 Melbourne City Council).

Road Safety Strategy 2013 - 2017

The Road Safety Strategy also addresses the issues of footpath parking a number of issues related to parking:

- Footpath parking:
 - a. That some motorcyclists need to increase the level of care and attention for pedestrians when parking on footpaths.
 - b. Consultation with motorcycle users regarding any future proposals to ban or reduce parking on footpaths

- Off-street parking:
 - c. Explore opportunities to increase the level of motorcycle parking across the municipality.
 - d. Develop Melbourne planning scheme amendments to:
 - a. Increase motorcycle parking in new developments (even when car parking is not required)
 - b. Require the provision of lockers for protective clothing, as part of the provision for motorcycle parking in new developments.
 - c. Maximise the use of 'dead space' in off-street car parks for appropriate motorcycle parking
 - e. Integrate motorcycle parking signage in way-finding for off- street car parking.
 - f. Maintain a database of motorcycle parking across the municipality – monitor utilisation with the aim of supporting future demand.

Bicycle Strategy 2012 – 2016

The Strategy commits to '*increasing bicycle parking throughout the municipality and working with peak groups and businesses to improve end-of-trip facilities to encourage more people to cycle to work.*' The City of Melbourne made the commitment to:

- Work with the State government and suggest planning scheme bicycle parking rates for new private buildings to support cycling.
- New data will be tracked and reported to meet the Australian Bicycle Council requirements including cycling participation by age, mode shift to bicycles, and the amount of bicycle parking at workplaces.

5. Forecast bicycle & motorcycle use

Information and understanding gathered through the development of the forecast has informed the recommended changes to the Clauses. In this section a forecast has been made of the likely mode share and number of bicycles and motorcycles that will be in the City of Melbourne in the next ten years.

Forecasts are not predictions and transport forecasts are unreliable. On some projects, actual numbers have been a quarter of the forecast estimates. This is partly because transport is a dynamic system with many variables. In addition the system is exposed to disruptive change and innovation.

The utility of forecasts is that they explicitly link a number of assumptions about relevant variables. This exposes the assumptions and the method of linking the assumptions to scrutiny.

For this reason a key part of this forecast will be the identification of relevant variables and assumptions. The impact of these factors will be assessed separately and then encapsulated in a forecast.

The forecast model has the following framework:

- Definition
- International benchmarks
- Local ownership and use
- Mode share for the journey to work
- Mode share of residents
- Competitive advantages and disadvantages of the mode
- Estimate of future mode share

Each mode will be considered separately using the same framework.

(It is assumed that the two modes do not have any significant influence on each other – one could grow strongly while simultaneously the other contracted, or both could grow simultaneously without either trajectory influencing the other.)

5.1. DEFINITION

The forecast begins by defining the difference between a motorcycle and a bicycle.

Two-wheeled vehicles with motors are often defined as ‘powered two wheelers’ (PTW). This ‘machine based’ definition includes high-powered ‘Harleys’ and ‘pedelecs’ – electric power assisted bicycles that provide power in proportion to the effort put in by the rider.

This forecast, however, uses a ‘transport system’ based classification that places Pedelects and pushbikes in one category and motorcycles and scooters in another.

From a transport system perspective motorcycles and scooters:

- Require registration and licencing while pedelecs and bicycles do not
- May not use shared paths and bike lanes
- Can use freeways while pedelecs and bicycles do not
- Can be issued with parking tickets while pedelecs and bicycles cannot

A number of other differences reinforce these regulatory categories:

- The cause of road trauma and the suite of counter measures for the groups is different
- For space and parking managers the two categories require different dimensions and facilities
- Culturally Pedelec users are seen as bike riders who are ‘cheating’ rather than ‘undercover’

motorcyclists. Nor do motorcyclists generally consider pedelecs as motorbikes.

It should be noted that transport planners and strategists would consider the effective operating catchment of the Pedelec and motorcycle to be similar and significantly greater than a pushbike. For this reason when planning transport, pedelecs can be considered to be low powered electric motorbikes.

For the purpose of this forecast 'motorcycle' means 'motorcycle or scooter' while 'bicycle' means 'bicycle or Pedelec'.

5.2. MOTORCYCLE FORECAST

5.2.1. Overseas benchmarks

It is possible for motorcycles to have a dominant role in of the road based transport system. In Taiwan, see Figure 17 below, motorcycles and scooters are used for nearly half the trips and journeys to work⁸. In Columbia, motorcycles and scooters are nearly half of the motorised fleet⁹ compared to 4.5% in Australia.¹⁰

Figure 17: Rush hour in Taipei



Source: *Bamboobutterfly.com*

There seems to be a correlation between countries with a high mode share of motorcycle use and a lower per capita income. It is likely that the high level of motorcycle use in these countries reflects a desire for affordable motorisation (and congestion levels) rather than a preference for motorcycles over motor vehicles.

The forecast prepared for this study is based on the assumption that people who use a motorcycle in Australia could afford to run a car but have chosen not to or have chosen to use a motorcycle as well as a motor vehicle.

5.2.2. Local ownership and use

Motorcycle ownership and use is at a low level in Australia:

- Around 9% of Victorian licence holders hold a motorcycle licence.¹¹
- Motorcycles account for around 1% of vehicle kilometres travelled.¹²

The number of motorcycle registrations is increasing in each state of Australia but this is from a low base. Motorcycles represent 4.5% of the registered motor vehicle fleet in Australia.¹³

Most motorcycle use is not for transport. 60% of motorcycles are used for purposes other than transport. Around 40% of motorcycle sales are 'road bikes'; a category that includes scooters but excludes trail bikes for example.¹⁴ But most road bikes are used for recreation. This can be seen in the 'share of use' (1%), which is significantly lower than the share of registrations (4.5%).

The journey to work to the City of Melbourne

Motorcycle use in the City of Melbourne is mainly related to the journey to work. There are signs of growth:

- The number of people commuting by motorcycle has been rising. Over ten years one thousand more people have chosen to ride motorcycle or scooters to work in Melbourne. According to the Census in 2011 the equivalent of three trainloads or 18 E Class trams of people (2,680) made motorcycle trips to work in the City of Melbourne
- This growth in numbers reflects a modest growth in mode share
- The motorcycle share of use in the City of Melbourne was one quarter of a per cent in 1996. This grew to slightly more than half a per cent (0.57%) by 2001
- Since 2001 according to the ABS Census, trips have increased by 95% and mode share has increased by 56%. The City's cordon counts have shown slower growth: observed vehicles have increased by 45% between 2007 and 2015 and the share of the observed traffic stream has risen by 32%.

Despite the growth, the impact of motorcycle use is small, for example:

- Today fewer than one in a hundred of the trips to work in the City of Melbourne are by motorcycle.¹⁵
- Motorcycles do have a larger share of the traffic stream on some routes into the City. In some cases, they account for three in one hundred vehicles
- On the streets observed as part of the City of Melbourne cordon count, the percentage of motorcycles as a percentage of vehicles has risen from 1.9% (2007) to 2.5% (2010, 2013, 2014)
- The share has fallen on some streets (Peel Street, St Kilda Road, King Street) and risen on others (Nicholson and Elizabeth).

The City of Melbourne experiences high levels of use and growth compared to the rest of Melbourne:

- Over ten years the journey to work mode share has fallen across the rest of the metropolitan area and in the State as a whole.
- While one per cent of trips in the City of Melbourne are by motorcycle and motor scooter (0.9%) this is more than double the rate in the rest of the metropolitan area (0.4%) and considerably higher than the rate across Victoria (0.6%).
- Compared to other places the City of Melbourne is a motorcycle magnet, but not a very powerful one.

Destinations

Table 8 below shows all destinations in the City of Melbourne where the motorcycle mode share is above 1% or where the absolute number of motorbikes is greater than one hundred.

It can be seen that motorcycle riding to offices is the dominant use in Docklands, Southbank and South Yarra. However, this never rises to more than 1.2% of the trips to those destinations. The number of motorcycles in the City is low in mode share but high in numbers (1,455). (As noted above a surface street survey by PBA found 1,041 (Tues 7 Jul 2015) motorcycles parked within the CBD.)

Use by residents

VISTA data shows that motorcycle use by residents is low¹⁶. 300 of the 93,000 residents of the City of Melbourne use a motorcycle to get to work.

Kensington is the only area where more than half a per cent of the residents (0.72% of the population) use a motorbike to get to work.

Table 8: Motorcycle mode share for the journey to work by destination

AREA	OFFICE	EDUCATION	RETAIL	OVERALL	TOTAL
M/bikes all uses (When > 100)					
Melbourne (CBD)					1,455
Docklands	1.18%			1.12%	307
Southbank	1.14%			1.09%	313
South Yarra West	1.11%				106
North Melbourne		1.21%			110
Carlton		1.13%			114
East Melbourne			2.21%		110
Kensington				1.5%	
Parkville					116
Total Municipality	0.92%	0.84%	0.87%	0.89%	2,680

Source: ABS journey to work

Considering the planning scheme

Stepping outside the forecast model for a moment, this data suggests that motorcycle parking in residential developments need not be a high priority for the City of Melbourne and that the focus can be primarily on the other three uses especially the journey to work.

The data also suggests that an emphasis on the CBD is appropriate as more than half the motorbikes are parking there (1,455 out of 2,680).

5.2.3. Summary of local ownership and use

Table 9 summarises the usage data and assumptions behind the forecast.

Table 9: Summary

OVERVIEW	DATA
Motorcycle ownership in Victoria has been rising	Over the last ten years annual motorcycle sales in Victoria have grown by 25% from 90,000 vehicles in 2004 to 112,000 in 2014. Over the same period the population of the state grew by 18%
The use of motorcycles for transport in Victoria has increased	A significant proportion of these sales are for transport purposes – as opposed to recreation and off road riding. Around 40% of annual sales are for road bikes – a category that includes scooters. In 2004 scooters became the largest category of ‘road bikes’ for the first time
A significant proportion of this transport use is to and in the City of Melbourne	More than one out of every four trips in Victoria occurs in the City of Melbourne
Motorcycles and scooters have a small ‘mode share’ of the commuting market	Less than 1% of the trips to work are by motorcycle (0.89% - 2011). This is equivalent to the motorcycle and scooter share of vehicle kilometres travelled
Motorcycle mode share has been growing	The journey to work mode share for motorcycles and scooters has risen from 0.6% to 0.9% over the ten years to 2011
Motorcycle mode share accounts for around 3,000 people	In 2011 2,680 people made motorcycle trips to work in the City of Melbourne. This number is consistent with the City of Melbourne cordon count in 2015, which detected 1,698 motorcycles inbound on a weekday 0700 – 0900
These 3,000 motorcycle and scooter riders have a positive impact on the space available to commuters on their way to the City of Melbourne	<p>If the 2,680 people who rode a motorcycle or scooter to work in the City of Melbourne in 2011 changed modes in the morning peak they would occupy:</p> <ul style="list-style-type: none"> • A travel lane on a freeway for one hour • Three 800-seat trains • Eighteen 150-seat E-Class trams
Once in the City, these vehicles are stored in buildings and on the street	Around 1,500 motorcycles are parked on footpaths and in centre medians in the Hoddle Grid

Source: PBA

5.2.4. Competitive advantage to the user

Some people who use motorcycles are enthusiasts – as with other modes – and will use the mode even to their own loss. The forecast however assumes that motorcycling's mode share is directly related to its competitive advantage in the current transport system. The model also assumes that if the competitive advantage of a mode increases, the mode share will increase and vice versa.

Cost advantages for motorcycling

The forecast model assumes one of the competitive advantages of motorcycle use is saving money.

The motorcyclist saves money because the vehicle's capital and running costs are less than a car. In this trade off, the user retains the private vehicle advantages of privacy and on-demand travel as well as the motorised advantages of coverage, range and speed. However, they trade in some comfort, the ability to carry multiple passengers and loads as well as increasing their risk.

Cars are becoming cheaper to buy¹⁷, although a Toyota Yaris (\$15,000) is still more expensive than a Honda 125 motorcycle (\$2,500). This capital cost advantage is likely to continue for the next ten years.

The overall cost of running a car has increased in real terms.¹⁸ However, the perceived running cost advantage of the motorcycle is likely to continue to erode. Motor vehicle fuel efficiency has improved significantly, while the fuel cost for electric vehicles is half that of petrol vehicles in Victoria.¹⁹ Electric cars will be probably be perceived by some as 'free to run'.

The model assumes that over the next ten years motorcycles will retain their cost advantages over private cars.

However, the car user who wants to cut their travel costs has other options when travelling to the City of Melbourne.

Public transport costs around \$1,500 for an annual full fare Zone 1 and 2 pass. This saving requires the car driver or motorcyclist to trade in their 'privacy', 'on-demand' and 'coverage' advantages. The option will not be available to those with needs outside the operating times and reach of public transport. Over the next ten years the price of public transport is certain to rise (the next increase will occur on 1 January 2016) but the price is unlikely to rise enough to change the cost advantage public transport has over motorcycling.

The model assumes that over the next ten years motorcycles will not gain a cost advantage over public transport.

People who walk and ride bicycles can make even greater savings but in comparison to private vehicles, have to make more effort while losing speed and range as well as access to the freeway system. The option will not be available to those who live outside the walking and riding catchments of the City of Melbourne.

The model assumes that over the next ten years motorcycles will not gain a cost advantage over walking and riding.

Exemptions from fees and charges are a real and perceived benefit of motorcycling. Motorcycles do not pay for footpath parking. Some parking garages in the City of Melbourne have allowed motorcycles to park informally in spaces that cannot be used by cars. There are signs that these exemptions are changing. For example since 2014 motorcycle riders pay tolls on CityLink 2014²⁰ This change has had an effect on the attitude of some car park operators who are now prepared to charge for motorcycle parking. It is possible that the City will restrict and/or charge for footpath parking in the future.²¹

Finally, motorcycle users currently avoid some 'hidden costs'. At the moment, fuel efficiency and emissions standards are not applied to motorcycles even though they cause more pollution than

cars.²² Regulatory changes in these areas would be likely to increase the purchase cost of motorcycles. It is also possible that air pollution measures could have impacts on the current motorcycle fleet. In some cities and countries in Europe access controls and taxes are being imposed on the current diesel fleet in order to reduce particulate air pollution.

In summary, it is likely that no new mode advantage will arise for motorcycling based on cost – it will not get significantly cheaper than car travel or as low cost as the other options. Nor is it likely that the cost advantage over car travel will drive any increase in mode share as car users with a strong need to save money on trips to or within the City of Melbourne will ‘jump’ over the motorcycle option and move to public transport.

Time advantages for motorcycling

The forecast model assumes one of the competitive advantages of motorcycle use is saving time.

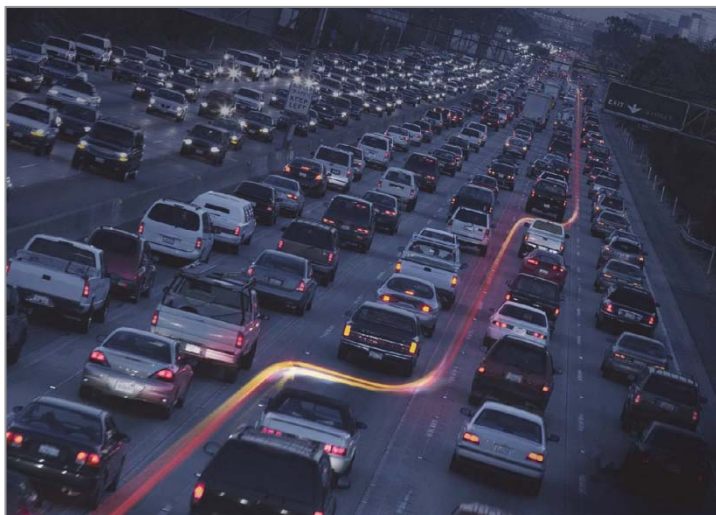
Cars generate and are held up by road congestion but motorcycles are less affected by congestion.

From a road management point of view (putting aside the space needed for parking and storage), motorcycles have the potential to be more space efficient in a road corridor than single occupant vehicles.

One study showed that motorcycles take up the equivalent space of half a car in free flowing traffic but in congested traffic ‘shrink’ to become 0.2 of a car (or Passenger Car Equivalent (PCE)).²³ When travel lanes are wide – 3.5m for example – the motorcyclist can move past car traffic (cars are usually 2m wide) without leaving the lane. (Motorcycles then ‘expand’ to 0.25 PCE when parked.)

Filtering through traffic, often referred to as ‘lane-splitting’, is illustrated in Figure 18 below.

Figure 18: Lane splitting highlighted on a Californian Freeway at dusk



Source: Rideapart.com

Because motorcycles take up less space than a car, they also have the potential to increase the capacity of intersections as shown in Figure 19 below.

Figure 19: Increasing vehicle capacity at intersections



Source: *Talk Magazines* (<http://shanghai.talkmagazines.cn/issue/2012-02/hanoi-city-verge>)

From the users point of view, this space efficiency gives motorcycle users more predictable journey times that are shorter than those of a car driver using the same route at the same time, even if their vehicle has only a 50cc engine.

These time savings are a significant advantage and the model assumes that, for trips to the City of Melbourne, they are the core advantage of motorcycling over car travel.

Road congestion has been increasing and average travel speeds for motor vehicles decreasing.²⁴ It can be expected that this will result in an equivalent increase in motorcycle use.

However, other factors are influencing this advantage.

Lane widths are being reduced to allow for more travel lanes or to support other modes such as tram reserves and bicycle lanes. The Westgate Bridge lanes have been reduced to 3.1m wide while lanes on Brunswick, Toorak and St Kilda Roads are 2.7m wide. The lane past the tram stop in Collins Street south of Swanston is 2.3m wide.²⁵

This reduces the opportunity for motorcycles to 'filter' past the cars without leaving the lane even though filtering is now permitted by the traffic regulations under certain conditions in Victoria.²⁶ Motorcycles are not permitted to use bicycle lanes except when turning or parking.

The model assumes that these factors may erode time advantages that motorcyclists currently enjoy.

Counter examples of roads that are accommodating an increasing number of motorcycles are difficult to find. One access route to the City has improved; since 2011, motorcycles have been able to use the Hoddle Street bus lanes. City of Melbourne cordon observations show no increase in mode share on any of the observed routes. Although the share has fallen on King Street, there are now twice as many motorcycles entering the City on this route than in 2009.²⁷

In summary, it is likely that the time advantage for motorcycling will be counterbalanced by a reduction in available road space. Additional space is likely to be given to modes such as public transport and cycling in order to increase their predictability and reduce their travel times.

5.2.5. Disadvantages of the mode

Regulation

There are significant 'barriers to entry' to people considering taking up motorcycling. There are no equivalent barriers to entry for public transport or bicycle riding.

Prospective motorcycle users have to pay in the order of \$1,000 to get a full licence and persist through a number of regulatory barriers.

To get a motorcycle learner permit, the rider must be 18 years of age or older and pass three tests and a skill assessment. After a three-month probation period a 12-month window opens in which the rider can attempt to become fully licenced. Failure to succeed within the window means they have to start again by applying for a learner's permit. Further tests are necessary to become fully licenced and other probationary periods and conditions apply. The government fees are around \$200. A learners training course is around \$400, while training for a full licence is \$300.²⁸

Risk

Riding a motorcycle inherently carries a greater risk of severe road trauma than other forms of on-road motorised transport.²⁹

The model recognises that technological advances, ABS braking for example, have reduced some of these inherent risks such as those related to stability. It assumes that other technological advances will reduce the risk of motorcycling but assumes that this inherent risk and vulnerability will remain.

Motorcyclists are four times more likely to be killed than other people on Victoria's roads. Motorcyclists represent 20 per cent of the TAC claims, with costs about four to five times higher per vehicle than for all other vehicles.³⁰

In the last ten years, more than 430 motorcycle riders and pillion passengers have been killed, and close to 9,000 riders and pillions have been seriously injured on Victorian roads. This represents 14% of all road fatalities in the last ten years and 16% of all hospitalised claims.³¹ This is a high proportion considering the low number of vehicles and small share of total vehicle kilometres travelled.

Lane filtering appears to be lower risk when the ambient traffic speed is below 80 kph and the rider is travelling no more than 25 kph faster than the ambient traffic.³² The speed limit for lane filtering in Victoria is 30 kph. Nor does the risk appear to be strongly related to motorcycling to the City of Melbourne. Fatalities are often (41%) on high-speed roads and are often (44%) single vehicle crashes. Half (54%) occur in regional Victoria. Hospital admissions were related to crashes on the weekend (45%).³³

This risk profile does not discourage current motorcyclists. It is likely that those who use motorcycles are less concerned about the risk than those who do not.³⁴ But it is assumed that the actual and perceived risk of motorcycling will act as a barrier to entry to those who currently use other modes.

The model also considers the perception of the risk of motorcycling by the State Government agencies. It assumes that while the level of fatality and casualty accidents are significantly higher than the ownership and usage rates, it is unlikely that the State Government will make significant efforts to take advantage of the potential space efficiency of motorcycles in road corridors and encourage the growth of the mode.

In fact, through efforts to reduce risk, it is likely that regulatory 'barriers to entry' to motorcycling will increase. For example in 2002 the Motorcycle Road Safety Levy was introduced which adds \$67.10 each year to the cost of registering a motorcycle.

5.2.6. Summary of advantage: motorcycles

The competitive advantage of motorcycle use is likely to decline in the future. The advantages will not increase and disadvantages may increase.

Table 10: Forecast model summary of advantage and disadvantage

FORECASTS	CURRENT STATUS	FUTURE STATUS
Cost	Positive	Neutral
Time	Positive	Positive
Regulation	Negative	Increasingly negative
Risk	Negative	Negative

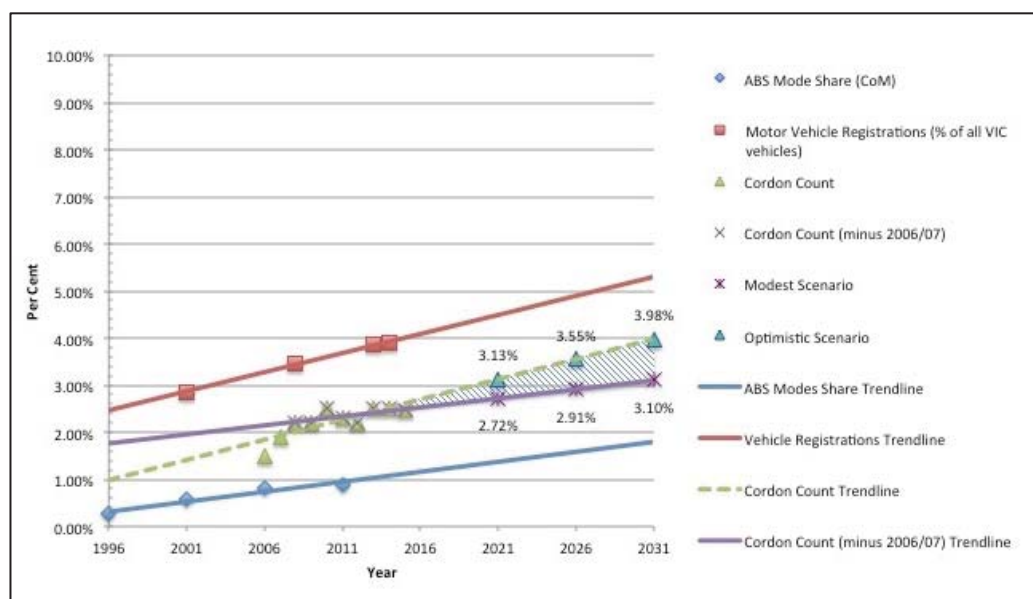
Source: PBA analysis

5.2.7. Motorcycle mode share growth forecasts

Three data sets have been plotted in Figure 20 below:

- The blue line shows a trend based on the journey to work as reported in the ABS Census. (Note that there was less growth in the mode between 2006 and 2011 than between previous censuses.)
- The purple line establishes a trend line from the cordon count based on the last eight years excluding the results from 2006 – 2007.
- The green line shows a trend line from all the cordon count data – when the first year of data is included, the trend climbs more steeply.
- The red line shows a trend line based on registrations. It is unlikely that use will grow faster than growth in registrations. Registrations are also likely to be greater than use, as most motorcycles are used for recreation.

Figure 20: Growth scenarios



Source: ABS, City of Melbourne, VicRoads & PBA analysis

Based on these trends:

- High growth is shown on the green line. In this scenario motorcycle use rises to 4% of the journey to work. This four times the level today and twice what the blue line ABS trend shows.
- Modest growth is shown on the purple line. In this scenario it is assumed that motorcycle use will rise to 3% of the journey to work, three times higher than it is today (blue line). As the chart shows, the current actual share is 1% rather than 2% as shown on the purple line.
- Growth in numbers but not in mode share or 'Business as usual' is shown on the blue line.

Rating:

- The scenario of high growth is rated as 'unlikely'. For these levels of use to come about over the coming years, the competitive advantages of cost and time will need to be maximised and the disadvantages of risk and regulation minimised.
- The scenario of moderate growth (purple or green lines) is rated as 'possible'. This scenario will come about if the motorcycle retains its advantages and the disadvantages are not increased.
- If the advantages of the mode are diminished and the disadvantages made greater, the growth is likely to be nearer that shown on the blue line. This scenario is rated as less likely.
- Even if the mode does not grow in share, the total number of motorcycles being used to access the CBD is likely to double as the population increases.

Table 11 lists these scenarios and estimates the number of vehicles that will be entering the City of Melbourne under each scenario.

Table 11: Forecasts table: motorcycles

FORECASTS	LIKELIHOOD	JOURNEY TO WORK SCENARIOS 2031	NUMBER OF PARKED MOTORCYCLES
High growth	Unlikely	4%	18,000 (estimated)
Modest growth	Possible	3%	13,500 (estimated)
Steady growth	Possible	2%	9,000 (estimated)
No growth in share	Likely	1%	4,500 (estimated)
Current (2011: mode share 0.89%)			2,680

Source: PBA analysis

On this basis, the City of Melbourne should seek to provide parking for around 5,000 motorbikes in the CBD by 2031.

