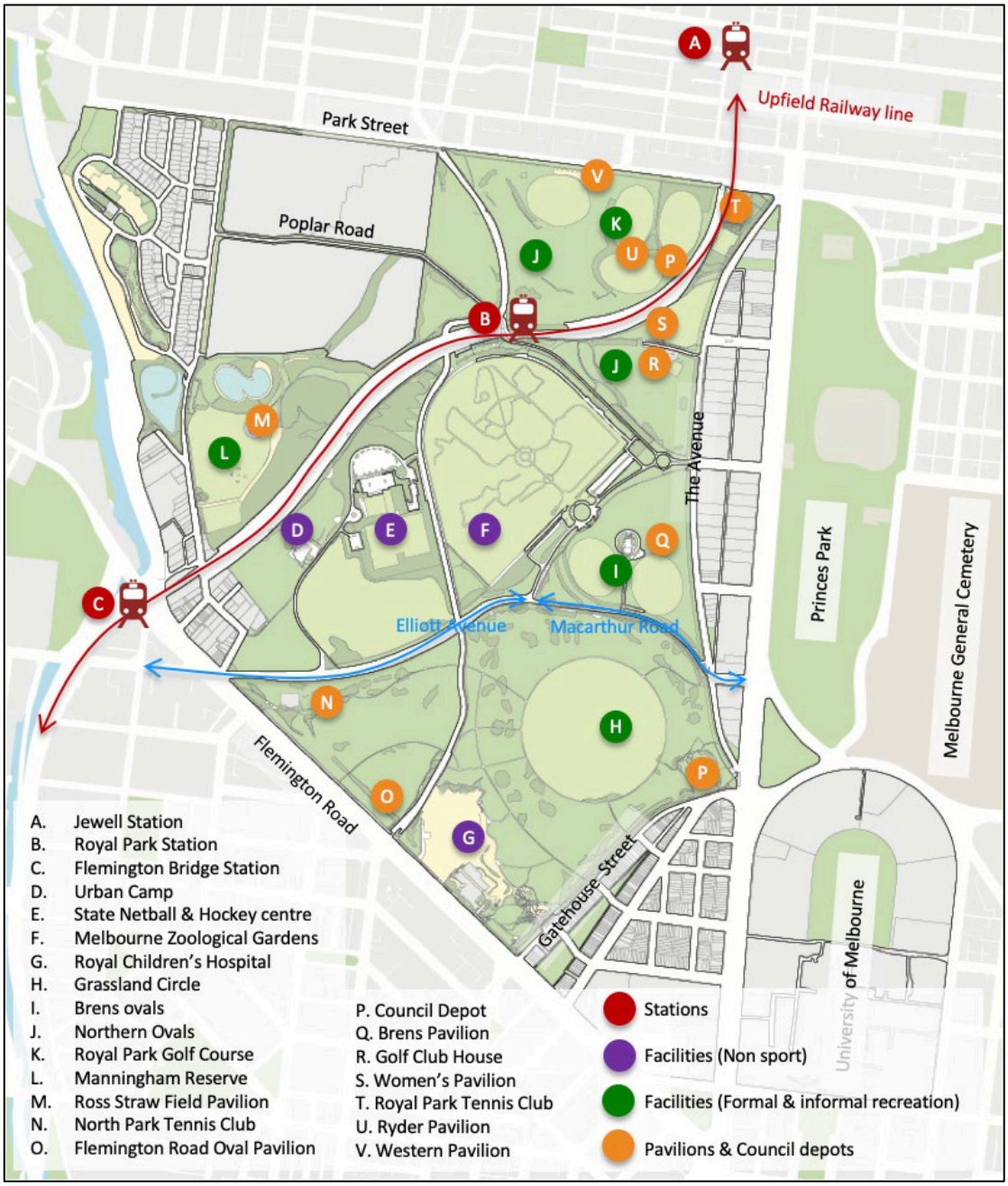
PHILLIP BOYLE
& Associates

Royal Park – Transport Discussion Paper

City of Melbourne

9 September 2019

FIGURE 1: MAIN FEATURES OF ROYAL PARK



Source: Phillip Boyle & Associates

Executive Summary

This discussion paper considers transport in relation to Royal Park.

The paper has been developed to support the City of Melbourne's preparations for the process of creating the next Royal Park Masterplan. For this preparation it is appropriate that a detailed transport study be prepared that considers transport in relation to the aims for the park and reviews the directions and actions related to transport in the current and previous Masterplans. The aim of the paper is to provoke thinking about issues related to transport and recommend areas for further analysis by the City of Melbourne and the community as the next masterplan develops.

Royal Park is the largest park in the City of Melbourne with important values, including biodiversity and cultural heritage. The passive and active recreation opportunities in the park make a significant contribution to people's social connectedness, mental health and wellbeing. The park also provides ecosystem services such as stormwater reuse and the mitigation of urban heat. The importance of this area of parkland will grow as Melbourne's population increases.

The high value of this park land has not protected Royal Park from damage. The original area of park land envisioned in in the 1840s has been repeatedly cut back to provide land for other purposes and repeatedly cut across by transport links including a railway and tram line in the 1800s and a tram line and east-west road in the 1900s.

The previous (1985) and current (1997) Masterplans provided guidance and recommendations that sought to protect the park from further excisions and fragmentation and, where possible, to repair and restore the integrity of the park. Recognising that some of the value of the park was in its use by people, the plans also sought to facilitate visitation.

Broadly, this paper endorses many long-standing recommendations from the masterplans including road removals (such as Old Poplar Road) and road closures (such as in locations along The Avenue). The paper updates some masterplan recommendations, for example a 30 km/h speed limit is recommended rather than the unrealised aspiration for a 40 km/h limit. Additional recommendations complement and extend those in previous masterplans.

In this report positive outcomes for park land are defined in as protecting the current park land from transport, recovering land lost to transport and expanding the area of the park. Positive outcomes for transport are defined as increasing the number of people who visit the park land. It is recommended that the Council aim to achieve both goals – a win win – and avoid compromising one factor in pursuit of the other.

The aim of the next section of the Summary is to provide an overview of the report. The discussions in the paper and the recommendations are outlined below along with references to the Chapters where the issues are discussed more fully. Two of the Figures used in the body of the report are reproduced here in the Summary.

PHILLIP BOYLE & Associates

An overview of the report

The report is in four parts:

- Part 1 defines three positive outcomes for park land: protect park land, recover lost land from transport and expand the area of the park. The discussion considers how each of these aims might be achieved.
- Part 2 discusses a definition for 'visitation' or the number of people visiting the park. It then considers how walking, bicycle riding, public transport and arrival by car could be enhanced and optimised to increase visitation.
- Part 3 draws from the discussion a series of recommendations grouped under policy, management and infrastructure 'packages'. An infrastructure package has been designed for each of the areas within the park as well as for both the active transport network within and the network around the park.
- The Appendices provide information on the information gathered for the assessment including on the areas of car parking and the use of public transport to reach the park.

Part 1 – More Land considers park land.

1 Protect park land explores ways to protect park land from further loss. External and internal risks are discussed:

- The possibility of the revival of the idea of an arterial road tunnel through the park is identified as a key external risk. The masterplans were, and are, in favour of tunnels but the project proposed in 2013 would have further damaged the park. The paper recommends that all roads within the park be disconnected from Elliott Avenue/MacArthur Road. These actions will ensure that, were the current surface road to be replaced by a tunnel, the project could be done in a way that no land from the park was lost.
- Internal risks to the park land include loss of land to the path network and car parking (including the 'soft surface' car parking areas and non-compliant parking on the parkland). (The negative impact of motor vehicle use on the visual quality of the park as well as the quality of soil and air is noted.)

The second discussion about park land considers how land that has been lost to transport can be recovered *(2 Recover park land used by transport facilities).* The masterplans identified the impacts of severance (cutting one area off from another) and intrusion (roads and parking areas pushed into the park). In response the masterplans recommended the rationalisation and relocation of transport facilities. This approach is endorsed:

- Twelve cases of severance are listed including severance caused by roads and rails. Remedies are suggested including those put forward in the masterplans. Recommendations include bridges, an underpass and the removal or realignment of the facility causing the problem. The current Masterplan noted the problems around Royal Park Station and investments were made. Unfortunately, this investment did not resolve the problems and the facilities in the area continue to cut off parts of the park from each other.
- Nine road intrusions are identified, eight of which were identified in the masterplans. The removal of Old Poplar Road, for example, has been recommended in the masterplans and in this discussion paper.
- Both Masterplans sought to relocate and remove parking areas (without compromising visitation). The use of parking bays in and around the park was studied by recording vehicle number plates over several days. *(See Appendices A – C)*. This study revealed that the parking areas were never more than half full. The maximum occupancy recorded in the 3,000 bays was 46%. At most times more than three quarters of the

bays were empty. There is therefore the opportunity to remove some of these bays and increase the area of park land without compromising visitation to the Park or patronage of the major venues. This recommendation could release more than a hectare of land to the park. (A hectare is roughly equivalent to a playing area for baseball or rugby.)

- The paper recommends that seven areas of car parking be removed from within the park. An example is the triangular parking area at the western or 'railway' end of Old Poplar Road which in the words of the current Masterplan occupies a 'desirable' hilltop location.
- Nine opportunities for the relocation and rationalisation of facilities are noted. The facilities inside the boundary of the park and away from the internal road system are associated with access roads and parking areas. Park land can be recovered by placing facilities such as pavilions on the boundaries of the park. This enables the road and parking areas to be removed from the park. Relocation provides an opportunity for consolidation of facilities that are currently separated and duplicated. One opportunity is in the north of the park where several pavilions and a Council depot can be rationalised, consolidated and relocated closer to the northern park boundary.

The last section of Part 1 *(3 Expand the area of parkland)* considers how the park land can be expanded beyond the current boundary – reversing the trend of the past one hundred years. The concept of expansion was touched on in the masterplans. This paper suggests that expansion be a major theme in the next masterplan. It is recommended that the concept of 'entrances' to the park used in the current Masterplan be replaced by the concept of 'extensions' to the park. Extension of the park can be achieved by consolidating fragmented open space in roadways leading from the park as was done so successfully in Errol Street North Melbourne. One of the proposed 'extensions' of this type is a link between the park and the Arden precinct in North Melbourne. Eleven opportunities for expansion are listed including strengthening the open space (and active transport links) to Princes Park and the Moonee Ponds Creek. (See Figure 2 below.)

Part 2 – more people considers visitation or 'people coming to the park'. It is suggested that the term visitation replace 'access', the term used in the masterplan, as access is not measurable. Unlike access, which can exist when no one is in the park, visitation only occurs when someone visits. Visitation can be used to measure success. Were it to be found that more people visit Royal Park in 2025 than in 2020, then the next masterplan can be seen to have been successful. The paper recommends that steps be taken to measure visitation.

To support this measurement-based approach a definition of visitors is discussed. (This term has been left vague in the masterplans.) The definition recommended is that a visitor is someone on foot or on a bicycle or someone (however they arrived at the park) who is participating in formal or informal, active or passive activity. The definition excludes 'patrons' of the Melbourne Zoo and the State Netball & Hockey Centre unless and until they 'become a visitor' through the definition above. (A similar distinction is made in Central Park between visitors to the park and people who go to the Museum of Modern Art which lies inside the park. Some MoMA patrons leave the gallery by the back door to enjoy the park and thereby count as a patron and a visitor.)

The next sections consider how increased visitation can facilitated by the transport system.

5 Improve the Circulation network considers the foot and bicycle paths in the park – the foundation of all visitation. The discussion considers the purpose of the Circulation network and suggests three categories of path: wandering paths that support informal, passive recreation, paths to destinations and links to the transport system beyond the park. The masterplan did not articulate a clear purpose for the network that resolved potential conflicts between the three categories. As a result, the network and its components have

weaknesses. Some wandering paths (to judge by their alignment and width) are also heavily used by people heading to a destination, some paths to destinations are indirect – the path from Royal Parade to the Melbourne Zoo is an example. Priority crossings of roads are often absent and external links have not been developed. There is no support for pedestrians trying to cross to the park from Dryburgh Street North Melbourne or across The Avenue on Walker Street for example.

A process of adjustment and development of the network is proposed based on a hierarchy of major and minor paths with different widths and surfaces to avoid the proliferation of wide pathways with a hard surface. Six narrow corridors are identified where the network is constrained. It is recommended for example that the 'Cunningham Dax' corridor between the railway line and the West Parkville employment precinct be widened if possible. Path lighting, visitor orientation and motor vehicle speeds in the park are discussed. A 30 km/h speed limit is recommended.

6 Increase public transport use considers whether and how increased use of public transport could support increased visitation to the park and patronage of the major venues in the park.

Investigations suggest that the opportunity to increase the use of public transport is greatest for patrons of the Melbourne Zoo. Between one third and a half of the people who come to the Zoo by car would consider switching from a car trip, most to the train. Surveys found that people come by train to the park on workdays from all over the metropolitan area. There is therefore no reason why Zoo patrons could not and would not do the same. Unfortunately, other surveys found most Zoo patrons who come by car do not know the name of the Station at the Zoo. Some patrons did not even know that there is a Station near the Zoo. A significant proportion of patrons open to switching to the train said their choice of mode would be influenced by a zero-cost ticket. Several recommendations are made in the light of these findings including changing the name of the station to Melbourne Zoo Station, reconfiguring the Station Precinct and integrating it with the Zoo as well as providing free train trips on summer weekends during opening hours and on weekdays during some school holidays. This effort to change travel behaviour would be supported by complementary parking management.

7 Optimise car parking behaviour considers how the use of parking bays in and around the park could be optimised. Surveys of parking found that currently many bays lie empty for long periods. When theses bays are in use, local peaks are experienced in which a small number of bays are overloaded. This is the worst-case outcome for the park – a large area of land is lost to rarely used parking for little gain in visitation.

A process of integrated parking management is outlined that defines a 'virtual car park' encompassing all the parking bays inside the park and around the perimeter – a pool of around 3,000 bays.

It is proposed that a car park manager, operating in cooperation with the State Netball & Hockey Centre (which owns a proportion of the bays) would manage these bays to support patronage of the major venues and support increased visitation to the park. The manager would gather data on use and adjust controls (including time and price) around the park. To do this effectively a State Government regulation limiting parking fees near the Melbourne Zoo would need to be modified. The manager would work to avoid peaks and provide people who choose to come by car with clear options based on walking distance. Revenue from the carpark could be used to support alternative modes including a supporting a 'diversion' program that provided incentives for Melbourne Zoo patrons to come by train.

Part 3 – Recommendations. The introduction to the Recommendations notes that the masterplans were and are strong on 'actions' but relatively weak on explicit policy – such as the definition of a visitor – and weak on management tasks, measures and goals. These weaknesses have left areas of ambiguity which may partly explain why some clear and long-standing directions or actions have not been realised.

Among the recommendations – especially those related to policy and management – there are some that can be progressed in the short term as they are unlikely to be inconsistent with the new Masterplan. Measuring the areas of the park, counting the number of visitors and developing the unified management of the parking bays are examples of 'early wins' that can be achieved.

- Policy recommendations are made under 12 headings: P1 – P12. Some examples of these policies or management tasks, measures and goals have been indicated above. Most of these recommendations serve to make explicit the implied directions in the masterplans and are sorted by policy and actions. For example, P1 includes the recommendation that park land goals be monitored by regular precise measurements of the use of each square metre of land in the park. P2 contains the definition of a visitor while P3 'Measure the number of visitors' lists some ways this could be done and proposes that it is done each year.
- Six infrastructure packages are proposed, one for each of the areas within the park and two that cover the active transport network within and around the park. Each package contains multiple, mutually-reinforcing interventions that can recover land and increase visitation. Package A for example, (See Figure 3) recommends:
    - The informal parking areas around the Melbourne Zoo be relocated to the area between the northern entrance of the Melbourne Zoo and the State Netball & Hockey Centre. In this location the bays can be used by people attending both centres. As the parking areas of both centres are currently isolated from each other, consolidation of the current number of bays would be perceived by patrons as an increase in available parking.
    - Such a relocation could include the release of the hilltop area to the east of Poplar Road for parkland redevelopment.
    - The new parking area could be laid out more efficiently reducing the area occupied by the same number of bays and releasing land to the park.
    - The relocation and redesign of parking areas would also allow the redesign of the Melbourne Zoo/Royal Park Station precinct to provide a high level of amenity for people arriving by train, integration with the Zoo and reduced severance for park visitors.
    - Included in this package is the removal of three roads – Poplar Road west of Royal Park Station, Brens Drive and Elliott Avenue west of the entrance to the Melbourne Zoo.
    - A new parking access road is proposed south of the railway line linking Manningham Street with the shared pool of parking bays and Poplar Road east of Royal Park Station.

The infrastructure packages are not sorted against each other by priority or time. This cannot be done until the park goals have been set through the masterplan process. The recovery of land of land for example, may not emerge as a high priority in the masterplan process.

Nor are the 'area' packages prioritised against each other. Decisions taken in the masterplan process will identify which areas and therefore which packages are a high priority. The actions within packages do not have priorities assigned to them, as it is the

recommendation of this report that each package be implemented in full.

The Appendices. Rather than interrupt the narrative with detailed statistics, the information gathered in studies for this Assessment have been gathered in Appendices. *The* Appendices include sections on:

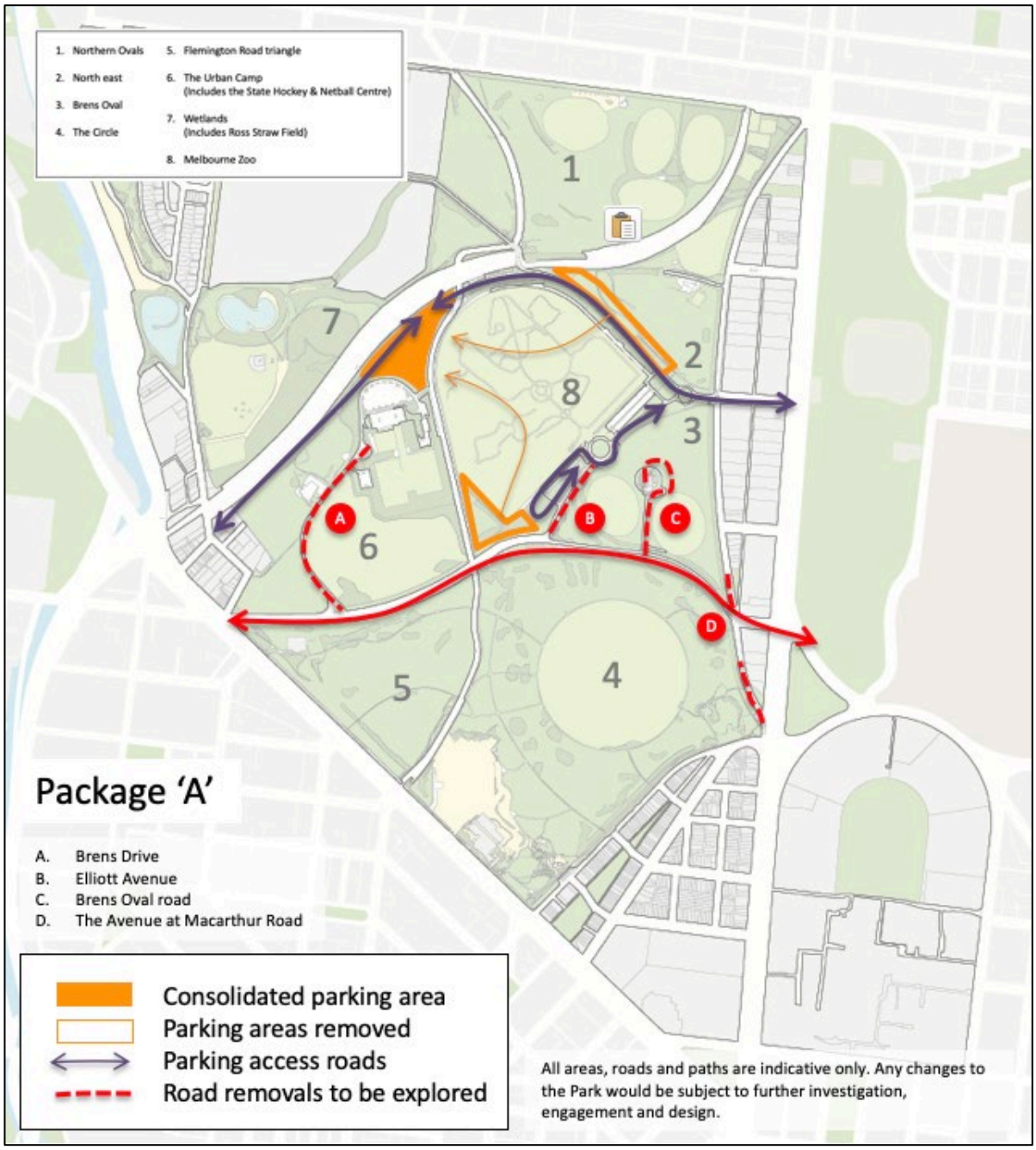
- The areas of parking are considered in detail including their location and character.
- The results of an investigation into the level of use of parking bays are reported.
- The home postcode for players in some sporting clubs is reported. It was found that some sports and venues are supported by a widely dispersed population. On the other hand, many Royal Park Tennis Club members live within a few kilometres of the park.
- An assessment of public transport is provided. The results of investigations into the use of Royal Park Station during the week and on a weekend are reported. Members and patrons of the Melbourne Zoo were interviewed at the southern gate and online to understand their travel behaviours and perceptions. The results of these interviews are provided.
- Community feedback was gathered through several local meetings. The themes that arose in those sessions are reported.

FIGURE 2: RECOMMENDED EXPANSION CORRIDORS

A. Extend along the Upfield railway line
B. Widen the Capital City Trail
C. Establish a perimeter path around Princes & Royal Parks
D. Extend the Australian Native Garden across The Avenue to Royal Parade
E. Extend along Ievers Street to Royal Parade
F. Extend to the reserves in Errol Street North Melbourne
G. Extend to Gardiner Reserve and the Arden precinct North Melbourne
H. Extend to Boundary Road Reserve
I. Link the Urban Camp to Debney's Park and the Moonee Ponds Creek
J. Link Royal Park to Travancore Park and the Moonee Ponds Creek
K. Explore a Park extension along the tram line to Grantham Street

Source: Phillip Boyle & Associates

FIGURE 3: PROPOSED CHANGES IN PACKAGE 'A' FROM THE RECOMMENDATIONS



Source: Phillip Boyle & Associates

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Contents

Introduction

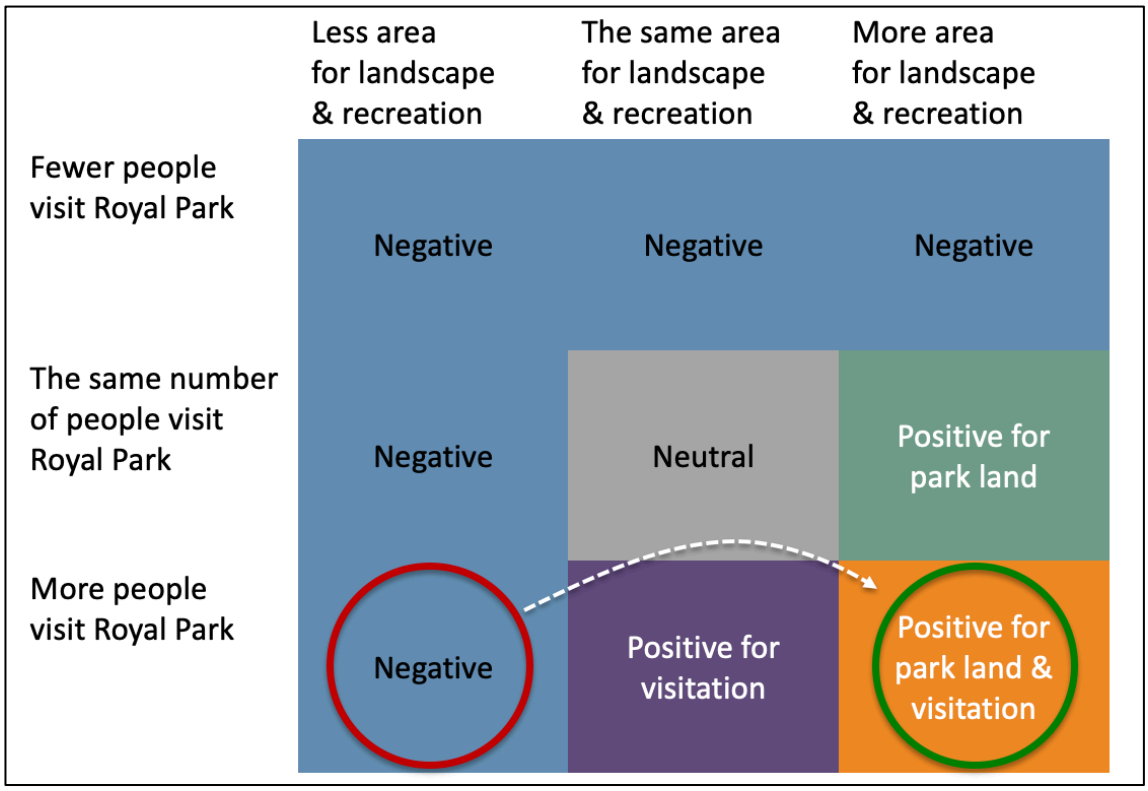
Royal Park is the largest park in the City of Melbourne. In its original concept it was even larger, incorporating the land between Lygon Street and the Moonee Ponds Creek.

Unfortunately, from a park perspective, this large reserve has been steadily reduced in size. Piece by piece, the original reserve has been used to establish other functions such as the University of Melbourne, the Melbourne General Cemetery, the Royal Park and Children's Hospitals, the Melbourne Zoo and the State Netball & Hockey Centre. In addition, transport routes were cut through the remaining areas including the embankments and cuttings of the Upfield Train line, the West Coburg tram line and, after the Second War, an arterial road between Royal Parade and Racecourse Road.

Both the previous and current Masterplan have sought to halt these trends – stopping the reduction of the total area and the fragmentation of the remaining land into unusable areas – and sought to bind the remaining parts of the park into a more valuable whole.[1]

These 'park land goals' are in tension with the goal – also supported by the Masterplan – of maximising the number of people who enjoy and benefit from the park. This tension has made decisions about transport difficult. The desirable outcome is to enhance the park while simultaneously increasing the number of people who visit. Misguided efforts can have a negative impact or strengthen one goal without strengthening the other. This Transport Assessment considers, across all the issues of land and transport, how to achieve, over the period of the next Masterplan, a win-win outcome for both goals. Figure 4 below illustrates the desirable outcome in the bottom right-hand corner.

FIGURE 4: A POSITIVE OUTCOME FOR PARK LAND & VISITATION



Source: Phillip Boyle & Associates

Part 1: More land

This Part considers the 'park and land' aims for transport in Royal Park.

Three themes are considered:

- **Protect** The well-known investor Warren Buffet's number one rule for investors is 'never lose money'. This rule can be adapted for land in Royal Park. Rule number 1 must be 'never lose land'. Chapter 3 takes a risk perspective considering external risks such as the 2013 tunnel project and internal risks such as the expansion of car parking areas. Other harms caused by the transport system are also identified.
- **Recover** Improving the efficiency with which land is used – 'rationalise' is the term used in the current Masterplan – provides an opportunity to recover land from transport for the park. Examples of these opportunities include removal of dead-end roads such as Old Poplar Road and inefficiently laid out parking areas. Chapter 4 considers these opportunities by the value they create: reducing severance to connect the separate areas of the park, removing intrusions into park land as well as relocating uses to less prominent or more efficient locations.
- **Expand** Just 350m south of the park the Council has had success reorganising roads to consolidate fragments of open space into a more valuable whole.[2] Chapter 5 identifies the corridors where this technique can be applied. The effect will be to extend the area of park land into the surrounding areas, expanding the total area of the park.