5.3. BICYCLE FORECAST

5.3.1. Definition

This forecast includes in the category of ‘bicycles’ the traditional ‘pushbike’ and the ‘Pedelec’ or power assisted bicycle. This categorisation reflects the current Victorian legislation.³⁵

Figure 21 below shows two models of the same bicycle. The Pedelec version at the top has a battery under the rear rack and a motor on the pedal crank in the middle of the bicycle.

Figure 21: Pedelec and pushbike



Source: Images Gazelle Bicycles

Broadly, the power assistance increases the:

- Range of the bicycle from around 7km to around 15km or more.
- Audience of potential users

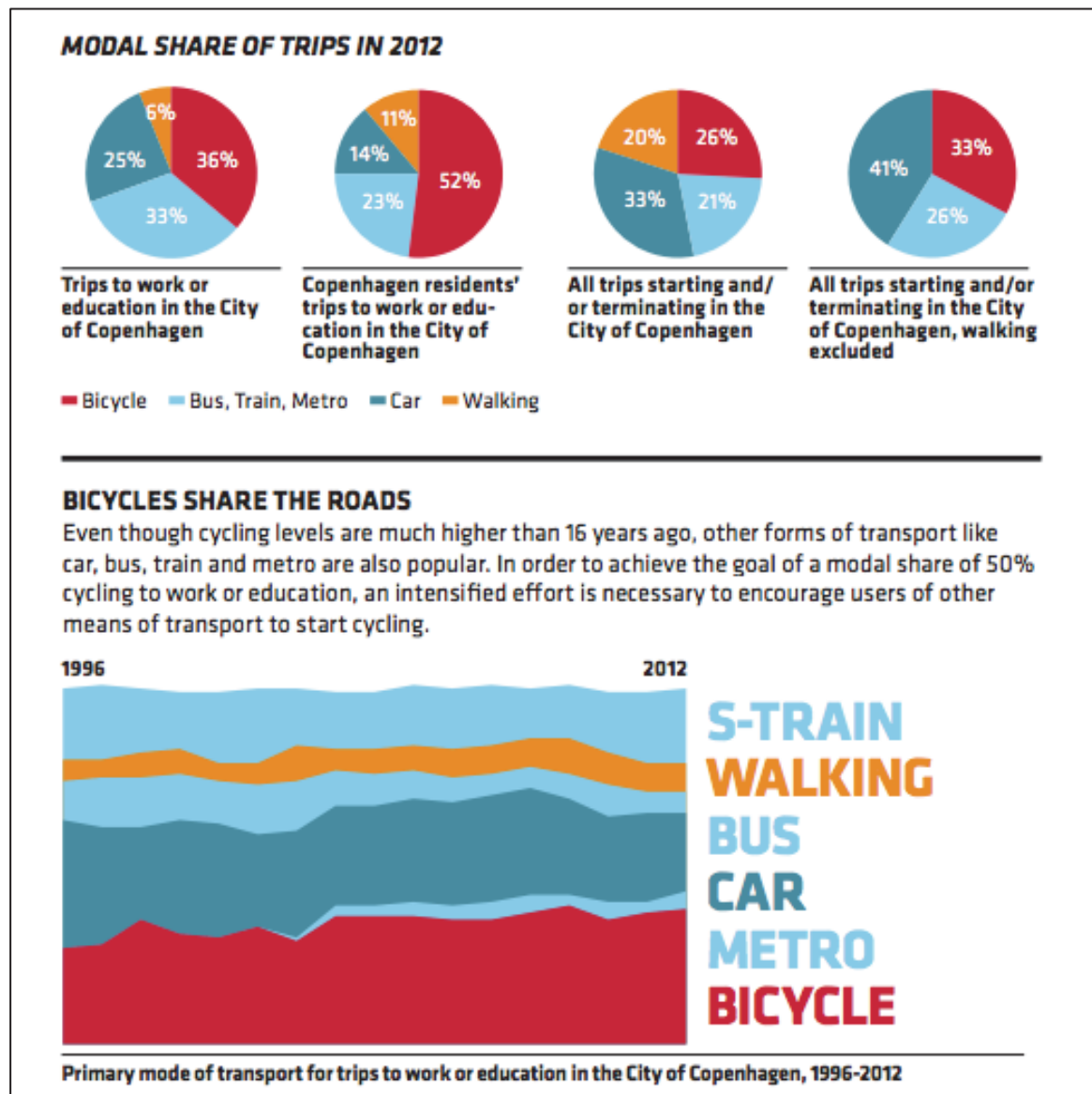
The impact of this type of vehicle is discussed below.

5.3.2. Overseas benchmarks

Cities that have successfully developed bicycle transportation range from Ferrara, Italy (30% and Beijing (32%), to Munster, Germany (40%) and Lund Sweden (43%) to the historic University town of Groningen which has mode share above 50% (Groningen, Netherlands 55%).³⁶

Copenhagen is a useful comparison for the City of Melbourne. Copenhagen covers 86 km² in a metropolitan area of 3,000 km². The City of Melbourne is 38 km² in a metropolitan area of 8,000 km². Figure 22 below summarises the role of the bicycle in the Copenhagen transport system.

Figure 22: Bicycle mode share Copenhagen 2012



Source: Copenhagen City of Cyclists Bicycle Account 2012

Copenhagen shows that it is possible for bicycles to have a large mode share in affluent and dense cities.

5.3.3. Local ownership and use

Almost two out of three households in Victoria own a bicycle.³⁷ In 2013 half of all households in the City of Melbourne had access to at least one working bicycle.³⁸ This rate is up from 0.39 in 2004.³⁹

In Copenhagen, the ratio of bikes to people is 1:1⁴⁰. The population in 2014 was 570,000 and in 2012 Copenhageners owned approximately 650,000 bicycles.

The model makes two assumptions about ownership. First, that the category includes (as for motorcycles) bicycles that are not used for transport and (unlike motorcycles) the category includes children's bicycles that are not used for transport.

Second, that ownership is not as significant a barrier for the mode as it is for motorcycling. New bicycles can be bought for \$200 and second hand bicycles can be bought for less or borrowed.

It appears that bicycle travel is around 0.8% of kilometres travelled by car in Victoria.⁴¹ Generally the proportion of trips to distance is higher for bicycles than cars.

Level of use to and in the City of Melbourne

The number of people commuting by bicycle has been rising. Over ten years seven thousand more people have chosen to ride bicycles to work in Melbourne. According to the Census in 2011 the equivalent of fourteen trainloads or 56 E Class trams of people (11,323) made bicycle trips to work in the City of Melbourne.

This growth reflects a significant growth in mode share.

The bicycle share of use in the City of Melbourne was one half of a per cent in 1996. This grew by 300% to nearly two per cent (1.73%) by 2001.

Since 2001 according to the ABS Census, trips have increased by 172% and mode share has increased by 118%. The City's cordon counts have shown similar growth: observed bicycles have increased by 142% between 2007 and 2015 and the share of the observed traffic stream has risen by 111%.

Today nearly four one in a hundred of the trips to work in the City of Melbourne are by bicycle.

Bicycles have a significant share of the traffic stream on some routes into the City. In some cases, they account for more than 20% of vehicles (Royal Parade and Rathdowne Street).

On the streets observed as part of the City of Melbourne cordon count, the percentage of bicycles as a percentage of vehicles has risen from 7.9% (2007) to 10.1% (2010) to 11.4% (2012) to 13.4% (2013) to 14.7% (2014) to 16.7% (2015). Twice the share has jumped by 2% in twelve months.

These are high levels of use compared to the rest of Melbourne. The journey to work rate in the City of Melbourne is four times higher than the metropolitan area and the rest of Victoria. Over ten years the journey to work mode share has risen across the rest of the metropolitan area and fallen slightly across the State as a whole.

These figures show that the City of Melbourne compared to other places is a powerful bicycle magnet.

Destinations

Bicycle use by purpose is strongest for trip to education as shown in Table 12 below.

Table 12: Bicycle mode share for the journey to work - Uses

AREA	OFFICE	EDUCATION	RETAIL	OVERALL SHARE	TOTAL BICYCLES ALL USES (WHEN > 500)
Municipality	3.58%	7.29%	2.33%	3.78%	11,323

Source: ABS journey to work

Table 13 below shows all destinations in the City of Melbourne where the bicycle mode share is above 5% or where the absolute number of bicycles is greater than five hundred.

Table 13: Bicycle mode share for the journey to work – Uses by location

AREA	OFFICE	EDUCATION	RETAIL	OVERALL SHARE	TOTAL BICYCLES ALL USES (WHEN > 500)
Municipality		7.29%			11,323
Melbourne (CBD)					5,487
Docklands					950
Southbank		8.29%			956
South Yarra West					
Carlton	5.36%	8.78%		6.22%	
East Melbourne	5.35%				725
Flemington			6.86%		
Parkville	7.65%	12.23%		7.89%	1,415

Source: ABS journey to work

It can be seen that bicycle riding to education is the dominant use, as high as 12% in Parkville. Riding to offices in Carlton, East Melbourne is strong. The high share of riding to retail in Flemington is based on only 16 riders.

2% of the residents of the City of Melbourne ride to work mainly from North Melbourne, Kensington and Carlton. Around 3% ride to High School or University.

Stepping outside the forecast model for a moment, this data suggests that bicycle parking in will be needed across most of the City of Melbourne in the four uses under consideration.

The data also suggests that an emphasis on the CBD is appropriate as half the bicycles are parking there (5,487 out of 11,323)

5.3.4. Summary of local ownership and use

Table 14 summarises the usage data and assumptions behind the forecast.

Table 14: Summary

OVERVIEW	DATA
Bicycle ownership is significantly higher than usage	There is a bicycle in 50% of households
The use of bicycles for transport in Victoria has increased	In Melbourne the rate has doubled. The cordon counts show an increase from 7.9% (2007) to 16.7% (2015) of all vehicles on observed route
A significant proportion of this transport use is to offices and education. The CBD is an important destination	Office share is as high as 7.65% and education as high as 12.23%. Half of the trips go to the centre of Melbourne
Bicycles have a significant and growing 'mode share' of the commuting trips	In many places bicycles have more than 5% of the mode share
This mode share has been growing strongly	Over ten years mode share has grown by more than 100%. Trips have grown faster
This mode share represents around 11,000 people	In 2011, 11,323 people made bicycle trips to work in the City of Melbourne. This ongoing growth is supported by the City of Melbourne cordon count in 2015, which detected 11,519 bicycles inbound on a weekday between 0700 – 0900
These 11,000 bicycle riders have a positive impact on the space available to commuters on their way to the City of Melbourne	<p>If the 11,000 people who rode a bicycle to work in the City of Melbourne in 2011 changed modes in the morning peak they would occupy:</p> <ul style="list-style-type: none"> • More than three travel lanes on a freeway for one hour • Fourteen 800-seat trains • Fifty-six 150-seat E-Class trams
Once in the City, these vehicles are stored in buildings and on the street	There is no estimate available for the number of bicycles parked on footpaths and in centre medians in the Hoddle Grid

Source: PBA

5.3.5. Competitive advantage to the user

The forecast model assumes that the bicycle's mode share is directly related to its competitive advantage in the current transport system. The model also assumes that if the competitive advantage of a mode increases, the mode share will increase and vice versa.

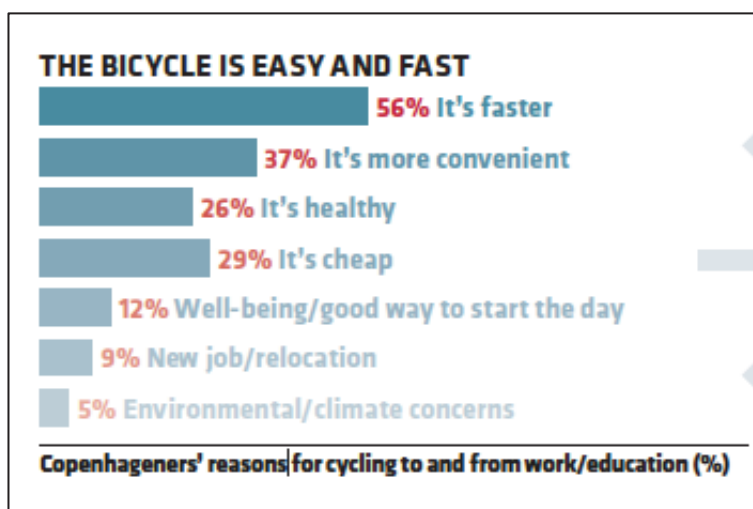
Reliable travel times

One of the key advantages to a bicycle user is reliable and predictable travel times. Along with walking this mode will gain comparative advantage over other modes by suffering no decay in travel time or travel time reliability as congestion exacerbates. In highly congested urban areas it is a powerful mobility tool as fast as (and at times faster) than a motor vehicle or public transport.

These reasons come out on top for both Danes and Queenslanders as shown in Figure 23 and Figure 24 below.

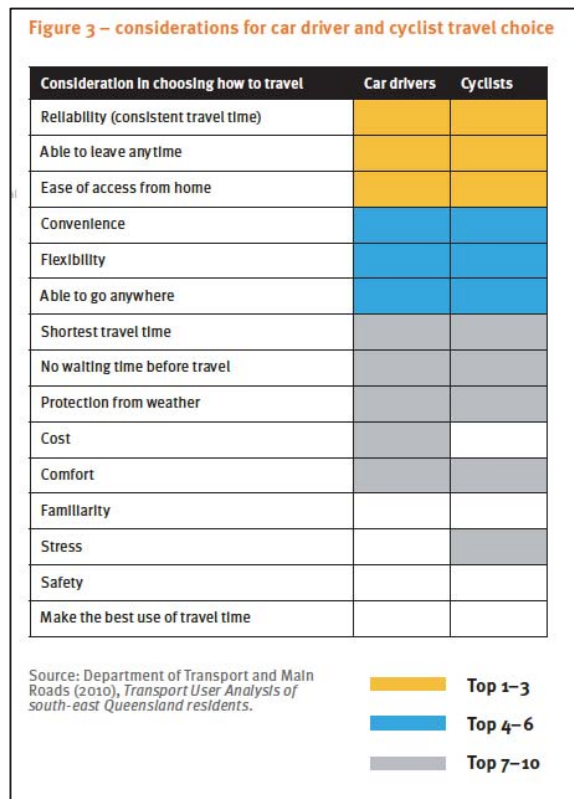
The model assumes that these advantages will grow in relevance as the growing population of the City of Melbourne and surrounding municipalities exacerbates the current levels of congestion.

Figure 23: Reasons for riding a bicycle Copenhagen Bicycle Account 2012



Source: Copenhagen Bicycle Account

Figure 24: Queensland Cycle Strategy 2011–2021



Source: *Queensland Cycle Strategy*

Cost savings

Neither group above has identified cost savings as the main reason for riding. The Queensland riders did not identify cost savings as a reason at all. This probably reflects the higher cost of owning and using a car in Copenhagen.

It also may reflect the fact that bicycle users may be aware that they spend more locally and do not travel further in order to pay less for some items.⁴²

The model assumes that cost savings will remain but not be a significant mode advantage in the future.

Health and well-being

All modes come with a non-transport benefit, perhaps a sense of freedom for motorcycling, a sense of personal security, comfort and climate control for a car driver and the ability to go on-line or read for the public transport passenger.

For bicycle riding the add-on benefit is health or 'free and practical exercise'.⁴³

The model assumes that this add on benefit will gain stronger social endorsement in response to the growing burden of diseases caused by inadequate levels of physical inactivity in Australia.

Crowding on public transport

There is no available evidence but it is likely that overcrowding on public transport and trams skipping stops will be a factor that encourages some to switch to bicycle trips. This advantage may grow in the future.

5.3.6. Disadvantages of the mode

It is assumed that the disadvantage of social disapproval that influenced the mode in the past has been neutralised by the current levels of use. The mode however, still has a number of competitive disadvantages.

Risk

Bicycle riding is perceived as risky by many people and this constrains the growth of the mode.

On average seven people are killed each year while riding a bicycle in Victoria.⁴⁴ In the five years to 2011, the average number of cycling fatalities each year was 7.4 (2% of all road deaths) and an average of 454 bike riders were seriously injured each year (seven per cent of all serious injuries on the roads reported to police).⁴⁵

Victoria's Road Safety Action Plan 2013-2016 provides the strategic direction: 'Provide cyclists with improved infrastructure and safer vehicle speeds to reduce their risk and support the uptake of sustainable travel modes.'

This is reflected in the City of Melbourne Bicycle Plan 2012-16 in its goals to:

- Plan and deliver a connected cycling network
- Build high quality routes for local cycling trips
- Increase participation in cycling
- Make cycling safer.

It is intended that by 2016 there will be:

- A 50% increase in bicycle trips to, from and within the municipality on weekdays
- A 15% change in the number of local trips under seven kilometres from car and public transport to bicycle.
- 15% of all vehicles entering the central city during the morning peak will be bicycles
- A reduction of serious injury crashes by at least 10% relative to the number of cyclists
- Two safe, high quality east-west and two north-south bicycle routes within the central city.

This approach has been followed by a series of previous Bicycle Plans and is the catalyst for mode share growth recorded to date.

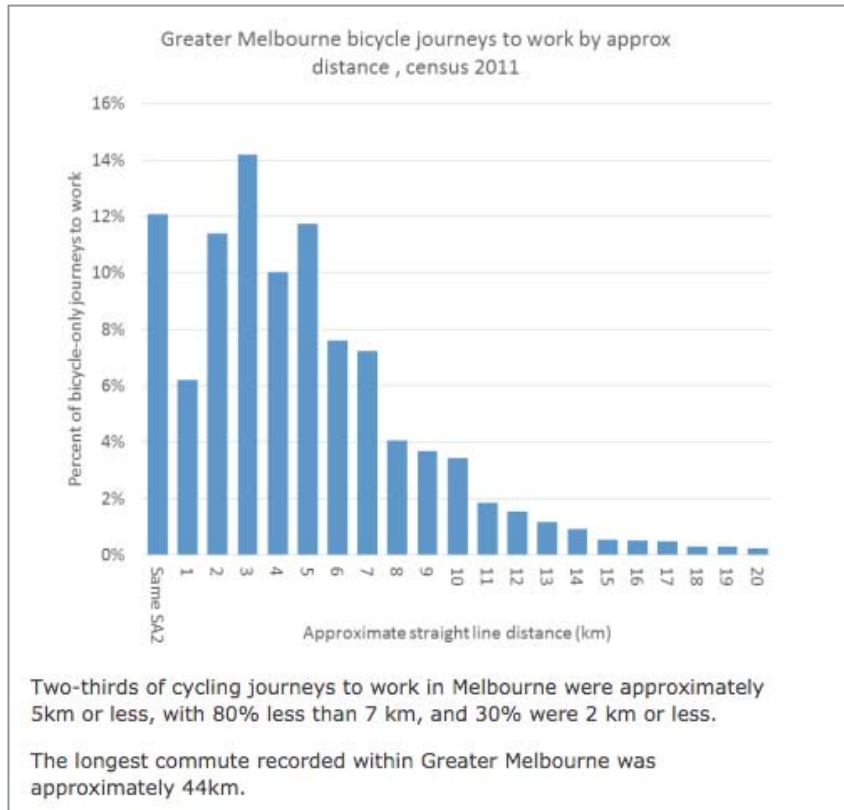
The reduction in actual cyclist risk, resulting from improved bicycle facilities is likely to be reinforced by an increased expectation of other road users that may act to prevent collisions. Perceived risk is also that is also likely to be reduced by the increasing number of riders.

The model assumes that the disadvantage of risk will be diluted and as a result the bicycle mode will become more competitive.

Effort

The bicycle advantage has a geographic limit. Most people, most of the time, are unlikely to make regular trips beyond 7km. This distance is the 80th percentile for the journey to work in Melbourne as seen in Figure 25 below. This is also the range that the City of Melbourne has set for its mode targets.

Figure 25: Distances ridden to work



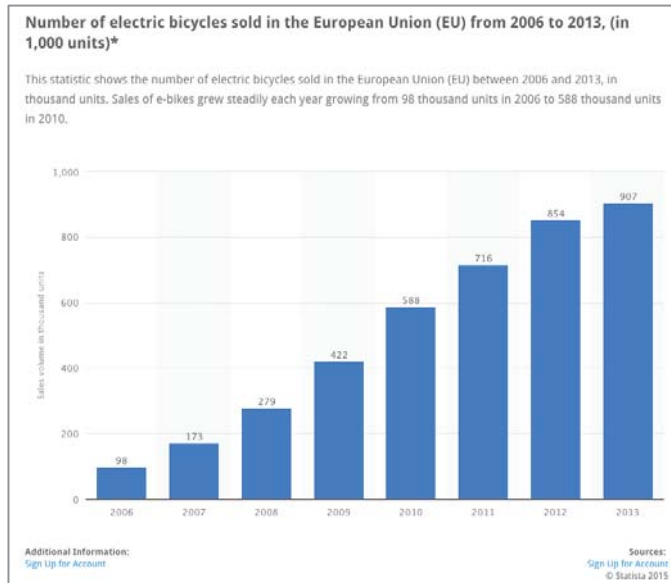
Source: *Charting Transport*⁴⁶

This disadvantage is being eroded by technology in the form of ‘pedelecs’. These power assisted bicycles double the effective range of the bicycle by reducing the effort needed. For trips within the effective range of the pushbike they halve the effort. This has a profound effect on use.

Various studies in Europe have found that those who used pedelecs cycled faster, more often and over longer distances. These riders made less use of the conventional bike and of the car.⁴⁷ One study found commuters on pushbikes in the Netherlands travel on average 6.3km but people using a Pedelec travelled 9.9 km.⁴⁸ Another study from the Netherlands found that in 2012, about 10% of the riders over 60-years old used an e-bike. These riders travelled twice the distances as contemporaries on pushbike bikes⁴⁹.

Electric bicycle sales are growing steadily in Europe in Germany and Netherlands in particular as shown in Figure 26 below.

Figure 26: Pedelec sales in Europe to 2012

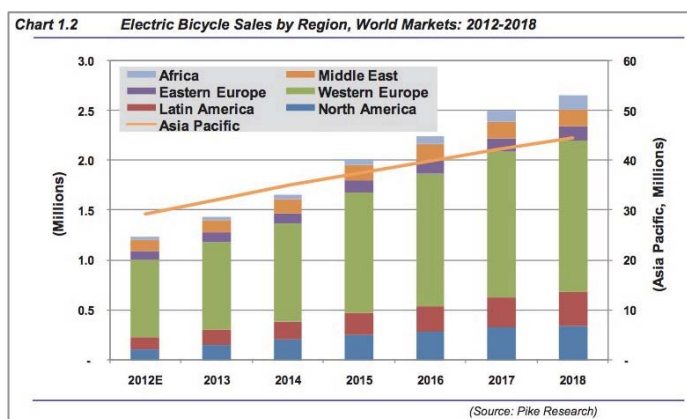


Source: Statista⁵⁰

In Germany, while total bicycle sales in 2013 declined by 5.5% to 3.5 million units, sales of electric bikes increased by 7.9% to 410,000 for a record market share of 11%. Even though total bicycle sales in the Netherlands shrank 2.5% to 1.008 million units in 2012, electric bicycle sales increased by 9.4% to 192,000 units, and their market share went from 16% to 19%.⁵¹

The Asia-Pacific market dwarfs the European market as shown by the yellow line in Figure 27 and the scale on the right.

Figure 27: Global sales of pedelecs



Source: Pike Research

5.3.7. Summary of advantage: bicycle

The competitive advantage of bicycle use is likely to increase in the future. A number of advantages will increase and disadvantages will be reduced.

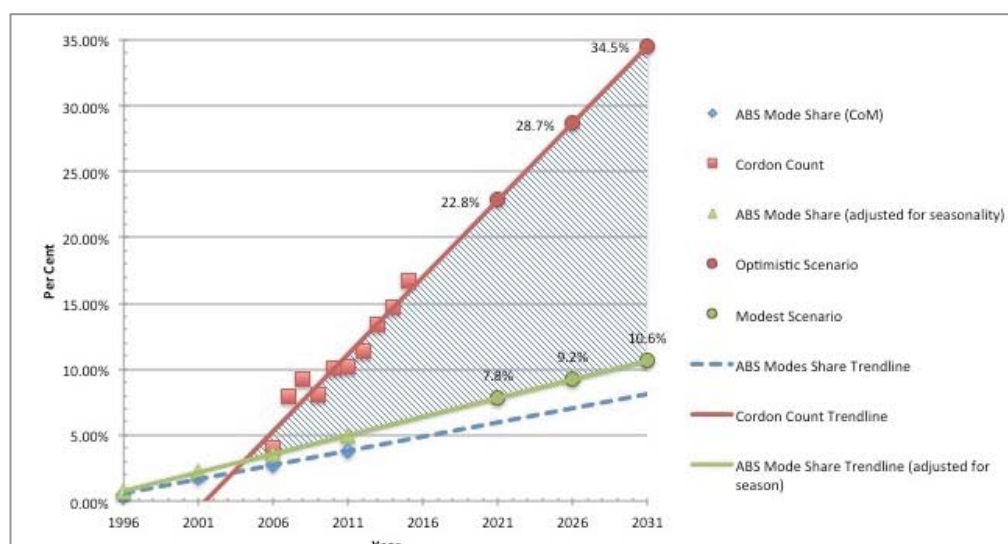
Table 15: Forecast model summary of advantage and disadvantage

FORECASTS	CURRENT STATUS	FUTURE STATUS
Convenience and speed	Positive	More Positive
Cost savings	Neutral	Neutral
Health and well being	Positive	Positive (Possibly more positive)
Crowding on public transport	Positive	Positive (Possibly more positive)
Risk	Negative	Neutral in some areas and on some routes
Effort	Negative	Positive

Source: PBA analysis

5.3.8. Future bicycle mode share and trips

Three data sets have been plotted in Figure 28 below. The data shows that trip have grown between 142 – 172% and mode share has grown by 111 – 118%. These trends have been extrapolated.

Figure 28: Growth scenarios: bicycle use

Source: PBA

In the figure:

- The blue dashed line shows journey to work data and trend line (ABS Census).
- The green line shows a seasonally adjusted ABS trend – compensating for the fact that the census is taken in August, which reflects a lower level of riding than in spring and autumn.

- The red line establishes a trend line from the cordon count data.

Based on the assessment of competitive advantage:

- It is unlikely that the growth in bicycle usage will be consistent with the ABS trend (blue line). For this level of use to occur the expected increase in advantages and decrease in disadvantages will need to be muted. This trend can be defined as ‘business as usual’ for bicycles.
- It is likely that the growth will be consistent with the seasonally adjusted ABS trend (green line). In this scenario bicycle use will rise to 10% of the journey to work, double the level of today.
- It is possible to imagine a general rate of growth equivalent to that observed in the cordon count (red line). In this scenario bicycle use rises to more than 30% of the journey to work. This is six times the level today and three times higher than the green line ABS trend. This level of usage is not impossible (it occurs overseas) but is unlikely within the time frame. For this level of use to come about, the competitive advantages of convenience, speed (crowding and congestion), cost and health will need to be maximised and the disadvantages of risk and effort minimised. This trend can be defined as unlikely.

5.3.9. Future bicycle numbers

For the purpose of amending the planning scheme it is useful to make a rough estimate of the number of bicycles that will need to be accommodated in the City of Melbourne.

The available data is incomplete. For example, it is not possible to anticipate the size of the future resident bicycle fleet, as we do not know the current level of resident bicycle ownership or use. The size of the future resident bicycle fleet will also be strongly influenced by the requirements in the planning scheme that apply over the coming years – a circular calculation. There is however enough data to make an indicative estimate.

Before making the estimate, it is useful to consider that around 10,000 bicycles cause the current impact of the number of bicycles currently travelling the roads and parking on the footpaths of the City. (The cordon count observes 11,519 bicycles entering the City.)

The cordon count observes more bicycles than the ABS journey to work (11,323) even though the cordon only measures some routes and only those approaching the CBD. The ABS figure is lower because it measures the journey to work while the cordon observes bicycles being used for non-work trips such as to education for example.

It is not possible to extrapolate the cordon data for two reasons. First, the future number of trip purposes of all types is not known and second the count measures the bicycle in competition with other vehicles but not public transport. In future, the total number of trip purposes could increase but all growth could be taken up on public transport leaving the cordon count result the same. Equally the total number of trip purposes could be cut in half, but, if there was mass defection from public transport to bicycle riding, the cordon count could remain the same.

There is a similar problem with the ABS. The ABS journey to work data reflects two factors – the bicycle share of the number of jobs and the bicycle share of the competition between modes. The number of bicycles entering the City could rise if the number of jobs falls but at the same time the bicycle gains more ‘market share’. Equally, the number of bicycles could fall if the number of jobs grows and the bicycle reduces its current share. These two variables are independent.

It is possible to isolate one of these variables using forecasts of the number of jobs in the City of Melbourne, which is expected to rise by around two hundred thousand by 2031. It should be noted that the bicycle’s share of trips to ‘jobs’ is different to its share of ‘the journey to work’. This is because for example some ‘jobs’ do not occur on some days (part time work) and some jobs do not need a journey to work.

The bicycle share of trips to jobs is currently 2.58% (as opposed to 3.78% of the journey to work). The share of trips to jobs is 68% of the share of the journey to work.

Table 16 below shows that by changing the trips to jobs ratio (reflecting scenarios in which the bicycle gains market share) and using the ratio to reflect that in the journey to work share, it is possible to anticipate a certain number of bicycles.

Broadly this calculation shows that under a likely 'strong growth scenario' the number of bicycles entering the City each working day can be expected to grow to around 50,000. This number is five times greater than the number today.

Table 16: Anticipated future number of bicycles entering the City of Melbourne

YEAR	WITHIN CITY OF MELBOURNE		MODE SHARE		
	Jobs (Total jobs, including work from home)	Number of jobs to which journeys are taken (ABS)	Bicycle Mode Share Journey to Work Trips (ABS)	Bicycle Work Trips / Jobs	Number of bicycles entering the City on a journey to work (ABS)
2011/12	438,793	299,550	3.78%	2.6%	11,323
	Forecast Jobs (SGS)	Estimated jobs to which journeys are taken	Bicycle Mode Share Journey to Work Trips Scenarios	Bicycle Work Trips / Jobs Scenarios	Estimated number of bicycles entering the City on a journey to work
2031 Minimal Growth	660,851	451,142	5.0%	3.4%	22,557
2031 Business as usual	660,851	451,142	8.1%	5.5%	36,633
2031 Growth	660,851	451,142	10.0%	6.8%	45,114
2031 Strong Growth (Likely)	660,851	451,142	12.0%	8.2%	54,137

Source: Employment Forecasting 2012-2031 SGS & PBA Analysis

6. The Planning Context

Information and understanding gathered through interrogation of the current requirements has informed the recommended changes to the Clauses.

6.1. OVERVIEW

The Planning Scheme requires parking for bicycles and motorcycles in new and change of use buildings in the City of Melbourne.

The City is investigating changes to these requirements so that future developments are supportive of the Strategic Context outlined above.

The parking requirements are based on:

- Motorcycles: Clause 52.06 (Car Parking)
- Bicycles: Clause 52.34 (Bicycle End of Trip Facilities)

The Clauses:

- Apply in different areas and zones
- Identify uses to which the clauses apply
- Define 'quantity of facilities required; through:
 - g. The definition of 'factors' such as net floor area (NFA), employees or dwellings
 - h. Applying factors to rates or ratios such as '1 to each 200 square metres'
- Define 'quality' through Design Standards, such as those that define the distance or 'centres' between bicycle parking rails
- Provide guidance that assists the Responsible Authority to interpret the provisions through Decision Guidelines

The Clauses have other features which are not considered by this review including:

- Purpose
- Permit requirements or waivers

Changes to the parking requirements for the two modes will follow different pathways:

- Motorcycle parking is required under some of the parking schedules. To change these requirements the Council will need to develop amendments to the current schedules or introduce new schedules (if in new areas)
- Bicycle parking is required under a statewide provision that is specified in the Victorian Planning Provisions (VPPs). Changing the VPP clauses requires State government support and Ministerial approval.

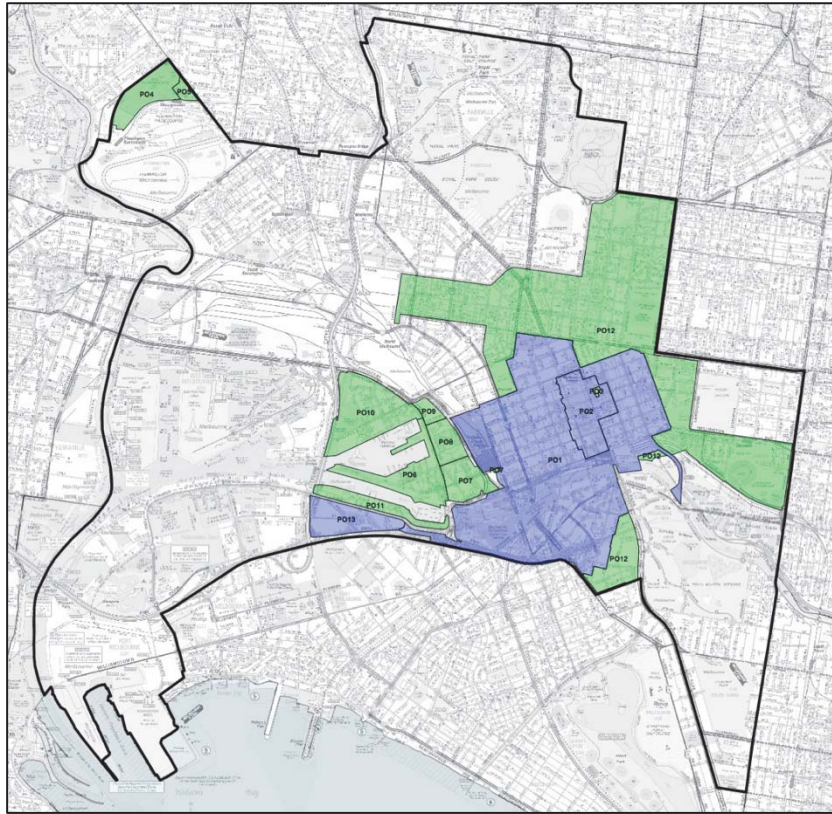
This section reviews the relevant Clauses in detail in order to identify where changes may be appropriate.

○ MOTORCYCLE PARKING IN THE PLANNING SCHEME

Motorcycle parking is required in new or change of use buildings under the requirements of Clause 52.06 (Car parking).⁵²

Using the schedule to the overlay Clause 45.09, the City of Melbourne has established 13 Parking schedules in the municipality; three of these require motorcycle parking. Figure 29 shows the schedules that contain the motorcycle requirement in blue. The schedules that do not require motorcycle parking are in green.

Figure 29: Parking Overlay areas in the City of Melbourne



Source: Melbourne Planning Scheme with PBA Analysis

The three ‘motorcycle’ Parking schedules, which cover 43% of the municipality, contain a requirement to provide parking for motorcycles as follows:

‘All buildings that provide on-site car parking must provide motorcycle parking for the use of occupants and visitors, at a minimum rate of one motor cycle parking space for every 100 car parking spaces, unless the responsible authority is satisfied that a lesser number is sufficient.’

Motorcycle parking variations have been established for four areas in the City. Motorcycle parking is also referenced in the Student Housing Policy. Table 17 below shows the requirements:

Table 17: Motorcycle planning requirements

BASIS	REQUIREMENT	RATE
Schedule One, Two, Thirteen	Motorcycle parking rates	1:100
Shown as: PO1, PO2, PO13		
Capital City Zone –		
Outside The Retail Core, Retail Core, Fishermans Bend,	All buildings that provide on-site car parking must provide motorcycle parking for the use of occupants and visitors, at a minimum rate of one motor cycle parking space for every 100 car parking spaces, unless the responsible authority is satisfied that a lesser number is sufficient.	

BASIS	REQUIREMENT	RATE
Schedule Three Shown as PO3 Capital City Zone – Lonsdale Street (Golden Square Car Park) Area	All buildings that provide on-site car parking must provide motorcycle parking for the use of occupants and visitors, at a rate of one motorcycle parking space for every 100 car parking spaces on the site above 520 car parking spaces.	If >520, then 1:100
22.24 Student Housing Policy	Provide adequate space on the land for motorcycle and scooter parking Design safe and efficient motorcycle and scooter parking;	Adequate

Source: Melbourne Planning Scheme with PBA Analysis

6.1.1. How could the Planning System be changed?

Three features of the schedule that do not influence the level of off-street motorcycle parking have been excluded from consideration:

- 1.0 Parking Objectives
- 2.0 Permit Requirements
- 3.0 Number of car parking spaces required (except for the sentence on motorcycle parking)

This leaves four features of the City of Melbourne schedules that have the potential to influence the level of off-street motorcycle parking:

- The area to which the schedules apply
- The rate at which motorcycle parking spaces are required
- The design standards for motorcycle parking spaces
- The decision guidelines.

Figure 26 summarises the four features of the schedules that will be considered.

Table 18: Summary of features requirements in Parking Schedules 1, 2 & 13

FEATURES	REQUIRED
Area	PO1, 2, 13
Rate	1 per 100 Car parking spaces
Design Standards	There are no design standards required for motorcycle parking in the schedule
Decision Guidelines	There are no decision guidelines for motorcycle parking in the schedule

Source: PBA

The analysis considers:

- How each feature might be amended

- Which features and which potential amendments emerge as appropriate, possible and worthwhile

6.1.2. Varying the area

When considering variations to the area to which Parking Schedules apply the following alternatives are open to the City:

- Do not vary the areas
- Include motorcycle parking requirements in more Parking schedule areas
- Including motorcycle parking in all of the Parking schedule areas
- Extend the Parking Schedules over some parts of the municipality
- Require motorcycle parking across the municipality – either by using the schedules or another mechanism such as a change to the VPP.

Table 19 below summarises these possibilities:

Table 19: Summary of possible interventions to vary the area

INTERVENTION	ACTION	COMMENT
1. No expansion	No action	Does not respond to Strategic context
2. Extend requirement to some of the existing Zones based on housing	Extend the requirement to align with C133 zone, which permits certain buildings to have zero car parks	Retrofit: Requires no new Clause or Zone C133 Zone reflects area where low levels of car ownership are possible and desirable
3. Extend requirement to all Parking Zones	Require motorcycle parking across all Parking Zones	Retrofit: Requires no new Clause or Zone
4. Extend Parking Zone/s and the requirement based on jobs	Extend the parking Zone/s to align with area of high Effective Job Density (EJD)	Requires change of planning boundary High EJD area is where high pedestrian volumes are and will be
5. Extend across the municipality	Introduce new municipality-wide motorcycle parking zone	Requires change of planning boundary Not linked to land use - risk of low value investment in unused space in buildings

Source: PBA Analysis

Of these five possible interventions, items 2, 3 and 4 have merit.

6.1.3. Varying the rate

The rate is made up of:

- The 'factor' – in this case 'car parking spaces'
- The ratio – in this case '1 for every 100'

When considering variations to the Parking schedules the following alternatives are available:

- Change the factor
- Change the ratio
- Change the minimum or maximum number of spaces to be provided

Table 20 below summarises these possibilities:

Table 20: Summary of possible interventions to vary the rate

INTERVENTION	OPTIONS	COMMENT
1. Change the factor	Change to a; People factor such as employees Space factor such as NFA	The schedule is based on a car parking Clause so it is appropriate that the factor is car parking Car parking rates are a proxy for 'people' and NFA No reason to change
2. Lower the number of car parks that trigger provision	1 in 100 1 in 50	The current ratio is similar to the current mode share, which is around 1% This ratio could be increased
3 Change the minimum number of motorcycles	Require the equivalent of one car park space to be set aside to park a number of motorcycles	This increases the minimum and simultaneously provides a form of Design Standard

Source: PBA Analysis

Of these three possible interventions, items 2 and 3 have merit.

6.1.4. Varying the design standards

In the Planning Scheme, it is appropriate to include design standards to provide certainty for all parties (developers, designers, regulators and the community) and ensure that the desired outcomes are achieved.

Designs of parking spaces have a significant impact on whether they are usable, safe and able to meet the planning scheme objectives. Lack of clarity on design leads to substandard outcomes that can precipitate unsafe parking outcomes. This was observed in our survey of actual parking facilities in buildings build in the last five years. It is therefore important that any amendments address the issue of design as off-street parking needs to be of a high standard to support voluntary change from on-street parking and at least of an acceptable standard if it is to be the norm or compulsory.

Unfortunately there are no detailed design standards for motorcycle parking outside or inside buildings. A number of concepts are raised in Motorcycle Notes Number 7⁵³ including:

- Access to designated space
- Locking points and related signage
- Suitable surfaces and gradients

These are further discussed later in the report.

6.1.5. Varying the decision guidelines

An amendment to the Parking schedule has the opportunity to change or add to the decision guidelines. The current decision guidelines are provided in the Endnotes.⁵⁴

For example, the guideline that considers pedestrian access could be complemented by equivalent clauses for motorcycles.

Pedestrian access in the current decision guidelines includes the need for the Responsible Authority to consider:

- The safety and convenience of pedestrians moving to, from and within the car parking facility, including lighting levels, surveillance systems, signage, ease of orientation and visibility.

There is no such consideration given to safety of motorcycle access. The VPP could be revised to cover this element, for example using the text below.

- The safety and convenience of motorcyclists moving to, from and within the car parking facility, including lighting levels, surveillance systems, signage, ease of orientation and visibility.

The decision guidelines do not include an equivalent to guideline 7 in the Clause 52.34 (Bicycle) which states ‘must consider...any relevant bicycle parking strategy or equivalent’

The VPPs could be revised to include similar guidance that enables Responsible Authorities to consider ‘any relevant motorcycle parking strategy or equivalent’.

○ RECOMMENDED CHANGES TO 52.06 CAR PARKING

The following changes are recommended to the requirements for off-street motorcycle parking.

6.1.6. Establish a definition of a motorcycle space

There is no established definition of a ‘motorcycle space’. For the planning scheme to require a ‘motorcycle space’ in this context, risks inadequate provision even by supportive proponents.

For this reason it is recommended that the planning scheme adopt the concept of an ‘equivalent car space’ and define a motorcycle space as ‘a car space that has been set aside as priority motorcycle parking’.

This approach has a significant advantage in that the design and provision of car parking spaces is well established. It provides certainty for all parties, in particular the development industry and planners when they are seeking to ensure the design is appropriate.

Set aside

How such a space might be set-aside will need to be decided:

- It could be required that the spaces be marked with pavement stencils and eye level signage in a similar manner that spaces that are set aside for disabled parking
- It could be required that the spaces be marked with pavement stencils and eye level signage in the way that spaces that are set aside for disabled parking
- It could be required that infrastructure be used to control access to the spaces
- It might be necessary in residential buildings to require that the Owners’ Corporation hold the title and responsibility for the spaces in the way that car share spaces are set aside from the private spaces.

A successful outcome would be that a motorcycle user would have confidence to use the space and the certainty that space would be available each time they return.

If there were no motorcycle users in a buildings in which space was set aside the space could be used temporarily for other storage uses without undermining the intent of the requirement.

It may even be appropriate to allow motorcycle priority spaces to be used for general parking when they are not being used for motorcycle parking. This approach would rely on users of a car

and motorcycle parking area to resolve conflicts among themselves for example when regular motorcycle users find that drivers are using the areas set aside for motorcycles. This would be achievable in workplaces and residential buildings where the users are likely to know each other and have a forum in which to negotiate.

An example of using bollards to restrict access to spaces is provided in Figure 30 below.

Figure 30: Standard car parking space set aside



Source: PBA

Number of motorcycles in each equivalent car space

It would need to be decided how many motorcycles can be parked in an 'equivalent car park space'. The City of Melbourne's on-street practice is not consistent. The space set aside varies even in the same street. The most space efficient layout, shown in Figure 31 allows a 4:1 ratio. However this can only be achieved when the road space is used for manoeuvring and there are no pillars or other obstacles to constrain access.

Figure 31: Four motorcycles can be parked in one car park



Source: PBA

It is recommended that the rate state that an equivalent car parking space can park two motorcycles as shown in Figure 32 below.

Figure 32: Gold Coast Motorcycle Expo 2012



Source: Anthony Parker⁵⁵

6.1.7. Extend the Parking Schedule Areas

The current Parking schedules do not reflect the areas where motorcycle parking is required. This is easily noted by observing the number of motorcycles parked on footpaths in Melbourne during a weekday. The City of Melbourne should therefore seek to extend the requirement across the whole municipality (as the whole municipality has congested access roads and any part of the municipality that has employment based uses will attract motorcycles).

There is no reason to seek the extension of the provision beyond the boundaries of the City of Melbourne as motorcycle use (for journeys to work) in much of the metropolitan area and Victoria is falling. The Melbourne Planning Scheme contains requirements for motorcycle parking. These requirements are specified in City of Melbourne schedules to the parking overlay Clause 45.09 specifying the additional requirements to those in 52.06 Car Parking.

6.1.8. Define the Uses

It is not necessary to require all uses to provide motorcycle parking.

The current level of registration and use for the journey to work suggests that dwellings do not need to have a specific requirement to provide motorcycle parking. Residents who use motorcycles can use the car parking provided in the building. (There was feedback from the on-line survey that suggested that current users were finding it hard to park a motorcycle and a car in one car park).

The requirement should be linked to uses that attract employees. The following uses are those nominated in 52.34 Bicycle Facilities that attract large numbers of employees. ('OTS' refers to 'other than specified in this table').

Table 21: Recommended Uses required to provide motorcycle parking

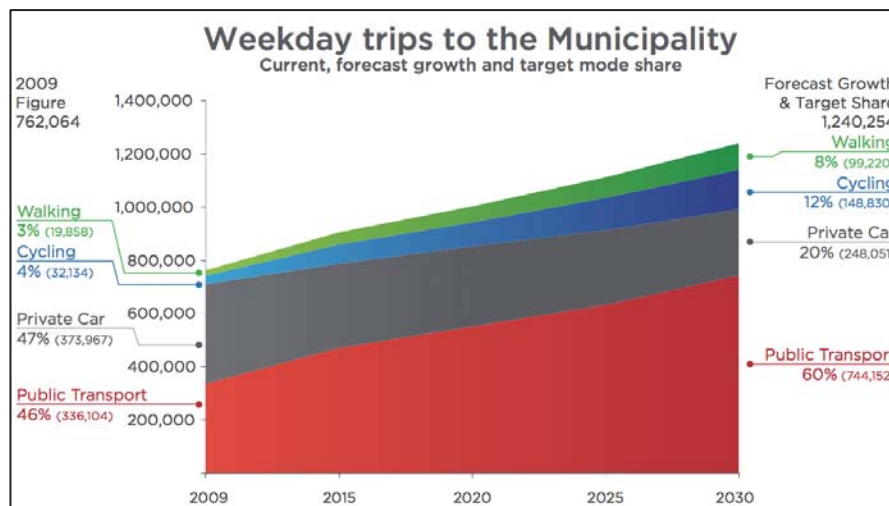
USE	MOTORCYCLE USERS
Office OTS	Employees
Industry OTS	Employees
Service industry	Employees/Visitors
Retail premises OTS	Employees/Visitors
Library	Employees/Visitors
Major sports and recreation facility	Employees/Visitors
Hospital	Employees/Visitors
Nursing home	Employees
Education centre OTS	Employees/Students
Secondary school	Employees
Primary school	Employees

Source: PBA Analysis

6.1.9. Increase the Rate

The current rate is linked to 100 car parking spaces (where it applies). This rate does not reflect the current level of motorcycle use. The current mode share for motor vehicles in the City of Melbourne is 40% as shown in Figure 33 below.

Figure 33: Mode share targets for journeys to the City of Melbourne



Source: *Transport Strategy 2012 Planning for future growth (pp. 17)*

The City of Melbourne mode share data shows that 100 car parking spaces are currently enough for every 213 commuters. Amongst these commuters would be 2.1 motorcyclists - based on mode share of 1.0% (ABS Census). The current rate of 1 motorcycle parking space for every 100 car parking spaces only provides for a motorcycle mode share of 0.5% (and is thus inadequate to meet current levels of demand).

In the future these two rates (for car and motorcycle mode share) may vary. If the City of Melbourne's targets for 2031 are met, then car travel will fall to 20% mode share. At the same time under the modest growth scenario motorcycle trips could rise to 3%. The recommended rate will therefore need to:

- Be related to today's level of motorcycle use (1.0%) to remain 'realistic'
- Support possible growth in motorcycle mode share (up to 3%)
- Take into account that 'car parking spaces' as a 'base measure' represent 40% of journeys to work today and likely to only represent 20% of journeys to work in 2031.

It is therefore recommended that the provision of motorcycle parking:

- Be triggered at the level of 40 car parking spaces
- Require car parking space equivalent be set aside for motorcycles for every 40 car parking spaces provided (providing for around 2.5% mode share).

This level of provision is higher than is needed today and will allow motorcycle use to grow and car use to decline over the next ten years. It would not however be sufficient if car use dropped to 20% and motorcycle use rose to 4%.⁵⁶ Under that scenario, a total of eight motorcycle spaces (four car space equivalents) would be required for every 40 car parking spaces.

The impact of this recommendation can be seen in Table 22 below based on the 630 new and change of use buildings built 2009 – 2013. (724 buildings were completed during this period but car park data is only available for 630).

Table 22: Comparison of current and recommended motorcycle parking rates

REQUIREMENTS	NUMBER OF BUILDINGS	MOTORCYCLE SPACES REQUIRED
Buildings with no car parking	286 (45%)	-
Current requirement (1:100)	59 buildings (9%)	212 motorcycle spaces
Proposed requirement (1:40)	102 buildings (16%)	615 car parking spaces providing parking for 1,230 motorcycles

Source: PBA Analysis

If development continued at the same rate, the proposed requirement would provide space for around 5,000 motorcycles to be parked off street by 2031. This is consistent with the modest growth forecast in motorcycle user for the journey to work.

The proposed rate is as follows in Table 23 below:

Table 23: Recommended motorcycle planning requirements

BASIS	USES	FULL REQUIREMENT
Parking schedule area	Child care, Education centre other than specified in this table, Hospital, Hotel, Library, Market, Medical centre, Minor sports and recreation facility, Nursing home, Place of assembly other than specified in this table, Primary School, Secondary School,	For all of the listed Uses, buildings that provide on-site car parking must set aside for motorcycle parking for the use of occupants and visitors, at a minimum rate, one car space for every 40 car parking spaces, unless the responsible authority is satisfied that a lesser number is sufficient. The car park or car parks designated for motorcycle parking must be [set aside in the following way/s for example marked with a pavement stencil 'motorcycle priority parking'.]

Source: PBA Analysis

7. Bicycle parking in the planning scheme

Bicycle parking is required in new or change of use buildings or where the floor area of an existing use is increased under the requirements of Clause 52.34 (Bicycle). This Clause was introduced in 2006 (in Amendment VC37) and has not been revised since.

○ HOW THE PLANNING SCHEME COULD BE CHANGED

Changes to the Clause will need to be implemented by the Department of Environment, Land, Water & Planning either in a local schedule or across the State.

As with motorcycle parking, changes could occur in a number of features of the Clause. Some features of the Clause do not directly affect the level of provision and these have been excluded:

- Purpose
- Provision – which development activities trigger the requirement
- Permit requirement
- Exemption from notice and review

This leaves five features of the Clause that have the potential to influence the level of off-street bicycle parking:

- The area over which the amendments apply
- The rate at which bicycle parks are required
- The type of facilities that are required including signage
- The Design Standards required
- The Decision Guidelines

The scope of potential amendments is further reduced – in line with the Strategic Context described above – to four broad ‘uses’:

- Offices
- Retail
- Employment
- Residences (Dwellings)

The analysis considers:

- How each feature might be amended
- Which features and which potential amendments emerge as appropriate, possible and worthwhile

7.1. VARYING THE AREA

When considering a change to the Clause the City has the opportunity to request a change to the area to which the Clause applies:

- Only to the City of Melbourne
- Voluntarily to municipalities in a similar manner to the Clause 45.09 (Car Parking)
- To the entire State (changing the Victorian Planning Provisions)

This project is the first time that the City of Melbourne has formally reviewed the impact of Clause 52.34 and its implementation. It is possible that this project will uncover issues that have a State-wide relevance as well as being appropriate and worthwhile for the City.