1 Protect park land

1.1 Introduction

The introduction of and improvements to transport facilities in the park have reduced the land area of Royal Park and fragmented the remaining land.[3] Future risks to the park land include:

- External transport projects, such as a potential east west tunnel that, like the cancelled 2013 East West Link project, reduces the area of the park by introducing tunnel entrances and exits and links to local surface roads
- Further widening of local roads within and around the park that reduce the area of the park[4]
- Expansion of the area of pathways that support circulation in the park
- Expansion of car parking areas within the park[5]
- The use of informal parking areas
- The perception of the value of the Australian landscape

This Chapter considers how these risks might be mitigated.

1.2 External risk

1.2.1 Minimise the risk of loss of park land to external transport projects

The land area of Royal Park is at risk from external transport pressures. The key risk is the potential expansion of the arterial road through Royal Park along MacArthur Road and Elliott Avenue.

The impact of the existing road east west arterial route has been recognised by past Masterplans. The physical and visual severance of the route was addressed in the 1985[6] and 1997[7] plans. The proposed solution in both plans was to put the road in a cut-and-cover tunnel.

A tunnel across Royal Park came close to realisation in 2013 when the East West Link project sought to link the Eastern Freeway and the City Link and Tullamarine Freeways through Royal Park. Even though the concept of a tunnel is supported in the current Masterplan, the tunnel design proposed in 2013 was not supported by the City of Melbourne. Council formally expressed concerns about the 2013 tunnel plan, arguing that the design contained unnecessary and inappropriate additional roads (tunnel access ramps) and that the project would have a negative impact on Royal Park.[8] The Council stated that the proposal significantly underestimated the loss of land in the park estimated by the project at 1.3ha (1% of total area). The Council estimated the loss of land at 9.3ha (6% of total area).

The cancellation of the 2013 tunnel project was due to several factors. From a transport perspective it can be said that, relative to other projects, the cost of the link was considered to be greater than the benefit at that time. A link between the Eastern and Freeway and City Link is identified as a longer-term project in Infrastructure Victoria's 30 Year Infrastructure Strategy and it is likely that at some stage over the period of the next Masterplan, this assessment will be reviewed and may again be proposed and may be funded. Although the

link is not currently City of Melbourne policy, Council can take two steps to make it more likely that any such future link is at least neutral for Royal Park or even enhances its qualities.

Develop a concept and outline plan that is positive for Royal Park

It is important that the City prepare concept plans that identify how and where such a link could be constructed through and under Royal Park. This plan would identify all the possible risks to the park including constructions sites, ventilation shafts and portals. The plan would identity all possible related benefits and opportunities including the value of removing the east west road from the park.

With such a plan in hand, it is possible that the Council concept design would be incorporated into a future design for the link. Even if that were not so, such a plan would strengthen the Council's case for an equivalent or better outcome if and when the designs for a future link were debated.

Remove all road links to Elliott Avenue/MacArthur Road

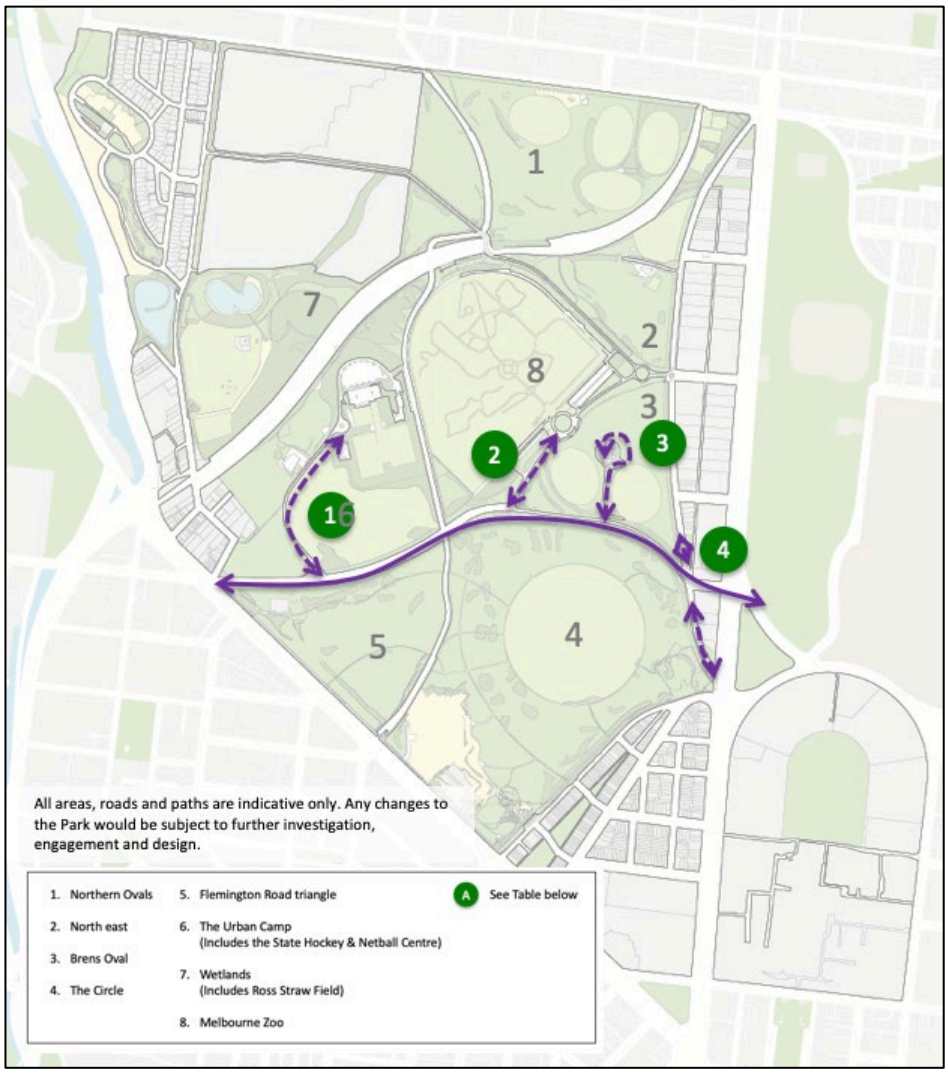
One of the high-impact elements of the 2013 East West Link plan were the access ramps proposed from the tunnel to destinations in Royal Park. In the initial design two ramps were proposed linking the tunnel to Elliott Avenue. (These ramps were removed in the final design.)

To avoid ramps to and from a tunnel (or tunnels) through and under Royal Park, it is important that the Council begins a process of detaching the through arterial route from the local and park access roads. The following roads should be unlinked from Elliott Avenue/MacArthur Road:

1. Brens Drive
2. Elliott Avenue south west of the Melbourne Zoo
3. The access road to Brens/Walker/Smith Ovals
4. The Avenue

Alternative access is available for all these links except Brens Drive. To disconnect Brens Drive from Elliott Avenue/MacArthur Road, alternative access to the Urban Camp and State Netball & Hockey Centre would need to be provided. How these links might be replaced is discussed in Chapter 2.

FIGURE 5: RECOMMENDED DISCONNECTIONS OF LOCAL LINKS FROM THE EAST WEST ARTERIAL ROAD



Source: Phillip Boyle & Associates

1.3 Internal Risks

Park land is at risk from internal pressures including directions endorsed by the current Masterplan.

1.3.1 Avoid loss of land

Measure the area of all transport uses

A key risk is the expansion of roads, transport easements and car parking areas. The first step to protect the park land is to ensure that each of these areas is measured, and the measurement is repeated regularly.

Both Masterplans have endorsed reduction and rationalisation of the area set aside for transport. Under this direction in the 1985 Masterplan significant works took place around the Zoo. Roads and car parking areas were removed, and new roads and parking areas installed. Significant landscaping was undertaken. Unfortunately, without before and after measurement of these areas, it is not possible to say whether these significant capital

investments produced a net reduction, a reorganisation or an increase in the area used by transport.

With detailed measurements of all transport areas, the next Masterplan can continue the emphasis on reduction and rationalisation with confidence knowing that:

- Large or small-scale changes intended to reduce the area set aside for transport have been successful
- Offsets can be negotiated across the park allowing changes in one area of the park to be offset by changes in another area
- Small-scale local rationalisations of space lead to a positive or at least a neutral outcome

Measure the area of shared paths

Under the directions of the Masterplan the land area of Royal Park is at risk from an expansion of the shared path network.

The previous Masterplans unambiguously supported improvements to the walking and cycling networks. 'The network of shared foot and bicycle paths throughout the park should be completed. To accommodate shared use, these paths should be 2.5 metres wide with asphalt paving.' (1997).

The role and importance of this circulation network is discussed in Chapter 5. Under this heading it is necessary to note that this policy setting does not limit the area of the paths. Aerial photographs suggest that there are many informal tracks through the park that have not yet been provided with a hard surface as envisaged by the 1997 Masterplan. If all the tracks and desire lines were formalised into 2.5m asphalt paths, the area of hard surface within the park could increase significantly.

The next Masterplan can address the risk that park land will be lost to paths by:

- Setting a limit of the area under pathway and under hard surface using measurements of area
- Identifying a wider range and classification of paths beyond 2.5m wide asphalt paths
- Establishing a process of path development that upgrades key paths to support increased use and simultaneously rationalises, reduces and removes paths to stay within the area limit

Measure the areas set aside for car parking

The land area of Royal Park is at risk from an expansion of the area under car parking. This risk is rated as high because:

- When parking pressures occur, a typical remedy that is proposed is to increase the supply. An increase in visitation to the park is therefore likely to bring an increase in expectation of increased parking areas.
- Car parking occupies a large area. A standard off-street parking bay and its associated entrance and corridor space is estimated to be 30m^2. A small increase in the number of bays can cause a large reduction in the area of park land.
- Some car parking areas in Royal Park are inefficient, taking up 25% more space than an efficient layout.[9] The expansion of inefficient bays will have a greater impact than an equivalent increase in more space efficient bays.
- Land put under car parking is unlikely to be used for other purposes.
- Informal car parking areas in Royal Park leads to non-compliant parking on other grassy areas, expanding the area used for parking.

The previous Masterplans have been unanimous and unambiguous about the need to reduce the area occupied by parking, relocate parking areas and reduce the number of bays.[10] It is not clear however whether these aims have been achieved. There is no data on the total area set aside for car parking at any stage. The data based on the number of parking bays is inconclusive.[11]

Measurements of the car parking area are vital if the next Masterplan is to set similar goals.

(How the use of parking areas and their contribution to visitation can be understood and measured is discussed in Chapter 4 (Visitation) and Chapter 7 (Optimising car parking behaviour).

1.3.2 Avoid 'soft' surface 'overflow' car parking areas

The land area of Royal Park is at risk from the direction in the Masterplan on car park surfaces.

The 1997 Masterplan determined that the impact of car parks on the character and use of the park could be minimised by restricting the extent of hard paving areas. 'The impact of car parks on the character and use of the park should be minimised by ... restricting the extent of hard paving to areas that accommodate frequent usage, while meeting sporadic peak demands with grassed overflow parking areas.'

FIGURE 6: SOFT SURFACED 'OVERFLOW' CAR PARKING AREA SOUTH WEST OF THE MELBOURNE ZOO

Source: Phillip Boyle & Associates

Consistent with this direction, 43% of the parking bays inside the park are on grass or gravel. There are an estimated 900 parking bays around the Melbourne Zoo and State Netball & Hockey Centre that do not have hard paving. A further estimated 400 bays are in informal parking areas mainly on gravel. See Figure 7 below.

FIGURE 7: PARKING BAYS INSIDE THE PARK EXCLUDING THOSE NEAR THE MELBOURNE ZOO & STATE NETBALL & HOCKEY CENTRE

Source: Phillip Boyle & Associates

The impact on the character of the park of informal parking bays is beyond the scope of this report. Certainly, the value to the water cycle and drainage infrastructure of permeable surfaces in urban areas must be considered.

The next Masterplan will need to weigh the gains that accrue to the park by the use of informal bays against the costs and risks. The risks include:

- The use of informal bays increases the area of land under parking. The same number of vehicles could be parked in a smaller area of formally laid out parking bays.
- The use of informal bays makes it difficult to estimate the total number of bays that are available. In turn this makes it difficult to provide evidence-based assessments of the use of the parking areas. The risk is that parking areas will be underestimated, and that

expansion of parking could occur unnecessarily.

- In-ground sensors are difficult to deploy in informal bays. This means data on the use of the parking areas cannot be collected easily and regularly. Without this data it is more difficult to manage the use of the bays to increase utilisation.
- The costs incurred by the concept of 'overflow' must be considered. This concept embeds the idea that the available parking area will expand in response to demand. The risk is that under this approach, the parking footprint will tend to expand to reflect the level of maximum use.
- The occasional use of informal bays delivers low levels of utilisation. A parking area that is used for 10 hours each weekend day for a year (but not at other times) is only in use for 7% of the year. It is likely that many informal overflow parking areas in the park are used less frequently than that.
- The use of 'overflow' areas may implicitly endorse non-compliant parking on grassy areas. This practice further increases the area occupied by parking.

The ecological risks of informal bays also need to be considered, including the consequences of soil compaction when vehicles are driven and stored on grass or gravel as well as the leakage of oils and other fluids (see below).

Exposure to these risks from soft surface overflow bays appears to offer little return to the park aside from parking vehicles. The parking areas with a porous surface are so regularly and heavily used (and heavily gravelled) that they must be considered single-purpose areas unavailable and unsuitable for other activities.[12]

The maintenance and recovery of these parking areas also imposes a cost on the Council.

1.3.3 Reduce the risk caused by the 'Australian landscape'

The Assessment revealed that in some areas of the park, people are parking vehicles outside the designated parking areas (formal and informal). The cause of this behaviour is not known. It was suggested above that the use of informal areas for occasional parking may lead people to believe that this type of parking is permitted in other locations.

FIGURE 8: NON-COMPLIANT PARKING ON GRASSY AREAS – NORTHERN OVALS

Source: Phillip Boyle & Associates

Consideration may need to be given to social interpretation of the character of the parkland. The 'bush setting' with wide open spaces interspersed with trees may not register as 'parkland'. There may be an implicit social permission to park cars in the Australian landscape. It may be necessary to send a clearer message by:

- Emphasising visual cues – by planting bulky native grasses along boundaries for example

- Strengthening the physical barriers – by raising kerbs or bollard management, for example
- Increasing penalties and the frequency of enforcement

In addition, it may be valuable to identify and communicate the value of the park land.

In the debate over the 2013 east west tunnel, the value of the loss of trees, the wetland and its services, canopy area and public amenity were estimated. It would be useful for a similar comprehensive valuation of the natural assets of the park to be extended to the rest of the park.

Such a financial assessment would allow the cost of measures to reunite segments of the park to be compared to the benefits that would be gained. It would also help illustrate the scale of loss that would occur were new small or large-scale transport projects to be introduced into the park.

1.4 Other Transport risks

Beyond the loss of land, the Masterplans and this Assessment have identified several other risks transport poses to the park.

1.4.1 Minimise visual disruption

The Masterplans emphasise the importance of reducing visual disruption. The 1997 Masterplan requires that 'Traffic routes across the park that cannot be closed should be designed and managed to…minimise visual disruption of the park…'

The Masterplans identify two transport initiatives that mitigate this risk: reducing the area occupied by transport and moving car parking to low-lying areas. Relevant initiatives consistent with these directions are included in the Recommendations.

Once the transport footprint has been minimised and the car parking moved to more discreet locations, landscape design can complete the task of minimising visual disruption.

1.4.2 Minimise damage to soils

The Masterplans do not identify the risk to soils of car parking and vehicle movements in Royal Park. These risks include compaction that compromises root movement, infiltration, drainage and air circulation. Council investigations (after the publication of the Masterplan) of the impact of car parking in Yarra Park recognised the consequences of compaction including the irreparable damage to tree and open space health caused by intensive car parking over long periods.[13]

Soil erosion from 'soft' car parking surfaces in Royal Park can be observed.[14] Eroding soils increase the sediment in the drainage and waterway system.

The off-road use of service vehicles, golf buggies and 'event' vehicles should be reviewed. The current policy for park service vehicles is to deliberately vary the routes used when off the path system. This risk of this policy is that multiple vehicle tracks are created.

Mitigation strategies for these risks could include:

- Requiring all vehicles that enter the grassy areas of the Park including service vehicles to travel on the shared path system.[15] (It may be necessary to develop additional shared path alignments that enable this.) This condition can be written into service contracts and compliance monitored through GPS tracking.
- Ensuring these vehicles are parked on hard surfaces

- Restricting golf buggies and private vehicles (such as 'event' vehicles) to the path system
- Avoiding vehicle movements over wet or moist soil
- Eliminating non-compliant parking on grassy areas

1.4.3 Minimise noise & pollution

The Masterplans do not identify the risk of vehicle noise and pollution in Royal Park. This risk comes from the transport system, as well as from service equipment motors such as mowers and blowers.

Most of the noise pollution in the park is likely to come from internal combustion engines. The current noise standard for motor vehicles sets limits between 74 and 80 dB.[16] VicRoads have set a noise level objective for freeways of 63dB.[17] Motorcycles in Australia have a noise limit of 95 – 100dB.

Some jurisdictions measure and seek to limit noise in parklands. The German benchmark for noise in park settings is 55 dB although the noise in the parkland around the Berlin Zoo exceeds this level.[18] The EPA is currently reviewing the Victoria noise regulations.

It is likely that electrification of motors for equipment and vehicles will significantly reduce the level of noise in the park. The Melbourne Zoo has electrified its internal vehicle fleet. The process of electrification could be accelerated for all vehicles and equipment operating inside the park boundaries especially vehicles and equipment used by agents of the Council or those holding leases, permits or agreements issued by the Council.

Most of the air pollution in the park including particulates and gases such as carbon monoxide will come from internal combustion engines. In general, 75% of air pollution is caused by private motor vehicles. [19] Again, electrification of transport and equipment motors will reduce local air pollution.

2 Recover park land used by transport facilities

This Chapter considers how land can be recovered for the park from transport. The directions and initiatives in the Masterplans identify three directions:

- Reduce severance
- Reduce intrusion
- Rationalise and relocate

Under these headings, the Masterplans identify changes to roads, car parking areas and structures. The categories addressed by this Assessment are summarised in Table 1 below which provides examples from the Masterplans.

TABLE 1: WAYS THAT PARK LAND CAN BE RECOVERED

AIMS	TRANSPORT EASEMENTS	CAR PARKING AREAS	STRUCTURES
Reduce severance	Proposals to underground Elliott Avenue/MacArthur Road and bridge the railway line	No initiatives in Masterplans	No initiatives in Masterplans
Reduce intrusion	A road near the Melbourne Zoo has been removed	A car parking area south of Poplar Road and west of Royal Park Station has been removed	A Council facility near the State Netball & Hockey Centre has been removed
Rationalise & relocate	Old Poplar Road has been disconnected and a new Poplar Road established	Car parking areas around the Melbourne Zoo have been reorganised	Proposals to move and consolidate pavilions

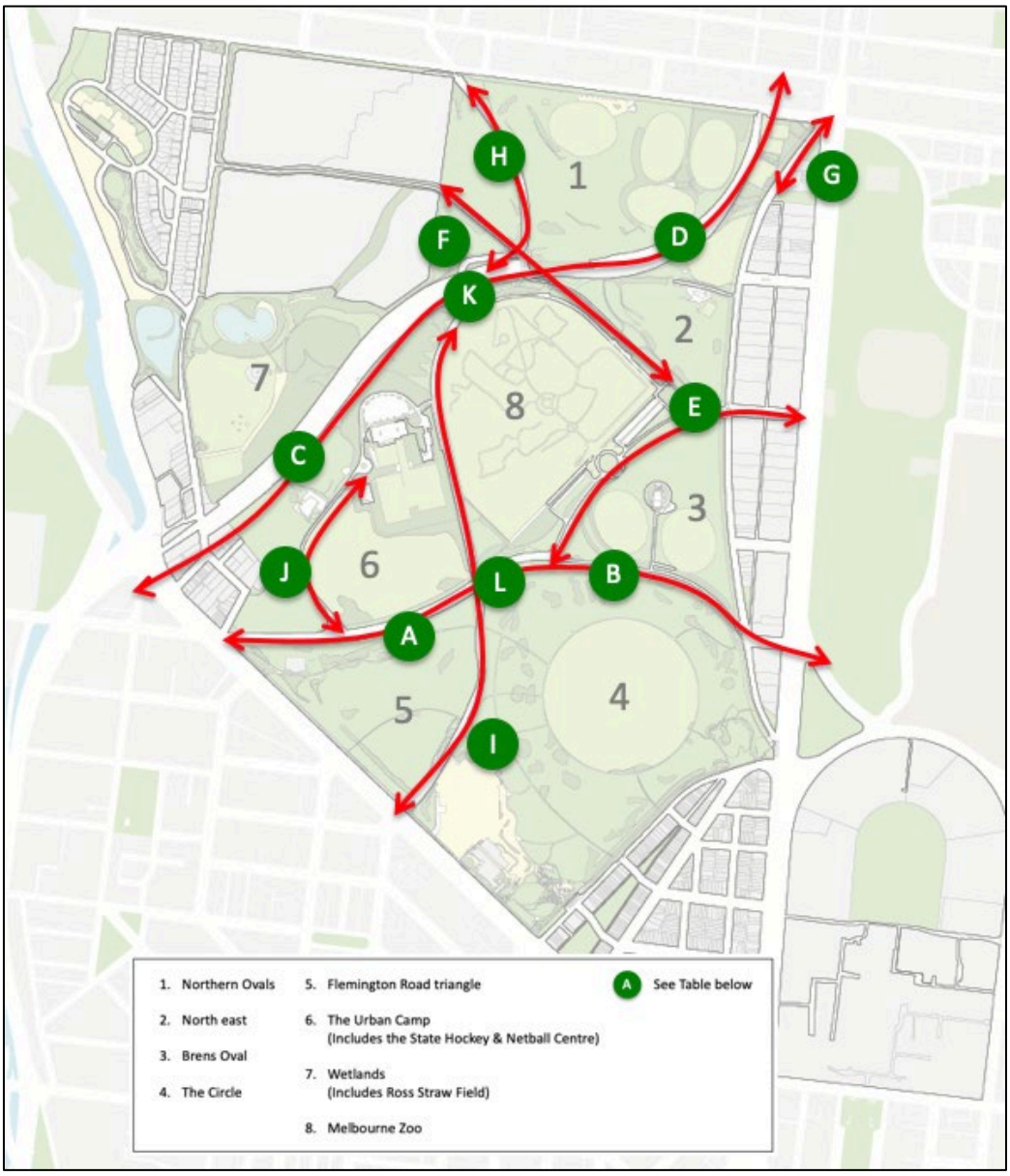
Source: Phillip Boyle & Associates

2.1 Reduce severance

The transport system, in the words of the 1985 Masterplan, is responsible for cutting the area of the park into 'several discrete and disconnected parcels of land'. (This will be referred to as severance). This Assessment found that many of the cases of severance identified in previous Masterplans remain. Several other sites where severance occurs are identified.

Figure 9 below shows the locations of severance identified in this Assessment. Road, rail and tram easements are indicated with red arrows and letters in green circles that correspond with Table 2. Table 2 lists the locations of severance and identifies potential countermeasures. Where these potential countermeasures are supported by a previous masterplan action, it is included in blue type.

FIGURE 9: CURRENT LOCATION OF SEVERANCE IN ROYAL PARK



Source: Phillip Boyle & Associates

TABLE 2: TABLE OF SEVERANCE IN ROYAL PARK

SITE	CAUSE OF SEVERANCE AND IMPACT	POTENTIAL COUNTERMEASURES AND RELATED RECOMMENDATIONS IN PAST MASTERPLANS
A	**Elliott Avenue west of tram line** This severance remains. Pedestrians cannot walk easily between the Urban Camp area (6) and the Flemington Road triangle (5)	**Tunnel** Replace arterial route through the park with a tunnel either under the park or in another location. Road tunnel (1985, 1997)
B	**MacArthur Road/Elliott Avenue east of tram line** This severance remains. Pedestrians cannot walk easily between the Brens Oval area (3) and the Circle (4)	**Tunnel** Replace arterial route through the park with a tunnel either under the park or in another location. **Close Elliott Avenue** south of the entrance to the Melbourne Zoo Road tunnel (1985, 1997) Closure of Elliott Avenue between MacArthur Road and the Melbourne Zoo (1997)
C	**Railway line west of Royal Park Station** This severance remains. Pedestrians cannot cross the railway line between the Urban Camp area (6) and the Wetlands (7)	**Underpass** Provide a pedestrian & bicycle underpass to link area (6) & (7) and connect the Ross Straw Field area to the car parking near the State Netball & Hockey Centre A footbridge north of the State Netball & Hockey Centre (1985) An at-grade crossing (1997)
D	**Railway line east of Royal Park Station** This severance remains. Pedestrians cannot cross the railway line between the Northern Ovals area (1) and the area around the Old Poplar Road (2)	**Wildlife bridge** Explore the possibility of constructing a 'wildlife bridge' or covered way over the cutting. A footbridge over the cutting east of Royal Park station (1985 & 1997)
E	**Kendall Avenue/Elliott Avenue** This severance remains. Pedestrians cannot walk easily between the area around Old Poplar Road (2) and the Brens Oval area (3). (There are two zebra crossings between the Melbourne Zoo (8) and the Brens Oval area (3))	**Pedestrian priority** Provide priority raised pedestrian crossings of Kendall Avenue. Replace the roundabout with a standard intersection. Removal of Kendall Avenue and Marconi Crescent (1985) General traffic measures (1997)
F	**Poplar Road** This severance remains. Pedestrians cannot walk easily between the Norther Ovals area (1) and the area south of Poplar Road (1). (A splitter island without a zebra crossing has been installed across Poplar Road near Royal Park Station.)	**Close Poplar Road** west of the railway line. Closure of Poplar Road (1985 & 1997)

SITE	CAUSE OF SEVERANCE AND IMPACT	POTENTIAL COUNTERMEASURES AND RELATED RECOMMENDATIONS IN PAST MASTERPLANS
G	**The Avenue** This severance remains. Pedestrians cannot walk easily between the Royal Park Tennis Club (2) and the area of Royal Park abutting Royal Parade (2)	**Close The Avenue at Park Street** Close the northern end of The Avenue to link to the area of Royal Park on Royal Parade. Close the northern end of The Avenue (1985 & 1997)
H	**Tram tracks north of Poplar Road** This severance was not identified in the Masterplans. The tram tracks act as a barrier between the west and east of the Northern Ovals area (1) Two crossings are in place between Poplar Road and Park Street.	**Realign the tram tracks** along the western boundary of the park (Not referred to in Masterplans)
I	**Tram tracks and tram services building south of Elliott Avenue** This severance was not identified in the Masterplans. The tram tracks act as a barrier between the Flemington triangle (5) and the Circle (4). Two crossings are in place between Flemington Road and Elliott Avenue.	**Remove the tram services building** and link the park land to the landscaped area around the Hospital. (Not referred to in Masterplans)
J	**Brens Drive** This severance was not identified in the Masterplans. Brens Drive acts as a barrier between the Urban Camp and the eastern part of this area (6)	**Relocate the entrance road to the State Netball & Hockey Centre** Introduce a road along the south side of the railway line that connects to Poplar Road east of Royal Park Station (Not referred to in Masterplans)
K	**Station precinct** This severance remains. The area between the Melbourne Zoo and Royal Park Station is the link between Areas (1), (2), (6) (7) & (8). It is poorly organised for this function.	**Redesign station precinct** Redevelop with priority given to landscaping, pedestrian movement and access to the Zoo by public transport. (1997)
L	**South east of the Melbourne Zoo** This severance was not identified in the Masterplans. This area of car parking (and Elliott Avenue (see (B) above) severs areas (3), (6) & (8)	**Relocate car parking areas** and link the park land. See also (B) above

Source: Phillip Boyle & Associates

2.2 Remove Intrusions

Park land can be recovered by reducing the area within the park occupied by transport facilities. Directions in the 1997 Masterplan include:

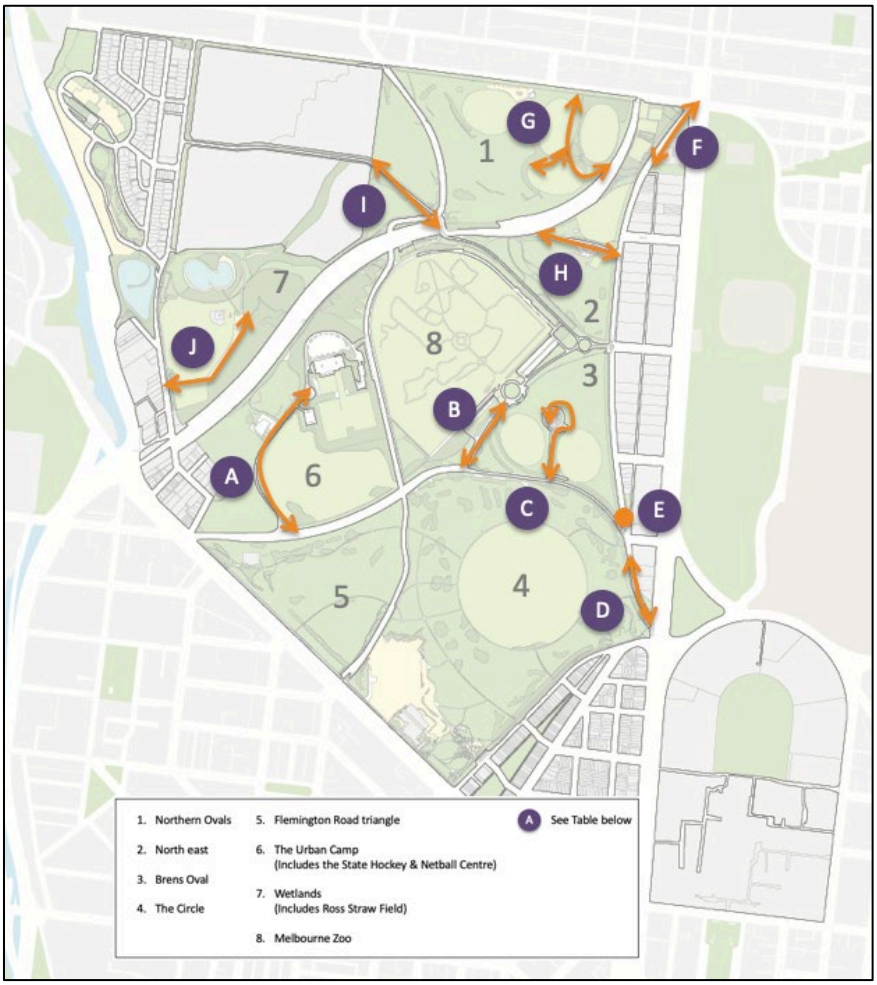
- The area occupied by transport infrastructure should be minimised
- Roads should not be located in the midst of functional areas subdividing them.
- Reduce excess road widths and incorporate these areas into the park
- Negotiate with the PTC to transfer railway land not required for transport purposes to the park, including areas in cuttings and on embankments.