It is also likely that some of the changes desired by the City will be inappropriate for areas in suburban Melbourne or regional Victoria that currently have lower levels of bicycle use and do not share the Strategic context described above.

Table 24 shows that amendments to the type of facility, design standards and decision guidelines of the Clause will be relevant across the State. Only changes to the rate may not be appropriate in other areas. Rates that are 'too high' can be dealt with on a case by case basis by the local Responsible Authority (RA) by issuing dispensation in the same manner that they currently do for car parking.

Table 24: Relevance of possible interventions to vary the Clause

FEATURE	CITY OF MELBOURNE	INNER MELBOURNE	STATEWIDE
Rate	Yes	Yes	Unlikely
Type of facility	Yes	Yes	Yes
Design standards	Yes	Yes	Yes
Decision guidelines	Yes	Yes	Yes

Source: PBA Analysis

7.2. VARYING THE RATE

When considering a change to the Clause, the City has the opportunity to request a change to the rate required under the Clause. In the case of bicycles, the 'rate' is made up of:

- The use – including Amusement Parlour to Take-away food premises for example
- The 'factor' – such as people, net floor area (NFA), dwellings or beds for example
- The ratio – which, for area, currently ranges from 1 to 25, 100, 300, 600, 800, 1,500 sq m
- Other factors used by other Clauses in the Planning Scheme.

Options for changing the rate are described in Table 25 below:

Table 25: Options for amending Clause 52.34 (Bicycle)

CATEGORY	OPTIONS	COMMENT
1 Vary the uses	a) Remove existing uses	No use in the current Clause seems to be irrelevant or trivial. Not under consideration.
	b) Expand the scope of the uses by including new terms and using higher level land use terms for the four target uses	There is at least one relevant high-level category that is not in the current Clause. Three terms are not at the highest level
	e) Align the VPP uses with list of uses in 'Austroads' (Cycling aspects of Austroads Guides Table H1: Bicycle Parking Provision) that are not in the current Clause	A consistent national approach may be appropriate
	f) Align Clause 52.34 (Bicycle) uses with list of uses in Clause 52.06 (Car Parking) that are not in the current Clause	Alignment may be appropriate
2. Change the factors	Change the Clause from NFA to GFA	The data in CLUE currently uses GFA
	Change references to people into NFA: Medical centre, sports and recreation facilities, schools.	There may be some merit in changes that reduce ambiguity.
3. Change the ratios	Change references to beds, stalls into people or NFA	There may be some merit in changes that reduce ambiguity.
	Consolidate the options as much as possible	There may be some benefit in fewer ratios
	Increase the requirement	This may be appropriate
4. Introduce a minimum number	Reduce the requirement	This is unlikely to be appropriate and can be dealt with using waivers.
	Establish a minimum number of bicycle parking spaces	Wherever more than a certain number of car parks are provided an equivalent car space area for bicycles could be required.
5. Requiring a bicycle parking plan	Clause 52.06 (Car Parking) requires a plan	This may help ensure appropriate provision

Source: PBA Analysis

Initiatives in each of these categories have merit and are discussed below.

7.3. VARYING THE USES

Expanding the scope of uses to which the provisions apply

The uses in Clause 52.34 (Bicycle) have been compared to the nesting diagrams of land use terms (Section 75 of the Victorian Planning Provisions). Table 26 below shows the scope of the Clause.

Table 26: Scope of the uses covered in Clause 52.34 (Bicycle)

CATEGORY	OPTIONS	COMMENT
Included at the highest level	75.04 Education Centre Group	Maintain
	75.05 Industry Group	
	75.08 Office Group	
	75.09 Place of Assembly Group	
	75.11 Retail Premises Group	
	75.12 Retail Premises Group (Shop)	
Included but not at the highest level	75.01 Accommodation Group	This family is represented by two terms at Level 2. As this is one of the target uses, it would be appropriate for the Clause to refer to the whole group at the highest level.
	75.06 Leisure and Recreation Group	This 'family' is represented at the appropriate level.
Relevant but not included	75.03 Child Care Group	It could be appropriate for the Clause to include this group at the highest level
Not included and not directly relevant	Seven families of nested terms	Maintain

Source: PBA Analysis

Considering the importance of residential growth in the Strategic Context it is appropriate to consider:

- Elevating the level of inclusion for the Accommodation Group
- Including the Child Care Group at the highest level

Uses: aligning to other lists of uses - Austroads

There are a number of uses among the 32 listed in Austroads that are not directly named in the 24 uses listed in Clause 52.34 (Bicycle); for example café, museum and drive in shopping centre.

There is merit in the Victorian Clause being comprehensive and taking advantage of work done around Australia to identify relevant uses.

However direct alignment with Austroads is not recommended for the following reasons:

- Some of the terms in Austroads are not defined terms under the Victorian Planning Provisions (Section 74); café, community centre, consulting rooms and drive-in shopping centre for example.
- Some of the uses in the Clause 52.34 (Bicycle) are not in Austroads; dwelling and medical centre for example. It would not be possible to adopt the Austroads list without adding to it.
- Many of the 'missing uses' are covered by uses in the current Clause. 'Retail premises/Food and drink premise' in the current Clause, for example, covers the use 'Café' in Austroads.

An additional reason to avoid trying to align with Austroads is that the factor used is GFA rather than NFA in Clause 52.34 (Bicycle). The rates and ratios, although similar, are different between the two documents.

Uses: aligning to other lists of uses - Clause 52.06 (Car Parking)

There are a number of uses in Clause 52.06 (Car parking) that are not in Clause 52.34 (Bicycle); for example, research and development centre, supermarket and swimming pool.

There is some merit in developing alignment between Clause 52.34 (Bicycle) and Clause 52.06 (Car Parking) as:

- The two needs are interrelated – more bicycle parking may mean less car parking
- Design and installation usually occur in the same place.

Such an alignment would have a wider scope than the four Target Uses.

There are however some uses that are in Clause 52.06 (Car Parking) that are perhaps less relevant to Clause 52.34 (Bicycle) and less relevant to the City of Melbourne such as 'Milk Depot'. This potential alignment will be explored below.

7.3.1. Changing the factors

Factors: Change to GFA

It is not recommended that the assessment factor be changed to Gross Floor Area.

Clause 52.34 (Bicycle) when it refers to area uses 'net' or 'leasable' floor area, as does Clause 52.06 (Car Parking).

On the other hand the CLUE database and the Austroads Guidelines use factors based on Gross Floor Area (GFA). Alignment with the Austroads document has been put aside earlier.

It would be inappropriate to try to realign the Planning Scheme to suit the data collection system of the City of Melbourne. It is unfortunate that the reporting system is not directly aligned to the assessment factor. As a result Clause 52.34 (Bicycle) cannot be directly assessed by CLUE data. CLUE can however provide useful indicative results as well as trends. It might be possible to collect 'net' or 'leasable' floor area data through CLUE.

Factors: Change factors

It is worth considering changes to factors:

- The rate for hospitals and nursing homes is based on 'beds' Motels and markets are tied to 'rooms' and 'stalls' respectively. In these cases, the number of staff or floor area may be more relevant and appropriate.
- There may be a case for changing factors from 'people' to an area-based system. Area based references allow straightforward calculations for vacant or ambiguous uses. Medical centres are based on 'practitioners' but the number of practitioners may not be known at the planning stage. This reference will fall down if, for example, a number of practitioners use the same space in shifts.

None of the uses in which a change of factor may be appropriate are in the priority land uses for this review.

7.3.2. Change the ratios

Ratios: align approach with Clause 52.06 (Car Parking)

Clause 52.34 (Bicycle) follows a different approach to Clause 52.06 (Car Parking). In Clause 52.06 (Car Parking) the floor area side of the ratio typically remains consistent at 100sqm. The provision requirement then moves up and down depending on the use from 0.3 – 8.0 car spaces.

In Clause 52.34 (Bicycle) the requirement typically is set at ‘one bicycle space’ and the factor changes. As noted above the area ratio can range from 1 to 25, 100, 300, 600, 800 or 1,500 sq m.

There is some merit in changing the approach to that followed in Clause 52.06 (Car Parking) when proposing new rates, especially if they can be aligned to the rates in Clause 52.06 (Car Parking)

Ratios: increase the provision

Whether or not the factors and ratios are changed in character, based on the strategic context and the results of the on-site survey, the requirement ratio will need to be changed.

7.3.3. Require minimum provision

A revised Clause 52.34 (Bicycle) could include minimum provisions for uses in the City of Melbourne or in areas within the City such as the CBD.

For example, new uses could be required to provide:

- A minimum number of visitor-parking rails to be installed on the footpath in an agreed location.
- At least one equivalent car park space with bicycle rails whenever a certain number of car parking spaces are provided in a building

A general statement analogous to that quoted below in Clause 52.06 (Car Parking) could be developed:

‘Where a use of land is not specified in Table 1 or where a car parking requirement is not specified for the use in another provision of the planning scheme or in a schedule to the Parking Overlay, before a new use commences or the floor area or site area of an existing use is increased, car parking spaces must be provided to the satisfaction of the responsible authority.’

7.3.4. Require a bicycle parking plan

Clause 52.06 (Car Parking) requires a car parking plan that describes, ‘access lanes, driveways and associated works’ among other factors.

Developments of a certain scale could be required to provide a plan that identifies the access design, security arrangements and related facilities including showers and lockers that will be provided for bicycle users.

7.3.5. Varying the type of facilities

Clause 52.34 (Bicycle) provides guidance on the type of facilities to be provided. As the word ‘facility’ has a broad meaning this report uses these ‘sub-meanings’ of facilities listed in the order of someone arriving at a building:

- Access – features that support access to the parking station or area such as navigational signs and motor vehicle speed controls
- Parking station – an area in which bicycles are parked that may include structures and amenities
- Parking structure – a cage, wall, roof or other element of the parking station
- Parking system – the element that the bicycle is parked next to, from or on
- Amenities – features that support the parking station such as showers and lockers.

The Clause describes these in Table 27 below:

Table 27: Types of facilities in Clause 52.34 (Bicycle)

TYPE OF FACILITY	TYPICAL USERS	COMMENT
Access		
Directional signage	All users	<p>Access may need to be supported in other ways</p> <p>Signs may be necessary and appropriate for other purposes including formalising a 'Shared Zone'</p> <p>'Directional signage may not be necessary if, for example, suitable lanes are marked.</p> <p>Signs may be inappropriate if they facilitate theft.</p>
Parking structures		
Lockable compounds with wall or floor rails	Required for all parking (at rails) that is not in a locker. Except rails not in a compound (which must be in a highly visible location)	Current requirement is internally inconsistent
Parking systems		
Bicycle locker	Employee & resident ONLY	<p>Lockers are more expensive and take more space than compounds.</p> <p>Lockers are not always necessary behind workplace or apartment security.</p> <p>Suitable storage cages in apartments can store/park bicycles as well as other items.</p>
A bicycle rail in a lockable compound	Employee & resident ONLY	<p>Compounds are not always necessary behind workplace or apartment security.</p> <p>'Compounds' must be fully enclosed.</p>
A bicycle rail	Visitor, shopper or student	The Clause does not state where these rails should be. Short-term bicycle parking is rarely provided (or used) inside buildings.
Amenities		
Lighting	All spaces	Discussed in Design Standards below
Weather protection	If outside	Discussed in Design Standards below
Showers	Employee & resident ONLY	Residents do not need additional showers provided
Change rooms	Employee & resident ONLY	Residents do not need additional change areas
Ventilation	<i>Not included</i>	Important amenity
Personal lockers	<i>Not included</i>	Important amenity

Source: PBA

Access

The Clause requires signs for navigation. This is however only one of a suite of Access facilities. It may be appropriate to include the full suite including motor vehicle speed controls and priority setting (of which Shared Zones are one example), physical separation from motor vehicles and pedestrians.

Parking structures

It may be appropriate to replace the word ‘compound’ which has been defined as ‘an open area enclosed by a fence’ with ‘cage’. This change would avoid misunderstanding. There have been reports of the construction of ‘compounds’ that allow people to climb over the walls.

It may be appropriate to allow parking rails that are not in a compound or cage. See Security below.

Parking systems

Bicycle parking systems have two key roles – to support and secure the bicycle while it is being stored or parked. Supporting can be defined as ‘vertical and stable’. Securing is described below in Security.

Parking systems must also be suitable for common types of bicycle, easy and intuitive to use and unlikely to damage bicycles or injure users. They must be durable and securely anchored.

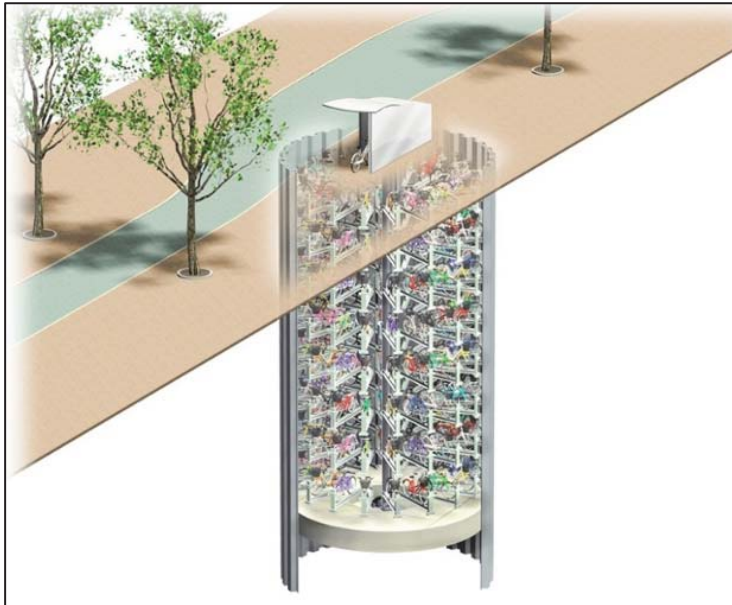
It may be appropriate to include a performance definition in the Clause as well as the term ‘rails’. This would allow other types of parking systems that are not rails. For example, double decker racks (see Figure 34 below) are currently in use in Australia while ‘non-rail’ systems such as automatic parking stackers are in use in Japan (see Figure 35 below).

Figure 34: Double decker parking at Amsterdam South Train Station



Source: *Traveling Biervoormij*⁷

Figure 35: Underground bicycle parking system

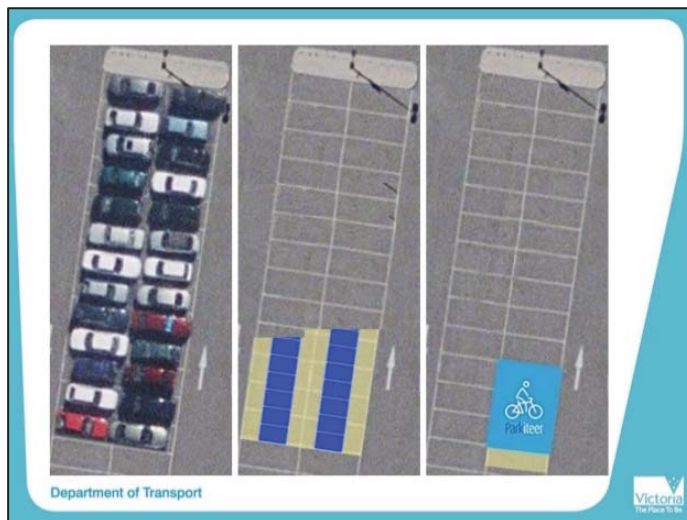


Source: *The Guardian*⁵⁸

Parking systems: Bicycle lockers

The use of bicycle lockers has declined sharply since 2004, the period the Clause has been in force. Bicycle lockers only serve one user, cost more per bicycle parked and have a higher opportunity cost in that they use space less efficiently than other systems. For these reasons rails (and other systems) inside cages are preferred to bicycle lockers. Figure 36 below shows the space taken up by parking for 26 people in cars, in individual bicycle lockers and in a shared cage.

Figure 36: Footprint of 26 car parks, 26 bicycle lockers and a 26-rail cage.



Source: *Department of Transport, Victoria*⁵⁹

It may be appropriate to reduce the emphasis in the Clause on bicycle lockers while still allowing them to be used.

The 'locker' concept is relevant in residential uses. Residents, including those who do not use bicycles, would derive multiple benefits from a general-purpose storage locker that can park a bicycle see Figure 37 below.

It may be appropriate to exchange the requirement for a ‘bicycle locker’ with a ‘storage locker’ for residents that met the design standards for a bicycle space by allowing the bicycle to be easily available for use.

Figure 37: General-purpose storage lockers in Mountain View, California



Source: Jim Doyle of Applied Photography⁶⁰

Ideally, this residential locker would be multi-purpose and typically be larger than a standard bicycle locker, which is usually only waist high and may have a triangular shape such as that shown in Figure 38 below.

Figure 38: A typical bicycle locker



Source: Arba bicycle locker⁶¹

Parking systems: Security

The first requirement of bicycle security is that the parking system allows people to lock their bicycle to it with a standard D-lock or typical bicycle locking cable. This ensures that the primary responsibility for security rests with the user.

In some situations, at an office behind a staffed car park security entrance or a card-only access door, this first level of security may be all that is necessary.

It may be appropriate to change the Clause to reflect these two considerations and allow workplaces and residences to meet the Clause by providing ‘regulars’ with lock-to rails behind a

security 'wall'. This would reduce infrastructure costs, avoid administration of a 'second' door and increase the convenience of access.

Where the security to a car park was less secure, behind a boom gate for example, then a cage would be necessary. In these situations, the term 'secure' for the compound or cage may be more appropriate than 'lockable'.

Parking systems: location

The Clause requires that 'a bicycle space for a visitor, shopper or student must be provided at a bicycle rail' but does not define where this rail is.

In general, long-term parking by regulars such as residents or employees is provided within the building envelope. Short-term visitor parking is provided outside. This is partly because allowing general access would compromise building security. In general, provision of visitor parking is left to local government to provide on the City's footpath, open space and kerbside land.

The Royal Melbourne Hospital and RMIT are examples of two sites in the City where on-street bicycle parking is at a high level.

This use of space can be in conflict with other uses.

Considering that the recovery of public space from motorcycle and bicycle parking is one of the aims of a future amendment, this element of the amendment will need to be considered carefully. It may be appropriate to define the provision of visitor parking more precisely:

- Inside the building envelope
- Inside the perimeter of the land but not necessarily inside the building
- By installing parking by agreement with the Council on land abutting the development.
- By providing funds to the City to install parking on land abutting the development

Amenities: Showers and change rooms

Showers and change rooms are required under the Clause in residential uses where they are not needed. It may be appropriate to amend these requirements.

Amenities: Personal lockers and ventilation or drying areas

Personal or 'gym' style lockers are an important amenity that complement showers and change rooms but are not required by the Clause. See Figure 39 below.

Drying rooms or areas of high ventilation are necessary in many situations, especially offices, and in all climates in Australia. It may be appropriate to include these elements in the Clause.

Figure 39: Keyless clothes lockers

Source: *Elite Deep Cleaners*⁶²

7.3.6. Varying the Design Standards

The elements noted in the section above are supported by design standards listed in Table 28 below:

Table 28: Design Standards in Clause 52.34 (Bicycle)

ELEMENT	DESIGN STANDARD	COMMENT
Access		
Rideable access to building	Be located to provide convenient access from surrounding bicycle routes and main building entrances	Vague. Could be covered by Distance/Gradient below
Directional signage	0.3m wide by 0.45m high White bicycle on blue background on the top half of the sign Display direction information on the bottom half	Other signage may also be appropriate – see above
Rideable access to parking facility	Be located to allow a bicycle to be ridden to within 30m of bicycle parking space	Users should be able to ride to the parking area except in exceptional circumstances
Risk and access for other users	Not cause a hazard. Not interfere with reasonable access to doorways, loading areas, access covers, furniture, services and infrastructure	Current clause is appropriate
Location of compounds & lockers	Be located to provide convenient access to other bicycle facilities including showers and change rooms	The parking area should abut the amenities except in exceptional circumstances
Location (rails)	Personal security is also enhanced by this requirement	Personal security is also enhanced by this requirement
Distance, gradient to parking station/area <i>(not currently included)</i>	As short a distance as possible	Ideally without ramps

ELEMENT	DESIGN STANDARD	COMMENT
Parking Structures		
Security for compounds & lockers	Fully enclosed & able to be locked	'Secure' and 'cage' may be more appropriate terms
Entrance width <i>(not currently included)</i>		1.5m effective 1.0m minimum
Internal corridors in a parking layout	Internal access path of at least 1.5m in width	2.2m effective corridor width 1.5m minimum
Parking Systems		
Dimensions of a bicycle space	Minimum dimensions of 1.7 metres in length, 1.2 metres in height and 0.7 metres in width at the handlebars	Effective centres need to be 1.0m Width can be varied for some wall-mounted rails
Dimensions of a rail <i>(not included)</i>	Usually 0.9m long (seat post to handlebar stem) and 0.75m high (top tube)	These dimensions reduce the chance that the bicycle will tilt, pivot or fall and allow locking of the frame and wheels
Setbacks <i>(not included)</i>	Parking rails are usually fixed on one-metre centres	A parking space (or the last rail in a row) needs to be set back from a wall or other fixed object. This is usually by 0.5m from the rail
Clearance overhead <i>(not included)</i>	Overhead clearance is usually at least 2.2m	If the space is to allow for potential repurposing it needs to be at least 2.5m from floor to ceiling
Ease of access	Be located to allow easy access to park, lock and remove the bicycle	See rail, space and corridor dimensions
Ease of locking (bicycle rail)	Be of a shape that allows a cyclist to easily lock the bicycle frame and wheels	This is inadequate in the current Clause
Ease of use	Include wall or floor rails for bicycle parking	
Securely mounted (Bicycle rail)	Be securely fixed to a wall or to the floor or ground	Parking systems are subject to significant load Anchoring systems need to be appropriate
Bicycle locker dimension	A bicycle locker must provide a bicycle parking space for at least one bicycle	
Heavy lifting <i>(not included)</i>		Heavy lifting must be avoided
Amenities		
Lighting	Be adequately lit during periods of use	'Adequate' is an inadequate term. Clause 52.06 (Car Parking): 'Car parking must be well lit'
Weather protection (Compounds and lockers)	'If outside will provide protection from the weather.' 'Provide weather protection for the bicycle'	This requirement does not include the user
Showers	Not defined	Adequate as unambiguous

ELEMENT	DESIGN STANDARD	COMMENT
Change Rooms	Not defined	Adequate as unambiguous
Ventilation		Area and equipment need to have appropriate capacity and capability for the number of users
Personal lockers		Need to be large enough to store work clothes on a hanger

Source: PBA

Access: Distance/gradient

It is important that the distance from the entrance to the parking area or parking cage is as short as possible. Ground floor locations are preferred. Each ramp (up or down) reduces the convenience and attractiveness of the mode.

Access: Rideable

It is important the users are able to ride to the parking area except in exceptional circumstances. 10m is the maximum 'walking distance' that should be permitted.

Access: Location

The parking area should be close to the amenities, such as showers, and the destination, which might be a lift.

Parking structure: entrance

It is important that the door to a secure parking structure is 1.5m wide. 1.0m is the minimum acceptable. This width applies also to multi-use storage cages in residential buildings.

Parking structure: corridors

The Clause requires a minimum of 1.0m. This is the absolute minimum acceptable from a safety perspective and should be increased to desirable width of 1.5m with an absolute minimum of 1.5m.

Parking systems: 'bicycle space' dimensions

Effective parking can be defined as the user being able to securely lock or unlock the frame of their bicycle to a parking system without having to touch or move any of the other parked bicycles. To achieve this low risk, low damage standard of convenience, certain minimum dimensions must be required.

The Clause describes these minimum dimensions using the concept of a 'bicycle space'.

The Clause requires an appropriate length – 1.7m

The required centres are too narrow (0.7m) to allow locking and should be increased to 1.0m. The centres can be reduced for wall mounted rails see below.

The defined space does not include headroom or setbacks from walls and other objects such as pillars:

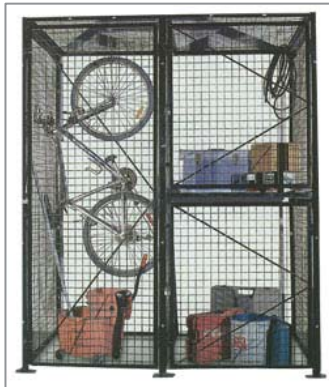
- A parking space (or the last rail in a row) needs to be set back from a wall or other fixed object. This is usually by 0.5m from the rail or 0.125m from the 'space' (Half the handlebar allowance [$0.375\text{m} + 0.125 = 0.5\text{m}$])
- Overhead clearance is usually at least 2.2m. If the space is to allow for potential repurposing the floor to ceiling height needs to be at least 2.5m from floor to ceiling.

It may be appropriate to add or switch to a rail-based design standard based on a standard parking rail, such as:

- Usually 0.9m long (seat post to handlebar stem) and 0.75m high (top tube). These dimensions reduce the chance that the bicycle will tilt, pivot or fall and allow locking of the frame and wheels.
- Setbacks: Parking rails are usually fixed on one-metre centres. A parking space (or the last rail in a row) needs to be set back from a wall or other fixed object. This is usually by 0.5m from the rail.
- Overhead clearance is usually at least 2.2m. If the space is to allow for potential repurposing it needs to be at least 2.5m from floor to ceiling

It is important that if bicycles are parked in lockers that the dimensions of bicycle parking are maintained. Figure 40 shows a bicycle being stored but it is not being ‘parked’ in a convenient and accessible way. This example could actually be dangerous for someone trying to get the bicycle out of the storage cage.

Figure 40: A residential storage cage that does not provide bicycle parking



Source: Stromberg Products⁶³

Wall mounted rails

These dimensions can be varied for wall-mounted rails where the heights are offset, for example:

- Rails installed in a offset formation by 0.3m are effective at 0.45m centres
- The rails should be mounted so that the front wheel is no less than 0.2m from the ceiling and the rear wheel no more than 0.3m from the floor
- A 2.7m space back from the wall needs to be allowed.

Anchoring

Parking systems are subject to significant load. It is difficult to set design standards for anchoring as surfaces vary and there are a number of effective techniques including wedge anchors, expansion bolts and chemical anchors. These methods could be included in the decision guidelines below.