Interventions that followed these directions resulted in the removal of several roads and car parking areas that had intruded into the park.[20] This Assessment found opportunities to reduce the intrusion of roads and car parking areas.

2.2.1 Remove, close & relocate roads

Figure 10 below shows the locations of road intrusions (indicated with yellow arrows) that can be removed from the park. These are further detailed in Table 3.

FIGURE 10: CURRENT LOCATION OF ROAD & OTHER INTRUSIONS IN ROYAL PARK



Source: Phillip Boyle & Associates

Table 3 below identifies the roads that could be removed, closed or relocated to recover park land.

TABLE 3: TABLE OF INTRUSIONS IN ROYAL PARK

ROAD	ANALYSIS	RECOMMENDATION
A	**Brens Drive** is the only road serving the Urban Camp and State Netball & Hockey Centre it cannot therefore be removed but it could be relocated to an alignment alongside the railway line. Relocation would: • Support the effort to remove/underground Elliott Avenue/MacArthur Road • Remove severance in Area 6	**Relocate in the park**
B	**Elliott Avenue south west of the Melbourne Zoo** This road supports access to the Melbourne Zoo and acts as a 'through park' road link. Removal of this road would: • Reduce through traffic • Support the effort to remove/underground Elliott Avenue/MacArthur Road • Reduce severance south east of the Melbourne Zoo • Recover park land An alternative road from the west into the car parking around the Melbourne Zoo can be provided along the railway line.	**Remove** Close Elliott Avenue between MacArthur Road and the Melbourne Zoo (Masterplan 1997)
C	**Access road to Brens/Walker/Smith Ovals** Removal of this road would: • Support the effort to remove/underground Elliott Avenue/MacArthur Road. • Eliminate a risky turn across the arterial traffic when entering and leaving the road • Eliminate interruptions to the flow of vehicles along MacArthur Road • Recover park land Rather than relocate the road as recommended in the Masterplan it is recommended that the pavilions are relocated to be closer to The Avenue, while still serving the premier ovals (see below) and the parking area removed (see below)	**Remove** Relocate access road to Brens/Walker/Smith Ovals linking to The Avenue (Masterplan 1997)

ROAD	ANALYSIS	RECOMMENDATION
D & E	**The Avenue north and south of MacArthur Road** Closure of The Avenue in these two locations would: • Support the effort to remove/underground Elliott Avenue/MacArthur Road • Provide the active transport link identified in the 1997 Masterplan • Recover park land It is recommended that the closure of The Avenue south of MacArthur Road be located at the Royal Parade end of this section of The Avenue to maintain access to the properties at the northern end of this section of The Avenue and the expansion of the Australian Native Garden.	**Close** Close the south end of The Avenue at its intersection with Royal Parade to consolidate the open space including the reserve between The Avenue and Royal Parade Close The Avenue on the north side of its intersection with MacArthur Road. (Masterplan 1985 & 1997)
F	**The Avenue at Park Street** Closure of the northern end of The Avenue would: • Reduce severance • Provide opportunities to reorganise the north east corner of the park. • Recover park land Motor vehicle access would be maintained to residents and facilities from the south.	**Close** Close the northern end of The Avenue at Park Street (Masterplan 1985 & 1997)
G	**Road access to Northern Ovals** Closure of the road access to the Northern Ovals would recover park land. It is recommended that the road be removed, the pavilions combined and relocated (see below) the depot and parking area removed (see below).	**Remove** The low standard of the Golf Course and Western Oval pavilions, suggest the opportunity for consolidation of back to back facilities at Park Street. (Masterplan 1997)

ROAD	ANALYSIS	RECOMMENDATION
H	**Old Poplar Road** Closure of Old Poplar Road would recover park land. It is recommended that the road be removed, the Club relocated (see below) and the parking area removed (see below).	**Remove** Remove the eastern remnant of Poplar Road between The Avenue and the golf course car park. Masterplan1997 Relocate Golf Club pavilion to 'allow complete removal of roads and parking from the hilltop site of the existing golf course car park.' (Masterplan 1985)
I	**Poplar Road west of Royal Park Station** Removal of Poplar Road west of Royal Park Station would reduce severance and recover park land. Alternative vehicle access routes to the Melbourne Zoo and Royal Park Hospital precinct are available. The Route 505 bus would have to be re-routed.[21]	**Remove** Close Poplar Road (Masterplan 1985 & 1997)
J	**Road access to the Ross Straw Pavilion** Closure of the road access to the Ross Straw Pavilion would recover park land. It is recommended that the road be removed, the pavilion relocated (see below) and the parking area removed (see below).	**Remove** Redevelop the car parking in Royal Park West adjacent to Oak Street in association with the proposed wetlands. This should allow for the removal of much of the road system and car parks north and east of the Ross Straw Field. (Masterplan 1997)

Source: *Phillip Boyle & Associates*

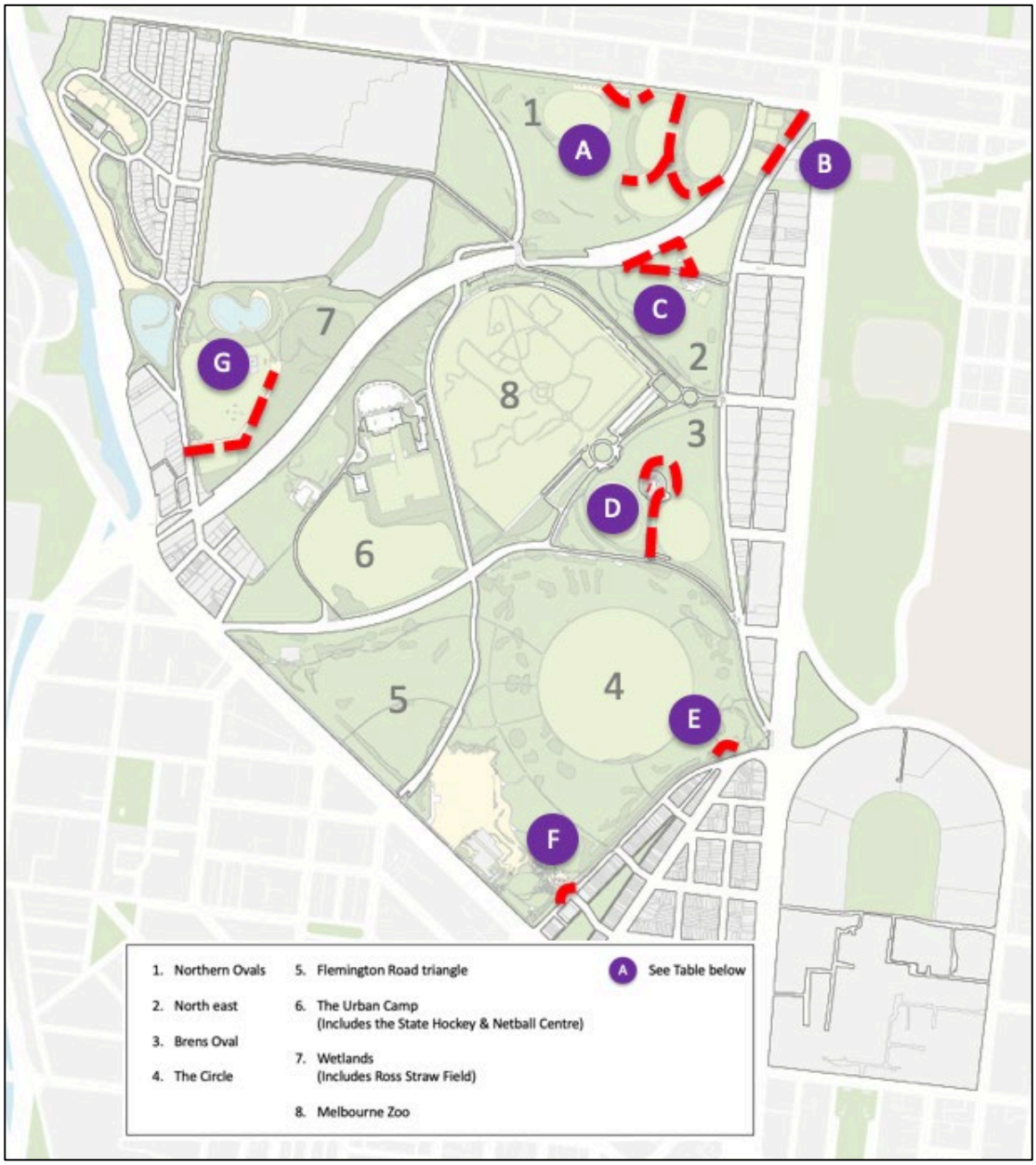
2.2.2 Remove car parking areas

The use of car parking areas in and around Royal Park was studied for this Assessment (see Chapter 7 and Appendix A).

It was found that sufficient capacity exists on the roads around the perimeter and in the large-scale parking areas around the Melbourne Zoo for seven informal gravelled parking areas to be removed.

Figure 11 below shows the location of the parking areas that can be removed.

FIGURE 11: CURRENT LOCATION OF INFORMAL, GRAVELLED CAR PARKING AREAS RECOMMENDED FOR REMOVAL



Source: Phillip Boyle & Associates

Table 4 below identifies the informal and gravelled parking areas that can be removed.

TABLE 4: TABLE OF CAR PARKING AREAS THAT CAN BE REMOVED FROM ROYAL PARK

AREA	ANALYSIS	RECOMMENDATION
A	**Parking areas around the Northern ovals and Council depot** Removal of these large gravel surfaced informal parking areas and the removal of the access road would recover park land. (There is a high level of non-compliant parking in this area.)	**Remove** (Not referred to in Masterplans)
B	**Parking area between the Royal Park Tennis Club courts and The Avenue** Removal of these large gravel surfaced informal parking areas and the closure of The Avenue at Park Street would: • Recover park land • Allow the area to be reorganised including providing a wider corridor north along the railway line	**Remove** 'options for landscaping and/or upgrading this area should be investigated' (Masterplan 1997)
C	**The 'triangle' area** behind the Women's Pavilion at the western end of Old Poplar Road. Removal of these large gravel surfaced informal parking areas and the closure of Old Poplar Road would: • Recover park land • Allow the area to be reorganised including providing a wider corridor along the railway line	**Remove** Remove the eastern remnant of Poplar Road between The Avenue and the golf course car park. Masterplan 1997 Relocate Golf Club pavilion to 'allow complete removal of roads and parking from the hilltop site of the existing golf course car park.' (Masterplan 1985)
D	**Parking area around the Brens Oval pavilion** Removal of these large gravel surfaced informal parking areas and the removal of the access road would recover park land	**Remove** (Not referred to in Masterplans)
E	**Off road parking area near Australian Native Garden** Removal of this small, formal, hard surface parking area would: • Recover park land • Remove two driveways that cross the shared path	**Remove** Remove the small car park off Gatehouse Street at the Australian Native Garden (Masterplan 1997)

AREA	ANALYSIS	RECOMMENDATION
F	**Off road parking area near Royal Park Nature Playground** Removal of this small, formal, hard surface parking area would: • Recover park land • Allow the shared path to moved towards the kerb of Gatehouse Street	**Remove** Relocate the 4 DDA bays to the kerb (or indented from the kerb) of Gatehouse Street. (Not referred to in Masterplans)
G	**Parking area around Ross Straw Pavilion** Removal of the northern section of this hard surface parking area would Recover park land and enable the path to be directly aligned to the existing pedestrian crossing.	**Remove** Redevelop the car parking in Royal Park West adjacent to Oak Street in association with the proposed wetlands. This should allow for the removal of much of the road system and car parks north and east of the Ross Straw Field. (Masterplan 1997)

Source: *Phillip Boyle & Associates*

2.3 Rationalise & relocate

The Masterplans have identified that the area of park land can be increased by rationalisation and relocation of facilities. The current Plan also envisages consolidating sporting facilities in shared locations. The application of these principles is considered under two headings: structures and facilities and transport facilities.

2.3.1 Rationalise & relocate structures & facilities

Efforts to reduce the area of roads and parking areas in the park require the removal or relocation of structures and facilities in the park. Consolidation of structures can also be undertaken when facilities are relocated. **Error! Reference source not found.** below indicates the relocations, consolidations and removals consistent with the efforts described above to recover park land.

Table 5 below lists the relocations, consolidations and removals consistent with the efforts described above to recover park land.

TABLE 5: TABLE OF RELOCATION OF STRUCTURES & FACILITIES IN ROYAL PARK

FACILITY	AREA	POSSIBLE FUTURE LOCATION
A & B	**Northern and Western Ovals Pavilions** Relocation and consolidation of these facilities, the removal of the parking areas and closure of the access road would: • Recover park land • Reduce the number of structures in the park • Locate the facility closer to public transport and the shared path system	**Relocate and consolidate within the park** Consolidate in one structure on Park Street to the west of the railway line. 'consolidation of back to back facilities at Park Street' for the Golf Club and Western Oval pavilions. (Masterplan 1997)
H	**Depot at the Northern Ovals** Removal of this facility would: • Recover park land • Support the removal of the roads and parking areas in the Northern Ovals area • Remove a focus of non-compliant parking	**Remove** Removal from the park if possible. Otherwise the depot should be reduced to the minimum feasible size. Depot functions could be included in redeveloped structures such as pavilions. Referring to a depot that has since been removed 'park maintenance depots and other service facilities should be reduced to the minimum feasible size and consolidated if possible .... Other existing structures and service enclosures within the park should be removed.' (Masterplan 1997)

FACILITY	AREA	POSSIBLE FUTURE LOCATION
F	**Golf Club building** Relocation of this facility, the removal of the parking areas and closure of Old Poplar Road would: • Recover park land • Place the facility near Royal Park Station and the parking bays around Melbourne Zoo or near the public transport facilities in the north east corner of the park	**Relocate and consolidate within the park** The Golf Club could be located on Park Street west of the railway line as suggested in the Masterplan. An alternative location is in or near Royal Park Station. In this location the Club would be between the two sections of course. This location would also be suitable if the course were consolidated on the north side of the railway line. Golf patrons would be able to use the parking area around the Melbourne Zoo. Relocate the Golf Club to Park Street. (Masterplan 1997)
C	**Women's Pavilion** Relocation and consolidation of this facility would: • Recover park land • Support the removal of Old Poplar Road and the triangle parking area • Reduce the number of structures in the park	**Relocate if possible** This heritage pavilion could be relocated on The Avenue with the Brens Oval pavilion or used for pedestrian access only. (Not referred to in Masterplans)
D	**Brens pavilion** Relocation and consolidation of these facilities, the removal of the parking areas and closure of the access road would: • Recover park land • Support the effort to remove/underground Elliott Avenue/MacArthur Road • Locate the facility closer to public transport	**Relocate and consolidate within the park** The Pavilion could be located in the north east corner of the area on The Avenue. (Not referred to in Masterplans)
E	**Ross Straw Pavilion** Relocation of this facility would: • Recover park land • Support the removal of the access road and parking area • Locate the facility closer to the proposed railway underpass and the parking areas around the State Netball & Hockey Centre • Locate the facility closer to Flemington Bridge Station	**Relocate within the park** This pavilion could be relocated to the south west on Manningham Road and close to a pedestrian underpass of the railway line. Alternatively, it could be located on or near the Oak Street carpark. (Redevelop the car parking in Royal Park West adjacent to Oak Street in association with the proposed wetlands. This should allow for the removal of much of the road system and car parks north and east of the Ross Straw Field. (Masterplan 1997)

FACILITY	AREA	POSSIBLE FUTURE LOCATION
I	**Depot at Australian Native Garden** Removal of this facility would: • Recover park land • Support the removal of Native Garden parking area and expansion of the Garden.	**Remove** Removal 'The adjacent depot should be removed and the garden integrated with the Australian Native Garden.' (Masterplan 1997)
J	**Tram services building** Removal of this facility would • Recover park land • Remove a focus of non-compliant parking.	**Remove** Removed from the park (Not referred to in Masterplans)
G	**Consolidate golf course north of the railway line** What was at one time an 18-hole golf course has been rationalised and reorganised a number of times. Consolidation of this facility would remove the need for golfers to cross the railway line. A more compact course might lead to reduced use of golf buggies.	**Relocate and consolidate within the park** The south side holes could be moved north of the railway line. To provide the necessary space the Western Oval could be relocated to the area of the south side holes. (Not referred to in Masterplans)

Source: Phillip Boyle & Associates

2.3.2 Relocation & rationalisation of car parking areas

This section proposes a relocation of parking bays that would be likely to increase the use of the parking bays and simultaneously reduce the area of parking in the park.

Three principles in the Masterplan underpin the proposal:

- 'maintaining the approximate existing number of spaces and rationalising their distribution.'
- 'efficient and compact layouts'
- 'relocate parking from hilltops to less prominent locations'

Three areas of car parking are recommended for relocation:

- The 'overflow' parking to the east of the Melbourne Zoo
  The parking bays on the east side of the Melbourne Zoo are poorly located. These bays are unlikely to be used by patrons of the State Netball & Hockey Centre which lies on the other side of the Zoo. (The parking assessment found that the two areas are used independently rather than as a shared pool of bays.) Observations for this assessment also suggest that the east-side bays are the least attractive to Zoo patrons who seem to prefer the bays near the northern and southern entrances.
  The removal of these bays, combined with land recovered from the removal of Old Poplar Road and the triangle parking area and relocation of the Golf Course would enable the establishment of a significant new area of park land in a 'hilltop' location.
- The 'overflow' parking to the south west of the Melbourne Zoo.
  The 'overflow' bays to the south west of the Zoo could also be relocated to this new area enabling a reduction of severance in that area and the disconnection of Elliott Avenue

(east) from MacArthur Road.

- The parking in the area of the station precinct.
  Reorganising the parking area on the north side of the Zoo would facilitate the reconstruction of the Royal Park Station precinct consistent with the directions in the Masterplan.

These bays could be relocated to the west of the tram line between the State Netball & Hockey Centre and the Melbourne Zoo where they could serve both venues.

In this process park land would be recovered in the east and lost in the west. However, it is likely that the relocation could be done in a way that produces a net gain of land for the park. The layout of the informal areas to the east is not 'efficient and compact' and may occupy 25% more land than is required to park 300 vehicles. The new location would also be less prominent.

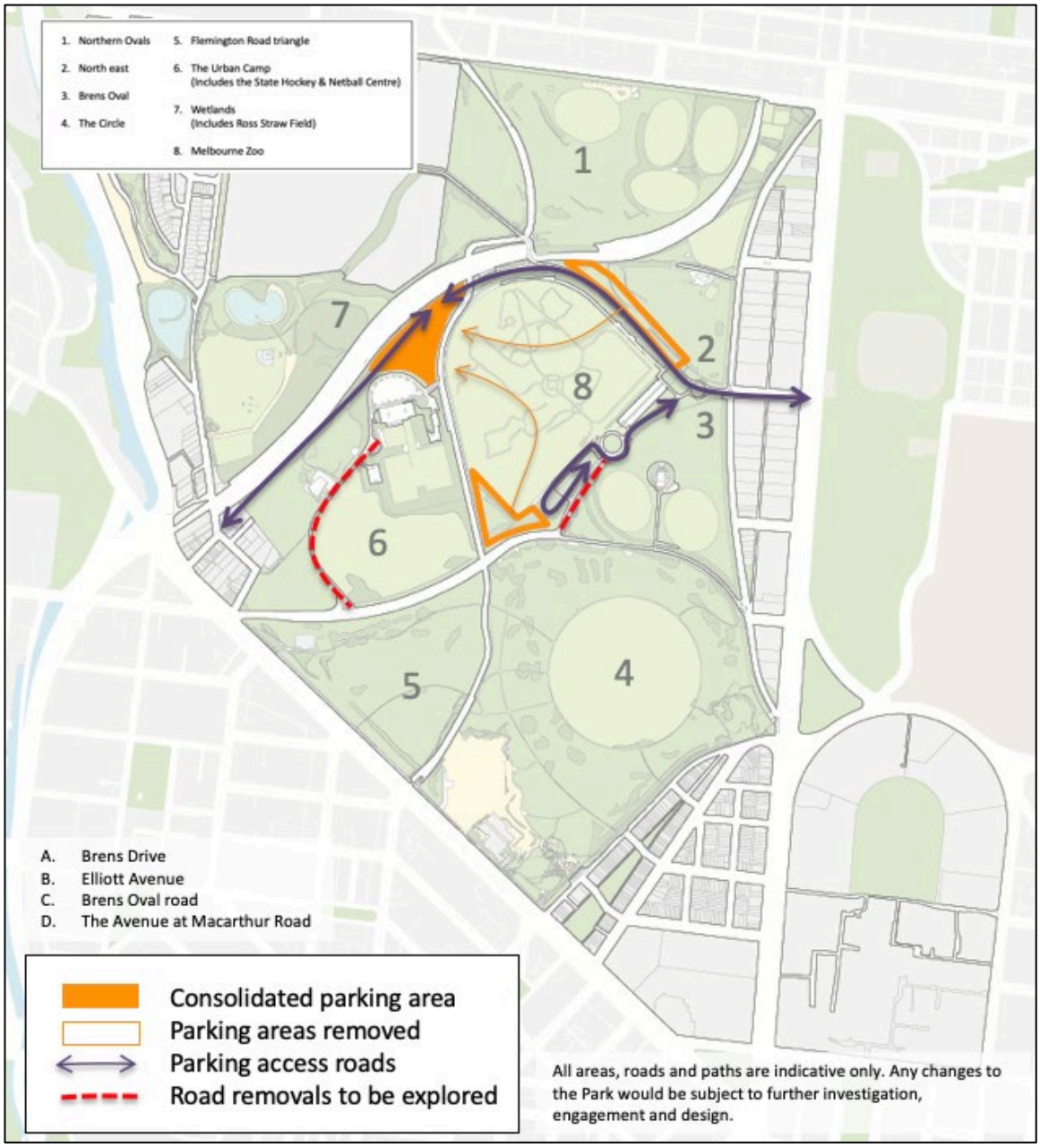
Precise measurement of the 'before' and 'after' areas would provide confidence that park land had been gained and not lost.

This pool of bays could be reached by establishing a road from Manningham Road alongside the south side of the railway line to the parking area north of the State Netball & Hockey Centre and Melbourne Zoo connecting to Poplar Rod near the north entrance of the Zoo.

This road would replace some of the functions of Poplar Road west of Royal Park Station which is recommended for removal. The new road would enable the removal of the current access road to the State Netball & Hockey Centre (Brens Drive) which is desirable in order to prepare for an east west tunnel and reduce severance in that area of the park.

Figure 12 below indicates the relocations of car parking discussed above.