Heavy lifting

It is important that people with heavy bicycles or people who are not confident or able to lift their bicycle have ground mounted parking options. The Clause requires that a bicycle compound ‘must include wall or floor rails for bicycle parking’. This needs to be amended to ensure that a minimum number of ground-mounted rails are available. Some double-decker racks require inappropriate heavy lifting to get the bicycle on the top rack. These systems should be discouraged or disallowed.

Weather

The weather protection in the Clause is required for the bicycle but not for the user accessing the compound or getting to and from the parking station or compound. Nor is the 'weather' defined as wind, rain, heat or all of the above. Since the purpose of the Clause is to 'encourage', it may be appropriate to strengthen this requirement.

Lighting

'Adequate' lighting is required – a lower standard than that in Clause 52.06 (Car Parking). The purpose of the lighting provision is to reinforce proximity and weather requirements and ensure that the bicycle parking provided can be confidently used for example by a woman coming off a late shift. It may be appropriate to include a high-level performance requirement in the Clause that links these three elements.

7.3.7. Varying the Decision Guidelines

Clause 52.34 (Bicycle) provides guidance to the responsible authority in Decision Guidelines. These are listed in the Table 29 below:

Table 29: Decision Guidelines in Clause 52.34 (Bicycle)

GUIDELINES	SUMMARY	COMMENT
1. Whether the proposed number, location and design of bicycle facilities meets the purpose of this clause	Number, location, design	This could be broken up into a series of questions and other criteria added
2. The location of the proposed land use and the distance a cyclist would need to travel to reach the land	What is the setting?	The City of Melbourne riding catchment of 7km noted above in Strategic Context may be appropriate here
3. The users of the land and their opportunities for bicycle travel	Would anyone ride there?	Is this an exception to the use category? Either higher or lower?
4. Whether showers and change rooms provided on the land for users other than cyclists are available to cyclists	Can they use existing showers?	
5. The opportunities for sharing of bicycle facilities by multiple uses, either because of variation of bicycle parking demand over time or because of efficiencies gained from the consolidation of shared bicycle facilities	Is there already parking in place that this use can share?	Shared and/or off site car parking has many benefits. However since proximity is so important to the encouragement of bicycle trips this seems inappropriate
6. Australian Standard AS 2890.3 1993 Parking facilities Part 3: Bicycle parking facilities	Twenty three year old Standard	This Standard is under review. The Clause may wish to set higher standards.
7. Any relevant bicycle parking strategy or equivalent	What does the municipal bicycle strategy say about parking?	

Source: PBA

Guideline 1: Purpose

The Guideline checks whether the proposed development is consistent with the purpose of the Clause, which is ‘to encourage cycling as a mode of transport’. This could perhaps be broken down into questions that would be relevant across the State:

- Has the plan or design submitted identified the bicycle parking area in a convenient and easily accessible area of the building?
- Will it be easy to ride to the parking area?
- Is the number of spaces proposed adequate to support all the uses within the development?
- Will the area be secure, either in a cage or behind building security?
- Has the parking been laid out so that people can conveniently park their bicycles?
- Will the ambience be supportive of 24-hour use of the facility?
- Does the parking area abut the amenities and the destination?
- Are the amenities proposed appropriate to the building use and scale of the proposed parking?

Guideline 2 and 3: Location and users

These Guidelines offer the responsible authority the chance to permit changes to the requirements of the Clause.

Uses of land that are unlikely to attract bicycle use have been excluded from the Clause and, in the City of Melbourne’s case, the location of the land will always be supportive of bicycle travel. These two factors could be combined in a Guideline that could perhaps say:

- Are there any reasons related to the users of the land or the location of the land that suggest that the requirements of the Clause should be reduced?
- Are there any reasons to request a higher level of provision than is required by the Clause? (Note that in the inner 10km of the metropolitan area, the level of current and potential bicycle riding is likely to be higher than in other areas.)

Guideline 4: Existing showers

This Guideline offers the responsible authority the discretion to allow existing showers in a building to be included in a calculation of provision. As showers are expensive and are only likely to be used for a short period by a subset of the users such as longer distance riders and people who take lunchtime physical activity, this question is appropriate.

The Guideline could perhaps say: *“The adequacy of showers (to encourage cycling as a mode of transport) given due consideration to the number of showers already available to bicycle users on the land and the number of showers proposed in the development”*

Guideline 5: Shared parking

This Guideline offers the responsible authority the discretion to allow for shared parking. This principle is perhaps derived from on-street car parking where for example daytime shoppers and night-time restaurant patrons can use the same spaces.

Shared off- street bicycle parking occurs inside a security wall on the rail system. In the Parkiteer cages access to 26 spaces can be permitted to up to seventy people when the users do not use the cage at the same time. The variation in demand occurs through only riding to the station a couple of times a week and only using the train to get to the football for example. This exemplifies the efficiencies of consolidation that can be gained when demand varies over time.

However, these cages are on public land. The principle is unlikely to apply to parking inside a building behind a security wall.

Even inside a single building, it is normal for workplace tenants to subdivide a ‘shared’ bicycle space as this removes any ambiguity over responsibility for theft or maintenance for example.

Body corporates are unlikely to allow non-tenants in to use parking. However one workplace or one body corporate operating over two adjacent buildings may consolidate the parking in one building.

Proximity is an important principle in the encouragement of bicycle trips. Bike riders strongly prefer door-to-door service and will drop the mode rather than park remotely. Experience suggest that remotely can be defined as a distance greater than 200m. This is in contrast to car users who, in the City of Melbourne context, are happy to park at the Victoria Market and walk a couple of blocks to work.

It is therefore recommended that this Guideline be removed.

Guideline 6: Australian Standard

The Australian Standard is being reviewed. The discussion and recommendations in this report are broadly consistent with the current draft of the proposed Standard.

Guideline 7: Relevant bicycle parking strategy

This Guideline offers the responsible authority the discretion to consider Commonwealth, State or local bicycle strategies.

Unfortunately, these strategies offer little guidance to the responsible authority.

Commonwealth strategies

The National Cycling Strategy 2011-16 is a non-binding set of priorities including:

- Asking ‘policy-makers to work with employers to develop cyclist-friendly workplace facilities and projects’.
- Calling on State, Territory and Local governments ‘to ensure that all land use planning and infrastructure strategy documents take into account active transport needs. The aim of this approach is to not only improve transport efficiency, accessibility and choice, but also to promote healthy living and sustainable communities’.

State strategies

The current version of *Plan Melbourne* does not mention bicycle parking, emphasising the development of bicycle corridors and links. The integration of active transport and land use decisions is supported in general statements:

- Initiative 3.1.5 Support walking and cycling in central Melbourne
- Amend the Precinct Structure Planning Guidelines to better plan for children and families in new suburbs to ride bikes locally, and particularly to schools.
- Enhance Precinct Structure Planning Guidelines to ensure that walking and cycling are promoted in the design of new suburbs.

Plan Melbourne refers to *Cycling into the future 2013–23*, the State bicycle plan. This plan refers to bicycle parking by referencing the Clause under consideration.

The City of Melbourne *Bicycle Plan 2012–16* commits to ‘increasing bicycle parking throughout the municipality and working with peak groups and businesses to improve end-of-trip facilities to encourage more people to cycle to work’.

The City of Melbourne has an opportunity to develop local guidance in its revision of the Bicycle Plan that is currently underway and in future structure plans that it develops.

8. Bicycle Clause amendments

This section describes in detail the proposed changes to 52.34 Bicycle Facilities.

The proposed changes bring together consideration of:

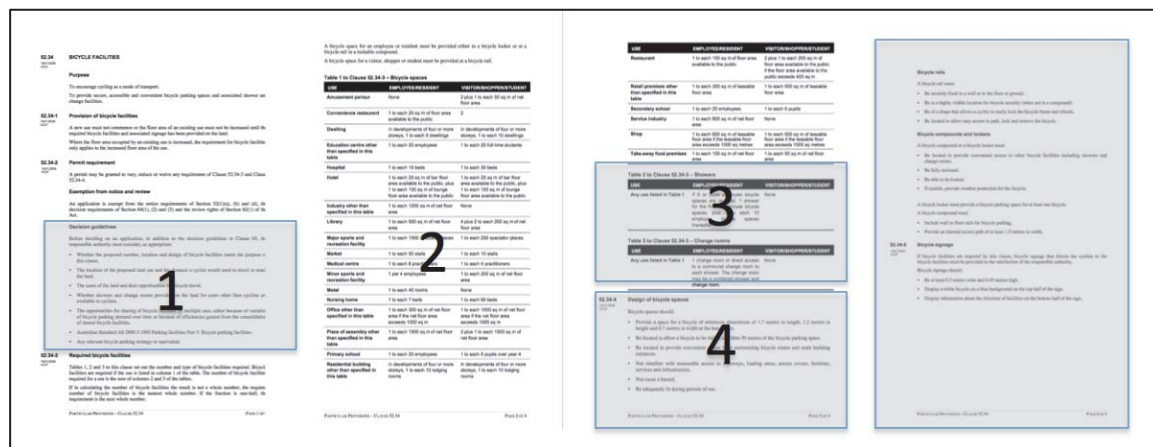
- The immediate aim of the project to reduce the parking pressure on space outside buildings
- The results from the on-site and on-line surveys
- The strategic context described in City of Melbourne plans
- The consideration of possible amendments to the Clause

No changes are recommended to the Purpose or Clauses 52.34-1 or Clause 52.34-2.

Figure 32 shows the four sections in which changes are recommended:

- The Decision Guidelines
- Table 1: the rates and ratios for the defined uses
- The requirements for showers and lockers
- The Design Guidelines

Figure 41: An overview of Clause 52.34.3 – Bicycle spaces



Source: Melbourne Planning Scheme with PBA Analysis

These recommendations are based on the assumption that:

- The Clause will continue to apply to all of Victoria
- The Clause will require rates that are appropriate for the City of Melbourne
- Responsible authorities will allow partial or complete waivers when the rates in the Clause are not appropriate.

This is the most appropriate approach because it provides the greatest level of certainty for all stakeholders (including developers, designers and the community) and is the same manner in which the car parking requirements apply with Responsible Authorities providing dispensation (or waivers) as appropriate.

If there were insufficient support for the proposed changes Clause to apply to the whole State, the recommended changes would be a suitable basis for a local schedule that municipalities, including the City of Melbourne, could request be added to the Clause. In this situation it is recommended that any revised requirement would apply to the whole municipality.

8.1. RECOMMENDED DECISION GUIDELINES

A wide range of deficiencies in the Decisions Guidelines have been noted through the course of this project. Collectively these deficiencies lead to inadequate and unsafe provision of bicycle facilities. The Decision Guidelines in Clause 52.34-2 are easy to improve, through more explicit language. The following Decision Guidelines are recommended for inclusion into the VPP.

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

Strategic context

- *The location of the proposed land use and the distance a cyclist would need to travel to reach the land.*
- *The users of the land and their opportunities for bicycle travel.*
Are there any reasons to request a higher level of provision than is required by the Clause? Examples include within the inner 10km of the Melbourne metropolitan area, and in regional centres that are forecasting population growth – as traffic congestion will increase unless more trips are completed by bicycle.
- *Are there any reasons related to the users of the land or the location of the land that suggest that the requirements of the Clause should be reduced or waived?*
- *Any there any relevant strategic or other plans, especially those relating to transport, that would support the provision of bicycle facilities?*

Proposed level of provision

- *Whether the proposed number, location and design of bicycle facilities meets the purpose of this clause.*
- *Has the plan or design submitted identified the bicycle parking area in a convenient and easily accessible area of the building?*
- *Will it be easy to ride to the parking area?*
- *Considering all the uses in the development, is the number of spaces proposed adequate?*
- *Are the amenities proposed appropriate to the building use and scale of the proposed use?*

Infrastructure design

- *Will the area be secure, either in a cage or behind building security?*
- *Has the parking been laid out so that people can conveniently park their bicycles?*
- *Will the ambience be supportive of 24-hour use of the facility?*
- *Does the parking area about the amenities and the destination?*
- *Considering the showers already available to bicycle users on the land and the number of showers proposed in the development will there be adequate showers to encourage cycling as a mode of transport?*
- *Could the bicycle riders use showers and change rooms provided on the land for users other than cyclists?*

Relevant references:

- *Australian Standard AS 2890.3 1993 Parking facilities Part 3: Bicycle parking facilities.*
- *AS1742 Manual of uniform traffic control devices 1742.9 Part 9: Bicycle facilities*
1742.11 Part 11: Parking controls
- *AS/NZS1158 Lighting for roads and public spaces 1158.3.1 Part 3.1: Pedestrian area (Category P)*
lighting—Performance and design requirements
- *1428 Design for access and mobility, 1428.4.1 Part 4.1: Means to assist the orientation of people with*
vision impairment— Tactile ground surface indicators
- *2890 Parking facilities 2890.6 Part 6: Off-street parking for people with disabilities*
- *Cycling Aspects of Austroads Guides (2014).*

8.2. RECOMMENDED BICYCLE FACILITY REQUIREMENTS

Clause 52.34-3 provides the requirements for bicycle facilities based on the types of use being proposed in a development. The clause consists of three tables related to:

- Bicycle Space Requirements
- Shower Requirements
- Change Room Requirements

These are discussed below, with recommendations at the end of each sub-section.

8.2.1. Recommended Bicycle Space Requirements (Table 1)

Clause 52.34-3 Bicycle Facilities contains Table 1 – Bicycle spaces. This table has the following functions:

- Defines the Uses to which the Clause applies
- Specifies any minimum provisions that apply to that use – visitor parking rates for example
- Sets the basis of the assessment for example floor area, beds or dwellings
- Sets the ratio of bicycle spaces to the basis of assessment for two categories of use: employee/resident and visitor/shopper/student

As an example Figure 42 below shows that for the Use ‘amusement parlour’ (amongst others). The table outlines that:

- Ratio per employee or resident is zero
- Minimum provision is 2 visitor parking spaces
- Basis of assessment is net floor area (NFA)
- Ratio for visitor/shopper/student is 1 to 50sqm of NFA

Figure 42: Sample of Table 1 to Clause 52.34.3 – Bicycle spaces

Table 1 to Clause 52.34-3 – Bicycle spaces		
USE	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Amusement parlour	None	2 plus 1 to each 50 sq m of net floor area
Convenience restaurant	1 to each 25 sq m of floor area available to the public	2
Dwelling	In developments of four or more storeys, 1 to each 5 dwellings	In developments of four or more storeys, 1 to each 10 dwellings
Education centre other than specified in this table	1 to each 20 employees	1 to each 20 full-time students

Source: Clause 52.34 Bicycle Facilities

The requirements of the entire table 1 have been reviewed as follows:

- The list of uses defined in Clause 74 have been considered including those introduced since 2004. Where appropriate these uses have been introduced into the recommended Clause.
- The uses in the current Clause 52.34 have been reviewed against the Clause 75 Nesting

Diagrams to identify any uses that need to be higher in the hierarchy of uses in the revised Clause.

- The various floor area criteria have been translated into 'per 100sqm NFA'. To match the approach in 52.06 (Car Parking). The current Amusement parlour use for example is 0.5 per 100sqm NFA
- Where possible and appropriate, the basis of assessment has been changed from people to NFA as this reduces ambiguity and uncertainty about requirements for the proponent and the responsible authority.
- It has been assumed that 'one person' can be translated into NFA at a rate of 1: 20sqm. This is a generous assessment as most office workers are in practice allocated less than that rate. This therefore underestimates the number of people per square metre and dilutes any requirement for bicycle parking. The recommendation of one bicycle parking space for 100sqm suggests that 1 in ten people have come by bicycle. This is lower than the mode split assumption of 25% noted below.
- Visitor requirements have been matched to the use and rounded to multiples of 2 on the assumption that the minimum provision is a bicycle parking rail that parks 2 bicycles.
- All the Uses in Table 1 have been compared to 25% of the 52.06 Car Parking Clause on the basis that this gives an indication of the parking required for bicycles if there is a bicycle trip for every 4 car trips or a mode share of 25%.
- For dwellings and other accommodation the definition 'each one bedroom in a dwelling (with studies or studios that are separate rooms counted as a bedroom)' has been adopted from 52.06 Car Parking.

A sample of the detailed review of each use is shown in Table 30 below. The table shows each step of the review. The detailed review of each use can be seen in Appendix F: Use by use review

Table 30: Use by use review sample: Dwellings

	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Current	In developments of four or more storeys, 1 to each 5 dwellings	In developments of four or more storeys, 1 to each 10 dwellings
Changed to 100sqm base & applied 25% mode share	0.25 for each one or two bedroom dwelling 0.5 for each three or more bedroom dwelling (with studies or studios that are separate rooms counted as a bedroom)	0.25 for every 5 dwellings in developments of 5 or more dwellings
Proposed change	1 to each one bedroom dwelling	2 for each 5 dwellings (or part thereof)

Source: PBA Analysis

A summary of this review is shown in the tables below. 'OTS' refers to 'other than specified in this table'. There are two recommended changes to the uses to which the bicycle provisions should apply as shown in Table 31 below.

Table 31: Recommended changes to Uses

FOCUS	NUMBER AFFECTED	USE
Include new use	11	Various
Elevate Category	1	Residential Building OTS to Accommodation

Source: PBA Analysis

There are several recommended changes to the rates of facility provision for employees and residents as shown in Table 32 below.

Table 32: Recommended changes to rates for employee/resident

FOCUS	ACTION	USES AFFECTED	USES
Exemption	Remove exemption	3	Dwelling, Residential building OTS, Office OTS, Shop
Rate	Change basis of assessment	14	Education centre, Primary School, Secondary School, Hospital, Nursing Home, Market, Medical centre, Minor sports and recreation facility, Residential building OTS, Hotel, Restaurant, Retail, Shop
	Introduce requirement	2	Amusement Parlour, Child care
	Increase requirement	18	Dwelling, Education centre, Primary School, Secondary School, Hospital, Industry OTS, Library, Major sports and recreation facility, Market, Medical centre, Minor sports and recreation facility, Nursing home, Office OTS, Place of assembly, Residential buildings OTS, Retail, Service Industry, Shop
	Maintain current requirement	3	Restaurant, Motel, Take away food area,
	Reduce current requirement	2	Hotel, Convenience restaurant

Source: PBA Analysis

There are several recommended changes to rates of bicycle facility provision for shoppers, students and visitors as shown in Table 33 below.

Table 33: Recommended rates for visitor/shopper/student

FOCUS	ACTION	USES AFFECTED	USES
Exemption	Remove	2	Dwellings, Restaurant
Minimum rate	Introduce	17	Major sports and recreation facility, Child care, Education centre, Primary School, Secondary School, Hospital, Hotel, Market, Minor sports and recreation facility, Nursing home, Amusement Parlour, Industry OTS, Office, Retail, Service industry, Shop, Take away food.
	Increase minimum	5	Library, Place of assembly, Amusement Parlour, Convenience Restaurant, Restaurant
Rate	Change basis of assessment	9	Education centre, Primary School, Secondary School, Hospital, Nursing Home, Medical centre, Hotel, Restaurant, Shop
	Change basis of assessment	16	Dwelling, Residential building, Education centre, Primary School, Secondary School, Hospital, Major sports and recreation facility, Market, Medical centre, Minor sports and recreation facility, Nursing home, Office OTS, Place of assembly, Restaurant, Retail, Shop,
	Introduce requirement	2	Child care, Convenience restaurant,
	Increase requirement	2	Motel, Library
	Maintain current requirement	2	Amusement Parlour, Take away food, Hotel

Source: PBA Analysis

These changes can be summarised in a table in the format of the Clause see Table 34 below.

Table 34: Recommended Table 1 to Clause 52.34-3 – Bicycle spaces

USE	EMPLOYEE/ RESIDENT	VISITOR/ SHOPPER/ STUDENT
Accommodation other than specified in this table	1.0 to each one bedroom in a dwelling (with studies or studios that are separate rooms counted as a bedroom)	2 for every 5 dwellings
Major sports and recreation facility	1 to each 100sq m NFA	50 plus 1 for every 100 spectator places

USE	EMPLOYEE/ RESIDENT	VISITOR/ SHOPPER/ STUDENT
Industry other than specified in this table	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
Motel	1 to each 40 rooms	
Child care Education centre Hospital Hotel Market Medical centre Minor sports and recreation facility Nursing home Place of assembly other than specified in this table	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Food and Drink Premises other than specified in this table Office other than specified in this table Retail premises other than specified in this table Service industry Shop other than specified in this table	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA

Source: PBA

Impact on the on-site sample

The recommended changes in the table have been modelled using the data from the sample (92 out of 724 developments). Buildings under 4 storeys and/or less than 2,000 Gross Floor Area (GFA) were removed from the sample.

When the impact is modelled on the 90 building sample an additional twenty four thousand bicycle parking spaces would have been provided over eleven years – an average of 2,200 each year or an average of two-dozen spaces in each building each year. Another way of looking at it is that each building would have been required to install 266 additional spaces.

Table 35 shows the recommended rates against the current requirements and the actual number of parking spaces observed.

Table 35: Recommended rates compared to sample

	CURRENT REQUIREMENT	ACTUAL	PROPOSED TOTAL	FOR VISITORS, SHOPPERS & STUDENTS	FOR EMPLOYEES & RESIDENTS
Dwelling	1,707	1,998	13,430	2,264	11,166
Education	2,980	397	5,152	2,628	2,524
Office	2,083	3,034	9,212	4,688	4,524
Retail	484	47	1,744	922	822
Total	7,254	5,466	29,538	10,502	19,036

Source: PBA Analysis

The 50 year life-cycle of a development also needs to be taken into account. The growth forecasts for mode share and total growth in activity within the City of Melbourne imply that over 50 years a ten fold increase in bicycle use could be possible.

The total of the recommended requirements is therefore compared with the number of bicycles observed in the survey multiplied by 10 as shown in Table 36 below. The large discrepancy in the Retail use reflects the small number of Retail uses in the sample and the current levels of provision and use.

Table 36: Recommended rates compare to current observed bicycles multiplied by ten

	PROPOSED TOTAL	POTENTIAL DEMAND IN 50 YEARS
Dwelling	13,430	10,084
Education	5,152	2,000
Office	9,212	11,090
Retail	1,744	60
Total	29,538	23,990

Source: PBA Analysis

Table 37 shows actual provision against the recommended rates and the scale of change proposed. As noted the Retail sample is small.

The table shows that residents, employees and visitors to employment are the main targets rather than shoppers or students.

Table 37: Recommended rates compare to current actual

	ACTUAL	PROPOSED TOTAL	WHO BENEFITS?	DEGREE OF CHANGE
Dwelling	1,998	13,430	Mainly residents	Seven times more
Education	397	5,152	Mainly employees	Thirteen times more
Office	3,034	9,212	Mainly visitors	Three times more
Retail	47	1,744	Mainly employees	Thirty seven times more
Total	5,466	29,538		Five times more

Source: PBA Analysis

8.2.2. Recommended Shower Requirements (Table 2)

Table 2 in 52.34-3 Bicycle Facilities specifies shower requirements.

Showers are not necessary for all cyclists (or land uses) – as the current Clause requires. Dwellings for example do not require separate showers for bicycle users. The Clause allows for this by noting in the Decision Guidelines: ‘Whether showers and change rooms provided on the land for users other than cyclists are available to cyclists’.

Nor are showers needed for all bicycle trips. Riders with short trips (less than 5km) can usually reach their destination in adverse conditions and ride at an intensity that means they do not need a shower.

That said, showers and change facilities do, in general, increase the number of people who choose to ride. People who live further away, riders facing adverse weather and work cultures with formal dress codes are all supported by showers and changing facilities. As noted above, the City of Melbourne has a strategic bicycle catchment of 7km. Most if not all of the riders from the edge of this catchment will expect to be able to have a shower before work or study. Melbourne Bike Scope surveys in 2010 found that 88 per cent of respondents had access to showers at their workplace. This was an increase from 82 per cent in 2008.

There is some risk in overprovision. Showers are expensive to include in a building or change of use. Any showers that are required will be unused for much of the day – even if people in their lunchbreak use them after jogging for example. Showers also have associated operational and maintenance costs. It is also understood that waiting for a shower does not significantly reduce employees’ willingness to cycle. Rather it is the provision of a shower in the first place that makes cycling more attractive for employees.

The current requirements for Table 2 (in the Clause) are shown in Table 38 below.

Table 38: Table 2 to Clause 52.34-3 Showers

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

Source: PBA Analysis

The current Clause requires a shower in an Office if:

- The floor area is greater than 1,000sqm; and
- There are 5 bicycle parking spaces required

Five bicycle spaces are required in the Office use at 1,600sqm of office space. This might represent 80 staff at 20sqm per person but possibly as many as 160 in a modern workplace. The current provision requirement rate represents a mode share of 3%-6%.

The recommended changes to the Office use remove the minimum floor area requirement and triple the rate per square metre for bicycle provision. Under the proposed changes the Office of 1,600sqm would need to provide 32 bicycle spaces (providing for future mode share of 20%-40% depending on the number of people per square metre).

On this basis it is recommended that the shower requirement be based on 20 bicycle spaces (rather than 5 or more) and that the subsequent shower rate be based on increments of 10 spaces. This would mean at the 1,600sqm office there would be two showers (20+10 bicycle parking spaces). Visitor parking would continue to be excluded from the calculation for showers.

This requirement would apply to all uses with employees or adult students likely to travel more than 5km as shown in Table 39 below. Places with showers, such as minor sports and recreation facilities, would be exempt from the requirement provided that bicycle parking and access enable the staff to use shower facilities provided for general users of the facility.

Table 39: Recommended Uses required to provide showers

USE	SHOWER AND LOCKER USERS
Hospital	Employees
Industry OTS	Employees
Library	Employees
Major sports and recreation facility	Employees
Nursing home	Employees
Office OTS	Employees
Retail premises OTS	Employees
Education centre OTS	Employees/ Students
Secondary school	Employees

USE	SHOWER AND LOCKER USERS
Primary school	Employees
Service industry	Employees

Source: PBA Analysis

The recommended requirements for Table 2 (in the Clause) are shown in Table 40 below.