FIGURE 12: RECOMMENDED RELOCATION OF CAR PARKING AREAS IN ROYAL PARK

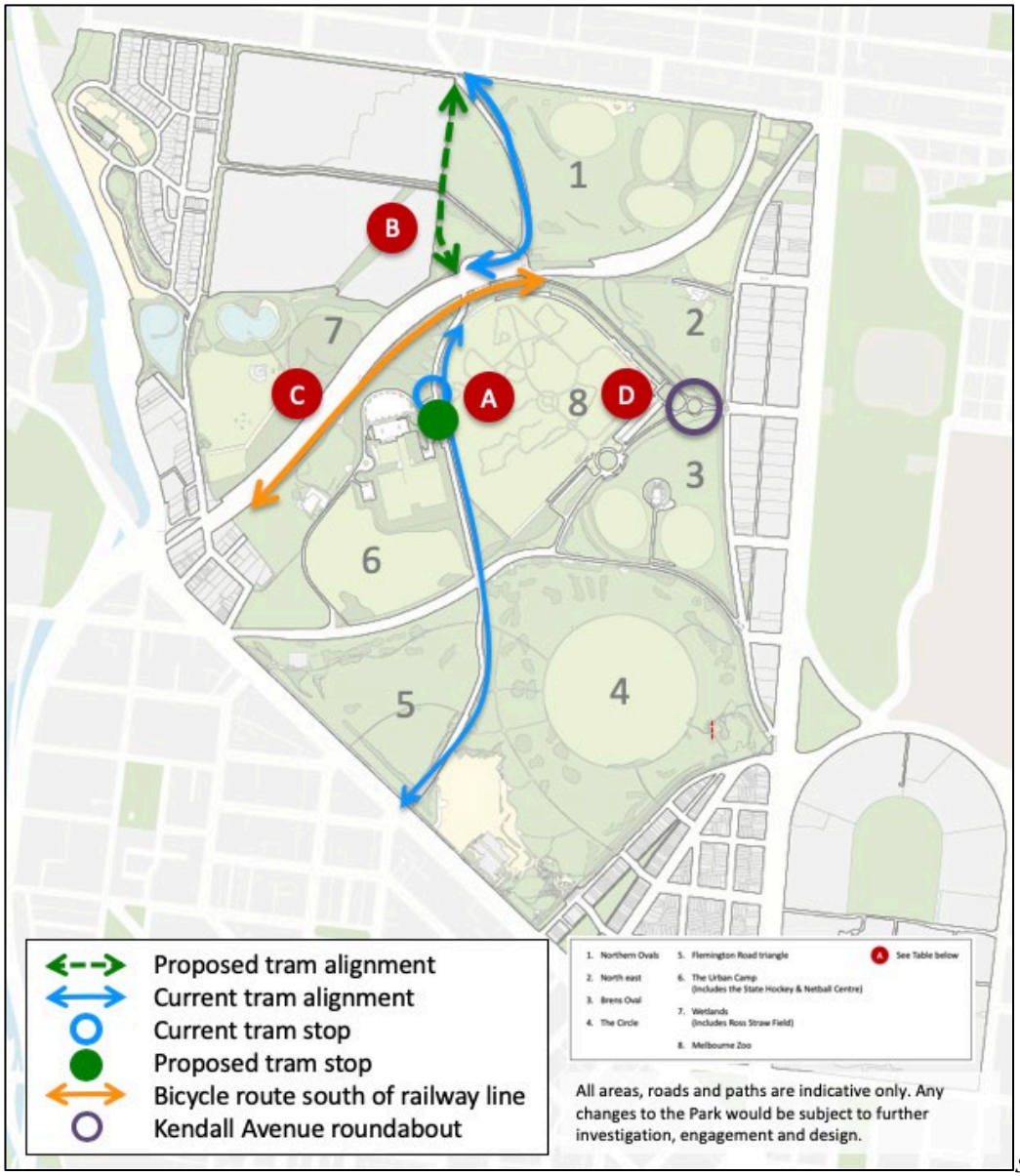


Source: Phillip Boyle & Associates

2.3.3 Rationalise & relocate public and active transport facilities

This section considers relocation of public and active transport facilities. The relocation of the tram line aims to reduce severance and has been referred to above. The discussion of the other relocations can be found below in the discussion of the circulation network and public transport. Figure 13 below indicates the relocations of public and active transport facilities and Table 6 describes the opportunities.

FIGURE 13: RECOMMENDED RELOCATION OF PUBLIC & ACTIVE TRANSPORT FACILITIES IN ROYAL PARK



Source: Phillip Boyle & Associates

TABLE 6: TABLE OF RELOCATION OF PUBLIC & ACTIVE TRANSPORT FACILITIES IN ROYAL PARK

FACILITY	INITIATIVE	RECOMMENDATION
A	**Tram stop at State Netball & Hockey Centre** The current tram stop for the State Netball & Hockey Centre has inadequate facilities, is poorly located and is inadequately connected to the Centre. The opportunity exists with the planned upgrade to the Centre to move the tram stop south to align it and its link to the Centre with the current main western entrance. Interim measures would be to improve the current facilities and connection to the Centre including to the proposed new northern entrance to the Centre.	**Relocate** Relocate the tram access to the State Netball & Hockey Centre The proposed Netball and Hockey Centre west of the Zoo should be designed with the adjacent tram stop treated as a key arrival point and with good pedestrian access to Royal Park station. (1997 Masterplan)
B	**The tram line north of the railway line** It would be possible to realign the tram line north of the railway line against the boundary of the park. This would release the space trapped to the west of the current alignment. A line abutting the park boundary would also avoid the need for crossings of the line.	**Realign** Realign the tram route north of the railway line (Not referred to in Masterplans)
C	**The Capital City Trail west of Royal Park Station** It would be desirable to establish a high-quality bicycle route to the south of the railway embankment west of Royal Park Station. This would allow riders travelling through the park to avoid the path on the north side which – due to its steep sections – necessarily results in high bicycle speeds on a shared path. The path would re-join the current route at the recommended rail underpass and follow the alignment of the proposed new entry road to the SNHC and Urban Camp.	**Relocate main bicycle route** Establish a high-quality bicycle route south of the railway line and west of Royal Park Station (Not referred to in Masterplans)
D	**Kendall Avenue roundabout** The roundabout increases the area under asphalt and traps an area of open space inside a ring of road which has no pedestrian crossings. The roundabout extends and makes indirect the pedestrian access to the Melbourne Zoo from Royal Parade along Walker Street.	**Establish priority crossings** Replace the Walker Street, Kendall Avenue roundabout to the south east of the Melbourne Zoo with a standard intersection with high pedestrian priority (Not referred to in Masterplans)

Source: *Phillip Boyle & Associates*

3 Expand the area of parkland

This Chapter identifies how the area of Royal Park can be extended and links developed to surrounding areas.

The Masterplans identify initiatives that would extend the park beyond its current boundaries for example:

- Extending the medians in Flemington Road at Elliott Avenue to allow plantings
- Extending the parkland north into Park Street[22]
- Extending the parkland across The Avenue north of Gatehouse Street
- Replacing kerbside parking on MacArthur Road between the park and Royal Parade with trees and planting

The Masterplans seek to establish and strengthen links to surrounding areas for example:

- Establishing a trail on the Inner Circle Rail reserve (completed)
- Maintain a bicycle path extending northward through Brunswick along the Upfield railway line (completed)
- A foot and bicycle connection across Flemington Road to Moonee Ponds Creek (this was achieved south of the intended crossing by a bridge across Manningham Road)
- A bicycle and footbridge over the Tullamarine Freeway to Travancore Park (not completed)

The current Masterplan sees that these opportunities could be realised simultaneously: 'Road closures or re-alignments, where possible, should consolidate fragmented open space into useable areas and improve pedestrian amenity at key entrances to the park.'

Such a project was completed a few hundred metres from the park in Errol Street. The guiding document for this project *Open Space Opportunities in North and West Melbourne* notes 'the potential of many other streets and sites remains unrealised'.

Figure 14 below indicates the location of corridors where external links can be generated and the park extended by consolidating open space in road reserves. Table 7 below provides details for each link including where these links have been identified in the Masterplans (blue type) or the City of Melbourne's Open Space Strategy 2012 (green type).

FIGURE 14: RECOMMENDED EXTERNAL LINKS FROM ROYAL PARK

Source: Phillip Boyle & Associates

TABLE 7: TABLE OF POTENTIAL EXTERNAL LINKS FROM ROYAL PARK

	OPPORTUNITIES	LINK
A	Use the opportunity provided by the closure of The Avenue at Park Street to reorganise and relocate the tennis facilities to provide a wider corridor along the railway line north of the Capital City Trail. This rail corridor may become a linear park if a 'rail-up' solution is adopted for the level crossings on the Upfield line.	Expand and improve the corridor north along the Upfield line Maintain a bicycle path extending northward through Brunswick along the Upfield railway line. (Masterplan 1997)
B	Expand the width of the Capital City trail to support current and future levels of use. It may be appropriate to provide paths with sealed and unsealed surfaces.	Widen the Capital City Trail from Royal Park Station to Princes Park Maintain provision for continuous pedestrian and bicycle paths through the parkland created along the former 'Inner Circle' railway, linking Royal Park to Merri Creek. (Masterplan 1997) Access to adjoining major areas of open space (City of Melbourne Open Space Strategy 2012)
C	Use the opportunity provided by the closures on The Avenue and of Old Poplar Road to create additional open space and provide path connections to Princes Park at Park Street, levers Street, Walker Street, MacArthur Road and Gatehouse Street	Connect Royal Park to Princes Park with running/walking paths. Provide a perimeter path around both parks. Replace kerbside parking with trees and planting on the south side of MacArthur Road between the park and Royal Parade. Masterplan 1985 Access to adjoining major areas of open space (City of Melbourne Open Space Strategy 2012)
D	Use the opportunity provided by the closure of the southern end of The Avenue to extend the park to Royal Parade	Close the southern end of the Avenue and extend the park (and Australian Native Garden) to Royal Parade Close the south end of The Avenue at its intersection with Royal Parade to consolidate the open space including the reserve between The Avenue and Royal Parade with Royal Park and create a more attractive entrance to the Australian Native Garden. Masterplan 1997 Proposed open space link via the street network to University of Melbourne (City of Melbourne Open Space Strategy 2012)

	OPPORTUNITIES	LINK
E	Create additional open space and provide path connections to and through Parkville via Bayles, Morrah and Story Streets Pursue the link along Morrah Street to Tin Alley (which crosses the University to Elgin Street Carlton). The Metro Station in Parkville can also be a target.	Connect Royal Park to Ievers Reserve in Parkville and to the University of Melbourne (Not referred to in Masterplans)
F	Create additional open space and provide path connections to Errol Street and the North Melbourne community facilities in the shopping centre. Explore links to Hawke Street reserves and the Flagstaff Gardens.	Connect Royal Park to Errol Street North Melbourne (Not referred to in Masterplans) Access to adjoining major areas of open space Investigate improved pedestrian and cycle links across Flemington Road (City of Melbourne Open Space Strategy 2012)
G	Create additional open space and provide path connections to the Arden precinct via Abbotsford, Dryburgh and Melrose Streets It is likely that Royal Park will act as the major park and recreation area for the development around the Arden Metro Station. (The intersection of Arden and Dryburgh Streets near the North Melbourne football oval is 500m from the edge of Royal Park on the other side of Flemington Road).	Connect Royal Park to the Arden precinct (Not referred to in Masterplans) Access to adjoining major areas of open space Investigate improving access across Flemington Road to Royal Park Link to Moonee Ponds Creek and south to Arden Macaulay, E-Gate and Docklands (City of Melbourne Open Space Strategy 2012)
H	Create additional open space and provide path connections to Kensington and the Moonee Ponds Creek via Alfred, Curran, Brougham Erskine, Sutton, Mark and Canning Streets	Connect Royal Park to Kensington and the Moonee Ponds Creek (Not referred to in Masterplans) Access to adjoining major areas of open space Improved open space corridor along Moonee Ponds Creek (City of Melbourne Open Space Strategy 2012)
I	Link the Urban Camp area to the Moonee Ponds Creek area and associated parklands	Connect Royal Park to Debney's Park and the Moonee Ponds Creek via a railway underpass near the Urban Camp (Not referred to in Masterplans)

	OPPORTUNITIES	LINK
J	Explore the most effective way to link the west and north west side of the park from Park Street and Oak Street to the Moonee Ponds Creek Park and Travancore Park	Link north west to the Moonee Ponds Creek and Travancore Park from Oak Street Link to Travancore Park (and Moonee Ponds Creek and trail) (Masterplan 1997) Construct a bicycle and footbridge over the Tullamarine Freeway *2002 Entrances Study*
K	Explore the development of a high priority pedestrian/bicycle crossing of Park Street at the tram line and the continuation of park land along the tram easement between Park Street and Brunswick Road	Explore a park extension to Brunswick Road at Grantham Street (Not referred to in Masterplans)

Source: *Phillip Boyle & Associates*

Part 2: More people

This Part considers how to increase visitation to Royal Park consistent with the park land aims discussed in the first Chapter.

The Part begins with a discussion of visitation – the recommended measure of success. The difference between efforts to improve access (the term used in the Masterplan) and increase visitation is explored and key criteria defined.

To support increased visitation, three steps can be taken. These are explored in the subsequent chapters:

- Improve the Circulation network for people on foot and on bicycles
- Increase the use of public transport
- Optimise car parking behaviour

4 Defining & measuring success

4.1 Visitation rather than access

The first Part of this assessment proposed that the 'land goals' be supported by regular measurement of the areas within the park so that Council can know whether park land is being retained, gained or lost.

The transport goals in the next Masterplan need a similar unambiguous measure of success. The current Masterplan uses the concept of 'access' and speaks of 'enhancing accessibility' and making access 'efficient and pleasant'. This concept is problematic.

'Access' is not easily measurable. It is not clear how the Council could tell if access has been enhanced or made more pleasant in the period since 1997. Access is not easily measurable because judgements that people make about access are subjective and variable. When deciding whether to go somewhere and how to get there, different people in the same circumstances make different determinations. In addition, at different times and in different circumstances, the same people will make different determinations.

Another weakness of 'access' is that 'enhanced access' does not have a strong influence on travel decisions. There is free parking for hundreds of cars at the Cranbourne Royal Botanic Gardens and yet ten times as many people visit the original Botanic Gardens by the Yarra where parking fees are charged and vacant bays are hard to find.[23] It is unlikely that doubling the size of the car parking area at the Cranbourne Royal Botanic Gardens would have a large impact on visitation. Nor would removing car parks or raising fees in the parking bays near the Gardens by the Yarra be likely to significantly affect visitor numbers.

Far more powerful than the quality of access is the attractiveness of the destination. People will get themselves to an attractive 'end' even when the 'means' is difficult. Access to the Grand Final for example, is not easy but attendance is not affected by any difficulties in access. Over time, by some measures, access to the MCG has deteriorated, the number of car parks in the park land around the MCG has decreased, parking fees and public transport fares have risen. The crowds however continue to arrive. Growing attendances at the MCG suggest that visitation can even increase when access deteriorates.

The size of the crowd, the attendance or 'visitation' is therefore a more robust and practical measure of transport success as it is based on people's decisions and actions rather than their perceptions. Visitation is unambiguous. Were it to be found that more people visit Royal Park in 2025 than in 2020, then the Masterplan can be seen to have been successful.

This measure of visitation has the added advantage of guiding Council efforts towards making the park more attractive and away from interventions to enhance access that might make the park 'easier to get to' but less attractive.

The concept of measuring 'visitation', or the number of people who visit the park, is consistent with an objective in the 1997 Masterplan to 'encourage greater use and enjoyment of the park'. It is also the approach used for some large parkland areas such as Central Park New York.[24] Underneath a high-level visitation goal, subsidiary targets can be set such as: social equity, purpose of visit, area of the park, length of stay and other variables. These targets would frame investigations of transport and access. For example, the 2011 report on the use of Central Park showed that there were 50% more visits from the west side of the park compared to the east. [25] A transport plan could identify how access from the east could be facilitated. By continuing to measure visitation, the effectiveness of any transport interventions could be evaluated.

4.2 Defining Visitors

Before visitation can be measured it must be decided what visits count as 'visitation'. The Masterplan does not provide an unambiguous definition. Discussions about the park during the assessment revealed that people refer intuitively to a range of criteria such as purpose or mode. These criteria however contain contradictions.

If everyone who crosses the park boundary is counted as a visitor, the data will be of little value as most 'visitors' under this definition will be people driving along the east west arterial road.

Another way to categorise visitors is by trip purpose. The following categories emerge:

A. Visitors could be people with a main purpose in the park land. This category includes people on the move such as runners, people going for a walk or ride for pleasure by themselves, with friends or a dog, as well as people 'in place' such as photographers, bird watchers, meditators and people intending to relax in nature. These people are clearly visitors to the park and an increase in their numbers would be a sign of success.

B. Visitors could be people travelling to another destination who have chosen to travel through the park so they can enjoy the park. Two respondents to the intercept survey at Royal Park Station go out of their way to arrive at that Station so they can walk through the park to their jobs at the Children's Hospital. This definition however could also apply to all train passengers and all the motorists on the east west road. It would be difficult to tell whether someone driving or 'tramming' through the park was enjoying the park or not.

C. The people who pass through the park because it is the quickest or most convenient route to their destination could be excluded from the category of visitors in order to exclude people driving along the east west road through the park. However, this group also includes people heading to destinations within the park such as recreation facilities or the Melbourne Zoo. [26]

A third way to categorise people is to distinguish between those who are being paid to be in the park and those who come voluntarily. The first group can be excluded from the definition of visitor. Non-visitors could be:

A. Staff (paid and volunteer) working at permanent and temporary facilities

B. People involved in service delivery (for example food delivery, rubbish collection, cleaning, park and grounds maintenance)

A fourth way to categorise people in the park is by mode of travel. Using this filter, the following categories emerge:

A. Visitors could be people on foot or on bicycles travelling to a destination in, near or beyond the park. This group are countable – their intent or state of mind does not need to be determined

B. People in public transport travelling to a destination in, near or beyond the park would not be counted as visitors until they left the train, tram or bus and entered category A by walking to work, to tennis or just walking for pleasure.

C. People in motor vehicles travelling to a destination in, near or beyond the park would not be visitors until they began to walk or ride in the park. People who walked a short distance from their car to the State Netball & Hockey Centre, Melbourne Zoo or the tennis court would count as a visitor. Meditators and bird watchers who drove right up to their place of interest would not count as visitors.

A fifth sorting system is implied in the Masterplan which aims to 'encourage greater use and enjoyment of the park through balanced provision for different types of recreational

activities, ranging from organised involvement in physical sports through to casual, spontaneous and individual uses of public open space'. These are generally referred to today as 'passive' and 'active' recreation.

These two definitions are used in Central Park. The Central Park usage assessment provides a table of passive and active recreations.[27] Central Park does not aim for 'balanced provision'. The park managers report that passive recreation is dominant (85% of use) and that 'the primary purpose for which it was built more than 150 years ago—to serve as a scenic retreat from the City—is still what brings more people to Central Park than any specific activity.'

Using active and passive recreation criteria we can say that the tennis player, birdwatcher and meditator become 'visitors' when they begin to play tennis, watch birds or meditate even if they arrived in the park by driving along the east west arterial road.

The final decision is whether a visit to one of the two large-scale 'ticket selling' venues is 'a visit' to Royal Park.[28] The case for including these people is that the venues contain active and passive activities. On the other hand, neither stands on park land and someone must buy a ticket to pass through the turnstile into the venue. A similar situation occurs in Central Park where the Metropolitan Museum of Art (MoMA) sits inside Central Park. The Central Park managers have determined that patrons who have bought a ticket to the Museum are not counted as 'visitors' to the park unless they also visit the park or exit the Museum into the park.

This determination makes sense. The park managers have little influence on the number of people who visit MoMA. The attractiveness of MoMA is decided by the actions of the MoMA managers.

The park managers of Royal Park are in a similar situation. If the patronage of the Melbourne Zoo or State Netball & Hockey Centre is included in the category of 'visits to Royal Park' then the park managers would become responsible for increasing visits to the two major venues. It is more appropriate to exclude patrons to the major venues and leave the managers of the two venues to be responsible for their own levels of attendance.

The practical (and countable) definition of a 'visitor' that emerges from this discussion is:

A visitor is someone in the park:

- On foot or on a bicycle (as both are active and passive activities)
- Participating in formal or informal, active or passive activity (however they reached the place in the park where they are undertaking their activity and for whatever purpose including walking to work).

People who are not visitors are those:

- Passing through the park in cars or public transport even if they look out the window and enjoy the park on the way
- Patrons of the Melbourne Zoo and the State Netball & Hockey Centre

4.3 Measuring visitors to the park

There is no available data on the number of visitors to the park.

This data can be expensive to collect by human observation. Today's internet-based technologies, as well as established detection systems linked to the Internet, offer opportunities to collect continuous data at a low cost. Some authorities track the movement of people through Bluetooth phone signals.[29] Some park authorities in the US are tracking

visitation by monitoring the number, location and home address of photographs taken in parkland.[30]

Some data is available for people on bicycles on the Capital City Trail which follows the old and current rail easement through the park. This connection has been developing over the last two Masterplans as links to the north and east as well as a bridge over Manningham Road have been constructed. Two counters are in place on the routes into the park.[31]

The Capital City trail is well used. In 2017 1,000 riders passed over the Upfield Path counter each day and around 1,400 a day over the counter on the Capital City Trail. The number of riders has more than doubled since 2006 (Upfield: 450, Capital City Trail 600). Most riders are detected between 0700 and 1900.[32]

There is no data available on the other through routes, one of which runs alongside the tram line and another along the Elliott Avenue/MacArthur Road alignment. Some of this route is on the roadway rather than in the park.

5 Improve the Circulation network

This Chapter considers what this report refers to as 'the circulation network', a network of foot and bicycle paths in the park. The term is based on Masterplan references to the 'circulation system' and a 'network of paths'. The Plan concept is that this network 'serves and supports use of the park'.

5.1 The purpose of the Circulation network

The circulation network is the foundation of all visitation – used by all people who arrive by car or public transport as well as by those who reach the park on foot or by bicycle. A poor-quality circulation network will motivate people to reach their destination in the park by car and drive as close as they can to their destination. An excellent circulation network with links beyond the park will support high levels of access by active and public transport as well as supporting the use of car parking bays some distance from the park.

If, based on the discussion above, a measure of success for the park is increased visitation, then the aim of the circulation network is to contribute to that higher aim.

A purpose for the circulation network can be proposed:

'The purpose of the circulation network is to support passive and active recreation as well as active transport to, from and within the park (in a way that is consistent with the landscape character of the park) so that visitation is increased.'

5.2 The character of the Circulation network

A range of views are held about the purpose, design and use of path systems in parkland. These sometimes divergent views are reflected in a range of path use policies and path design. One of the contentious issues is 'through movements' in parkland.

In some parkland, through movements and active recreation are seen as inappropriate. In these contexts (the Botanic Gardens are an example) bicycle riding and active recreation such as running and playing with sporting equipment is discouraged or excluded. The paths in these places are designed to frustrate through movement and encourage people to slow down and wander through the landscape.

In other contexts, through movement by bicycle and active recreation is supported. In these areas, paths tend to be straighter and more direct.

It is clear from the Masterplans that in Royal Park both of these philosophies are relevant. 'Wandering facilities' have been provided around the park. The Circle, the paths through the Skink habitat and around the Wetland are examples. Through routes such as the Capital City Trail have also been endorsed.

It appears that the application of these two different intentions has had undesirable outcomes including:

- Complaints from people who do not like to see through use of what they consider 'wandering paths'
- Conflict between users when paths with a high level of use are narrow or circuitous
- Reluctance to make paths wide enough for the load they carry
- User-made paths generated when circuitous paths do not link to the edge of the park or to destinations in and around the park

Clear direction in the next Masterplan will reduce this ambiguity.

Three types of path are proposed, each supporting increased visitation in a different way:

- **Wandering paths** are a feature or facility in the park (analogous to a sporting oval). These paths support visitors engaged in passive activities (such as nature study). Development of this type of path will increase the attractiveness of the park. This type of path may not assist visitor movement through the park. Visitors to these facilities may not come to the park on foot, by bicycle or public transport.
- **Paths to destinations** in and around the park to support visitor movement on foot and by bicycle. These paths enable visitors to walk or ride a bike to the major destinations in and around the park. These trips may be to work or recreation such as football training or yoga. Development of this type of path will not increase the attractiveness of the park but will assist to make visitor movement on foot, by bicycle or public transport a more competitive mode choice compared to car travel.
- **External pedestrian and bicycle links** to transport network and transport facilities beyond the park. The Masterplan is definite that the network should be designed to bring people into the park. 'Access to the park via public transport should be supported and encouraged with appropriately placed footpaths'. Bicycle links along the Capital City trail and Upfield line are also supported. The implication in the Masterplan is that one of the purposes of the circulation network is to support increased use of these modes and reduce the proportion of visits supported by car trips. These trips may be to the park (for passive and active recreation or to work) or through and beyond the park. Development of this type of path will not increase the attractiveness of the park but will make park access by public transport and active modes a more competitive choice compared to car travel. High quality links will also support the use by visitors of parking areas beyond the boundary of the park.

5.3 Evaluating the Paths in the network

5.3.1 Wandering paths

In general, the wandering path facilities in the park (analogous to ovals and pitches) such as the Australian Native Garden do not overlap with the other two types of path. It is not the task of a transport assessment to evaluate the effectiveness of these facilities.

However, two observations can be made:

- People walking or riding to wandering facilities will use the other types of path. In order to wander in the skink habitat, someone may arrive in the park or walk along the through route of the Capital City Trail for example.
- Some wandering paths can also support active recreation and active transport. It is notable that Royal Park, unlike Princes Park or Central Park in New York, lacks a perimeter path that can be used by 'wanderers', runners and people getting to destinations in and around the park.[33] A perimeter path could also help identify and unify the separate parcels of land in and beyond Royal Park. An extended perimeter path based on external links could encompass Princes Park and the Moonee Ponds Creek for example.

5.3.2 Paths to destinations

A circulation network well-linked to destinations will support increased visitation by people travelling on foot and by bicycle.

The current circulation network however, does not provide convenient links to all

destinations:

- There are no paths to the Northern or Brens Ovals
- There is no footpath along The Avenue to the Royal Park Tennis Club.
- There is no direct path to front door of the State Netball & Hockey Centre from the tram line path to the south. To reach the entrance from this direction it is necessary to go around the north side of the facility.

Where paths have been provided to destinations, they are sometimes indirect:

- There is a path to the Golf Club, to the Urban Camp and some connections to the Royal Children's Hospital. Unfortunately, these paths include misalignments, dog legs and right angle turns.
- The link between the circulation network and the northern entrance to the Melbourne Zoo is not aligned. Nor is there a priority pedestrian crossing of Poplar Road in this location.
- There is no direct path from some of the tram platforms to the major venues. A passenger who alights at the tram stop north of the railway line will have to cross Poplar Road twice within 50m. The link from the current tram platform to the State Netball & Hockey Centre which could be 50m has been made at least 80m long – an unnecessary 60% increase in distance.
- The absence of a railway crossing west of Royal Park Station imposes long journeys on people who wish to reach the Wetlands or Ross Straw Field from the Urban Camp area. A similar detour is required around the eastern section of the railway line when moving between The Avenue and the Northern Ovals.

There are major barriers to paths to destinations in and around the park:

- The golf course, notes the 1997 Masterplan 'discourages circulation through this area of the park'.
- The railway line limits north south movements. Both Masterplans identify the barrier to the west and east of Royal Park Station:
    - West of Royal Park Station. The only crossing opportunities between the Urban Camp area and the Ross Straw Field area to the north are on the park boundary and at Royal Park Station. The 1985 recommendation was for a bridge. The current plan calls for an at-grade crossing. It is against current policy to install at-grade crossings on the rail network. Many that exist are being removed or replaced. The options in this location are therefore a bridge or underpass. It is difficult to identify a suitable location for a bridge along this stretch of line. It appears that an underpass could be constructed to the east of the Manningham Street bridge where the railway line is on an embankment above the parkland on either side.
    - East of Royal Park Station. Again, the only crossing opportunities are on the park boundary and at Royal Park Station. Proposals in the past Masterplans for a bridge across the railway cutting to the east of Royal Park Station were intended to address this barrier. Concept designs show that the bridge was not aligned to any destinations or through routes. The proposed location of the bridge, on the south side of the golf course, was contradictory as the golf course, as well as the cutting, is a barrier to circulation. A more appropriate response might be a 'wildlife bridge'.[34] These structures are more landscape than bridge and closer to a covered way than a formal tunnel. Such a structure could add 500m^2 to the park area, provide what the Masterplan calls a 'hilltop vista' and support circulation.

5.3.3 Links to the transport network beyond the park

A circulation network well-linked to surrounding areas and public transport services will support increased visitation by people travelling by active and public transport. These links will also support a wider car parking catchment.

There are strong links on the circulation network to the Capital City Trail (a bridge in the west and an underpass in the east) and Upfield Path.

Some links across roads are supported by traffic signals for example at Flemington Road, Royal Parade and Park Street. There is a high-quality link on a raised zebra crossing across The Avenue at MacArthur Road. This however is the only link of this type.

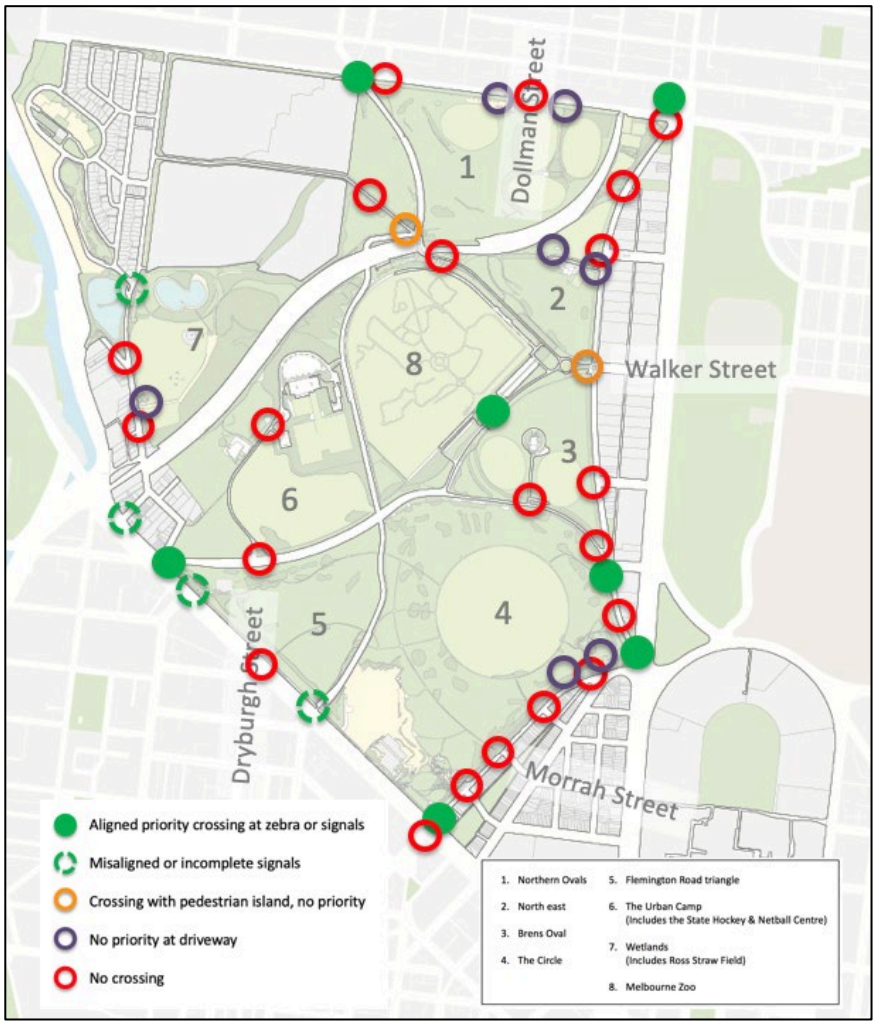
Some links are misaligned. A path runs from the Australian Native Garden to The Avenue. However, there is no path, road or catchment on the other side of the road.

Many links are of poor quality:

- Some of the paths in the park are not aligned with the footpaths on the other side of the perimeter roads.
- Dollman Street (north), Walker Street (east), Morrah Street (south east) and Dryburgh Street (south) offer no support for pedestrians approaching the park.

Figure 15 below provides a visual summary of the quality of pedestrian links to and within Royal Park. Few are of a high quality. Many of the possible links are absent, requiring people to cross roads without support.

FIGURE 15: VISUAL SUMMARY OF THE QUALITY OF PEDESTRIAN LINKS TO & WITHIN ROYAL PARK



Source: Phillip Boyle & Associates

Figure 16 below shows the misalignment between the path in the park and the footpath on Morrah Street (top left and right). There is no crossing at this location. There are no signals or zebra crossings to support people entering the park from Walker Street (bottom).

FIGURE 16: MISALIGNED & LOW PRIORITY LINKS TO ROYAL PARK

Source: Phillip Boyle & Associates

Not all external links need to be developed or developed to a high standard. Some roads and easements provide access to small catchments and within a relatively short distance come to a dead end. Dollman Street to the north for example reaches Brunswick Road within 100m. Nor is Dollman Street aligned with the road grid to the north. This connection has a low potential.

Other streets have high potential. Walker, Morrah and Dryburgh Streets offer corridors that stretch for more than 1km from the park and link to Princes Park, Melbourne University and the Arden precinct respectively. These three streets (and others like them) also offer the 'Open Space Opportunities' discussed above in which open space in the road reserve can be consolidated to provide a linear park.

Walker and Morrah Streets also provide links to tram stops on the Royal Parade tram line (19).

5.4 Regular adjustment rather than 'completion'

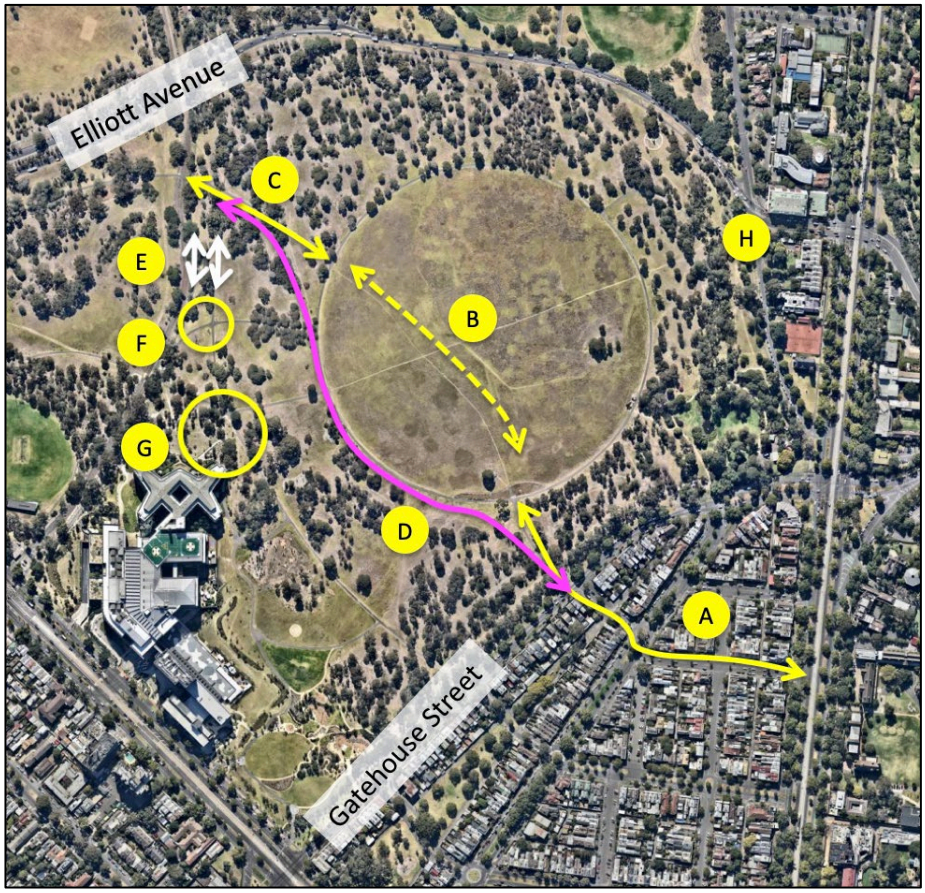
The current Masterplan requires that the circulation network be 'completed'. An alternative approach is proposed based on repeated adjustments of alignments, surfaces and widths.

5.4.1 Adjusting alignments

The previous section highlighted the need to establish paths to destinations, links to the surrounding areas and (it can be assumed) new wandering paths. One way to approach this is to design a path network that contains these elements and construct it. A risk with a 'predict and provide' approach is that an attempt to provide a comprehensive network of paths to all entrances and exits, along all through routes, to all destinations and including additional wandering paths would occupy a large area of land and risk undermining the attractiveness of the park.

The alternative approach is to make regular adjustments to the network based on observations of use and allow the network to evolve. How this might be done is illustrated with reference to the aerial photograph (April 2018) in Figure 17 below.

FIGURE 17: ADJUSTING ALIGNMENTS ON THE CIRCULATION NETWORK



Source: Phillip Boyle & Associates

The photograph shows the route people are taking to and from Bayles Street (A) towards the tramline path near (C). The paths at (A) and (C) have been aligned to hit the Circle at

right angles. (This is true of several paths to the Circle.) These right-angle alignments support 'wandering' but do not support people travelling through the park. The people passing through (rather than going for a walk around the Circle) are making a new informal path across the Circle (dotted yellow arrow) (B). Were the Bayles Street path to be realigned to meet the Circle at a lesser angle as suggested in (D) (pink arrow), people would probably use the path around the Circle and the total length of path could be reduced. If successful, this initiative would combine the wandering, through and external link alignment in one path reducing the total the area of path.

An informal path has been formed across the Circle from (G) – (H), linking Royal Parade at MacArthur Road with the Royal Children's Hospital. It may not be possible to change this alignment, as alternative alignments around the Circle will be too circuitous. Nor will it be possible to ignore the reason people have made the path. It is likely that the alignment will need to be included in the path network.

Under an adjustment process when a path is introduced (or widened), it would be necessary to identify paths that could be removed from the network, so the total area of paths does not increase. This could be achieved in this example by removing what appears to be an unnecessary node at (F) and one of two parallel paths at (E) (white arrows).

Through such a process of adding, adjusting and subtracting, path alignments will evolve which meet peoples' needs but the area of path will not increase.

5.4.2 Adjusting surfaces

A similar process can be followed for surfaces. The Masterplan requires that paths 'should be 2.5 metres wide with asphalt paving'. The risk with this approach is that the park will be criss-crossed with asphalt paths. Instead it is recommended that – based on use – path surfaces range from unsurfaced 'goat tracks', to gravelled paths, through asphalt to concrete. The 'harder' paths will be those with the most use, infrequently used paths will have the lighter more permeable surfaces.

5.4.3 Adjusting width & separation

Feedback received from the community included reports of discomfort using the busy paths in the park. One factor that causes discomfort is high bicycle speeds on narrow paths that are heavily used. Elevated bicycle speeds have been recorded in the park. Data from the in-path bicycle counters show that a proportion of bicycle riders (12 – 22%) were travelling at 20km/h or higher. In the two counter locations around 70 and 112 riders each week were recorded travelling 29 – 32km/h.[35] It is not possible to set an appropriate speed for a bicycle rider as this is determined by the context. (Factors include light conditions, sight lines, number of path users and their direction of travel and path width.) Gradients 'enforce' higher speeds on riders. Steep sections of path, such as those to the west of the tram underpass elevate the speed of the riders who are not in a hurry.

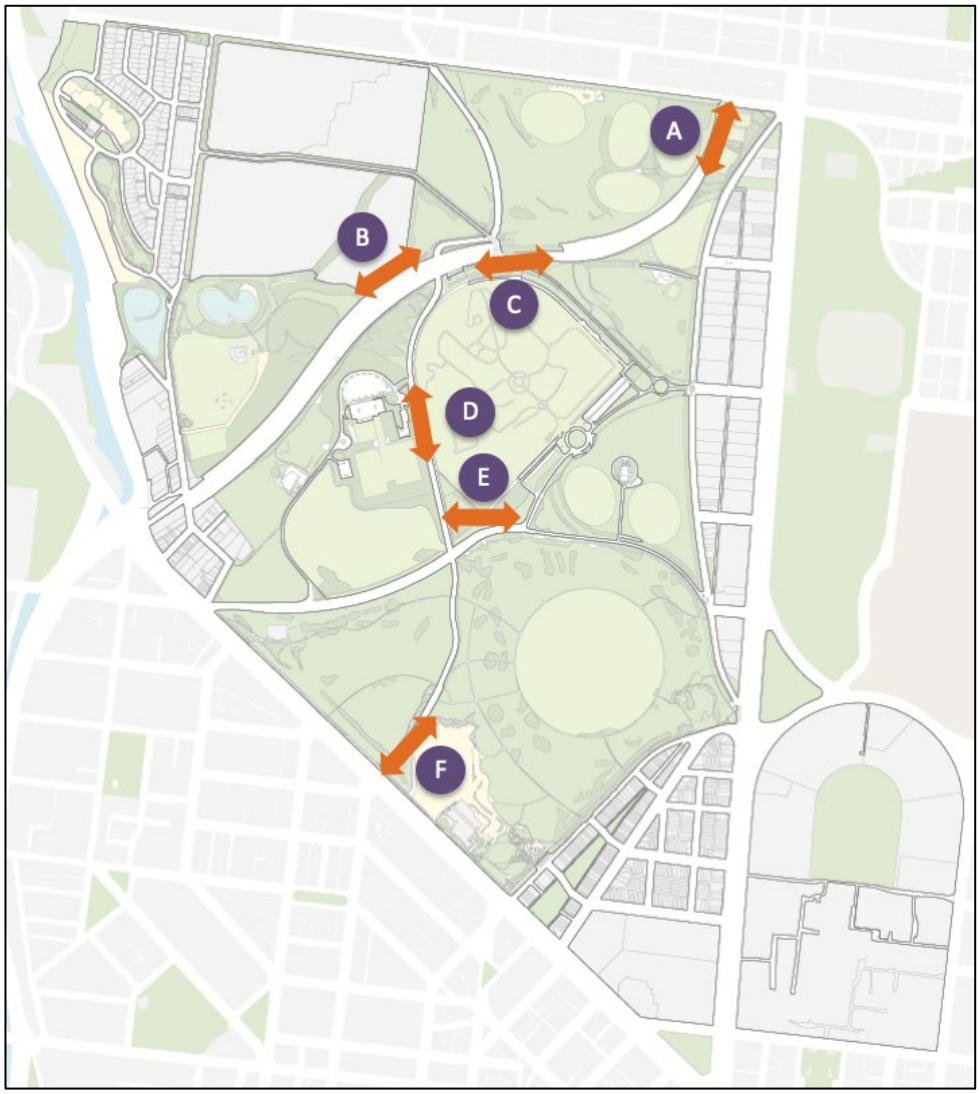
Again, a process of adjustment is recommended. Data on the use of paths collected to report visitation can be used to identify when paths need to be widened and bicycle riders separated from pedestrians. Tables have been prepared that identify the optimum width for a shared path under varying loads of pedestrians and bicycle riders.[36] At a certain level of use, two separated paths are appropriate as they occupy less land and cope better with higher volumes of people.

Where gradients increase the speed of riders, separation may be warranted at lower levels of use. It is recommended that if a rail underpass is constructed near Manningham Road

Bridge, that the Capital City Trail be relocated to the south side of the railway line, leaving the path on the north side for low key activities.

5.4.4 Widening narrow corridors

FIGURE 18: CURRENT LOCATIONS OF NARROW CORRIDORS ON THE CIRCULATION NETWORK



Source: Phillip Boyle & Associates

The widening of narrow corridors on the circulation network is another process of adjustment that needs to occur so that the paths can be widened or separated. Narrow corridors include:

A. The 'Upfield Line' corridor east of the railway line and south of Park Street. This corridor is narrow because the path connection was built after the tennis courts.

B. The 'Cunningham Dax' corridor between the railway line and the West Parkville employment precinct. This narrow corridor was formed by the introduction of the railway line and the excision of a rectangle of land from the park in the 1800s

C. The 'Station precinct' corridor between the Melbourne Zoo and the railway line[37]

D. The corridor between the Melbourne Zoo and the State Netball & Hockey Centre. This corridor runs between two areas of land that are outside the park

E. The corridor between Elliott Avenue and the south western corner of the Melbourne Zoo

F. The corridor between the tram line and the Royal Children's Hospital. This corridor was formed when the Hospital was moved.

5.5 Priority, lighting & orientation

This section considers other deficiencies in the circulation network.

5.5.1 Motor vehicle speed & priority

The Masterplan identifies road trauma as a risk, identifying lower vehicle speeds in the park as a key intervention.[38] Decreases in motor vehicle speeds, notes the State's road safety strategy, Vision Zero, 'significantly reduce the severity of injuries …or avoid the crash in the first place.'

The risk of collisions and injury remains. Fortunately, between 2012 – 2017 there have been no pedestrian injuries inside the park and no bicycle rider injuries in and around the park. There have however been many pedestrian injuries around the park. It is not known whether these injuries were to people using or intending to use the park.[39]

The absence of negatives (fatalities and injuries) is valuable but is not a positive measure. Other negatives remain. High motor vehicle speed limits and high motor vehicle priority do not signal a 'park'. These factors are also likely to be discouraging access to the park on foot and by bicycle especially independent access by children and the elderly. The 8 – 80 paradigm is useful here to frame a positive goal. For Royal Park the goal could be to 'create a park which both 8-year-olds and 80-year-olds can easily reach and move about in safely and enjoyably'.

Rather than the 40km/h speed limit recommended by the Masterplan (which has not been fully implemented) the next Masterplan can adopt the 30km/h speed limits which are currently being extended to areas outside the Melbourne CBD. These limits can apply to all roads around the park as well as all roadways inside the park.

Slower speeds and high priority for active transport would have benefits for motorised road users. VicRoads shows people in motor vehicles and on motorcycles are at risk in and around the park. Collisions have occurred in Poplar Road and Elliott Avenue. In the period there was a single vehicle motorcycle fatality in Elliott Avenue/MacArthur Road. Other collision risks exist including between trains and trams and other modes. In May 2017 a truck and tram collided in Elliott Avenue.[40] Most motor vehicle collisions in the area have occurred on Flemington Road.

Explicit mode priorities will help realise an 8 – 80 outcome. (The 1997 Masterplan did not set an explicit hierarchy of priority between modes inside the park.) It is recommended that public transport has the highest priority: all other modes would wait for trains and trams, minimising delay for people on public transport. Second on the hierarchy would be people on foot. People on bicycles would give way to pedestrians and people in vehicles give way to people on bicycles. This priority setting would apply to all non-arterial perimeter roads (all roads except Flemington Road).

All high potential Links to the transport network beyond the park would be supported by raised 'zebra' pedestrian crossings ('wombat' crossings) aligned with the trails or footpaths that lead to and from the park. Key internal links – such as between Royal Park Station and the Melbourne Zoo – would have high priority crossings based on wombat crossings

supported by signals where necessary. Signals would be 'on demand' for active transport users.

Unfortunately, some projects intended to provide pedestrian priority have not been successful. The direction in the 1997 Masterplan 'Modify the signalised intersection of Elliott Avenue with Brens Drive, to provide a pedestrian crossing' was addressed without achieving the desired outcome.[41] People walking east along the Elliott Avenue footpath (northside) from Racecourse Road must still cross a road without support on both sides of Brens Drive. A signalised crossing is provided between the two slip lanes. The signals provide no pedestrian access to the southside of Elliott Avenue.

5.5.2 Poor lighting

Poor lighting of paths can reduce the use of the paths in low light conditions including night time. The resulting low use can in turn increase the actual and perceived risk of using the paths, further reducing usage. This negative feedback can be reversed by improving lighting along paths.

Innovative lighting techniques are now available. Low-level lighting of paths is now available including 'glow in the dark' paths that release light gathered during the day. Path lighting triggered by motion sensors has been tested in Europe.[42] In-ground up-lights can be used to delineate a pathway.

The City of Melbourne Public Lighting Strategy 2013 (Part 4.5.7) identifies Royal Park as a 'dark park'. 'Lighting to support active transport modes should be lit where and when there is heavy use and generally turned off after 1am' and 'a skeletal path layout for major pedestrian routes… can be lit all night'. A definition of 'major routes' could be the path alignments with external links and those to active night time destinations. The aim would be to maximise use but avoid unnecessary light pollution.

5.5.3 Orientation

The Masterplan supports the use of formal directional signage as well as the provision of intuitive guidance from tree planting in order to reduce confusion and uncertainty about location and orientation in the park.

There has not been an analysis to identify the locations where people become or feel lost or disoriented in the park. It is likely that there are several. The area of the Royal Park station is particularly confusing. The routes to the Melbourne Zoo from the station, the 'mid-course' route for people playing golf and the Capital City trail are all overlaid. There is no clarity of direction or priority.

The next Masterplan should be cautious about endorsing signage. Signs can be intrusive and are not always used or understood by people. They may be less necessary as people today have highly detailed annotated maps available on their smartphones.

In general, a well-designed circulation system will emphasise intuitive cues and clues. In such a system the 'right way' and relative priority will be 'obvious'. More intuitive clues such as coloured pavements can be just as helpful and less intrusive than signs.

6 Increase public transport use

The directions in the Masterplan related to public transport focus on encouraging use of the mode:

- 'Access to the park via public transport should be supported and encouraged'
- 'public transport service to the park and increased patronage should be encouraged'
- 'major facilities and attractions in the park should be planned and designed to encourage use of public transport'

6.1.1 Aims for public transport

Two possible aims can be inferred from these directions:

- To increase the number of people who arrive in the park by public transport (both as visitors to the park and patrons of the major venues)
- To increase the share of total visitors and patrons by public transport (and reduce the share by motor vehicle). These aims can be made explicit in the new Masterplan.

The two aims are complementary. To maximise visitation to the park and patronage of the venues, all the paths to the park, the parking bays and the seats on public transport need to be full. If there is spare capacity on public transport, then the maximum cannot be reached. This spare capacity can be filled:

- By attracting new people who come by public transport or
- By people switching from coming by car to public transport, allowing others to come by car

6.1.2 Strengths & weaknesses of public transport

The question is whether these strategies are feasible.

The potential for park visitation to be supported by public transport is high. Many destinations are accessible by public transport services which surround (and bisect) the park. Three stations on the Upfield line are within walking distance of destinations in the park, two new stations, also within walking distance, are planned at Arden and Parkville, four tram services (Routes 19, 57, 58 & 59) pass around and through the park as does the Route 505 bus.

The likelihood that this potential can be realised is perhaps higher than in 1997 when the current Masterplan was published. Since then – especially since the early years of this century – the use of public transport in the Victorian transport system has expanded.[43] Today public transport is a mainstream transport choice. However, surveys conducted for this assessment suggests that the general growth in public transport use has not been reflected in changing patterns of visitation to the park. It is likely that visitation to the park by public transport is low and that the motor vehicle is the dominant mode.

There remain limitations to the public transport services in and around the park. These include limitations of reach, catchment and frequency of service. For example:

- Reach: People living to the north along the Route 19 tram (Sydney Road/Royal Parade) can reach the east side of the park easily, but are further from destinations in the west of the park.
- Catchment: There is no direct service to the park for people in Doncaster.
- Frequency: The Route 505 bus travels from Moonee Ponds right through the park but

only travels once every hour in a relatively narrow span of hours.

Another area of weakness is that the amenity of public transport nodes in and around the park is not consistently high. (See the section below: Public transport Amenity in Royal Park). Public transport amenity certainly needs to be improved – partly because much remains to be done and partly because some of what has been done has been inadequate. It is important that a more effective connection is made between the tram service and the State Netball & Hockey Centre and that the Melbourne Zoo Royal Park Station precinct is 'redesigned to provide a high level of amenity for people arriving by train, tram and bus.'

6.1.3 Public transport to major facilities and attractions

The Masterplan indicates that the use of public transport by patrons of the Melbourne Zoo and State Netball & Hockey Centre should be a focus.

State Netball & Hockey Centre

The location of the State Netball & Hockey Centre at some distance from the Station reduces the likelihood of public transport trips to the Centre.

One of the public transport recommendations in the Masterplan is that the tram service through the park be more closely and conveniently integrated into the State Netball & Hockey Centre. A task that remains and is recommended.

As well as supporting tram passengers, an improved tram connection to the Centre would strengthen the link between Royal Park Station and the Centre – allowing people to catch the train and transfer to the tram to reach the Centre. The Station-tram link should also be complemented with an improved Station-pedestrian link. When these links are convenient and provide high amenity, the potential audience for public transport trips to the Centre will increase.

The scale of change that could be achieved on this foundation is unclear. Factors that may limit public transport use to the Centre are that trips are often made at night and people stay at the Centre for a relatively short time.

The view of the Centre management is that a proportion of trips to the Centre are unlikely to be shifted to public transport. It is predicted that efforts to shift mode among young women who play netball will be met with resistance. Parents typically take on the role of personal security guards and chauffeurs to the players and it is felt that this group would be unlikely to support independent travel. Solutions for this audience could include incentives for car-pooling rather than traditional public transport.

Investigation of the various Centre audiences would need to be undertaken to identify whether there are audience segments open to change and whether patrons who are prepared to consider using public transport can be supported by the public transport system.

Melbourne Zoo

The main public transport target in the current Masterplan is increasing the use of the train by patrons of the Melbourne Zoo, in particular at times when visitation by motor vehicle peaks.[44]

The investigation revealed that the use of trams and buses (as well as walking and bicycle riding) to reach the Zoo was many times lower than the use of the train and Royal Park Station. This clarifies priorities for the next Masterplan. As the train has the highest potential capacity of all the other modes and as it has the highest current level of use, the main effort of mode shift must focus on the train.

The key site for this effort is Royal Park Station. The investigation found that today the main role of this Station occurs during the working week. People use the Station to get to and from jobs in West Parkville, to provide a commuter transfer location between tram and train or train and tram, and to provide a fair weather, daytime commuter option for people living across the park to the north. This role is valuable but of low value to the park and not relevant to increasing the number of Melbourne Zoo patrons who come by train or reducing the level of motor vehicle traffic at peak times.

The investigation found (like others before[45]) that around 10% of Zoo patrons use the Station to reach the Zoo, considerably lower than it was in 1990 (20 – 25%). An effort to increase the proportion of people coming to the Zoo by train will therefore be starting from a low base.

The Council has a willing – even eager – partner in the Melbourne Zoo. Discussions with the Zoo revealed a strong commitment to sustainability including increased use of public transport. The Zoo has electrified all its on-site vehicles for example. The Zoo was emphatic that it did not seek to expand the car parking and would be strongly behind any efforts to increase the proportion of visitors who come to the Zoo by public transport, walking and cycling.

This is in line with progressive inner urban Zoos in other centres. The Paris Zoo emphasises the importance of arriving on foot or by public transport.[46]

Nonetheless there seemed to be some pessimism that such significant mode shift could be achieved without compromising ticket sales. The Zoo is keenly aware of the perceived barriers to the use of public transport reported by patrons to the Zoo. (Perceptions reported in the investigation include the perception that it is difficult to bring small children on public transport, the established habit of driving as well as the time lost in public transport travel and transfers. On the other hand, the Zoo (and the public) probably underestimate the convenience and relevance of the train. It appears that the workforce at the Melbourne Zoo mostly arrives by car.

The level of expectation at the Zoo that significant mode shift can occur is therefore low.

The investigation found that Zoo patrons were more optimistic. The investigation found between one third and a half of the people who come to the Zoo by car would consider coming by another mode. The most popular potential alternative for this group is to switch from the car to the train.

The investigation was able to establish the effective catchment of the Station by plotting the home postcodes of the weekday and weekend users of the train service. These plots show that the station catchment has a wide radius and within that radius it is relevant to people at every point of the compass. It is not true for example, that people who come by train to Royal Park Station live close to the park or that only people who live on the Upfield line use the train to reach Royal Park Station.

A similar plot was made for people who came to the Zoo by car. This plot showed that while some people who come to the Zoo by car live outside the Station catchment, many live within it. People in the western suburbs for example come to the Zoo by car and by train. This suggests that the train trip for many potential switchers would be feasible.

Not only does the train have a strong catchment, the cost, convenience and amenity of the train service is rated by current train passengers rate as good or acceptable. This suggests that if the Zoo patrons were to try out the train, they will not be disappointed and immediately return to using a car.

The investigation identified several barriers that will need to be overcome. Unfortunately, most people who come by car do not know the name of the Station at the Zoo. Some

respondents did not even know that there is a Station near the Zoo. *'From outer east. Need to train then tram. Not familiar with closer train station but if there is one, we'd definitely consider it.'*

When asked about the price of public transport tickets, half (46%) of the people currently coming by car but open to change, said that zero cost public transport tickets would influence their decision.

Other surveys found that two thirds of people were unsure of the cost of the ticket, estimating the price higher or lower than it is. A significant proportion of those open to switching would be influenced by a zero-cost ticket.