Table 40: Table 2 to Clause 52.34-3 Showers

USE	EMPLOYEE/ RESIDENT	VISITOR/ SHOPPER/ STUDENT
Education centre other than specified in this table	If 20 or more employee bicycle spaces are required, 1 shower for the first 20 employee bicycle spaces, plus 1 to each 10 employee bicycle spaces thereafter.	None
Hospital		
Industry other than specified in this table		
Library		
Major sports and recreation facility		
Nursing home		
Office other than specified in this table		
Retail premises other than specified in this table		
Service industry		

Source: PBA Analysis

8.2.3. Recommended Change Room Requirements (Table 3)

Table 3 (in the Clause) specifies change room requirements in 52.34-3 Bicycle Facilities. The current code is shown in Table 41 below.

Table 41: Table 3 to Clause 52.34-3 Change room and personal lockers

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

Source: PBA Analysis

The current code is silent on personal lockers. This omission can be addressed in a revised code. The list above of Uses where showers are relevant can also be used for lockers. It is recommended that for each of these uses a personal locker be provided with each bicycle parking space for employees or students.

When a small number of shower and change rooms are required these can be separately located – consistent with the convenience requirements of the Clause.

At a certain scale it is space efficient to consolidate the lockers, change area and showers. The most effective layout provides men and women with a shared bank of personal lockers adjacent to a series of shower-and-change cubicles. This unisex system maintains privacy while maximising access to a fixed number of showers. Providing two areas is more expensive and there will be

situations when there are queues in one area and idle showers in the other. This issue is discussed further in the recommended Design Guidelines

It is recommended that Table 3 in Clause 52.34-3 be modified as shown in Table 42 below:

Table 42: Table 3 to Clause 52.34-3 Change Rooms

USE	EMPLOYEE/ RESIDENT	VISITOR/ SHOPPER/ STUDENT
Any use listed in Table 2	<p>If 20 or more employee bicycle spaces are required, personal lockers are to be provided with each bicycle space required.</p> <p>If more than two showers are required – more than 30 bicycle spaces – then a change room must be provided with direct access to each shower. The change room may be a combined shower and change room.</p>	None

Source: PBA Analysis

8.3. RECOMMENDED DESIGN GUIDELINES

The current design guidelines cover a range of topics, though lack the detail required to ensure that the facilities are usable and appropriate. This creates additional cost for proponents as they need to research about issues that may be unfamiliar, when a set of standard dimensions and approaches would better meet user needs.

It is recommended that the Design Guidelines be revised and presented in the following categories:

- Functional and efficient parking systems
- Convenient and attractive access
- High security
- Low risk

Parking provision that meets these criteria will support the aim of the Clause to encourage cycling as a mode of transport.

It is recommended that functional design be covered in the manner shown in Table 43 below.

Table 43: Functional and efficient parking systems

DESIGN TASK	GUIDANCE
Dimensions of a bicycle space	<p>Each space must be consistent with the 'bicycle parking envelope' that has minimum dimensions of:</p> <ul style="list-style-type: none"> • 1.7 metres in length • 1.2 metres in height • 0.7 metres in width at the handlebars. • Overhead clearance must be at least 2.2m. <p>When bicycles are parked vertically and the height of the parked bicycles is offset by 300mm, then the width of the envelope can be reduced to 500mm.</p>

DESIGN TASK	GUIDANCE
Characteristics of a parking system	The parking system must keep the bicycle vertical, stable and still. It must be easy and intuitive to use, be unlikely to cause injury or damage, suitable for commonly used bicycles, allow for appropriate locking, be durable and securely anchored to a wall or frame, or the floor or ground.

Source: PBA Analysis

It is recommended that convenient design be covered in the manner shown in Table 44 below.

Table 44: Convenient and attractive access

DESIGN TASK	GUIDANCE
Getting to the parking Area	
Rideable access into and through the building	There must be convenient and rideable access into and through the building from surrounding bicycle routes and main building entrances.
Directional signage	<p>It may be appropriate to provide wayfinding indicators. (It should be noted that wayfinding signage may compromise the principle of high security.). These could include coloured lanes or other symbols.</p> <p>If a navigation sign is used it should be at least 0.3m wide by 0.45m high with a white bicycle on blue background on the top half of the sign and direction information on the bottom half</p>
Rideable access to the parking	The user should be able to ride their bicycle to the bicycle parking space. Where possible the bicycle parking should be provided on the ground floor to avoid climbing and descending ramps. Ramp angles greater than 1:12 are unacceptable.
Close to the destination	The parking area should be located to provide convenient access to other bicycle facilities including showers and change rooms and as close as possible to the destination.
Parking the bicycle	
Door width	The door to a cage should be 1.5m wide.
Internal corridors in a parking layout	Internal corridors between parked bicycles should be at least 1.5m in width (This is also a risk mitigation strategy - RMS)

DESIGN TASK	GUIDANCE
Ease of access (bicycle rail)	The parking system must not compromise the bicycle parking space defined above. The system must be easy to use. Lockers must be large enough to park and un-park bicycles quickly and easily. (RMS)
Ease of locking	The rider must be able to easily lock the frame and a wheel to the parking system with a D-lock. (This is also a security strategy - SS)
Ease of use	At least 20% of the rails must allow the bicycle to be parked with both wheels on the ground. (RMS)
Amenities	
Weather protection	The parked bicycles, and if possible the access to and from the area, must be protected from the weather.
Lighting	The parking area must be well lit whenever it is in use. (RMS, SS)
Showers	Showers must be provided for people who are parking for a long time and have travelled to the land for more than 5km.
Change rooms	Personal lockers and a changing area must support the showers. There must be direct access from the locker area to each shower. The shower may include a changing cubicle.
Ventilation	The ventilation system may need to be designed or modified to deal with shower steam as well as drying clothes and towels.
Personal lockers	Personal lockers must be collocated with the change rooms and showers.
Electric bicycles	Power to recharge electric bicycles in the parking area may be needed in Accommodation and Dwellings but it is not necessary in workplaces.

Source: PBA Analysis

It is recommended that security design be covered in the manner shown in Table 45 below.

Table 45: High security

DESIGN TASK	GUIDANCE
Individual responsibility	The parking systems provided must allow the rider to easily lock the bicycle frame and a wheel to the parking system with a D-lock. (This is also a convenience strategy CS)
Zone security	Parking can be provided behind a no-access building security system with internal CCTV. (A parking area behind boom gates does not meet this standard).
Secure, controlled access, Multi-user cages	Parking can be provided in a fully enclosed cage. This can be provided behind zone security or in a stand-alone facility. Doors to these facilities should be self-closing and self-locking. (CS)
Secure private multi-purpose lockers.	Parking can be provided in secure private bicycle or multi-purpose lockers. The lockers must meet the 'convenience' criteria above.

Source: PBA Analysis

It is recommended that safe design be covered in the manner shown in Table 46 below.

Table 46: Low risk

DESIGN TASK	GUIDANCE
Risk for bicycle riders	The bicycle rider must not be at risk on their journey from the main building entrances to the parking area. In areas where drivers, riders and pedestrians mix, the establishment of a shared zone is recommended. (This is also a convenience strategy CS)
Risks for others in motion	Pedestrians, building staff and motorists must not be at risk from the bicycle riders on their journey from the main building entrances to the parking area.
Risk and access for other users	The bicycle route from the main building entrances to the parking area must not cause a hazard or interfere with reasonable access to doorways, fire equipment and exits, loading areas, access covers, furniture, services and infrastructure.

DESIGN TASK	GUIDANCE
Personal injury	<p>Riders must not be put at risk or personal injury by the facilities provided including:</p> <p>Swipe access must not be placed on a gradient. (CS)</p> <p>Riders on their journey from the main building entrances to the parking area or in the parking area must not be put at risk by low overhead clearances. (CS)</p> <p>People using the parking facilities must not be put at risk by the need to lift or move other bicycles. The bicycle envelope mitigates this risk. (CS)</p> <p>People using the parking facilities must not be put at risk by being required to lift their bicycle or a bicycle parking system. Vertically parked bicycles should not be more than 350mm off the ground and two-deck systems must be counterbalanced or power assisted. (CS)</p> <p>There should be no sharp edges or protrusions on the parking systems. As noted above a proportion of the parking systems should allow the bicycle to be parked with both wheels on the ground. (CS)</p>
Regulatory signs	<p>If a shared zone is established, then the appropriate regulatory signage will need to be installed.</p> <p>Fire escape, fire equipment and other standard warning signs must be in place.</p>

Source: PBA Analysis

Bicycle parking plan

It is recommended that a plan be prepared for requirements that require 20 or more bicycle spaces. This plan can be based on the Requirement for a car-parking plan in 52.06 Car Parking as follows:

When 20 or more bicycle parking spaces are required, bicycle-parking plans must be prepared to the satisfaction of the responsible authority before any of the following occurs:

- A new use commences; or
- The floor area or site area of an existing use is increased

The plans must show, as appropriate:

- All bicycle parking spaces that are proposed to be provided (whether on the land or on other land)
- Access lanes, driveways and associated works
- Allocation of bicycle parking spaces to different uses or tenancies, if applicable
- How the parking provision meets the purpose, requirements and design guidelines of the Clause

This requirement does not apply where no car parking spaces are proposed to be provided.

9. Summary of recommendations

The recommendations are specific to each mode (bicycle and motorcycle).

Motorcycle parking Clause 52.06 (Car Parking).

The report recommends that the:

- Local requirement for motorcycle parking be extended across the municipality
- Ratio be changed from 1 ‘motorcycle parking space’ for each 100 car spaces to 1 space for each 40 car spaces at uses that attract employees.
- ‘motorcycle parking space’ be defined as a standard car park that can hold up to two motorcycles
- Clause define the manner in which this space is set aside
- Decision guidelines include reference to the ‘safety and convenience of motorcycle users’ as well as ‘relevant parking strategies’

Bicycle parking Clause 52.34 (Bicycle).

The report recommends that the:

- Statewide Clause be amended (rather than the introduction of a local schedule)
- Current Purpose, Provision, Permit requirement and Exemption be retained.
- Decision Guidelines be expanded and clarified
- Requirements be based on 100m² NFA (as per Clause 52.06 (Car Parking))
- Uses to which the Clause applies be expanded
- Rates be increased for some uses (dwellings in particular) and reduced for others
- ‘shower’ requirement threshold be changed in the light of the above changes to the rates and uses
- Personal lockers be included as a requirement
- Design Guidelines be expanded and clarified (to include ‘centres’ for example)
- Clause require the preparation of a Bicycle parking plan at a certain level of provision (as per Clause 52.06 (Car Parking))

The proposed Clauses are attached in Appendix A and B.

10. Complementary initiatives

This report identifies ways in which the formal requirements of the planning provisions can be modified in order to increase the supply of bicycle and motorcycle parking in new and change of use buildings.

Looking ahead it is likely that some time will pass in the process of amending the planning scheme. There is a risk that any changes that are implemented will not have a significant impact on supply. Even if significant changes are made, it will take some time before the additional supply required will become available and there is the risk that additional supply will not on its own have a strong influence on behaviour.

The ‘change the planning scheme strategy’ therefore is exposed to risks related to time, scale of impact and level of adoption.

In this light it is worth considering complementary initiatives that the City of Melbourne might take to help bring about the desired outcome.

Inside planning

The City could within the current planning requirements:

- Tighten scrutiny of applications and
- Require a formal (or more formal) case to be made to avoid installing bicycle and motorcycle parking
- Keep a record of the number and scale of waivers and permissions that have been granted. This would enable the City to
- Publish (internally or externally) a dataset of the development uses and area that is provided for. It would be possible to identify a target ratio for example.
- Inspect sites on completion and maintain records of the current parking supply. This could be used to inform decisions taken about waivers and would be useful information for developers seeking to follow the market.
- Repeat the on-site survey in a number of years in order to understand change

Inside existing buildings and underground

Whether the planning requirements for new and change of use buildings are changed or not the City could:

- Stimulate retrofits in existing buildings by awarding prizes for the best upgrade for example. Bicycle parking could be supported, facilitated and promoted in the way that the City treats carbon reduction and energy use by companies.
- Facilitate feedback from users. The City’s Bicycle Account could seek feedback on the appropriateness (design and implementation) and the quantity of parking and provide that information back to building owners, managers and Owners’ Corporations.
- Identify existing car parks that could be repurposed for underground bicycle and motorcycle parking.
- Construct underground parking including leveraging the excavation for the Metro Train Station in Franklin Street. Munster for example which has a bicycle mode share for all trips of 40%, has constructed Germany’s largest underground parking facility to hold 3,500 bicycles.
- Outside buildings
- Establish a value hierarchy for the spaces between buildings and the kerb in particular for the ‘furniture zone’ to guide the allocation and removal of space for parking.

- Establish a similar value hierarchy for kerbside space currently on the roadway that includes car parking (in all its varieties) and other kerbside uses such as tree canopy, trading and parking bicycles and motorcycles.
- Link on-street provision of parking by the City to off-street provision by the land owner and user.
- Constrain back of kerb and on-street parking by bicycles and motorcycles.

Taxation

- Influence congestion levy conditions to stimulate replacement of car parking with bicycle and motorcycle parking

11. Conclusion

This report investigated existing strategies and collected primary data related to bicycle and motorcycle use in the City of Melbourne, which is experiencing an increase in population, jobs and visitation.

This growth is associated with a modest growth in the use of motorcycles and a substantial growth in the use of bicycles. The City of Melbourne anticipates further growth and has set the target of more than doubling bicycle use and committed to promoting motorcycle use.

The number of bicycles and motorcycles parking on the footpaths has already increased to a level that constrains other higher value uses of this space.

A forecast was developed:

1. The forecast for motorcycle use anticipated no increase in the competitive advantage of motorcycle use and an increase in the disadvantages. On this basis it is likely that the mode will decline in the future, holding its current share in a larger market. The forecast suggested that the City should seek to provide parking for 5,000 motorcycles in the CBD by 2031, double the current number.
2. The forecast for bicycle use anticipated an increase in the competitive advantage of bicycle use and a reduction in the disadvantages. On this basis it is likely that the mode will increase in the future holding a larger share of a larger market. The forecast suggested that the City should seek to provide parking for 50,000 bicycles entering the CBD by 2031, five times the current number.

The project focused on the role of the requirements planning scheme in ensuring that adequate and appropriate home base storage and destination parking is provided for these vehicles in new and change of use buildings:

- Bicycle parking is required in new or change of use buildings under the requirements of Clause 52.34 (Bicycle), which applies across the State.
- Motorcycle parking in buildings is required by local Parking schedules to the overlay (Clause 45.09) of Clause 52.06 (Car parking) that cover 43% of the area of the municipality.

Changes to planning requirements will need to be completed by other initiatives to increase the level of provision inside buildings as well as management of the use of footpaths and roadways for bicycle and motorcycle parking.

The project conducted primary research on the impact of the planning scheme on bicycle and motorcycle parking through an on-site survey of 92 buildings completed between 2009 and 2014.

The on-site survey showed that, for bicycle parking:

- Many bicycles are parked in buildings – 2,399 were observed. (The project did not include an on-street survey of bicycle parking).
- Some buildings have more bicycle parking than is required by the Clause – generally those buildings with higher numbers of bicycles.
- The combination of requirements, exemptions and waivers, as well as additional voluntary provision, has ensured that 48% of buildings have suitable occupancy levels (25 – 80%) for the current level of use.
- If the current level of bicycle use increases five fold as the forecast indicates, the current level of provision will not be adequate.
- 36% of buildings have more bicycle parking than is currently needed (<25% occupancy).

- When parking is provided it is not always usable or appropriate – inadequate ‘centres’ between two parking rails is a typical defect.
- The current approach has not prevented some buildings (16%) having inadequate levels of parking (occupancy >80%).
- In locations where the provision is inadequate or inappropriate, bicycles are parked informally.
- Informally parked bicycles are usually in inappropriate locations.

The on-site survey of buildings and an on-street survey of footpaths in the CBD found that:

- Most motorcycles are parked outside buildings. An on-street survey found one thousand motorcycles parked on the footpath while inside the buildings the on-site survey observed 116 motorcycles – roughly two motorcycles in every other building.
- Most motorcycles are parked outside employment centres.
- Residents (rather than employees) responded to an on-line survey to users of buildings in the sample. Both motorcycle and bicycle owners reported difficulty parking in their building due to inadequate or inappropriate provision.

The model of scheme provisions

This study considered changing the type of planning requirement that is currently in place for each mode. The current approach uses a:

- State-wide clause for bicycle facilities
- Local schedule for motorcycle facilities

The Review evaluated a number of possible solutions to the demand for parking and concluded that the use of state-wide clauses and local schedules was the most effective means of resolving the issue while maximising certainty and good planning outcomes.

Motorcycle facilities are best defined in a local schedule. This is because the number and proportion of motorcycle journeys to work across Victoria and in other metropolitan municipalities is significantly lower than motorcycle journeys to the City of Melbourne. A blanket approach to motorcycle parking beyond the City of Melbourne would therefore be inappropriate. Each local Planning Authority can make their own decisions about where motorcycle parking should be required in their jurisdiction.

Bicycle facilities are best defined in the state-wide clause that can be applied to the extent necessary by each Responsible Authority (having due regard to local conditions and the decision making criteria). Many municipalities across the state have similar levels of bicycle ownership and use to the City of Melbourne. Bicycle use is growing rapidly as a core mode for some people and usage rates are directly related to the provision of facilities.

The operation of planning schemes in the state would be negatively impacted if the Victorian Planning Provisions were changed to enable Planning Authorities to adopt a local schedule with different requirements for bicycle facilities. Using local schedules to address Bicycle Parking issues would be less simple to administer. In addition, other municipalities across the State would seek to develop their own (distinct) local schedules each with varying requirements. It is also likely that some areas where increased requirements would be relevant would not be covered by a local Clause. This approach would likely produce a poor outcome for planning across Victoria that does not comply with the objectives of planning in Victoria as stated in the Planning and Environment Act 1987.



The approach taken in 2006 for the introduction of Clause 52.34 (Bicycle Facilities) remains valid today. It provides a state-wide approach that enables Responsible Authorities to require bicycle facilities with appropriate discretion to lower rates or waive requirements where appropriate.

12. References

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- Australian Bicycle Council, (2013) National Cycling Strategy 2011 – 16 2013 Implementation Report
- Australian Bicycle Council, (2013b) 2013 National Cycling Participation Survey
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- Austroroads, (2014) Cycling aspects of Austroroads
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- Federal Chamber of Automotive Industries, (2013) Directions for the Motorcycle Industry 2014-2016
- Garrard, Greaves & Ellison, (2010) Cycling injuries in Australia: Road safety's blind spot?
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- VicRoads, (undated) Cycling to work in Melbourne 1976 – 2011
- VicRoads, (2001) Motorcycle Notes Number 7 Provision for on road motorcycle parking



VicRoads, (2015) [Traffic Monitor](#)

Victoria Police (2015) [Yearly Bicycle Thefts, 2012/13 available online](#)

Appendix A: Proposed Schedule to the overlay Clause 45.09 to Clause 52.06 (Car Parking)

SCHEDULE 14 TO THE PARKING OVERLAY

xx

Shown on the planning scheme map as **XYZ**.

MUNICIPALITY OF THE CITY OF MELBOURNE**1.0 Parking objectives to be achieved**

xx

To identify appropriate motorcycle parking rates for various uses within the municipality of the City of Melbourne.

2.0 Permit requirement

xx

Except with a permit, motorcycle parking must be provided for the following uses:

Table 1 to Schedule 14

USES	USERS
Office OTS	Employees
Industry OTS	Employees
Service industry	Employees/Visitors
Retail premises OTS	Employees/Visitors
Library	Employees/Visitors
Major sports and recreation facility	Employees/Visitors
Hospital	Employees/Visitors
Nursing home	Employees
Education centre OTS	Employees/Students
Secondary school	Employees
Primary school	Employees

3.0

Motorcycle parking rates

xx

All buildings that provide on-site car parking must provide motor-cycle parking, for the use of occupants and visitors, at a minimum rate of one motor-cycle parking space for every 40 car parking spaces, unless the responsible authority is satisfied that a lesser number is sufficient.

4.0

Design standards for motorcycle parking

xx

A motorcycle parking space is defined as a standard car park consistent in all respects with the specifications in 52.06-8 Design standards for car parking Clause 56.02 (Car Parking)

Up to two motorcycles can be parked in one standard car parking space.

The required parking for motorcycles must be provided in increments of one standard car park.

If in calculating the number of motorcycle parking spaces the result is not an even number, the required number of car parking spaces is to be rounded up to the nearest whole number.

The car parking space or spaces will be marked with pavement stencils and eye level signage.

A removable bollard will be installed to ensure the space is not used for car parking.

The motorcycle parking will remain the property of the building owner or Owners Corporation and will not be sold to individuals.

5.0

Decision guidelines for permit applications

xx

Before deciding on an application which includes the provision of car parking spaces, the responsible authority must consider as appropriate:

- Any relevant local planning policies
- The safety and convenience of motorcyclists moving to, from and within the car parking facility, including lighting levels, surveillance systems, signage, ease of orientation and visibility.
- Any relevant motorcycle parking strategy or equivalent.

Appendix B: Proposed Clause 52.34 (Bicycle Facilities)

52.34

19/01/2006
VC37

BICYCLE FACILITIES

Purpose

To encourage cycling as a mode of transport.

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

52.34-1

19/01/2006
VC37

Provision of bicycle facilities

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

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

52.34-2

19/01/2006
VC37

Permit requirement

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

Exemption from notice and review

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

Decision Guidelines

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

1 Strategic context

- The location of the proposed land use and the distance a cyclist would need to travel to reach the land.
- The users of the land and their opportunities for bicycle travel.
- Whether there any reasons to request a higher level of provision than is required by the Clause. (Note that in the inner 10km of the metropolitan area, the level of current and potential bicycle riding is likely to be higher than in other areas.)
- Whether there any reasons related to the users of the land or the location of the land that suggest that the requirements of the Clause should be reduced or waived.
- Whether there are any relevant strategic or other plans, especially those relating to transport that would support the provision of bicycle facilities.

2 Proposed level of provision

- Whether the proposed number, location and design of bicycle facilities meets the purpose of this clause.
- Whether the plan or design submitted identified the bicycle parking area in a convenient and easily accessible area of the building.
- Whether it will be easy to ride to the parking area.
- Whether, considering all the uses in the development, the proposed number of spaces is adequate.
- Whether the amenities proposed are appropriate to the building use and scale of the proposed use.

3 Proposed design

- Whether the area will be secure, either in a cage or behind building security.
- Whether the parking been laid out so that people can conveniently park their bicycles.
- Whether the ambience will be supportive of 24-hour use of the facility
- Whether the parking area abuts the related amenities and the destination.
- Whether, considering the showers already available to bicycle users on the land and the number of showers proposed in the development, there will be adequate showers to encourage cycling as a mode of transport.
- Whether the bicycle riders could use showers and change rooms provided on the land for users other than cyclists.

4 Relevant references:

- Australian Standard AS 2890.3 1993 Parking facilities Part 3: Bicycle parking facilities.
- AS 1742 Manual of uniform traffic control devices 1742.9 Part 9: Bicycle facilities 1742.11 Part 11: Parking controls
- AS/NZS 1158 Lighting for roads and public spaces 1158.3.1 Part 3.1: Pedestrian area (Category P) lighting—Performance and design requirements
- 1428 Design for access and mobility 1428.4.1 Part 4.1: Means to assist the orientation of people with vision impairment— Tactile ground surface indicators
- 2890 Parking facilities 2890.6 Part 6: Off-street parking for people with disabilities
- Cycling Aspects of Austroads Guides (2014).
- 52.34-3 Required bicycle facilities

Tables 1, 2 and 3 to this clause set out the number and type of bicycle facilities required.

52.34-2

19/01/2006
VC37

Required bicycle facilities

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

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

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

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

Table 1 to Clause 52.34-3 – Bicycle Spaces

USE	EMPLOYEE/RESIDENT	VISITOR/ SHOPPER/ STUDENT
Accommodation other than specified in this table	1 to each one bedroom (with studies or studios that are separate rooms counted as a bedroom)	2 for every 5 dwellings
Cinema based entertainment facility	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA

Education centre other than specified in this table	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Hospital	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Hotel	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Library	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Market	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Medical centre	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Minor sports and recreation facility	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Nursing home	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Place of assembly other than specified in this table	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Office other than specified in this table	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
Research centre	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
USE	EMPLOYEE/RESIDENT	VISITOR/ SHOPPER/ STUDENT
Retail premises other than specified in this table	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
Service industry	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
Brothel	1 to each 100sq m NFA	4
Child care	1 to each 100sq m NFA	4
Corrective Institution	1 to each 100sq m NFA	4
Crematorium	1 to each 100sq m NFA	4
Funeral parlour	1 to each 100sq m NFA	4
Industry other than specified in this table	1 to each 100sq m NFA	4
Service station	1 to each 100sq m NFA	4
Veterinary centre	1 to each 100sq m NFA	4
Major sports and recreation facility	1 to each 100sqm NFA of office space	50 plus 1 for every 100 spectator places
Emergency services facility	1 to each 100sq m NFA	None
Freeway service centre	1 to each 100sq m NFA	None
Motel	1 to each 40 rooms	None

Table 2 to Clause 52.34-3 – Showers

USE	EMPLOYEE	VISITOR/ SHOPPER/ STUDENT
Corrective Institution	If 20 or more employee bicycle spaces are required, personal lockers are to be provided with each bicycle space required.	None
Education centre other than specified in this table		
Hospital	If more than two showers are required – more than 30 bicycle spaces – then a change room must be provided with direct access to each shower. The change room may be a combined shower and change room.	
Industry other than specified in this table		
Library		
Major sports and recreation facility		
Nursing home		
Office other than specified in this table		
Retail premises other than specified in this table		
Service industry		

Table 3 to Clause 52.34-3 – Personal lockers and change rooms

USE	EMPLOYEE	VISITOR/SHOPPER/STUDENT
Any use listed in Table 2	<p>If 20 or more employee bicycle spaces are required, personal lockers are to be provided with each bicycle space required.</p> <p>If more than two showers are required – more than 30 bicycle spaces – then a change room must be provided with direct access to each shower. The change room may be a combined shower and change room.</p>	None

52.34-2 Design of bicycle parking facilities

19/01/2006
VC37

Bicycle parking facilities that are provided must be consistent with the following guidelines, unless the responsible authority agrees otherwise. Before deciding that proposed facilities are satisfactory the responsible authority must consider, as appropriate:

Guideline 1 - Functional and efficient parking systems

- Each space must be consistent with the 'bicycle parking envelope' that has minimum dimensions of: 1.7 metres in length, 1.2 metres in height, 0.7 metres in width at the handlebars, overhead clearance must be at least 2.2m.
- When bicycles are parked vertically and the height of the parked bicycles is offset by 300mm, then the width of the envelope can be reduced to 500mm.
- The parking system must keep the bicycle vertical, stable and still. It must be easy and intuitive to use, be unlikely to cause injury or damage, suitable for commonly used bicycles, allow for appropriate locking, be durable and securely anchored to a wall or frame, or the floor or ground.