6.1.4 Investment in changed travel behaviour

The investigation confirmed the direction in the Masterplan. There is potential for mode shift for trips to the Melbourne Zoo. A substantial group of patrons are willing to try and the alternative is widely relevant and effective.

The effort to catalyse mode shift by people who currently drive to the Zoo would be best conducted in a long-term program that evolved by making evidence-based investments in measurable results. Initiatives that are recommended for such a program are:

- Change the name of the Station from Royal Park to Melbourne Zoo or Melbourne Zoo (Royal Park)
- Reconfigure the Station precinct
- Provide free train trips on summer weekends during opening hours and on weekdays during some school holidays to people who touch off after 1000 or touch on before 1600
- Set complementary parking fees and entrance fees for peak, shoulder and off-peak visitor periods
- Use the revenue from the parking meters in and around the park to fund 'first time train user rebates' and other incentives for Zoo members and visitors
- Set up an airport style departure lounge inside the northern entrance of the Zoo for patrons who are public transport passengers
- Set up airport style departure boards inside the Zoo to promote public transport options and help passengers maximise their time on site
- Begin the Zoo 'experience' at the Station with public art, live screens of animals in the Zoo and video broadcasts

6.1.5 The use of public transport to reach formal & informal recreation in the park

It may be possible to increase the number (and proportion) of visitors to the park who come by public transport. The current use of this mode is not known in general – there is not an extensive academic literature on access to formal and informal recreation by mode – or in particular. This assessment did not gather evidence on the modes used to reach these activities in the park.

It is probable that many people engaged in informal recreation arrive from a local catchment on foot, by bicycle or public transport. Other informal activities such as birdwatching or the facilities at the Royal Park Nature Play Playground may draw people from a wider catchment. Some of these people will come by car. However as noted above, people regularly travel to the park by train from a catchment that stretches across the metropolitan area. There is no reason why a birdwatcher would not catch a train to the park. The time flexibility of informal activities would allow the visitor to adapt their visit to suit public transport timetables.

When considering formal sport, a link has been found between participation and car ownership – children of single parents without a car are likely to have reduced participation in opportunities for sport and other activities. This does not mean that all children and adults get to formal sport by car, although many certainly do. Figure 51 below shows that some people use the circulation network to reach the sports grounds in the park.

Improvements to public transport services and facilities (and to the circulation network, including its extension beyond the park) will facilitate the use of active and public transport to reach both types of recreation. However, no specific recommendations can be made as it is not clear which particular changes should be pursued above others. When more is known about visitors to the park, including how they arrive at the park, then transport initiatives can be developed to increase the use of active and public transport to reach informal and formal recreation in the park.

7 Optimise car parking behaviour

The direction in the Masterplan related to the use of parking bays focuses on the management of the bays – 'car parking in the park should be subject to an integrated management approach that deals with the entire precinct, including streets around Royal Park and Princes Park. Appropriate measures to favour parking by park users should be investigated and introduced as possible.'

7.1.1 Aims for parking management

It is necessary to identify the purpose that would be served by the direction in the Masterplan.

When considering parking bays and visitation, two factors are key: the number of bays (capacity) and how often they are used (efficiency or utilisation). Similar levels of visitation can be achieved by low utilisation of high capacity and by high utilisation of low capacity.

Due to many external factors such as rising population and an expanding vehicle fleet and because of the importance of the park land goals discussed above, the park will be supported by conditions of low car parking capacity. To maximise visitation with low capacity it is necessary to manage the bays to maximise their efficiency or utilisation.

The aim for parking management for the park can be defined as 'Manage the available bays in a manner that maximises visitation'.

7.1.2 Current inefficient use

Current use of the car parking in the park is extremely inefficient. (This is the worst-case outcome for the park – a large area of land is lost to unused parking for little gain in visitation.) The inefficient use comes in two forms: long periods when the bays are vacant and short, local peaks.

Long periods of low use

Most of the time the bays in and around the park are lightly used. Surveys of parking bays undertaken during the assessment found:

- The supply was never more than half full.
- At all times there were more than 1,500 empty bays.
- At most times more than three quarters of the bays were empty.
- Maximum occupancy was 46%

Similar results were found locally around the major venues and around the active recreation destinations.

One way the efficiency of parking bays in and around the park can be increased is by removing unnecessary bays. The investigation found that the use of the informal parking areas away from the major venues was low enough for these areas to be returned to the park without compromising visitation.

Short, local peaks

Peak loads are another sign of inefficiency. During these periods the bays are heavily used but costs are incurred in lost visitor time and non-compliant parking on grassy areas.

Peaks in parking use in Royal Park are short lived. It was found that around an oval, parking might be intensively used for a few hours on a Saturday. For the rest of the week these bays

would be empty. Peak loads reported by the Melbourne Zoo only occur on 5% of the days that the Melbourne Zoo is open.

The peak loads are local. It was found that when one area is under load another nearby area has spare capacity. It is likely that when there are peak loads around the Zoo, there will be empty bays available at the State Netball & Hockey Centre and in other locations in and around the park.

Peak loads are generated by parking management decisions and exacerbated by restricted 'opening hours' and a lack of coordination in activity scheduling. A contributing factor to inefficiency of the bays around the State Netball & Hockey Centre and the Melbourne Zoo is that they are in two separate pools. People going to the Zoo do not appear to park at the Centre and vice versa. Relocation of parking areas to a zone between the two venues would be likely to increase the level of use of the bays.

7.1.3 Future efficient use and increased visitation

The aim of integrated parking management would be to increase efficient use in order to:

- Maximise the use of the available bays in order to maximise visitation
- Identify where bays can be relocated in order to increase their level of use
- Identify the number and location of redundant bays that could be removed without reducing the number of people arriving by car

Based on the investigation, this section provides an outline of the decisions that might be made under integrated parking management in order to maximise visitation.

Define the Royal Park parking area

The first step is to define a pool of bays that primarily serve the park.

The current Masterplan suggests a wide boundary that in the north east would include Princes Park and the local streets. This definition has merit. The parking bays around Princes Park are well within the walking catchment of Royal Park. (The bays in Royal Park also support visits to events in Princes Park.)

However, the definition is not recommended. The wider catchment includes many other parking uses including vehicle storage by residents, local and CBD-based employees. It is unlikely that park use could be established as the primary purpose of all the bays in a wider catchment.

The definition of the parking area of Royal Park recommended (and used in the analysis below) includes all the kerbside bays on the park side of the perimeter roads as well as all the bays and parking areas inside the park. Some bays in this definition are excluded. The Hospital car parking facilities (inside and abutting the park) are excluded as are all the bays on the far side of the perimeter roads or within a walking catchment of the park – such as the bays along Royal Parade. Bays inside the State Netball & Hockey Centre and Melbourne Zoo are excluded.

So far, this definition yields a pool of 3,000 bays. When the small-scale parking areas within the park are removed, the pool is reduced to 2,600 bays - roughly 2,000 in and around the State Netball & Hockey Centre and Melbourne Zoo and the balance around the perimeter.

A strong case can be made that the primary purpose of all these bays is to serve the park.

Manage the 'Royal Park car park'

The next step would be to place the bays within this definition under single (shared) management in a virtual 'Royal Park car park'.

There would be two categories of user within this virtual car park: visitors and patrons. The bays near the State Netball & Hockey Centre and around the Melbourne Zoo would be tasked primarily with serving those centres. When these bays are 'off duty' or when the number of patrons is low, the bays would be available to support patrons to the other centre and visitors to other areas of the park. (It must be noted that the bays around the State Netball & Hockey Centre are owned and managed by the Centre and not the Council. The Centre has however strongly expressed support for coordinated, consistent management and shared use of all parking bays. It is likely therefore that the two parking bay managers will be able to form a formal or informal cooperative parking management consortium of some nature.)

The other bays – including those around the perimeter – would have the primary task of supporting visitation by car to informal and formal recreation in park. (This group of bays would be supported by a large pool of bays in the surrounding area such as at the Hospitals and in the wider catchment around the park which would continue to perform this function but would not be managed for this purpose directly.)

Gather data on the use of the bays

The next step would be to provide the 'car park' manager (and the public) with constantly updating data from the bays already fitted with vehicle sensors. (These sensors automatically report when a bay is in use and when a new vehicle enters the bay.) Sensors and other data collection devices would be installed to provide information on the rest of the bays in the 'car park'. For example, licence-plate cameras can be installed on Brens Drive to provide information on the use of the State Netball & Hockey Centre parking area. (This system is used by Westfield shopping centres and other parking managers). This flow of data would underpin all decisions made by the parking manager. The data could also be used to inform users of the location of heavily and lightly parked areas and provide time alerts and other information. (The parking sensors would reveal whether the car was being used by a visitor or a patron.)

Sensors and cameras would allow length of stay and other controls to be introduced to the State Netball & Hockey Centre parking area without having to introduce fees.

Adjust controls

The next step would be to use the insights from the data to adjust the controls on the bays to maximise visitation to the park. The manager would have three main controls in their hand: length of stay, cost of stay and the span of controls. These controls would be adjusted, based on evidence from the sensors, to maximise visitation.

Adjustments that might be anticipated include:

- Extension of current limits on length of stay (some areas are limited to 60 minutes). The average length of a park visit is not known – and may never be determined – but many visits are likely to be greater than 60 minutes. The 'car park' would be managed to allow people to stay as long as necessary.
- Some fees would rise. The investigation found that vacant bays were hard to find on The Avenue and Flemington Road. This suggests that the fee is too low in some locations.
- Other fees would probably fall. The bays on Park Street for example, are rarely used.
- Fees would be adjusted to reflect proximity to destinations and provide choice. Currently some bays inside the park are free while those on the perimeter require a fee. This draws people into the park and disincentivises walking from a parking bay outside the park. Adjustments would make bays close to a popular destination cost more than those further away. This would allow people to choose to pay for convenient parking with money or save money by spending time walking. (Most current parking systems

do not let people value their time by parking near the destination without hunting for a bay. The surveys found more Melbourne Zoo patrons preferred paying for a convenient bay than avoiding a fee by walking further.)

- Fees would be adjusted to reflect the quality of the bay including street lighting and surface. Currently some kerbside bays on asphalt are free while informal, unsurfaced off-street bays require a fee. All the bays around the Melbourne Zoo attract the same fee whether they are on gravel or asphalt.
- Tiered fees would be introduced. (Tiered fees, where the per hour fee rises as the length of stay extends, allow people to stay for longer periods but encourage them not to dally.) Current fees that begin immediately might be replaced with low or zero fees for the first part of the stay.
- Initially it would be possible to maintain areas and times when zero fees apply to bays inside and around the park. Currently the bays around the State Netball & Hockey Centre provide a free option for Zoo patrons although this option appears only to be used by a few. In the longer term it is likely that, in order to maximise use, all bays will attract fees.
- Sensors would allow the manager to issue e-permits to sub-groups of users including those without a competitive public transport option.

By implementing regular adjustments in this way, the system would continually adapt to the changing context. Over time and through a process of regular adjustments - annual or semi-annual adjustments would be appropriate – the utilisation of the bays would be maximised.

City of Melbourne Royal Park (Parking) Regulation 1985.

The Council is able to make these adjustments for many of the bays in the 'virtual car park'. However, the fees that can be charged for the bays near the Melbourne Zoo are limited to $2 by a State Government regulation passed in 1985. Since that time many regulations that contain fees or penalties have been updated to refer to penalty or fee units. The actual monetary value of the penalty unit is set each year by the Government. This method avoids the need to re-legislate the regulation when a change is made to the fee.

To efficiently manage the bays around the Melbourne Zoo it will be necessary for the Royal Park Parking regulation to be updated in this way or for the regulation to be withdrawn and control of fees to be passed to the City of Melbourne.

If the regulation is to be revised based on a penalty or fee unit, and since the current City of Melbourne maximum hourly rate for parking is $7, then a suitable setting in the regulation would be 'no more than 0.05% of a penalty unit for each hour' or '0.5% of a fee unit'. (These units are currently $161.19 and $14.45 respectively). This would set a maximum fee of around $7. It should be noted that any maximum fee would not be required to be charged nor would the maximum be applied to all bays or at all times. It may not be necessary to charge the maximum fee at any time in order to maximise the use of the bays.

Avoid peaks

One of the key roles of the 'car park' manager would be to dilute periods of peak use and increase use in off-peak times. (How this might be done is discussed in detail in Patrons & Parking at the Melbourne Zoo).

The manager would work with the major venues to establish coordinated scheduling, including adjustment of activity days and start and finish times. Major events would be scheduled appropriately. Regular feedback on the usage of the car park will allow the venue managers to move activities towards periods of low use and away from peaks. As well as

cooperative activities, each major venue could adjust their own operations to maximise the use of the car park. Opening hours for the Melbourne Zoo could for example, be longer in the busier summer months – a 9-hour day would allow three three-hour visitor 'shifts'. Opening hours could be shorter in the winter.

Similar efforts could be made with sporting and informal recreation activities. The parking manager would work with the sporting clubs to ensure that training and competition games were scheduled by the size of the club and game, ensuring that large scale training or games were not held simultaneously on nearby sites.

The car park manager will be able to use the parking controls to send unambiguous messages to people parking near major venues about peak, shoulder and off-peak periods.

The current controls send no signal to the Zoo patron:

- The length of stay is 5P (a signal to the commuter considering storing their car and catching the train to work). As a typical stay at the Zoo however is 3 – 4 hours, the time limit sends no signal to the Zoo patron.
- Fees around the Zoo are flat and not tiered. Patrons pay the same fee for one or five hours. Instead fees could increase after three hours encouraging people to move on and make space for another patron. Those who wanted a longer stay could pay.
- Fees around the Zoo apply during all opening hours. Rather than charging for the first hours after the Melbourne Zoo is open, the first three hours could be free (or a lower price than later in the day). People who wanted free parking would be encouraged to rise early and get to the Zoo the minute it opened. Others could choose to sleep in and pay the parking fee in the afternoon. This signal from the parking system would be likely to flatten the peak and could provide the Zoo with two full 'shifts' of visitors.
- Fees around the Zoo are same when 500 vehicles are in the car park or 1,000. Lower fees could apply in winter, shoulder fees in spring and autumn and peak fees in summer for example.

Diversion programs

It would be useful to direct the revenue from the fees gathered by the 'car park' to improvements in the park in order to emphasise that the fees and other controls are intended to influence behaviour not raise revenue. (Hypothecation of parking fees is not the standard practice of the City of Melbourne.)

The revenue could be provided to the parking manager who could use it to fund programs and incentives that help people who come by car to the Melbourne Zoo to switch to the train. A similar mechanism operates in Perth. The City of Perth pays a levy for every car bay, including on-street parking bays into the Perth Parking Fund. The Fund then pays for services like the CAT buses, the free transit zone that operates on the buses and trains, and facilities for cyclists and pedestrians.

7.1.4 Car parking and access to formal & informal recreation in the park

Central management of the virtual car park would enable the bays to be optimised for formal and informal recreation.

'Overlap' could be avoided. For example, the bays near the south wall of the Zoo could serve the Brens Oval sporting fields when they are being lightly used by Melbourne Zoo patrons. It may be that the current metered period for those bays (which ends at 5pm) is deterring the use of the bays by people driving to Brens Oval. The impact of switching off the meters

at 4pm could be tested. Other measures could be tried in winter when the use of the Ovals is high and the patronage to the Melbourne Zoo is low. A similar situation may exist on the north east side for people playing golf and other sports in that area.

The kerbside bays alongside the park would become the premium bays for people visiting the park. Inappropriately long (or short) stays would be adjusted to suit visitors and to encourage CBD commuters and other users to look for other locations.

Appropriate fees would provide incentives that lead to higher utilisation and other desirable outcomes. No fees need to be charged when the pressure is low, but fees are a valuable tool in peaks. A suitable fee would ensure that easy-to-find premium bays were available for occasional visitors such as 'away teams'. This group would have the option of avoiding the fee by walking to the boundary of the park or minimising the fee by car-pooling. Some participants would be able to travel by active or public transport. Home teams would have the same choices. Their local knowledge would perhaps make it easier to avoid the fee with a short walk.

It is unlikely that fees for the premium bays would have any significant impact on participation. The Melbourne Sports & Aquatic Centre (MSAC) charges $5.20 for the second and subsequent hours with a cap of $10.40 and a flat rate of $5.20 after 5pm. Modern parking bay sensor technology allows a 'virtual car park' operator to offer similar 'membership' deals to those offered by MSAC.

Walking catchments

To establish such regime it will be necessary to define in policy some suitable walking catchments (or distances that people are expected to walk). Such definitions inform the planning and evaluating of facilities and provide a basis for community debate.

The problem with walking catchments is that they are flexible. They depend on many factors – the person, their circumstances and mood, the weather, the time pressure they are under, the quality of the walking connection. The outcome is a trade-off between the distance people would prefer to walk (very short distances) and the distance they are prepared to walk.

A Brisbane study found typical walking distances of 900 metres from home to the train but only 600m from the train to work. Other typical distances found were 440 metres to the bus and 330 metres from the bus to the shops.[47] Wider walking catchments are possible in some circumstances. Melbourne football fans can be observed walking for over a kilometre to the major stadiums.

Walking catchments are relevant to the park in several ways.

Walking catchments provide planners with a definition of how far people playing a formal sport will be expected to walk to and from the pavilion to the sporting field. Knowing this distance, the sites of pavilions can be planned, and facilities relocated and consolidated as discussed in the first section of this assessment. (Currently some existing pavilions abut sporting fields. Other pavilions, in Princes Park for example, are around 350m from the centre of the furthest sporting field they serve).

Walking catchments define how far people are expected to walk from public transport. (It is around 600m from the Royal Parade tram stop to the Melbourne Zoo and around 300m from Jolimont Station to the MCG for example).

Catchment definitions can also be used to provide a clear choice for people parking a car. An example can be observed at Melbourne Airport where the bays nearest the terminal (the ones that save the most time) are more expensive. Those who prefer to spend time rather than money have the option of a short bus trip from their car to the terminal.

Formal policy definitions of walking catchments are also useful to inform and support public debate avoiding unproductive wrangling over undefined categories such as 'too far'.

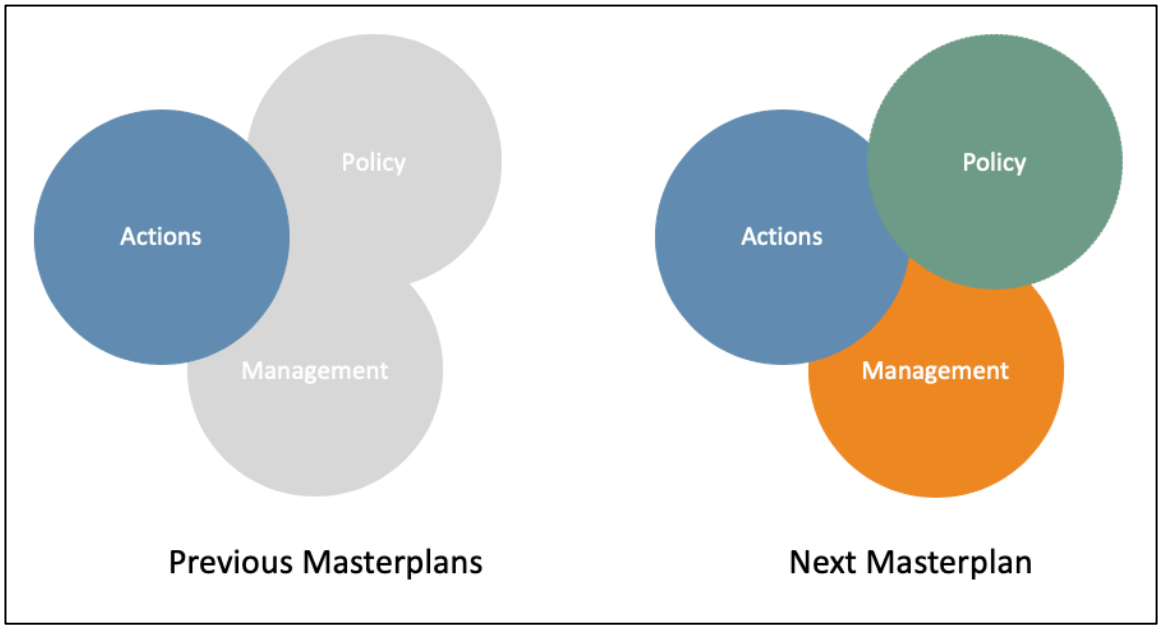
It is important therefore that the Council establish a policy that defines walking catchments to and within the park. These distances will have to be large enough to allow for flexibility but short enough to be practical for most users. 360 metres (5 minutes walk at 1.2metres/second) could be a suitable distance to describe 'near'. The middle ring could be 360m – 700m. Distances beyond this could be described as 'too far'. As the crow flies, a parking bay on Flemington Road would be considered 'too far' to the Brens Pavilion – a distance of around 1km. From Brens Pavilion to a bay on the Avenue near the Capital City Trail would take someone to the edge of the middle ring (750m). A bay on the south side of the Melbourne Zoo would be in the zone of 'near' (200m) for the Brens Oval Pavilion.

Part 3: Recommendations

The recommendations from this report are of three types: policy, management and actions. The two Masterplans emphasise actions – such as 'Remove the eastern remnant of Poplar Road between The Avenue and the golf course car park.' (current Masterplan). These actions imply certain policy settings and management directions. However important matters of policy – such as the definition of a visitor – are absent from the Masterplan.[48] Management direction is provided in some areas but management tasks, measures and goals are not defined.[49]

The first recommendation of this report is that in the next Masterplan, policy and management directions be made explicit. Figure 19 below represents this change graphically.

FIGURE 19: ACTIONS, POLICIES & MANAGEMENT DIRECTIONS IN PAST & FUTURE MASTERPLANS



Source: *Phillip Boyle & Associates*

The policy and management recommendations are listed together in 8.3 below. The recommended actions are in Section 8.4 below.

8 Setting priorities

It is difficult to identify an order of priority for the recommendations for several reasons.

First, transport priorities should not be set until the park goals have been set. There are two reasons why this is so:

- Transport is a 'derived demand' or a 'means to an end' not an end in itself. It would be perverse to define how transport could serve park goals when these high-level goals have not yet been determined. When these goals have been determined, it will be clear which of the recommended transport initiatives are most relevant and these can be included in the new Masterplan.
- Setting transport goals at this stage would compromise the public discussion around the new Masterplan. Defining a transport 'solution' at this early stage of the discussion would support or undermine some park goals before the goals themselves have been discussed.

Second, it is not clear in which area of the park the next Masterplan will concentrate. Under the 1984 Plan significant efforts were made in the central areas of the park around the Melbourne Zoo. Under the current Masterplan work has been done in the Station precinct and on the old site of the Royal Children's Hospital. The attention of the next Masterplan may be on the area around the soon-to-be-upgraded State Netball & Hockey Centre or it may be determined that the changes in this area will have little impact on the park around the Centre. Recommendations have been provided for most areas of the park so that transport priorities can follow park decisions.

Third, all the transport recommendations are valuable. With a range of transport options, the Council can take advantage of other initiatives and opportunities. The elevation of the Upfield Railway line for example would increase the importance of the proposed actions in the north east. A range of valuable transport interventions provides flexibility. Any of the pavilion relocations would be valuable from a transport perspective. If the 'low standard of the Golf Course and Western Oval pavilions' led to an allocation of capital to that project, then the related transport recommendations can be implemented.

Some recommendations however – especially those related to policy and management – can be progressed in the short term as they are unlikely to be inconsistent with the new Masterplan or compromise public discussion. Measuring the areas of the park, counting the number of visitors and developing the unified management of the parking bays are examples of 'early wins' that can be achieved in the short term.

A key recommendation identified in both Masterplans and certain to appear in the next plan is to increase the number and proportion of people who reach the Melbourne Zoo by train. It is important that this initiative – which will take considerable time and effort to achieve – is begun as soon as possible.

9 Recommended policies & management of transport

This section makes transport policy and management recommendations to be considered in the development of the next Royal Park Masterplan.

Policy is defined as an unambiguous statement that supports decision making. The recommendations are intended to replace general directions in the current Masterplan such as 'rationalise' or 'encourage'. The statement 'Rationalise the number and locations of car parking spaces, while ensuring that park users who have specific car parking requirements are adequately and efficiently served' provides clear direction but is not specific enough to support decision making. Under this statement an increase and a decrease in parking area could be seen as success. To turn the statement into hard policy, 'rationalise' can be replaced with 'reduce the area of land set aside for car parking'.

Clear policy allows recommended actions to be modified and adapted without modifying the goals. The Masterplan talks of 'aiming to ensure that objectives are not discarded if proposals cannot proceed in the short term or if they must occur in an altered form'. The lack of policy clarity may have been a reason why some of the actions in the Masterplan have not gone ahead.

As pressure on the park increases the importance of close management will rise.

Management activities will include an increased emphasis on data. The recommendations below identify a number of key areas for constant data gathering including: the use of each square metre of the park, the number of visitors, the number of people using the Circulation system, the total area of the path system, the use of the parking areas by length of stay, time of day and day of the week, damage caused by motor vehicles, motor vehicle speeds and the number and proportion of Melbourne Zoo patrons using the train. Other data needs outside transport have been discussed including the number of participants in sports and activities in the park.

With guidance from the policies and this data in hand the Council will be able to make:

- Decisions consistent with strategy: On the basis of accurate data on the area set aside for parking, the parking areas within the park can be adjusted, relocated and rationalised with confidence.
- Investment decisions: Data will reveal where facilities are overloaded or underused allowing paths to be up or down graded.
- Changes in settings: Data will reveal how parking controls including fees can be adjusted to increase the number of people that use the available parking bays.

Table 8 below lists the policy and management settings recommended for the next Masterplan.

TABLE 8: SUGGESTED POLICY & MANAGEMENT SETTINGS FOR CONSIDERATION IN THE MASTER PLAN

ITEM	POLICY	POLICY RECOMMENDATIONS
P1	**Park land policies & management** See Chapters 1 & 2	1. Measure every square metre of the park o Each year measure the area of the park and the area of the uses (including transport uses such as roads, parking and paths) and record the information on a GIS database

ITEM	POLICY	POLICY RECOMMENDATIONS
		○ Determine the proportions allocated to the uses (such as active and passive recreation and transport) identifying areas which support multiple uses. ○ Identify whether the park land has increased or been reduced. ○ Use the information to understand the impact of actions including the removal, rationalisation and relocation of facilities ○ Develop a financial value assessment for the areas of park land ○ Publish regular reports on this information 2. Prevent further erosion of the park land (by transport facilities) including: ○ East west tunnel ○ Roads and easements ○ Car parking areas ○ Expansion and extension of paths 3. Increase the area of park land by recovering parkland from the transport system and other structures and uses ○ Link and consolidate areas of parkland ○ Remove unnecessary or inappropriate transport and other facilities ○ Reduce the area occupied by existing facilities (including car parking) 4. Expand and extend the park by consolidating open space along road corridors leading to the park 5. No roads or parking areas will intrude into areas of parkland 6. All structures will be close to the boundary of the park as close as possible to walking and bicycle links, public transport and parking bays in the surrounding area
P2	**Define 'visitors'** See Section 4.2	1. Define visitors as someone in the park: ○ On foot or on a bicycle (as both are active and passive activities) ○ Participating in formal or informal, active or passive activity (however they reached the place in the park where they are undertaking their activity and for whatever purpose, including walking to work). 2. People who are not visitors are those: ○ Passing through the park in cars or public transport even if they look out the window and enjoy the park on the way ○ Staff (paid and volunteer) working at permanent and temporary facilities ○ People involved in service delivery ○ People visiting the State Netball & Hockey Centre or Melbourne Zoo who do not spend time in the park

ITEM	POLICY	POLICY RECOMMENDATIONS
		as defined
P3	**Measure the number of visitors** See Section 4.3	3. Each year measure the number of park visitors (as defined in P2) to the park and estimate annual visitation. (Measurement of patrons attending the Melbourne Zoo and State Netball & Hockey Centre by the City of Melbourne is not recommended.) 4. Establish a regular process of gathering data on activity by observation and intercept surveys 5. Establish automatic data gathering on activity in the park including: o Smartphone signal detectors and in-ground detection loops to measure circulation activity o Parking bay sensors that detect vehicles and licence plate cameras that recognise number plates o GPS devices to report the movements of all 'off-road' vehicles in the park including golf buggies o Additional in-ground bicycle counters for example where the Capital City Trail leaves the park to the west and on the north south 'tramline' path o Install sensors and licence plate cameras in locations such as Brens Drive on the use of parking bays. 6. Establish a central Internet based consolidated 'diary' of all activities such as sporting fixtures to track participation in formal sport 7. Use the activity information to understand the activity in the park so visitation goals can be monitored, behaviours understood, peaks and off-peaks can be identified and mitigation strategies developed 8. Publish regular reports on this information
P4	**Increase visitation** See Section 4.1	1. Increase visitation by: o Improving the attractiveness of the park features o Increasing the 'visitation efficiency' of facilities for example by extending hours of operation o Increasing off-peak use of facilities o Diverting use from peak periods 2. Set targets for increased visitation based on area, number, purpose, frequency of visit, length of stay and other measures
P5	**Overall transport policy** See Section 5.1	1. Define the role of transport in, through and around the park as 'to increase visitation to the park in a way that is consistent with P1'
P6	**Define 'Circulation'** See Chapter 5	1. Base the definition of circulation on the definition of visitation – Circulation is movement by visitors to the park on foot and by bicycle 2. Exclude modes other than walking and bicycle riding

ITEM	POLICY	POLICY RECOMMENDATIONS
		from the definition of circulation and do not consider journey purpose
P7	**Circulation policies** See Chapter 5	9. Define the purpose of the circulation network as 'to increase visitation and support the landscape character of the park'. 10. Define the elements of the circulation network as: o Wandering paths o Paths to destinations o Links to the transport network beyond the park 11. Set a policy for paths that provides guidance on surfaces, widths and separation as well as the desired quality of links 12. Develop a policy and management system that allows paths to be upgraded or downgraded by use. 13. Set a total area for paths so that as some are widened others can reduced or removed from the network 14. Set a path lighting policy that considers different the areas of the park. Levels of use by humans and park fauna 15. Set an orientation policy for the areas of the park that identifies when to use intuitive or explicit direction assistance
P8	**Manage & measure circulation** See Chapter 5	1. Manage the development and monitor the use of the circulation network in the park 2. The aim of the management will be to increase visitation to the park on the circulation network 3. The manager will identify barriers to increased use of the network and will develop interventions that are likely to increase usage
P9	**Priorities & motor vehicle speed** See Section 5.5.1	1. Set an 8 – 80 policy: Create a park which both 8-year-olds and 80-year-olds can easily reach and move about in safely and enjoyably. 2. Set a transport priority policy in and around the park: o Pedestrian priority over bicycle riders o Public transport priority over pedestrians, bicycle riders and motor vehicles o Public transport. pedestrian and bicycle priority over motor vehicles 3. Set 30km/h speed limits in and around the boundaries of the park (Except for Elliott Avenue MacArthur Road). All perimeter roads around the park – including the park-side lane of Flemington Road – can be set at 30 km/h.
P10	**Set a policy to reduce and minimise damage to land by motor vehicles** See Section 1.4	1. Establish a car parking damage-minimisation policy including: o Identify all parking bays and areas as authorised or unauthorised. Eliminate categories of temporary, or 'overflow' parking bays. Limit all parking to

ITEM	POLICY	POLICY RECOMMENDATIONS
		authorised areas o Identify an approved surface for all parking bays that are not on roads considering issues such as wear, amenity, stormwater absorption and soil compaction. o Eliminate all unauthorised parking on grassy areas by visual, physical and enforcement techniques 2. Define the appropriate emphasis to be placed on efficiency (bays per square metre) and visual disruption (landscaping) 3. Establish a service (and event) vehicle policy including o Identify a service vehicle network based on internal paths o Implement a policy of 'shared use' with pedestrians and bicycle riders o Review the impact of the current policy of deliberately varying the routes of service and other vehicles off the road and path system 4. Electrify all service vehicles (and golf buggies) in the park 5. Standardise tyres, weight and axle width of all off-road vehicles in the park. 6. Provide/require GPS tracking for all off-road vehicles in the park
P11	**Parking policy & management** See Chapter 7	1. Define the Royal Park 'car park' as all the bays in and around the park on the park side of the perimeter roads. 2. Define the bays used to support patrons visiting the Melbourne Zoo and State Netball & Hockey Centre. Define the primary purpose of the remaining bays as supporting visitation to Royal Park 3. Cap the number of bays in the 'Royal Park car park'– no increase in the total will be permitted. 4. Remove the 400 informal parking bays identified as superfluous in this report 5. Establish a policy of gradual and steady removal of bays so that land can be released to the park for other uses of the land such as more sporting fields or improved crossings to the park. o A policy of gradual and steady reduction can have a target such as 2,000 bays by 2030 for example. (This would represent a one third reduction from current levels.) o The rate of reduction can be based on several factors. Copenhagen has based its parking bay reduction in the City centre on the number of bays (2% per year). An area-based reduction in m2 per year is an option. A third method would be to remove a certain number of the bays with the lowest level of annual utilisation.

ITEM	POLICY	POLICY RECOMMENDATIONS
		6. Use the area measurement system (P1 above) to 'move' bays to areas with lower landscape value and lower potential for recreational uses for no net loss of parkland 7. Manage the bays centrally (by agreement with the State Netball & Hockey Centre) 8. The aim of the management will be to maximise the visitation to the park through the available bays 9. Amend (or rescind) the *City of Melbourne Royal Park (Parking) Regulation 1985 to allow the City of Melbourne to set parking fees around the Melbourne Zoo* 10. Establish walking catchment definitions such as: 0 – 360m (near), 360m – 700m (middle) and greater than 700m 'too far'. 11. The manager will: o Use data collected on parking to inform pricing and other parking settings o Set controls – especially fees – so that the use of the bays to visit the park is maximised, raising and lowering fees as appropriate including tiered fees to influence length of stay, lower fees to provide incentives to visit the Zoo at off-peak and shoulder times, days and months o Negotiate with all venues and activities in the park to establish complementary and space efficient event pricing and activity scheduling o Incentivise the use of the parking bays around the State Netball & Hockey Centre by visitors to the Zoo and vice versa o Incentivise the use of the parking bays in the wider walking catchment around Royal Park including those at the Hospitals o Coordinate with the recreation manager to schedule club training nights so that the load on the parking bays is spread more evenly.
P12	**Increasing train trips to the Melbourne Zoo** See Chapter 6	1. Establish a general policy to increase the number and proportion of visitors to the park using active and public transport 2. Establish a policy priority to increase the number and proportion of people who catch the train to the Melbourne Zoo 3. Advocate to the State Government to: o Change the name of the Station to Melbourne Zoo (or Melbourne Zoo (Royal Park)) o Provide free train trips on summer weekends during opening hours and on weekdays during some school holidays to people who touch off after 1000 or touch on before 1600 4. Work with the Melbourne Zoo to:

ITEM	POLICY	POLICY RECOMMENDATIONS
		○ Identify the target audience and test evidence-based interventions to identify cost effective measures ○ Develop facilities inside the Zoo such as: ▪ An airport style departure lounge inside the northern entrance of the Zoo for patrons who are public transport passengers ▪ Airport style departure boards inside the Zoo to promote public transport options and help passengers maximise their time on site ○ Begin the Zoo 'experience' at the Station with public art, live screens of animals in the Zoo and video broadcasts 5. Use Council resources to support the program and its activities 6. Coordinate with the parking manager (see above) to ensure settings in both programs are complementary including complimentary parking fees and entrance fees for peak, shoulder and off-peak visitor periods 7. Redevelop the precinct between Royal Park Station and the Melbourne Zoo to provide a high-quality, high-priority pedestrian environment that maximises awareness and use of the Station

Source: Phillip Boyle & Associates

10 Recommended Packages of proposed actions

Just as the transport actions in the current Masterplan reaffirmed those in the 1985 Master Plan, the next Masterplan can draw on the actions from the 1997 Plan:

- Some opportunities remain open. The opportunity to replace the east west arterial road with a tunnel is an issue that is likely to span the three Masterplans.
- Some actions remain to be done including the removal of roads.
- Some actions need to be revisited. The redevelopment of the Royal Park Station and Melbourne Zoo northern entrance precinct did not achieve the aim to provide priority to 'pedestrian movement and access to the Zoo by public transport'. This action remains to be done.

Actions identified in the Masterplans and in this Assessment have been assembled into 'packages' of actions.

The first four packages are area-based. In general, the packages for different areas can be implemented separately. The packages are not prioritised against each other as the Masterplan process will reveal the priority areas for attention within the Park. Based on this the appropriate package or packages can be chosen.

The elements in the packages are mutually reinforcing. It may be difficult to implement one or two elements from a package without the other supporting elements. In the north east for example The Avenue has to be closed to allow the tennis courts to be reorganised to allow the corridor along the railway line to be widened. Each element is beneficial, but all rely on others to be feasible. Some of the area packages contain projects that are also present in other packages. The actions within packages do not have priorities assigned to them, as it is the recommendation of this report that each package be implemented in full.

10.1 Package A: Prepare for an east west arterial road tunnel

This package of actions detaches all roads in the park from the east west arterial allowing the road to be removed when replaced by a tunnel. Necessary and complementary measures such as an alternative access road to the State Netball & Hockey Centre and the relocation of parking are recommended. Table 9: Actions recommended for Package A below lists the actions recommended and they are illustrated in Figure 20.

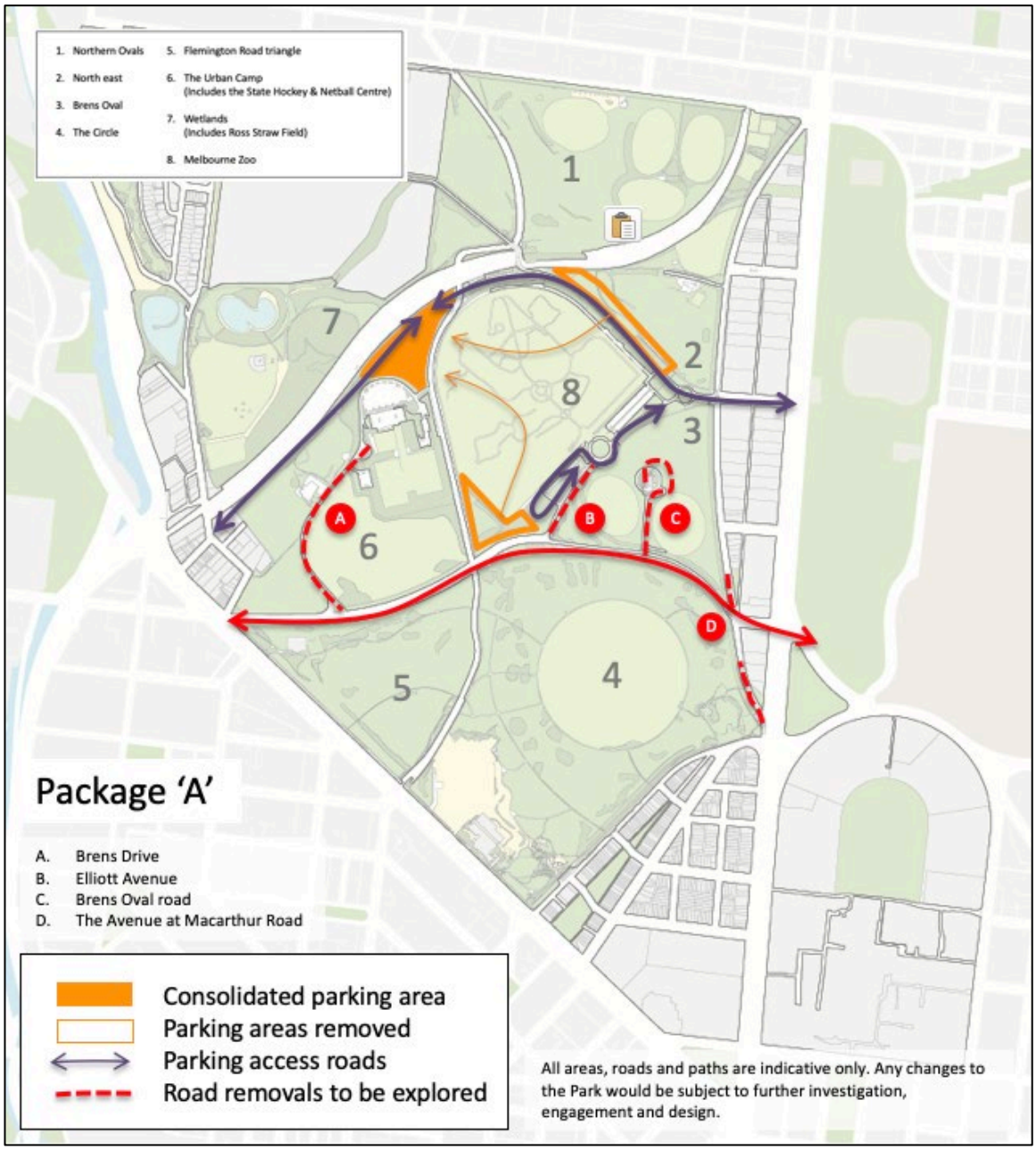
TABLE 9: ACTIONS RECOMMENDED FOR PACKAGE A

AREA	AIM	INTERVENTION
Tunnel alignment	Recover land, reduce severance and prevent risk of future loss of land by undergrounding or removing the east west road link through the park (Recommended in Masterplans)	• Develop concept and criteria for a tunnel and arterial road removal that will protect and improve Royal Park. For more details see *Section 1.2 External risk*
Car parking for State Netball & Hockey Centre and Melbourne Zoo	Recover land and increase the use of bays in the park: • Relocate parking so bays are more convenient for people visiting both major venues • No net gain or loss of bays • Reduction in total area occupied by parking due to efficient new layout	• Remove car parking areas west of the Melbourne Zoo and east of Poplar Road • Relocate bays in a new parking area north east of the Centre and north west of the Zoo For more details see *Section 2.3 Rationalise and relocate*
Brens Drive	Recover land, reduce severance and prevent risk of future loss of land by relocating access to State Netball & Hockey Centre.	• Construct a car park access road from Church Street/Manningham Street to the State Netball & Hockey Centre car park alongside the railway line • Link new car park access road to Poplar Road south of the railway line • Remove Brens Drive and return area to park land • (also allows for realignment of the Capital City Trail along the same alignment as the proposed new access road, see Package C) For more details see *Section 2.3 Rationalise and relocate*

AREA	AIM	INTERVENTION
Elliott Avenue from roundabout at the southern entrance to Melbourne Zoo to MacArthur Road	Recover land, reduce severance and prevent risk of future loss of land by removing road link to allow tunnel/removal of Elliott Avenue and avoid off ramps from tunnel (Recommended in Masterplans)	• Return area to park land • Link parkland west of Melbourne Zoo with Brens Oval area For more details see *Section 2.3 Rationalise and relocate*
Brens Oval pavilion access road	Recover land, reduce severance and prevent risk of future loss of land by removing road link to allow tunnel/removal of Elliott Avenue and avoid off ramps from tunnel (Relocation of road recommended in Masterplans)	• Remove pavilion access road • Relocate Brens Oval pavilion to south west corner of Walker Street Kendall Avenue intersection (close to Walker Street tram stop and parking bay supply in the periphery • Remove all parking areas • Return area to park land For more details see *Section 2.3 Rationalise and relocate*
The Avenue north of MacArthur Road	Recover land, reduce severance and prevent risk of future loss of land by removing road link to allow tunnel/removal of Elliott Avenue and avoid off ramps from tunnel (Recommended in previous Masterplans)	• Close The Avenue north of MacArthur Road. Access via Leonard Street to the north • Return area to park land For more details see *Section 2.3 Rationalise and relocate*
The Avenue south of MacArthur Road	Recover land, reduce severance and prevent risk of future loss of land by removing road link to allow tunnel/removal of Elliott Avenue and avoid off ramps from tunnel (Recommended in Masterplans)	• Close The Avenue south of 4a & b The Avenue and north of Royal Parade • Return area to park land and extend the Australian Native Garden For more details see *Section 2.3 Rationalise and relocate and Section 3 Expand the area of park land*
MacArthur Road Elliott Avenue	Recover land, reduce severance and prevent risk of future loss of land by removing these roads when east west tunnel is installed and return area to parkland. (Recommended in Masterplans)	• Return area to park land For more details see *Section 1.2 External risk*

Source: Phillip Boyle & Associates

FIGURE 20: INTERVENTIONS RECOMMENDED IN PACKAGE 'A'



Source: Phillip Boyle & Associates

10.2 Package B: South of the railway line & north of Elliott Avenue/MacArthur Road

This package of actions brings together actions identified in both Masterplans to recover park land in the central eastern area of the park including removing Old Poplar Road and closing The Avenue at Park Street. Table 10 below lists the actions recommended for Package B.

TABLE 10: ACTIONS RECOMMENDED FOR PACKAGE B

AREA	AIM	INTERVENTION
Car parking for State Netball & Hockey Centre and Melbourne Zoo	See Package A	• See Package A
Brens Drive	See Package A	• See Package A
Old Poplar Road	Recover land between the Melbourne Zoo and The Avenue, link areas	• Remove Old Poplar Road • Remove 'triangle' parking area • Relocate the Golf Club building For more details see *Section 2.2 Remove intrusions*
Golf course	Consolidate golf course on the north side of the railway line	• Relocate 'southside' golf course holes to north side of railway line • Relocate Western Oval (or other) to area of southside holes, Old Poplar Road and triangle parking area • Relocate Golf Club house to Royal Park station or to Park Street west of the railway line For more details see *Section 2.3 Rationalise & relocate*
Railway line cutting	Link park land west of The Avenue with the northern ovals Restore the 'hilltop'	• 'Wildlife bridge'[50] over railway line east of Royal Park Station • A 'covered way' rather than a formal tunnel is recommended as this is likely to reduce the cost and compliance associate with a more formal bridge. • (Revises recommendation in previous Masterplans) • (Another rail crossing is recommended in Package C) For more details see *Section 2.1 Reduce Severance*

AREA	AIM	INTERVENTION
North east corner of park	Restore connection with parkland on Royal Parade	• Close The Avenue at the southern boundary of The Avenue Reserve (north of entrance to 551 Royal Parade) For more details see *Section 2.2 Remove intrusions*
North east of the railway line	Widen Upfield line corridor Improve layout of courts and club facilities	• Reorganise tennis courts using land recovered from The Avenue. There is an opportunity to consolidate the pavilions • Provide a wider corridor for the shared path next to the railway line For more details see *Chapter 5 Improve the Circulation network*
Station precinct and Melbourne Zoo northern entrance	Establish high-quality, high priority link between the Station and the Melbourne Zoo Widen corridor for east west movements on the circulation network	• Redesign area taking opportunity provided by the closure of Poplar Road and the relocation of parking bays north and west of the Zoo For more details see *Chapter 5 Improve the Circulation network and Chapter 6 Increase public transport use*
Royal Park Station	Increase awareness of a station near the Melbourne Zoo	• Rename the station to Melbourne Zoo or Melbourne Zoo (Royal Park) For more details see *Chapter 5 Improve the Circulation network and Chapter 6 Increase public transport use*
Tram stop at State Netball & Hockey Centre	Increase the convenience of tram access to the Centre. Reduce the distance to the stop and eliminate the remoteness of the location.	• Relocate the tram stop south to align to align it and its link to the Centre with the current main western entrance. • Until the above can be achieved, improve the current facilities and connection to the Centre including to the proposed new northern entrance to the Centre. For more details see *Chapter 6 Increase public transport use*
Corridor between Melbourne Zoo and State Netball & Hockey Centre	increase attractiveness, level of use and perception of low risk	• Improve quality of landscape and facilities including lighting For more details see *Chapter 5 Improve the Circulation network*

AREA	AIM	INTERVENTION
South east of the Melbourne Zoo	Develop an link from east to west through this area	• Taking the opportunity provided by the relocation of parking areas, establish pathway and Improve quality of landscape and facilities including lighting For more details see *Chapter 5 Improve the Circulation network*

Source: Phillip Boyle & Associates

10.3 Package C: North of the railway line

This package deals with the northern ovals and the wetlands area. The elimination of informal parking areas and the relocation of pavilions is recommended.

Table 11 below lists the actions recommended for Package C.

TABLE 11: ACTIONS RECOMMENDED FOR PACKAGE C

AREA	AIM	INTERVENTION
Northern ovals, pavilions and access road	Recover land for the park	• Remove pavilion access road • Consolidate buildings (pavilions, golf clubhouse, depot) where possible, and locate any new structure closer to the northern park boundary • Remove all informal parking areas • Return area to park land For more details see *Section 2.2 Remove intrusions & 2.3 Rationalise & relocate*
Poplar Road between Royal Park Station and the park boundary	Recover land for the park, link areas	• Remove Poplar Road north of the railway line and east of the park boundary • Close level crossing to private motor vehicles (occasional service and emergency vehicle crossings may be appropriate) For more details see *Section 2.2 Remove intrusions*
Rail crossing	Improve rail crossing for people on the circulation network	• Widen the pedestrian and bicycle crossing of the rail line. For more details see *Chapter 5 Improve the Circulation Network*
Route 505 bus	Enable removal of Poplar Road	• Reroute Route 505 bus along Park Street or Brunswick Road linking passengers to tram at Grantham Street and train at Jewell Station. For more details see *Section 2.2 Remove intrusions*
Relocate tram line	Link areas of the park	• Move the northern section of the tram line and shared path to the western boundary of the park north of the railway line For more details see *Section 2.3 Rationalise & relocate*
Golf course	See Package B	• See Package B

AREA	AIM	INTERVENTION
Railway line west of Royal Park station	Link park land on both sides of the railway line. Provide a link between the Ross Straw Field and the car parking around the State Netball & Hockey Centre Enable bicycle route to be transferred to the south of the rail line between Royal Park Station and Manningham Bridge	• Provide a pedestrian bicycle underpass that links the Urban Camp area to the Wetlands area (The first Masterplan recommended a bridge the second an at-grade crossing in this location. Another rail crossing is in Package B) • (Note also realignment Brens Drive to a new access road south of the railway line, see Package A) For more details see *Section 2.3 Rationalise & relocate*
'Cunningham Dax' corridor.	Widen corridor	• Explore opportunities to purchase, lease or use land abutting the park For more details see *Chapter 5 Improve the Circulation Network*
Ross Straw field	Recover land for the park	• Remove pavilion road • Remove all parking areas • Return area to park land • Relocate Ross Straw pavilion closer to the edge of the park and near the recommended rail underpass to provide link to car parking around the State Netball & Hockey Centre and Zoo For more details see *Section 2.3 Rationalise & relocate*
Oak Street off street parking area	Provide direct path link to existing pedestrian crossing signals	• Remove 8 northern most bays and reinstate parkland to establish a park link to the pedestrian signals. • Monitor use of remaining bays and reduce or remove if utilisation is low. For more details see *Section 2.3 Rationalise & relocate*

Source: Phillip Boyle & Associates

10.4 Package D: South of Elliott Avenue & MacArthur Road

This package identifies several projects to recover park land including removing the depot and the tram service shed and the recovery of land from off street parking areas. Table 12 below lists the actions recommended for Package D.

TABLE 12: ACTIONS RECOMMENDED FOR PACKAGE D

AREA	AIM	INTERVENTION
Australian Native Garden area	Recover park land	• Remove depot, consolidate with northern depot or relocate • Remove crossovers, road and parking area and replace with gravel walking paths For more details see *Section 2.3 Rationalise & relocate*
The Avenue between the Garden and Royal Parade	Recover park land See Package A	• See Package A
Corridor between the tram line and the Royal Children's Hospital	Establish an active transport link through the park alongside the tram line to provide main link to Arden precinct	• Widen the main path to allow for greater numbers of pedestrians and people on bicycles. For more details see *Chapter 5 Improve Circulation network*
Intersection of tram line and Flemington Road	Recover park land	• Remove tram service shed • Remove all parking areas • Enforce no parking For more details see *Section 2.3 Rationalise & relocate*

Source: Phillip Boyle & Associates

10.5 Package E: The main circulation system

This package identifies where the shared path system can be expanded or separated to cope with increased use and reduce conflict. Table 13 below lists the actions recommended for Package E. For more details see *Chapter 5 Improve Circulation network.*

TABLE 13: ACTIONS RECOMMENDED FOR PACKAGE E

AREA	AIM	INTERVENTION
The Royal Park boundary (and beyond)	Strengthen the 'idea' of Royal Park Provide an additional passive and active recreational facility	• Establish a gravel perimeter path similar to the path around Princes Park • Link path to existing paths and running routes around Princes Park and along the Moonee Ponds Creek
Between Royal Park Station and Elliott Avenue (north south)	Separate pedestrians and bicycle riders	• Provide separated paths
Between Elliott Avenue and Flemington Road (north south)	Separate pedestrians and bicycle riders	• Provide separated paths
Upfield Railway path	Separate pedestrians and bicycle riders	• Provide separated paths using land released by the reorganisation of the tennis courts
Capital City Trail between Bowen Crescent and Royal Park Station (east west)	Separate pedestrians and bicycle riders	• Provide separated paths using space released by the removal of the triangle parking area
Capital City Trail between Royal Park Station and Manningham Street bridge (east west)	Separate pedestrians and bicycle riders. reduce bicycle movements on the north side of the railway line where the corridor is tight and gradients make higher bicycle speeds unavoidable.	• Provide separated paths. • Establish a new bicycle path along the south side of the rail embankment/cutting to the underpass and Manningham Road bridge.[51] Including a bridge across the tram line and the pedestrian link between Royal Park Station and the Melbourne Zoo • (Note also realignment Brens Drive to a new access road south of the railway line, see Package A & C)
Walker Street to the Melbourne Zoo	Improve the link between the Melbourne Zoo and the Royal Parade tram service	• Realign path from Walker Street to the southern entrance to the Melbourne Zoo so that it has a high priority across roads and is direct and obvious to users
Royal Park Station	Reduce conflict at rail crossing	• Improve and widen pedestrian/bicycle crossing of railway line – double current width

Source: Phillip Boyle & Associates

10.6 Package F: External links

This package identifies the corridors where the park can be expanded by consolidating open space in the road reserve and linked to other parkland and open space as well as the Arden precinct. For more details see Chapter **Error! Reference source not found.**. Table 14 below lists the actions recommended for Package F.

TABLE 14: ACTIONS RECOMMENDED FOR PACKAGE F

AREA	AIM	INTERVENTION
Links to the north	Widen the Upfield Railway corridor	• See Package E
	Improve the link to Grantham Street along the tram line	• Install a high priority pedestrian/bicycle crossing of Park Street at the tram line and improve the link along the easement between Park Street and Brunswick Road (outside City of Melbourne)
Links to the east	Increase use & reduce conflict on Capital City trail east of Royal Park	• Provide separated paths
	Connect Royal Park to Princes Park	• Use opportunities provided by closure of the southern end of The Avenue to improve links along Gatehouse Street
Links to the south east	Connect Royal Park through Parkville to the University and Parkville Station	• Consolidate open space to provide a link along Morrah and Story Streets
Links to the south	Connect Royal Park to Errol Street/Courtney Street and the Primary School	• Consolidate open space to provide a link along Errol Street
	Connect Royal Park to the Arden precinct	• Consolidate open space to provide a link to the Arden precinct
Links to the west	Connect Royal Park to the Moonee Ponds Creek south of Racecourse Road	• Consolidate open space to provide a link to the Moonee Ponds Creek
	Underpass of the railway line north of the Urban Camp	• See Package C
	Identify a link or links to the west north of Racecourse Road	• Identify a link or links to Debneys Park, Travancore Park and the Moonee Ponds Creek

Source: Phillip Boyle & Associates

Appendices

This part of the report contains detailed Appendices on parking and public transport use:

- **Appendix A – Main areas of car parking in Royal Park**

  This Appendix provides a definition of the parking supply relevant to Royal Park identifies the number of bays (or their equivalents), and describes the types of parking bays, the fees and controls that apply. The use of the main areas around the Melbourne Zoo and the State Netball & Hockey Centre is described.