Guideline 2 – Convenient and attractive access

2a Getting to the parking area

- There must be convenient and rideable access into and through the building from

surrounding bicycle routes and main building entrances.

- It may be appropriate to provide wayfinding indicators. (It should be noted that wayfinding signage may compromise the principle of high security.). These could include coloured lanes or other symbols. If a navigation sign is used it should be at least 0.3m wide by 0.45m high with a white bicycle on blue background on the top half of the sign and direction information on the bottom half
- The user should be able to ride their bicycle to the bicycle parking space. Where possible the bicycle parking should be provided on the ground floor to avoid climbing and descending ramps. Ramp angles greater than 1:12 are unacceptable.
- The parking area should be located to provide convenient access to other bicycle facilities including showers and change rooms and as close as possible to the destination.

2b Parking the bicycle

- The door to a cage should be 1.5m wide.
- Internal corridors between parked bicycles should be at least 1.5m in width
- The parking system must not compromise the bicycle parking space defined above. The system must be easy to use. Lockers must be large enough to park and unpark bicycles quickly and easily.
- The rider must be able to easily lock the frame and a wheel to the parking system with a D-lock.
- At least 20% of the rails must allow the bicycle to be parked with both wheels on the ground.

2c Amenities

- The parked bicycles, and if possible the access to and from the area, must be protected from the weather.
- The parking area must be well lit whenever it is in use.
- Showers must be provided for people who are parking for a long time and have travelled to the land for more than 5km.
- Personal lockers and a changing area must support the showers. There must be direct access from the locker area to each shower. The shower may include a changing cubicle.
- The ventilation system may need to be designed or modified to deal with shower steam as well as drying clothes and towels.
- Personal lockers must be collocated with the change rooms and showers.
- Power to recharge electric bicycles in the parking area may be needed in Accommodation and Dwellings but it is not necessary in workplaces.

Guideline 3 - Security

- The parking systems provided must allow the rider to easily lock the bicycle frame and a wheel to the parking system with a D-lock. (This is also a convenience strategy CS)
- Parking can be provided behind a no-access building security system with internal CCTV. (A parking area behind boom gates does not meet this standard).
- Multi-user cages: Parking can be provided in a fully enclosed cage. This can be provided behind zone security or in a stand-alone facility. Doors to these facilities should be self-closing and self locking. (CS)
- Secure private multi-purpose lockers: Parking can be provided in secure private bicycle or multi-purpose lockers. The lockers must meet the criteria above.

Guideline 4 - Safety

- The bicycle rider must not be at risk on their journey from the main building entrances to the parking area. In areas where drivers, riders and pedestrians mix, the establishment of a shared zone is recommended.
- Pedestrians, building staff and motorists must not be at risk from the bicycle riders

- on their journey from the main building entrances to the parking area.
- The bicycle route from the main building entrances to the parking area must not cause a hazard or interfere with reasonable access to doorways, fire equipment and exits, loading areas, access covers, furniture, services and infrastructure.
 - Riders must not be put at risk or personal injury by the facilities provided including:
 - Swipe access must not be placed on a gradient.
 - Riders on their journey from the main building entrances to the parking area or in the parking area must not be put at risk by low overhead clearances.
 - People using the parking facilities must not be put at risk by the need to lift or move other bicycles. The bicycle envelope mitigates this risk.
 - People using the parking facilities must not be put at risk by being required to lift their bicycle or a bicycle parking system. Vertically parked bicycles should not be more than 350mm off the ground and two-deck systems must be counterbalanced or power assisted.
 - There should be no sharp edges or protrusions on the parking systems. As noted above a proportion of the parking systems should allow the bicycle to be parked with both wheels on the ground.
 - If a shared zone is established, then the appropriate regulatory signage will need to be installed.
 - Fire escape, fire equipment and other standard warning signs must be in place.

Guideline 5 – Bicycle parking plans

- When 20 or more bicycle parking spaces are required, bicycle-parking plans must be prepared to the satisfaction of the responsible authority before any of the following occurs:
 - A new use commences; or the floor area or site area of an existing use is increased;
 - The plans must show, as appropriate:
 - All bicycle parking spaces that are proposed to be provided (whether on the land or on other land).
 - Access lanes, driveways and associated works.
 - Allocation of bicycle parking spaces to different uses or tenancies, if applicable.
 - How the parking provision meets the purpose, requirements and design guidelines of the Clause.
- This requirement does not apply where no bicycle parking spaces are proposed to be provided.

Appendix C: CLUE Data Provision Analysis

Building List Sample

The building sample was drawn from a list of 724 buildings that:

- Are in the Clue database
- Have been issued a new or 'change of use' permit since 2009

Buildings under 4 storeys and less than 2,000 total GFA were removed. Uses other than 'dwellings, offices, education and retail' were removed (categorised by the primary establishment of the building). This resulted in a sample of 120 buildings

Provision Analysis

The bike space requirements for the 120 buildings were calculated according to the clause requirements as follows:

- For each building, the Clue data provides values on the floor space occupied for different building uses. Additional data provided by Clue used in the analysis includes students and staff numbers for education spaces and total dwellings for residential spaces.
- The clause outlines the number of bicycle parking required depending on use
- Bicycle parking requirements according to clause 52.34 for were calculated for each of these categories individually for each building. This was based on rates per dwellings, floor area, students and staff.
- The total bike space requirement for the building was the summation from the various sections calculated above.

There are a number of limitations to the Clue database and subsequent analysis, including:

- Rates used in the clause requirement calculation were equated to the nearest comparable figure provided by Clue. For example, bicycle clause requirements for retail were 'leasable floor area', 'floor area occupied' is the most comparable figure documented in Clue.
- There are questions concerning to the accuracy or how up to date the data may be. For example, the bicycle parking provision is documented in clue is less than half of the total spaces counted during the site visits.

Table 47: Clause 52.34-3 Bike space requirements

BUILDING USE CATEGORY	RATE FROM CLAUSE 52.34-3	CALCULATION TOOL FROM CLUE
Residential	Dwellings	'Total Dwelling Capacity'
Office	Net floor area	'Floor Space Occupied'
Retail	Leasable floor area	'Floor Space Occupied'
Education	Employees, pupils, students	'Employers' & 'Students'

Source: Melbourne Planning Scheme (Clause 52.34)

Residential

“Residential” bike space requirements were calculated based on the clause requirements and ‘total dwelling capacity’ as documented in CLUE.

Table 48: Clause 52.34-3 Bike space requirements for Dwellings

USE	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Dwellings	In developments of four or more storeys, 1 to each 5 dwellings	In developments of four or more storeys, 1 to each 10 dwellings

Source: Melbourne Planning Scheme (Clause 52.34)

Retail

“Retail” bike space requirements were calculated based on the clause requirements and retail ‘floor space occupied’ as documented in CLUE.

Table 49: Clause 52.34-3 Bike space requirements for Office

USE	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Office other than specified in this table	1 to each 300 sq m of net floor area if the net floor area exceeds 1000 sq m	1 to each 1000 sq m of net floor area if the net floor area exceeds 1000 sq m

Source: Melbourne Planning Scheme (Clause 52.34)

Office

“Office” bike space requirements were calculated based on the clause requirements and ‘floor space occupied’ as documented in CLUE.

Table 50: Clause 52.34-3 Bike space requirements for Retail

USE	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Shop	1 to each 600 sq m of leasable floor area if the leasable floor area exceeds 1000 sq m	1 to each 500 sq m of leasable floor area if the leasable floor area exceeds 1000 sq metre

Source: Melbourne Planning Scheme (Clause 52.34)

Education

“Education” bike space requirements were calculated based on the clause requirements and student and staff numbers as documented in CLUE.

Table 51: Clause 52.34-3 Bike space requirements for Education

USE	EMPLOYEE/RESIDENT	VISITOR/SHOPPER/STUDENT
Education Centre other than specified in this table	1 to each 20 employees	1 to each 20 full-time students
Primary school	1 to each 20 employees	1 to each 5 pupils over year 4
Secondary school	1 to each 20 employees	1 to each 5 pupils

Source: Melbourne Planning Scheme (Clause 52.34)

Appendix D: Current Clause (Bicycle)

See attached four pages.

Appendix E: Detailed list of recommended rate changes

CATEGORY	FOCUS	ACTION	USE	2004	PROPOSED
No change			Motel		
Use	Absent	Include	Child care		Child care
	Category	Elevate	Accommodation	Residential building OTS	Accommodation (75.01)
Employee/Resident	Exemption	Remove exemption	Dwelling, Residential building less than four storeys OTS		No exemption
			Office OTS	Less than 1,000sqm	No exemption
			Shop	Leasable area less than 1,000sqm	No exemption
	Minimum rate				No minimum rates for Employee/Resident
	Rate	Change basis of assessment	Dwelling	Dwelling	Bedroom
			Education centre, Primary School, Secondary School	Employees	NFA
			Hospital, Nursing Home	Beds	NFA
			Market	Stalls	NFA
			Medical centre	Practitioners	NFA
			Minor sports and recreation facility	Employees	NFA
			Residential building OTS	Lodging rooms	Bedrooms
			Hotel, Restaurant	Floor area available to the public	NFA
			Retail, Shop	Leasable floor area	NFA
	Introduce		Amusement Parlour	No requirement	1 to each 100sq m NFA
			Child care	New use	1 to each 100sq m NFA
	Increase		Dwelling	1 to each 5 dwellings	1.0 to each one bedroom in a dwelling (with studios or studios that are separate rooms counted as a bedroom)

CATEGORY	FOCUS	ACTION	USE	2004	PROPOSED
			Education centre, Primary School, Secondary School	1 to each 20 employees	1 to each 100sq m NFA
			Hospital	1 to each 15 beds	1 to each 100sq m NFA
			Industry OTS	1 to each 1,000sqm NFA	1 to each 100sq m NFA
			Library	1 to each 500sqm NFA	1 to each 100sq m NFA
			Major sports and recreation facility	1 to each 1,500 spectator places	1 to each 100sq m NFA of office
			Market	1 to each 50 stalls	1 to each 100sq m NFA
			Medical centre	1 to each 8 practitioners	1 to each 100sq m NFA
			Minor sports and recreation facility	1 per 4 employees	1 to each 100sq m NFA
			Nursing home	1 to each 7 beds	1 to each 100sq m NFA
			Office OTS	1 to each 300sqm	1 to each 100sq m NFA
			Place of assembly	1 to each 1,500sqm	1 to each 100sq m NFA
			Residential buildings OTS	1 to each 10 lodging rooms	1.0 to each one bedroom in a dwelling (with studios or studios that are separate rooms counted as a bedroom)
			Retail	1 to each 300sqm of leasable floor area	1 to each 100sq m NFA
			Service industry	1 to each 800sqm NFA	1 to each 100sq m NFA
			Shop	1 to each 600sqm of leasable floor area	1 to each 100sq m NFA
			Restaurant	1 to each 100sqm of floor area available to the public	1 to each 100sq m NFA
			Motel	1 to each 40 rooms	1 to each 40 rooms
			Take away food area	1 to each 100sq m NFA	1 to each 100sq m NFA

CATEGORY	FOCUS	ACTION	USE	2004	PROPOSED
		Reduce	Hotel		4 to each 100sqm of bar floor area available to the public 1 to each 100sq m NFA
			Convenience restaurant	1 to each 25sqm available to the public	1 to each 100sq m NFA
Visitor/Shopper/Student	Exemption	Remove	Dwellings	Less than four storeys	No exemption
			Restaurant	Greater than 400sqm	No exemption
	Minimum rate	Introduce			
			Major sports and recreation facility	0	50 (25 rals)
			Child care	New use	8 (4 rals)
			Education centre, Primary School, Secondary School	0	8 (4 rals)
			Hospital	0	8 (4 rals)
			Hotel	0	8 (4 rals)
			Market	0	8 (4 rals)
			Minor sports and recreation facility	0	8 (4 rals)
			Nursing home	0	8 (4 rals)
			Amusement Parlour	0	4 (2 rals)
			Industry OTS	0	4 (2 rals)
			Office	0	4 (2 rals)
			Retail	0	4 (2 rals)
			Service Industry	0	4 (2 rals)
			Shop	0	4 (1 rail)

CATEGORY	FOCUS	ACTION	USE	2004	PROPOSED
			Take away food	0	4 (2 rolls)
Increase minimum					
			Library	4	8 (4 rolls)
			Place of assembly	2	8 (4 rolls)
			Amusement Parlour, Convenience Restaurant	2	4 (2 rolls)
			Restaurant	1	4 (2 rolls)
	Rate	Change basis of assessment	Education centre, Primary School, Secondary School	Student, Pupil	N/A
			Hospital, Nursing Home	Beds	N/A
			Medical centre	Practitioners	N/A
			Hotel, Restaurant	Floor area available to the public	N/A
			Shop	Leasable floor area	N/A

CATEGORY	FOCUS	ACTION	USE	2004	PROPOSED
Increase			Dwelling, Residential building	1 to each 10 lodging rooms	2 for every 5 dwellings
			Education centre	1 to each 20 full time students	1 to each 100sq m NFA
			Primary School	1 to each 5 pupils over year 4	1 to each 100sq m NFA
			Secondary School	1 to each 5 pupils	1 to each 100sq m NFA
			Hospital	1 to each 30 beds	1 to each 100sq m NFA
			Major sports and recreation facility	1 to each 250 spectator places	1 for every 100 spectator places
			Market	1 to each 10 stalls	1 to each 100sq m NFA
			Medical centre	1 to each 4 practitioners	1 to each 100sq m NFA
			Minor sports and recreation facility	1 to each 200sqm	1 to each 100sq m NFA
			Nursing home	1 to each 60 beds	1 to each 100sq m NFA
			Office OTS	1 to each 1,000sqm NFA	1 to each 100sq m NFA
			Place of assembly	1 to each 1,500sqm NFA	1 to each 100sq m NFA
			Restaurant	1 to each 200sqm of floor area 1 to each 100sq m NFA available to the public	1 to each 100sq m NFA
			Retail, Shop	1 to each 500sqm of leasable floor area	1 to each 100sq m NFA
Introduce requirement					
			Child care	New use	1 to each 100sq m NFA
			Convenience restaurant	No requirement	1 to each 100sq m NFA
Maintain					
			Motel	None	None
			Library	2 to each 200sqm NFA	1 to each 100sq m NFA
Reduce					
			Amusement Forlour, Take away food	1 to each 50sqm NFA	1 to each 100sq m NFA
			Hotel	4 to each 100sqm of bar floor area available to the public	1 to each 100sq m NFA

OTS – Other than specified
 NFA – of Net Floor Area

Appendix F: Use by use review

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Amusement parlour	Current	None	2 plus 1 to each 50 sq m NFA
	Changed to 100sqm base	NA	4 plus 2 to each 100sq m NFA
	25% of car parking requirement	1 to each 100sq m NFA	
	Proposed change	1 to each 100sq m NFA	4
	No change		plus 1 to each 100sq m NFA (no change)
	Draft clause	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Introduce rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Increase minimum provision • Maintain requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Child care (75.03) New use	Current	NA	NA
	Changed to 100sqm base	NA	NA
	25% of car parking requirement	0.55 to each child	0.55 to each child
	Proposed change	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Include new use			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Convenience restaurant	Current	1 to each 25 sq m of floor area available to the public	2
	Changed to 100sqm base	4 to each 100sq m of floor area available to the public	NA
	25% of car parking requirement	0.075 to each patron admitted	0.87 to each patron admitted
	Proposed change	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Reduce rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Increase minimum provision • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Dwelling	Current	In developments of four or more storeys, 1 to each 5 dwellings	In developments of four or more storeys, 1 to each 10 dwellings
	Changed to 100sqm base	NA	NA
	25% of car parking requirement	0.25 to each one or two bedroom dwelling 0.5 to each three or more bedroom dwelling (with studies or studios that are separate rooms counted as a bedroom)	0.25 for every 5 dwellings for developments of 5 or more dwellings
	Proposed change	1.0 to each one bedroom in a dwelling (with studies or studios that are separate rooms counted as a bedroom)	
	No change		0.5 for every 5 dwellings
	Draft clause	1.0 to each one bedroom in a dwelling (with studies or studios that are separate rooms counted as a bedroom)	0.5 for every 5 dwellings
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Remove exemption • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Remove exemption • Change basis of assessment • Maintain requirement 			

USE		EMPLOYEE	VISITOR/SHOPPER
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		RESIDENT	STUDENT
Education centre other than specified in this table	Current	1 to each 20 employees	1 to each 20 full-time students
	Changed to 100sqm base	NA	NA
	25% of car parking requirement	0.1 to each student that is part of the maximum number of students on the site at any time	0.033 to each student that is part of the maximum number of students on the site at any time
	Proposed change	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Employee/Resident <ul style="list-style-type: none"> • Change basis of assessment • Increase rate Visitor/Shopper/Student <ul style="list-style-type: none"> • Introduce minimum provision • Change basis of assessment • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Primary school	Current	1 to each 20 employees	1 to each 5 pupils over year 4
	Changed to 100sqm base	NA	NA
	25% of car parking requirement	0.25 to each employee that is part of the maximum number of employees on the site at any time	0.25 to each employee that is part of the maximum number of employees on the site at any time
	Proposed change	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Introduce minimum provision • Change basis of assessment • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Secondary school	Current	1 to each 20 employees	1 to each 5 pupils
	Changed to 100sqm base	NA	NA
	25% of car parking requirement	0.3 to each employee that is part of the maximum number of employees on the site at any time	0.3 to each employee that is part of the maximum number of employees on the site at any time
	Proposed change	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Introduce minimum provision • Change basis of assessment • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Hospital	Current	1 to each 15 beds	1 to each 30 beds
	Changed to 100sqm base	NA	NA
	25% of car parking requirement	No rate required	No rate required
	Proposed change	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Introduce minimum provision • Change basis of assessment • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Hotel	Current	1 to each 25 sq m of bar floor area available to the public, 1 to each 100 sq m of lounge floor area available to the public	1 to each 25 sq m of bar floor area available to the public, plus 1 to each 100 sq m of lounge floor area available to the public
	Changed to 100sqm base	4 to each 100sq m of bar floor area available to the public, plus 1 to each 100 sq m of lounge floor area available to the public	4 to each 100sq m of bar floor area available to the public, plus 1 to each 100 sq m of lounge floor area available to the public
	25% of car parking requirement	0.1 to each patron admitted	0.87 to each patron admitted
	Proposed change	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Reduce rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Introduce minimum provision • Change basis of assessment • Reduce requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Industry other than specified in this table	Current	1 to each 1,000 sq m NFA	None
	Changed to 100sqm base	0.25 to each 100sq m NFA	NA
	25% of car parking requirement	0.725 to each 100sq m NFA	0.25 to each 100sq m NFA
	Proposed change	1 to each 100sq m NFA	4
	No change		
	Draft clause	1 to each 100sq m NFA	4
Employee/Resident <ul style="list-style-type: none"> • Increase rate Visitor/Shopper/Student <ul style="list-style-type: none"> • Introduce minimum provision • Introduce requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Library	Current	1 to each 500 sq m NFA	4 plus 2 to each 200 sq m NFA
	Changed to 100sqm base	0.20 to each 100sq m NFA	2 plus 1 to each 100sq m NFA
	25% of car parking requirement	No rate required	No rate required
	Proposed change	1 to each 100sq m NFA	8
	No change		plus 1 to each 100sq m NFA
	Draft clause	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Increase minimum provision • Maintain requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Major sports and recreation facility	Current	1 to each 1500 spectator places	1 to each 250 spectator places
	Changed to 100sqm base	NA	NA
	25% of car parking requirement	No rate required	No rate required
	Proposed change	1 to each 100sqm NFA of office	50 plus 1 for every 100 spectator places
	No change		
	Draft clause	1 to each 100sqm NFA of office	50 plus 1 for every 100 spectator places
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Introduce minimum provision • Change basis of assessment • Increase requirement • (Burswood Stadium 60,000 spectators 600 bike parks • http://www.perthstadium.com.au/) 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Market	Current	1 to each 50 stalls	1 to each 10 stalls
	Changed to 100sqm base	0.20 to each 100 sqm (1 stall = 10 sqm)	1 to each 100 sqm (1 stall = 10 sqm)
	25% of car parking requirement	2 to each 100sq m NFA	0.725 to each 100sq m NFA
	Proposed change	1 to each 100sqm NFA	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sqm	8 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Introduce minimum provision • Change basis of assessment • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Medical centre	Current	1 to each 8 practitioners	1 to each 4 practitioners
	Changed to 100sqm base	NA	NA
	25% of car parking requirement	1.25 to the first person providing health services plus 0.75 to every other person providing health services	0.725 to each 100sq m NFA
	Proposed change	1 to each 100sqm	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sqm NFA	8 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Introduce minimum provision • Change basis of assessment • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Minor sports and recreation facility	Current	1 per 4 employees	1 to each 200 sq m NFA
	Changed to 100sqm base	1.25 to each 100sqm NFA	0.5 to each 100sq m NFA
	25% of car parking requirement	No rate required	No rate required
	Proposed change	1 to each 100sqm	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sqm NFA	8 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Introduce minimum provision • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Motel	Current	1 to each 40 rooms	None
	Changed to 100sqm base		
	25% of car parking requirement	0.25 to each unit and to each manager dwelling plus 50% of the relevant requirement of any ancillary use	0.25 to each unit and to each manager dwelling plus 50% of the relevant requirement of any ancillary use
	Proposed change	No change	No change
	No change		
	Draft clause	1 to each 40 rooms	None
No change			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Nursing home	Current	1 to each 7 beds	1 to each 60 beds
	Changed to 100sqm base		
	25% of car parking requirement	No rate required	No rate required
	Proposed change	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Introduce minimum provision • Change basis of assessment • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Office other than specified in this table	Current	1 to each 300 sq m NFA if the net floor area exceeds 1000 sq m	1 to each 1000 sq m NFA if the net floor area exceeds 1000 sq m
	Changed to 100sqm base	0.33 to each 100sq m NFA if the net floor area exceeds 1,000 sq m	0.1 to each 100sq m NFA if the net floor area exceeds 1000 sq m
	25% of car parking requirement	0.875 to each 100sq m NFA	0.75 to each 100sq m NFA
	Proposed change	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Remove exemption • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Remove exemption • Introduce minimum provision • Introduce requirement • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Place of assembly other than specified in this table	Current	1 to each 1500 sq m NFA	2 plus 1 to each 1500 sq m NFA
	Changed to 100sqm base	0.066 to each 100sq m NFA	0.13 plus 0.066 to each 100sq m NFA
	25% of car parking requirement	0.075 to each patron admitted	0.075 to each patron admitted
	Proposed change	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	8 plus 1 to each 100sq m NFA
Employee/Resident <ul style="list-style-type: none"> • Increase rate Visitor/Shopper/Student <ul style="list-style-type: none"> • Introduce minimum provision • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Accommodation (75.01) other than specified in this table	Current	In developments of four or more storeys, 1 to each 10 lodging rooms	In developments of four or more storeys, 1 to each 10 lodging rooms
	Changed to 100sqm base		
Residential building other than specified in this table	25% of car parking requirement	(Residential village) 0.25 to each one or two bedroom dwelling plus 0.5 to each three or more bedroom dwelling (with studies or studios that are separate rooms counted as a bedroom) plus 0.25 for visitors to every five dwellings for developments of more than five dwellings.	(Residential village) 0.25 to each one or two bedroom dwelling plus 0.5 to each three or more bedroom dwelling (with studies or studios that are separate rooms counted as a bedroom)
	Proposed change	1.0 to each one bedroom in a dwelling (with studies or studios that are separate rooms counted as a bedroom)	2 for every 5 dwellings
	No change		
	Draft clause	1.0 to each one bedroom in a dwelling (with studies or studios that are separate rooms counted as a bedroom)	2 for every 5 dwellings
<p>Elevate category of use</p> <p>Employee/Resident</p> <ul style="list-style-type: none"> • Remove exemption • Change basis of assessment • Increase rate <p>Visitor/Shoppper/Student</p> <ul style="list-style-type: none"> • Remove exemption • Change basis of assessment • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Restaurant	Current	1 to each 100 sq m of floor area available to the public	2 plus 1 to each 200 sq m of floor area available to the public if the floor area available to the public exceeds 400 sq m.
	Changed to 100sqm base		1 plus 0.5 to each 100sq m NFA if the floor area available to the public exceeds 400 sq m.
	25% of car parking requirement	0.1 to each patron admitted	0.875 to each patron admitted
	Proposed change	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Remove exemption • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Remove exemption • Increase minimum provision • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Retail premises other than specified in this table	Current	1 to each 300 sq m of leasable floor area	1 to each 500 sq m of leasable floor area
	Changed to 100sqm base	0.33 to each 100sq m NFA	0.2 to each 100sq m NFA
	25% of car parking requirement	Not a car parking category	Not a car parking category
	Proposed change	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Increase minimum provision • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Service industry	Current	1 to each 800 sq m NFA	None
	Changed to 100sqm base	0.125 to each 100sq m NFA	
	25% of car parking requirement	Not a car parking category	Not a car parking category
	Proposed change	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Remove exemption • Introduce minimum provision • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Shop	Current	1 to each 600 sq m of leasable floor area if the leasable floor area exceeds 1000 sq metres	1 to each 500 sq m of leasable floor area if the leasable floor area exceeds 1000 sq metres
	Changed to 100sqm base	0.16 to each 100sq m NFA if the leasable floor area exceeds 1000 sq metres	0.2 to each 100sq m NFA if the leasable floor area exceeds 1000 sq metres
	25% of car parking requirement	1 to each 100sq m NFA	0.875 to each 100sq m NFA
	Proposed change	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> • Remove exemption • Change basis of assessment • Increase rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> • Remove exemption • Introduce minimum provision • Change basis of assessment • Increase requirement 			

USE		EMPLOYEE RESIDENT	VISITOR/SHOPPER STUDENT
Take-away food premises	Current	1 to each 100 sq m NFA	1 to each 50 sq m NFA
	Changed to 100sqm base		0.5 to each 100sq m NFA
	25% of car parking requirement	Not a car parking category	Not a car parking category
	Proposed change		4 plus 1 to each 100sq m NFA
	No change		
	Draft clause	1 to each 100sq m NFA	4 plus 1 to each 100sq m NFA
<p>Employee/Resident</p> <ul style="list-style-type: none"> Maintain rate <p>Visitor/Shopper/Student</p> <ul style="list-style-type: none"> Increase minimum provision Reduce requirement 			

Appendix G: On-site and on-line survey questions

4. Parking Structure

Is there internal or external parking structure?

Parking Structure (Internal)

Is the internal parking structure enclosed?

Is the internal parking area surveillanced by staff?

Can the internal parking structure be locked?

What is the method of locking the structure?

Photo of internal structure and layout/systems 1

Photo of internal structure and layout/systems 2

Parking Structure (External)



































Is there adequate weather protection?











Is there adequate lighting?

Are there any signs of break in and repairs?

Photo of external structure and layout/systems 1

Photo of external structure and layout/systems 2

<div>  Parking Systems (Other)  </div>		
	What other systems are being used?	
<input type="checkbox"/>	If other, what system?	
	How many two decker rails are there?	
	How many spaces are occupied above?	
	How many spaces are occupied below?	
	How many rails are there?	
	How many rails are occupied?	
<input checked="" type="checkbox"/>	Are the centres adequate?	
<input checked="" type="checkbox"/>	Are the centres efficient?	
	Is the system securely fixed?	
<div>  Parking Systems (Informal Parking)  </div>		
	How many bicycle are parked informally in low risk locations?	
	How many bicycle are parked informally in high risk locations?	
<div>  Parking Systems (Motorcycles)  </div>		
	How many motorcycles are parked formally in a designated area?	
	How many motorcycles are parked informally in low risk locations?	
	How many motorcycles are parked informally in high risk locations?	
<div> <input type="checkbox"/> 7. Comments  </div>		

5. Parking Layout		>
	Are the internal corridors at least 1.5m wide?	>
	Is the layout of the parking space efficient?	>
6. Parking Systems		
	What parking systems are there?	>
Parking Systems (Ground Rails)		>
	How many ground rails are there?	>
	How many ground rails are occupied?	>
<input checked="" type="checkbox"/>	Are the centres adequate?	>
<input checked="" type="checkbox"/>	Are the centres efficient?	>
	Are the rails securely fixed?	>
Parking Systems (Wall Rails)		>
	How many wall rails are there?	>
	How many wall rails are occupied?	>
<input checked="" type="checkbox"/>	Are the centres adequate?	>
<input checked="" type="checkbox"/>	Are the centres efficient?	>
	Are the wall rails of appropriate height?	>
	Are the wall rails securely fixed?	>

1. Set Up

Building Address List

Building Address (Other)

Survey Date

Surveyed by

Building Use

2. Getting to the Parking Zone

Please take a photo of rider entrance

Please take a photo of alternative rider entrance

Is the building easily accessible by bicycle?

Can the user ride to the bicycle-parking zone?

If the entrance is shared with motor vehicles, is there a Shared Zone sign in an appropriate place?

Are there permanent structural obstructions between entrance and parking location?

Temporary obstructions between entrance and parking location

☒ Adequate lighting (on the way to the parking zone)

3. Facilities at the parking zone (Office, retail, education only)

Users have access to showers

Users have access to personal lockers

Number of personal Lockers (In bicycle store)



Bicycle and Motorcycle Parking Survey

Introduction

Welcome to City of Melbourne's Bicycle and Motorcycle Parking Survey.

With more people riding bicycles and motorcycles in Melbourne, it's important to make sure there are enough off-street bike and motorcycle parking spaces in both residential and commercial buildings. That's why the City of Melbourne is surveying people who study, work or live in 120 buildings in the municipality.

With your help, we can find out if the amount of parking currently available meets the needs of current and future building users. This information will help us determine how many, and what kind, of parking spaces will be required in new and updated buildings.

The survey should only take around five minutes to complete.

Plus, if you complete the survey, you'll have the chance to win one of 12 double movie passes!

Full terms and conditions are available at <https://www.surveymonkey.com/r/CycleParkTC>.

Thank you for your input!



Bicycle and Motorcycle Parking Survey

Building information

* 1. What's the address of the building you study, work or live in?

Street number	<input type="text"/>
Street name	<input type="text"/>
Suburb	<input type="text"/>

Note: If you study, work or live in two or more buildings being surveyed, please select one building and answer accordingly.

2. Does this building have a name? (E.g. Rialto Towers, Eureka Tower, Mondo Terrace)

*** 3. What do you use this building for? (Select all that apply)**

- ☐ I work here
- ☐ I live here
- ☐ I study here
- ☐ Other (please specify)

4. What's the postcode of your home address (if different from above)?



Bicycle and Motorcycle Parking Survey

Motorcycle

*** 5. Do you own a motorcycle?**

- ☐ Yes
- ☐ No

*** 6. In the previous week, have you used your motorcycle as a mode of transport to or from this building?**

- ☐ Yes
- ☐ No

*** 7. Would you consider using a motorcycle as a mode of transport to or from this building in the future?**

- ☐ Yes
- ☐ No - Don't have a licence
- ☐ No - Unsafe
- ☐ No - Don't plan to own a motorcycle
- ☐ No - Other (please specify)

*** 8. What factors would make you more likely to ride a motorbike? (Select all that apply)**

- ☐ None
- ☐ Petrol price doubles
- ☐ Public transport price doubles
- ☐ Car parking fees double
- ☐ More sunny days per year
- ☐ Car and public transport travel time doubles due to congestion
- ☐ Improved safety
- ☐ Better end of trip facilities (e.g. showers, parking, lockers)
- ☐ Other (please specify)



Bicycle and Motorcycle Parking Survey

Motorcycle - Parking

*** 9. When do you park your motorcycle at this building?**

- ☐ During work hours
- ☐ Overnight
- ☐ Both

*** 10. Where do you usually park your motorcycle?**

- ☐ Marked out space for motorcycles
- ☐ Car park
- ☐ An informal or unmarked area in the car park
- ☐ An informal area on the footpath
- ☐ Other (please specify)

*** 11. Do you find it difficult to park in your preferred location?**

- ☐ No
- ☐ Yes - It's difficult to find spaces
- ☐ Yes - Parking spaces are not in convenient locations
- ☐ Yes - Parking spaces are not sheltered or secure
- ☐ Yes - Other (please specify)

*** 12. Where would you prefer to park?**

- ☐ On-street/median strip in marked spaces
- ☐ Car park in marked spaces
- ☐ On footpath near building entrances
- ☐ Other (please specify)

13. Do you have any further comments about motorcycle parking related to this building?

*** 14. Do you own a bicycle?**

- ☐ Yes
☐ No

*** 15. In the previous week, have you used your bicycle as a mode of transport to or from this building?**

- ☐ Yes
☐ No

*** 16. Would you consider using a bicycle as a mode of transport to or from this building in the future? If not, why?**

- ☐ Yes
☐ No - Too far
☐ No - Too hilly
☐ No - Safety concerns
☐ No - Other (please specify)

*** 17. What factors would make you consider riding a bicycle more often? (Select all that apply)**

- ☐ None
☐ Petrol price doubles
☐ Public transport price doubles
☐ Car parking fees double
☐ More sunny days per year
☐ Car and public transport travel time doubles due to congestion
☐ Improved safety (e.g. twice as many bike lanes)
☐ Better end of trip facilities (e.g. showers, parking, lockers)
☐ Other (please specify)

*** 18. When do you park your bicycle at this building?**

- ☐ During work hours
- ☐ Overnight
- ☐ Both

*** 19. Where do you usually park your bicycle?**

- ☐ Locked cage for bicycles outside building
- ☐ Locked cage for bicycles inside building
- ☐ In an area set aside for bicycles in the car park
- ☐ Informally inside the building
- ☐ Informally outside the building
- ☐ Other (please specify)

*** 20. Is there anything preventing you from riding a bicycle and parking at your building?**

- ☐ No
- ☐ Yes

If yes, please provide further details

21. Do you have any further comments about bicycle parking related to this building?

22. If you would like to go into the draw for one of 12 double movie passes, please provide us with your email address below. Your email address will only be used for the purpose of the prize draw.

Thank you for your time. Your feedback will help us better understand bicycle and motorcycle parking needs.

Appendix H: A selection of on-line survey comments – bicycle parking

Level of provision

- There isn't enough of it and as such it's overcrowded.
- There is not enough bike parking spots for the number of apartments.
- It's too small and is overflowing
- Not enough spaces in the building for bicycles
- There isn't enough. Our bike cage is congested and I struggle to get a good spot. It would've been good if they provided one spot for each apartment. I think they provided a 1:100 ratio of bike parking availability.
- Yes, there needs to be more general storage for bikes
- Not enough bike hooks
- We need more racks because ours are always full, I always have to take my bike inside
- During warmer months there's not enough bike parking capacity in the building. Nor on-street parking for guests
- Needs more
- We need more bicycle rooms in the basement of the building! Or indeed, bicycle cages or rooms outside the building.
- Needs more bicycle parking
- We need areas for parking bicycles somewhere in the car park so only Madison residents can access the car park and park their bike
- Bike spaces are at capacity in building resulting in some bikes being left in non-designated areas in car park.
- There is not enough bike parking spots for the number of apartments.
- There is space on the public footpath for bicycle racks
- Lack of proper bike storage for residents. There is only one 'rack' per car space, behind the cars up on the wall, which is not feasible for everyday use. The rack can only accommodate 1 bike per car space - if you have a car space at all. It'd be much better if there was a dedicated bike storage area in the building.
- More bike racks would mean we could park our bikes downstairs, instead of having to take them up to our apartment and using valuable balcony space. The bike racks are almost always full. It would also be good to have ground racks rather than on the wall ones which are harder to put the bike on.
- There is insufficient spaces for bikes in the designated area and people end up parking in awkward areas which can present a safety / fire exit risk.
- Building requires much more room for bicycle parking.
- There are only 20 or so bike racks in this building of 200 apartments. Nowhere near enough. Some people are forced to park their bikes outside where they are prone to vandalism and weather damage. Some people also take their bikes up to their apartments, which not allowed by the body corporate.
- Would like better cycle storage system and more dedicated bike storage spaces
- Not enough in-building parking space, sometimes I have to park outside.
- There is no parking for visitors or people who work in the building next door, Motorcycle's are parked on the nature strip making it difficult to find places to leave a bike

Security

- Security should be increased as secure bicycle cage has been broken into multiple times and bicycles have been stolen. Unsafe to park bicycles in my apartment
- Not secure - needs lockable cage inside building & more parking needed. Communal pump in parking area would be a bonus.
- There have been thefts from the bike cage, but management do their best to minimise them. I still choose to keep my bikes in my apartment.
- I do not park my bike in front of the building as the bay is very exposed and I'm worried my bike will be damaged or stolen.
- However, there are frequent cycle thefts in the city, ie cycle parts being stolen, like wheels etc. Hence we have to park it further away under CCTVs

Other design issues

- Needs easier access to get to the bicycle parking
- Entry into building with bicycle is very difficult. One is either forced to enter as if they were a car, which is tricky, or by carrying their bicycle up stairs through the foyer.
- There should be more bicycle parking outside the building or in a rain-protected area. I currently park mine in the garage in my car space to protect it from the rain.
- Be better if they had designed the parking better
- Bike Lockers in apartment buildings would be great. Especially for recreational road bike which must be stored in apartments due to fear of theft.
- I often have to leave it wedged between 2 bikes and can't lock it securely; I can only lock a tyre.
- It would be much, much better if there was an off-street place to park my bike
- The parking spots are high on the walls and are difficult to use.
- There is only one 'rack' per car space, behind the cars up on the wall, which is not feasible for everyday use

Facilities

- More showers would be great
- Needs an area for residents such as myself who have small apartments with no outdoor area to wash and perform maintenance - i.e.. need tap, hose, drain, lighting

Positives

- The new, expanded racking facilities have meant all the people living in our apartment can have a bike here.
- It's GREAT! I paid \$26 for the key to the bike lock-up shed when I moved in two years ago, and haven't put a cent toward it since. Such a deal! Don't tell management how chuffed I am, though, or they'll raise the price.

Endnotes

¹ The purpose of this project is to implement the City of Melbourne Annual Plan and Budget 2014-2015 Action 6.3.6 to “amend the planning scheme to require motorcycle and bicycle parking that better matches current and predicted use”.

² Amend the planning scheme to require motorcycle parking provision at a rate that better matches the levels of current and predicted use. (Priority action 43).

³ Employment

INDUSTRY SECTOR	2002	2004	2006	2008	2010	2012
Education	15,775	18,149	21,517	23,227	23,407	23,397
Retail	16,990	17,437	19,202	20,553	21,310	19,388

Source: CLUE

⁴ Industry sector of employment

INDUSTRY SECTOR	2006	2011	INCREASE	PROPORTION OF JOBS IN VICTORIA 2011
Retail	193,913	203,760	9,847	11.6%
Education and Training	130,201	153,117	22,916	7.7%

Source: Australian Bureau of Statistics, [Census of Population and Housing 2006 and 2011](#). Compiled and presented in profile.id

⁵ ‘The prioritisation of the needs of people has resulted in a significant reduction in the level of car dependency, car ownership and use, eliminating many unnecessary car trips to and within the city. More people are walking, cycling, motorcycling and using public transport, helping to reduce congestion and pollution.’ *Road Safety Plan 2013 - 2017*

⁶ ‘Planned growth in areas including the Docklands, Southbank and Fishermans Bend precincts, together with the normal growth of established areas, will increase demand for walking, cycling and motorcycling, particularly in the central city. This will put pressure on existing infrastructure to support the safe and convenient movement of people for a range of activities during the day and at night.’ *Road Safety Plan 2013 - 2017*

⁷ The Melbourne Planning Scheme requires motorcycle parking to be provided in all car park developments at a rate of one space for every 100 car spaces. In the CBD, this provides for a motorcycle mode share of 0.2 per cent of all trips. The proportion of workers riding motorcycles (or scooters) into the CBD more than doubled (to two per cent of all workers’ trips) between 2004 and 2006, although motorcycles are only one per cent of all trips to the city, according to the 2007 VISTA figures.

2012 Transport Strategy

⁸ *Dodging Scooters*: Taiwan's Transportation Mode Share 2013 Blog.

⁹ In 2009 – motorcycles represented 45% of the national motorised fleet in Colombia.

Determination Of Motorcycle Passenger Car Equivalence For Uninterrupted Flow In An Urban Road Of Medellin, Colombia. Peña, Bocarejo 2014

¹⁰ 9309.0 - Motor Vehicle Census, Australia, 31 Jan 2014

¹¹ <http://www.tac.vic.gov.au/road-safety/statistics/summaries/motorcycle-crash-data>

¹² http://www.bitre.gov.au/publications/2012/is_044.aspx

¹³ 9309.0 - Motor Vehicle Census, Australia, 31 Jan 2014

¹⁴ Directions for the Motorcycle Industry 2014-2016 FCAI

15 The City of Melbourne is the most significant journey to work destination for motorcycle trips. The share of motorcycle trips to work is 0.6% across the State and 0.46% across the metropolitan area.

16 Victorian Integrated Survey of Travel and Activity (VISTA) years 2007-08/2009-10

17 <http://www.carsguide.com.au/car-advice/car-prices-hit-new-record-lows-29128#.VSX75hOUcQI>

Commsec figures estimate it now takes someone earning the national average wage 25.9 weeks to buy a large family car compared to 31.3 weeks three years ago and 37 weeks a decade ago.

The Toyota Corolla has the same \$19,990 starting price today as it did 20 years ago, despite the new model being significantly safer, more economical and better equipped.

If the price had kept up with inflation (66 per cent over the past 20 years, according to the Reserve Bank of Australia), today's Toyota Corolla would cost from \$33,300.

18 In 2009-10, average weekly household expenditure on motor vehicle fuels, lubricants and additives was \$51 per week, a real increase of \$12 (at 2009-10 prices) since 2003-04.

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features40July+2013>

19 EV: \$4-5 to travel 150km based on recharging the 24kWh Nissan LEAF battery using a time of use rate of 0.17- 0.20 cents per kWh. <http://www.originenergy.com.au/blog/big-picture/inside-an-electric-car.html>

Toyota Yaris: 5.7l litres per 100km. 8.563 litres for 150km @ \$1.30 per litre = \$11.

20 An estimated 3,500 motorcycles a day use CityLink, about 1 per cent of the toll road's daily traffic. The Age *Motorbikes' free Citylink ride to end* 15 October 2013

21 'In Victoria, motorcycles can be legally parked on the footpath (unless otherwise signed) as long as the motorbike does not obstruct pedestrians, delivery vehicles, public transport users or parked cars. While this is beneficial for motorcycle riders, it can have drawbacks in terms of pedestrian access, safety and amenity in the CBD. Continuing growth in pedestrian numbers will put increased pressure on footpath parking for motorcycles.' *City of Melbourne Transport Strategy 2012*

22 In 2003 the US EPA recognised that motorcycles are more polluting than cars

- 'most motorcycles pollute more than cars, trucks, and SUVs per mile driven (and will continue to do so in the future)'
- 'While we agree that motorcycles generally achieve better fuel economy than passenger cars and light-duty trucks, we do not agree that these benefits outweigh the significantly higher emissions of a motorcycle.'

Source: *Summary and Analysis of Comments: Control of Emissions from Highway Motorcycles EPA 2003*

Traditional two strokes in particular are high polluters

- Hydrocarbon emission from a single two stroke can exceed those from three uncontrolled passenger cars
- Particulate matter emissions can exceed those from a heavy duty diesel truck

Source: Air pollution from Motor Vehicles World Bank 1996

Not much has changed since then – because while the technology exists, and lower emission motorbikes are imported from countries with emission standards, there are no mandatory standards for motorcycle emissions control in Australia

- The current (2006) Australian Design Regulations (ADRs) do not regulate motorcycle emissions
- Though the ADRs do regulate noise

In other countries, the contribution of motorcycles to emission of nitrous oxides & particulate pollution is a focus of regulation:

- The US (2004) and EU (Euro 4 2004) have regulated the emissions from two and four stroke motorcycles
- Austria, Switzerland & Taiwan are among countries that limit two-stroke pollution by requiring fuel injection, catalytic converters and regular inspections

23 Determination Of Motorcycle Passenger Car Equivalence For Uninterrupted Flow In An Urban Road Of Medellin, Colombia. Peña , Bocarejo 2014

24 VicRoads Traffic Monitor September 2014

25 Lane Widths on Urban Roads SKM 2010

26 VicRoads website <https://www.vicroads.vic.gov.au/safety-and-road-rules/road-rules/a-to-z-of-road-rules/motorcycles>

²⁷ King Street inbound south of Flinders Street

	MARCH 2009	MARCH 2014
Number	102	209
Mode share	3.97%	3.11%

Source: *City of Melbourne Cordon Count*

28 <http://www.stayupright.com.au/victorian-courses-booking-page>

29 VicRoads Investigation of Driver and Motorcycle Rider Attitudes toward Each Other Final report

30 <http://www.roadsafety.vic.gov.au/vehicles/motorcycles/56-motorcycles-safety.html>

31 <http://www.tac.vic.gov.au/road-safety/statistics/summaries/motorcycle-crash-data>

32 Motorcycle Lane-splitting and Safety in California Safe Transportation Research & Education Center University of California Berkeley May 2015

33 <http://www.tac.vic.gov.au/road-safety/statistics/summaries/motorcycle-crash-data/motorcycle-acute-hospitalised-claims-by-time-and-day-of-crash>

34 Comment:

I use to ride my 150cc scooter from Wantirna to Docklands (monash fwy from Toorak rd).

I rode this as soon as I got my learners (note I am female and a very cautious person). The Monash is easy. It was when I got off the freeway and onto Burwood highway that I would have issues with other drivers. Traffic is fine. Even if it is a bit backed up, you just lane split (I only did in slow moving traffic). I have done so in front of police cars, who have never done a thing as I think they know they have no way of 'giving chase'. Plus they are talking about making lane splitting legal anyhow.

Afternoon traffic seemed to be the worst, and that's when the rain seems to set in too. But it didn't matter so much to be rained on at night. (if it rained in the morning, I rode/drove to the nearest train station). Parking on the footpath is free and encouraged. I never had an issue with people touching my scooter during the working day or late at night. I highly recommend it :)

Source: <http://forums.whirlpool.net.au/archive/2025660>

35 <https://www.vicroads.vic.gov.au/safety-and-road-rules/cyclist-safety/power-assisted-bicycles>

36 <http://www.cityclock.org/urban-cycling-mode-share/#.VULrp62qpBc>

37 Cycling into the Future 2013 - 2023

38 Melbourne Bicycle Account 2013

39 Australia Cycling Bicycle Ownership, Use and Demographics July 2004

40 Rohl, A., 2009 - in "Summit starts with lessons from Copenhagen," J. Maus, BikePortland.org, March 10, 2009

41 VISTA data show that the average total distance travelled per day by householders in the Melbourne metropolitan area during 2007-08 was 33km, comprising 28.2 km (85.4%) by car and 0.26 km (0.8%) by bicycle. Distances were similar for the total sample, which included metropolitan Melbourne and regional Victoria

Cycling injuries in Australia: Road safety's blind spot? by J Garrard, S Greaves and A Ellison 2010

42 When trip frequency is accounted for, the average monthly expenditures by customer modes of travel reveal that bicyclists, transit users, and pedestrians are competitive consumers and for all businesses except supermarkets, spend more, on average than those who drive.

Source: *Consumer Behavior And Travel Mode Choices Oregon Transportation Research and Education Consortium 2012*

43 <http://www.mamamia.com.au/wellbeing/6-reasons-to-ride-a-bike/>

44 <http://www.tac.vic.gov.au/road-safety/statistics/road-toll-annual>

45 Cycling into the Future 2013–23 Victoria's cycling strategy

46 <http://chartingtransport.com/tag/census-journey-to-work/>

47 "Rapport Elektrisch Fietsen – Marktonderzoek en verkenning

toekomstmogelijkheden" (Electric Cycling: market research and exploration of prospects) based on 1,448 questionnaires June 2008

48 Pedelects Guidelines for Sustainable Public Procurement Brussels, 26 May 2010

49 Niederländischer Fietsberaad (www.fietsberaad.nl) / Kennisinstituut voor Mobiliteitsbeleid (www.kim.nl) 2013

50 <http://www.statista.com/statistics/397765/electric-bicycle-sales-in-the-european-union-eu/>

51 Bike Europe <http://cleanrider.com/electric-bicycle-sales-booming-europe/>

52 Clause 52.06 Purpose

1. To ensure that car parking is provided in accordance with the State Planning Policy Framework and Local Planning Policy Framework.
2. To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.
3. To support sustainable transport alternatives to the motor car.
4. To promote the efficient use of car parking spaces through the consolidation of car parking facilities.
5. To ensure that car parking does not adversely affect the amenity of the locality.
6. To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.

53 Motorcycle Notes VicRoads 2001

54 Before deciding on an application which includes the provision of car parking spaces, the responsible authority must consider as appropriate:

- Any relevant local planning policies.
- Whether the proposal involves the making or the use of an access point across a traffic conflict frontage.
- Any effect on vehicle and pedestrian traffic in the area.
- The safety and convenience of pedestrians moving to, from and within the car parking facility, including lighting levels, surveillance systems, signage, ease of orientation and visibility.
- Whether any public car park facility will be connected to the City of Melbourne Parking Guidance System.
- The extent to which the proposed access point would conflict with any proposal to limit or prohibit traffic in certain roads.
- Any alternative route by which access to the car park could be obtained.
- The ease with which casual visitors to the central city can find, enter and leave the facility.
- The size, internal design and general operation for users.
- The location and context of directional and pricing signage to enable easy customer recognition before entering the car park.
- The suitability for use during weekends and outside normal business hours.
- Whether the development incorporates bicycle and motorcycle parking.
- Whether the development incorporates other uses in the site that will contribute to achievement of relevant policies.
- The current usage patterns of any nearby public parking facilities.
- Any adverse impacts on present vehicular traffic flows and in the context of any likely future changes in car parking and traffic conditions in the area.

CRITERIA	REQUIRED	NOT INCLUDED
Area (Zones)	PO1, 2, 13	Ten Parking zones: PO 3 – 12 Area of municipality outside the Parking Zones
Quantity	1 motorcycle space per 100 car parking spaces	Developments without car parking, Developments with fewer than 100 car spaces
Quality		No quality requirement
Guidance		No guidance

55 <https://anthonymarker1.files.wordpress.com/2012/02/20120219-215354.jpg>

56

MOTOR VEHICLE MODE SHARE PER 100 COMMUTERS	MOTORCYCLE MODE SHARE PER 100 COMMUTERS	CARPARKS	EQUIVALENT CAR PARK SPACES	MOTORCYCLES PROVIDED FOR
40	2	40	1	2
40	4	40	2	4
20	2	40	2	4
20	4	40	4	8

57 Keith's blog: <http://traveling-biervoormij.blogspot.com.au/2011/08/bike-parking-amsterdam-south-train.html>

58 <http://www.theguardian.com/sustainable-business/2015/apr/16/ten-quirky-ideas-for-making-our-cities-more-sustainable>

59 <http://www.slideshare.net/ScottMartinCMILT/11-martin>

60 http://www.huduser.org/portal/pdredge/pdr_edge_inpractice_032414.html

61 <http://www.arba.ie/bicycleLockers.html>

62 http://www.elitedeepcleaningservices.com/?_escaped_fragment_=fitness-cleaning-services/c94d

63 <https://stromberg-products.com/c/Wire-Products>