- **Appendix B – Smaller areas of parking in & around Royal Park**

  This Appendix summaries the assessment of the use of the parking bays around the park and the informal parking areas inside the park and away from the main centres. The assessment considered whether there are enough parking bays in and around the park for the informal parking areas inside the park boundaries to be removed.

- **Appendix C – The number & type of parking bays in & around Royal Park**

  This Appendix provides more detail on the number and type of parking bays in & around the park.

- **Appendix D – Assessment of public transport and its use in Royal Park.**

  This Appendix summarises the investigation into public transport services and use, reporting on intercept surveys at Royal Park Station and at the southern entrance of the Melbourne Zoo.

- **Appendix E – Community feedback**

  This Appendix summarises the themes of comments made by the community on-line and at community meetings held as part of the project.

Appendix A – Main areas of car parking in Royal Park

Introduction

This Appendix considers the scale and types of car parking in and around Royal Park.

It was found that there was no baseline data available for the park as a whole. (Historical data is available for subsections of the park). The absence of baseline data is a key deficit. Without baseline data Council will be unable to set strategic directions for parking in the next Masterplan. Without regular reassessments of the baseline data, Council not be able to manage the parking asset in a way that meets park land and visitation goals. Nor will Council know whether the strategic goals are being met.

Five elements of an information base are recommended:

- Boundary: A definition of the boundary of parking related to Royal Park
- Area: The area of land occupied by formal bays or informal parking areas
- Number: The number of parking bays (or their equivalent) within that area
- Management: How the parking areas are managed. (For example, fees, length of stay and span of hours)
- Behaviour: How the parking areas are used by those who access Royal Park by car

The number of parking bays

Defining the boundary of the parking area

To establish baseline data on the area occupied by parking and the number of vehicles that can be parked, the Royal Park parking area must be defined. The following definition (used for this Assessment): is recommended

Parking in and around Royal Park includes all:

- Parking bays and areas at the kerb on the park-side of the perimeter roads of Royal Park
- Parking areas and bays inside the boundary of the park.

The following areas are excluded from the definition:[52]

- Bays that are used by visitors to Royal Park on the non-park side of perimeter roads and in nearby roads and parking areas, for example along the east side of The Avenue, Walker Street and Royal Parade. (By excluding these areas, the total number of bays available for visitors to Royal Park is significantly underestimated).
- Bays inside the walls of the Melbourne Zoo (53 bays) or State Netball & Hockey Centre (28 bays). (These are generally used by staff.)
- Public bays in the Royal Children's (2,000) and Royal Park Hospitals (200). These bays abut the park or are inside the park boundaries and can be used by people visiting the park. (By excluding these facilities, the total number of bays available for visitors to Royal Park is significantly underestimated).

The area of land under parking

It is necessary to establish a precise measure of parking area in square metres within the boundary of the park.

Without a measure of parking area, Council cannot know whether the park has been recovering land from parking (as intended in the Masterplans) or whether parking areas have been expanding and eroding the area of park land. It is possible this erosion has been occurring.

With a precise measure of parking area, the Council can:

- Ensure that the area of parking in the park does not increase
- Recover land the park by rationalising the layout of parking bays to reduce the area occupied by parking without reducing the number of bays
- Relocate bays from one area to another without increasing the total area occupied by parking. (This would enable for example parking areas to be relocated to a less intrusive or more effective location.)

The area in square metres of parking within the boundary defined above is not known. The Council maintains a GIS record of categories of land across the municipality and within the park. However, the current categories are too broad to support an understanding of parking area as parking areas are included in the same category as shared paths and roads.

(There is probably 4 hectares of informal parking area in the park.)[53]

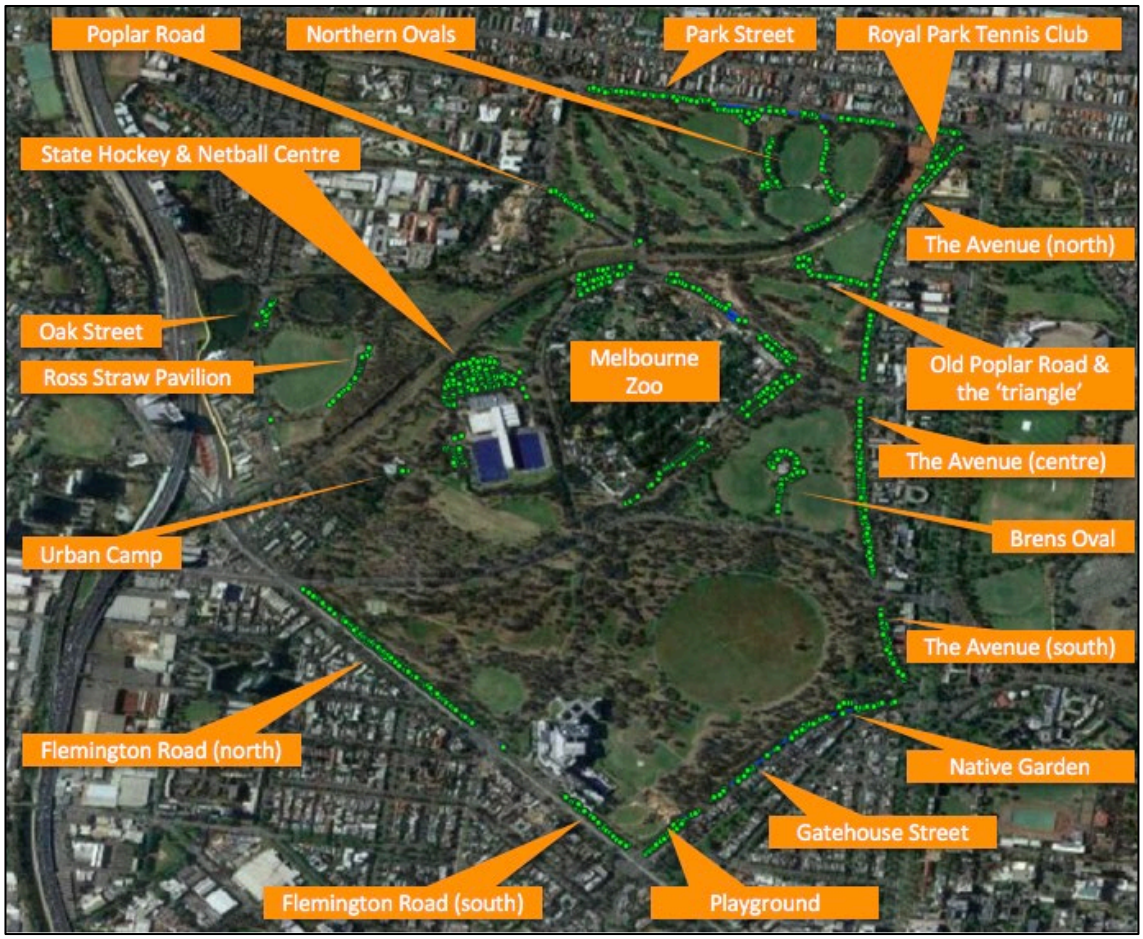
The number of parking bays

It is also necessary to determine the number of parking bays inside the defined area.

This number has been estimated using available data and information gathered in this Assessment. (Licence plate recognition surveys were conducted over two Tuesdays and two Saturdays in June 2018.[54]) The term 'estimated' is used as nearly half of the vehicle capacity has been provided in areas without marked bays. A licence-plate camera was used understand the level of use of these areas. (Appendix C provides detail on the capacity of these areas and how it was estimated).

Figure 21 below shows the parking areas that have been studied. The green dots show where licence plates were recorded during the licence-plate survey.

FIGURE 21: CURRENT PARKING LOCATIONS IN & AROUND ROYAL PARK



Source: Phillip Boyle & Associates

It was found that there are the equivalent of three thousand parking bays in and around the park. Table 15 below provides a summary.

TABLE 15: TOTAL OF ALL PARKING BAYS IN & AROUND ROYAL PARK

AREA	NUMBER
Perimeter of Royal Park (Kerbside parking bays on the park side of the road)	541
Bays inside Royal Park (Formal and informal)	2,459
Total all bays	**3,000**

Source: Phillip Boyle & Associates

Formal & informal

Nearly half the bays (43%) in and around the park are in informal areas:

- Formal areas are on asphalt with defined corridors and marked bays. Generally, these areas use the space efficiently, accommodating the maximum number of cars in the available space according to established guidelines.

- Around half of the vehicle parking is in informal areas. Most of the informal areas have a gravel or grass surface. Generally, these areas use the space inefficiently. Few are rectilinear and therefore include 'corners' where parking is not possible. Some have curved or irregular sides which leads to overwide corridors. Some include landscaping or trees which reduce the vehicle capacity of the area. The use of these bays also leads to inefficiency as the vehicles that are first to arrive may be left in locations that compromise the capacity. The capacity of these areas has been estimated by recording number plates at different times. The measurement includes the number of cars parked outside the designated informal areas. A small number of vehicles are permitted to park in unmarked kerbside areas in Old and 'new' Poplar Road.

Two managers

The parking bays in Royal Park are owned and managed by the City of Melbourne and the State Netball & Hockey Centre. Both entities manage a portfolio of formal and informal bays that are available to the public for any purpose. People may, for example, park next to the Melbourne Zoo and visit the State Netball & Hockey Centre and vice versa.

The pool of bays that has been defined are managed by the Council and the State Netball & Hockey Centre (SNHC). Table 16 below lists the bays by type and manager.

TABLE 16: FORMAL AND INFORMAL BAYS BY SURFACE

	AREA	SNHC MANAGED	COUNCIL MANAGED	ESTIMATED TOTAL CAPACITY	
Informal on gravel and grass	Areas of gravel & grass parking	250 (SNHC)	650 (near Melbourne Zoo) 400 (near ovals)	1,300	43%
Informal on asphalt – unmarked bays	Total unmarked and unmetered kerbside parking areas	-	101	101	3%
Formal on asphalt – marked bays	Total supply around State Netball & Hockey Centre and Melbourne Zoo Total kerbside metered bays	330 (SNHC)	728 (near Melbourne Zoo) 541 Kerbside & off-street	1,599	53%
	Total pool of bays in and around Royal Park			**3,000**	

Source: *Phillip Boyle & Associates*

Parking controls

There are no controls over parking at the State Netball & Hockey Centre – neither time limits nor fees are in place. It is unlikely that fees will be applied by the State Netball & Hockey Centre as, if fees were charged for these bays, the Centre would have to pay the State Revenue Office parking levy (Category 2: $1,000 per bay per year). The fees that would have to be charged to cover the levy would be similar to those charged for kerbside

parking in the CBD. [55] Fees at that level would have no positive effect on the utilisation of the bays in the park or around the Centre.

The Council controls the rest of the bays around and within the park. Table 17 below shows the variety of controls that are in place. (It was beyond the scope of this Assessment to provide a detailed list of controls in place in the defined parking area.)

TABLE 17: PARKING CONTROLS IN & AROUND ROYAL PARK

	NO CONTROLS	TIME-ONLY CONTROLS	FEES
Informal on gravel and grass	**Many uncontrolled bays** Except around the Melbourne Zoo these areas are unmetered and without time controls. For example, Ross Straw Field, Northern Ovals, Brens Ovals	**A small number of bays in this category have time-only controls** 2P in the 'triangle'.	**Many bays in this category have time and fee controls** All informal bays around the Melbourne Zoo are metered. Stays are limited to 5P 0600 – 1700 on all days. Maximum fee $2
Informal on asphalt – unmarked bays	**There are no bays in this category without controls**	**A small number of bays in this category have time-only controls** Some controls over the span (0730 – 1830 Mon – Fri) on 'new' Poplar Road Some time limits: 5P Old Poplar Road, 2P in Native Garden off-street, 1P in 'new' Poplar Road	**No fees are charged for bays in this category**
Formal on asphalt – marked bays off-street	**There are no bays in this category without controls**	**Some bays in this category have time-only controls** 4P Mon – Fri at Oak Street off-street 2P and 1/4P in Playground off-street bays	**Many bays in this category have time and fee controls** For example, 5P Ticket 0600 – 1700 Maximum fee $2 at the Melbourne Zoo

	NO CONTROLS	TIME-ONLY CONTROLS	FEES
Formal on asphalt – marked bays at the kerb	**There are no bays in this category without controls**	**Some bays in this category have time-only controls** Gatehouse Street: 4P and 2P 0730 – 2100 Mon – Fri 0730 – 1230 Sat 1P 0730 – 2100 Mon – Fri 0730 – 1830 Sat. Resident permit	**Many bays in this category have time and fee controls** P Ticket 0730 – 0630 Mon – Fri in The Avenue, Park Street and in Flemington Road north of the Hospital Maximum fee $11 ($1 each hour) 3P Ticket (0730 – 0630 Mon – Fri) in Flemington Road south of the Hospital

Source: Phillip Boyle & Associates

The level of use of parking bays

All the parking bays in and around Royal Park

The use of the bays in and around Royal Park was studied for this Assessment. (Licence plate recognition surveys were conducted over two Tuesdays and two Saturdays in June 2018.[56]) It was found that overall the supply of parking bays in Royal Park is not heavily used:

- The supply was never more than half full. Maximum occupancy was 46%
- At all times there were more than 1,500 empty bays.
- At most times, more than three quarters of the bays were empty.

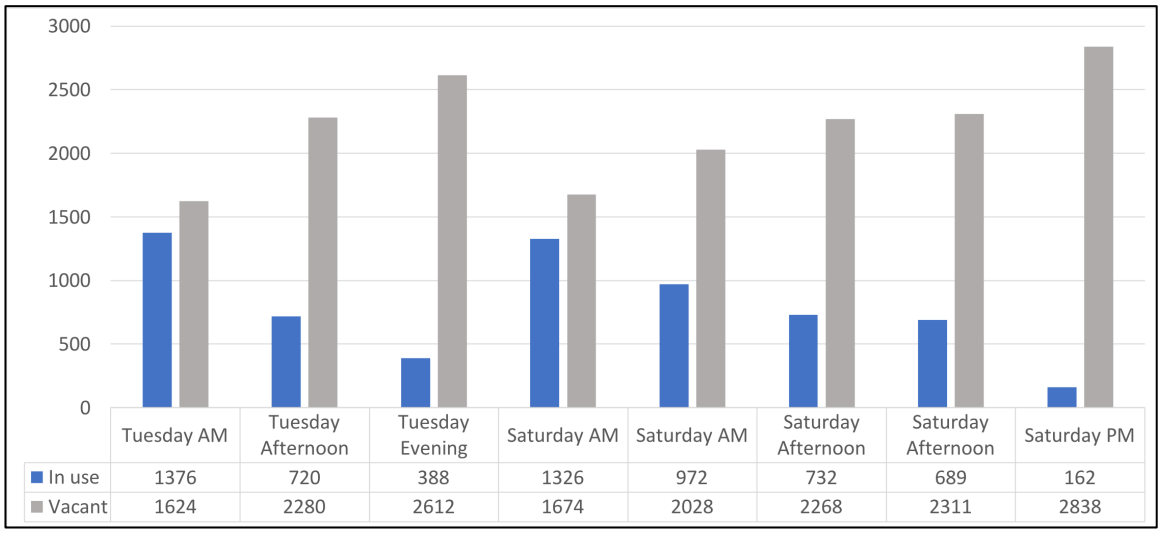
Table 18 below shows the overall level of utilisation of the 3,000 bays in and around the park. This data is displayed graphically in the Figures below.

TABLE 18: TOTAL OBSERVED VEHICLES & TOTAL BAYS

DAY & TIME OF DAY	NUMBER OF VEHICLES OBSERVED	NUMBER OF EMPTY BAYS	OCCUPANCY
Tuesday AM	1,376	1,624	46%
Tuesday Afternoon	720	2,280	24%
Tuesday Evening	388	2,612	13%
Saturday AM	1,326	1,674	44%
Saturday AM	972	2,028	32%
Saturday Afternoon	732	2,268	24%
Saturday Afternoon	689	2,311	23%
Saturday PM	162	2,838	5%

Source: Phillip Boyle & Associates

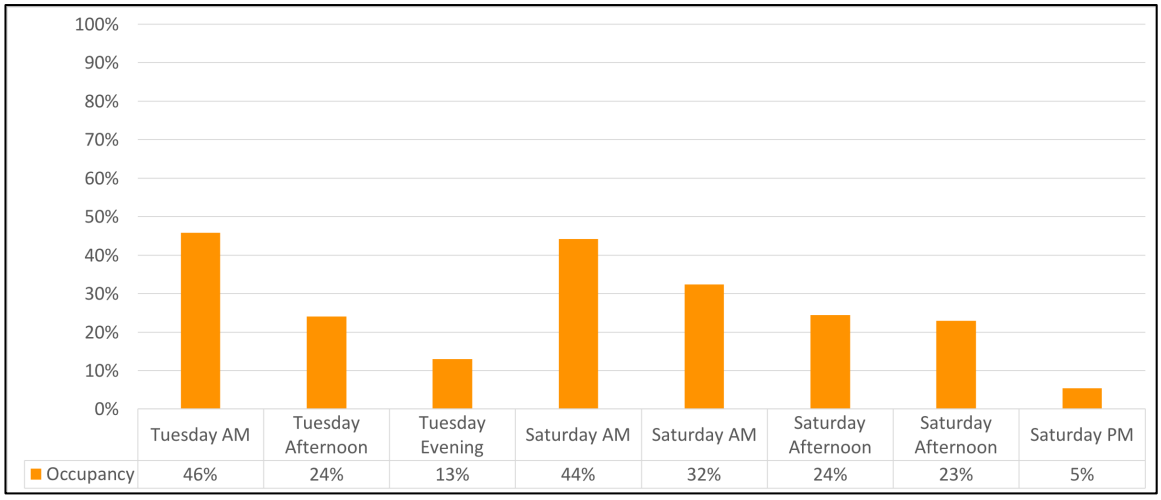
FIGURE 22: PARKING BAYS IN USE & VACANT IN & AROUND ROYAL PARK



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
In use	1376	720	388	1326	972	732	689	162
Vacant	1624	2280	2612	1674	2028	2268	2311	2838

Source: *Phillip Boyle & Associates*

FIGURE 23: OCCUPANCY OF PARKING BAYS IN & AROUND ROYAL PARK



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Occupancy	46%	24%	13%	44%	32%	24%	23%	5%

Source: *Phillip Boyle & Associates*

Parking bays around the Melbourne Zoo & the State Netball & Hockey Centre

The situation is similar in the combined area around the Melbourne Zoo and the State Netball & Hockey Centre. The vehicle surveys found that:

- The supply was never more than half full.
- At all times there were more than 1,000 vacant bays around the centres
- On five occasions less than 20% of the bays were in use.
- Maximum occupancy at any one time was 42%

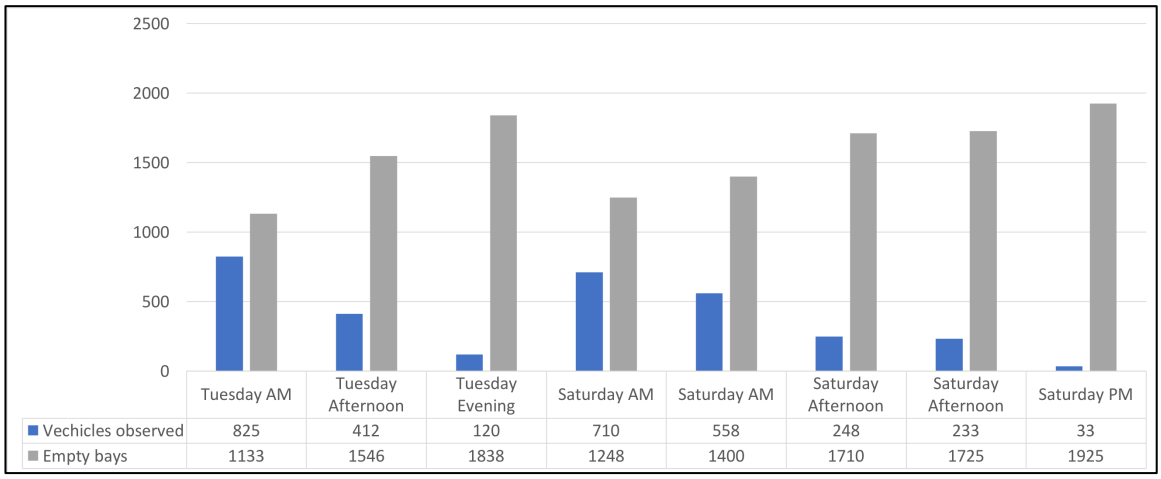
Table 19 below shows the overall level of utilisation. This data is displayed graphically in the Figures below.

TABLE 19: COMBINED OBSERVATIONS MELBOURNE ZOO & STATE NETBALL & HOCKEY CENTRE

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	TOTAL NUMBER OF BAYS	COMMENT
Melbourne Zoo & State Netball & Hockey Centre	33	825	1,958	Maximum observed use was 42% of total capacity
Minimum and maximum observed at different times	0 (Melbourne Zoo)	715 (Melbourne Zoo)		
Minimum and maximum observed at different times	4 (State Netball & Hockey Centre)	341 (State Netball & Hockey Centre)		

Source: Phillip Boyle & Associates

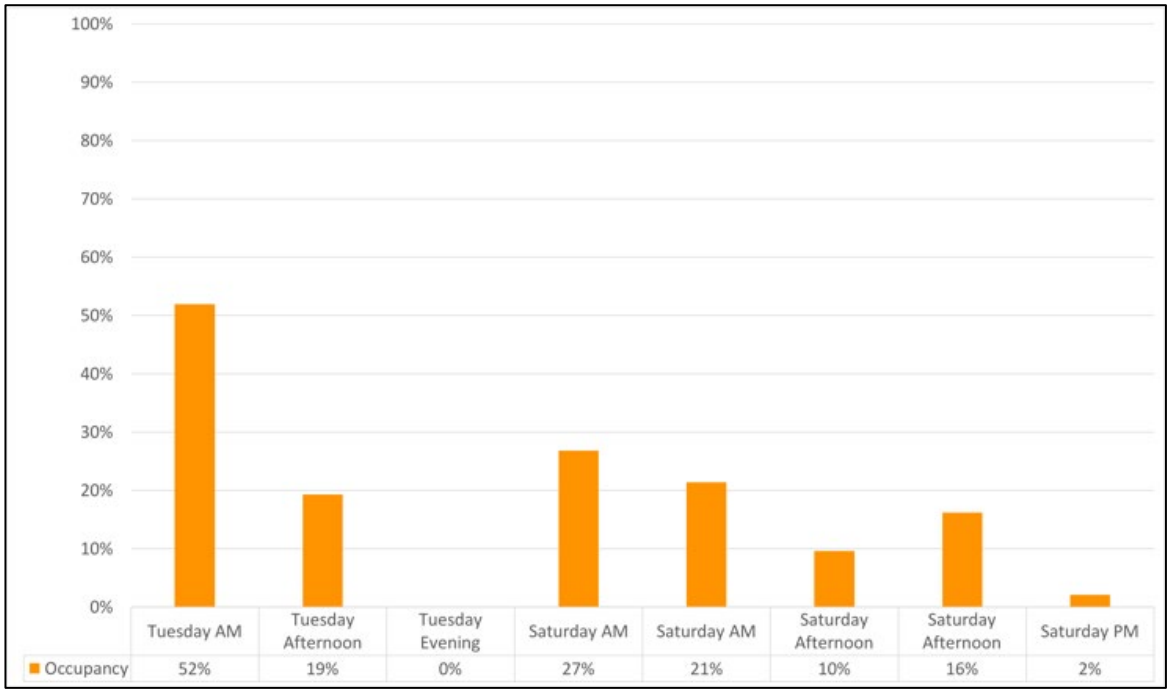
FIGURE 24: PARKING BAYS IN USE & VACANT MELBOURNE ZOO & STATE NETBALL & HOCKEY CENTRE



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Vechicles observed	825	412	120	710	558	248	233	33
Empty bays	1133	1546	1838	1248	1400	1710	1725	1925

Source: Phillip Boyle & Associates

FIGURE 25: OCCUPANCY OF PARKING BAYS MELBOURNE ZOO & STATE NETBALL & HOCKEY CENTRE



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Occupancy	52%	19%	0%	27%	21%	10%	16%	2%

Source: Phillip Boyle & Associates

Parking bays around the Melbourne Zoo

The parking supply around the Melbourne Zoo was not under pressure:

- At least 600 bays were available at all times
- Occupancy was only once observed above 30%

There was some pressure in some locations around the Melbourne Zoo as shown in Table 20 below.

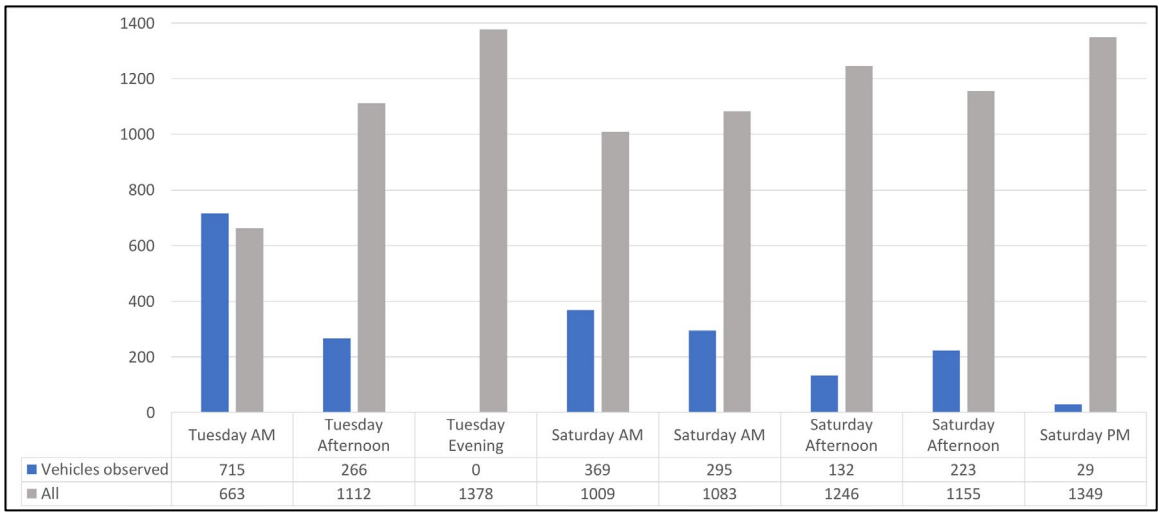
TABLE 20: OBSERVATIONS AROUND MELBOURNE ZOO

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	TOTAL NUMBER OF BAYS		COMMENT
Zoo West	0	0	150	0%	
Zoo SW	0	151	287	53%	Informal areas were not fully used
Zoo SE	0	189	255	74%	Some repairs were underway in informal area
Zoo NE	0	160	464	34%	Utilisation was low in this area
Zoo NW	0	222	222	100%	Utilisation was high in this area
Zoo total maximum observed		715	1,378	52%	

Source: Phillip Boyle & Associates

Figure 26 below shows the shows the overall level of utilisation of the bays around the Melbourne Zoo.

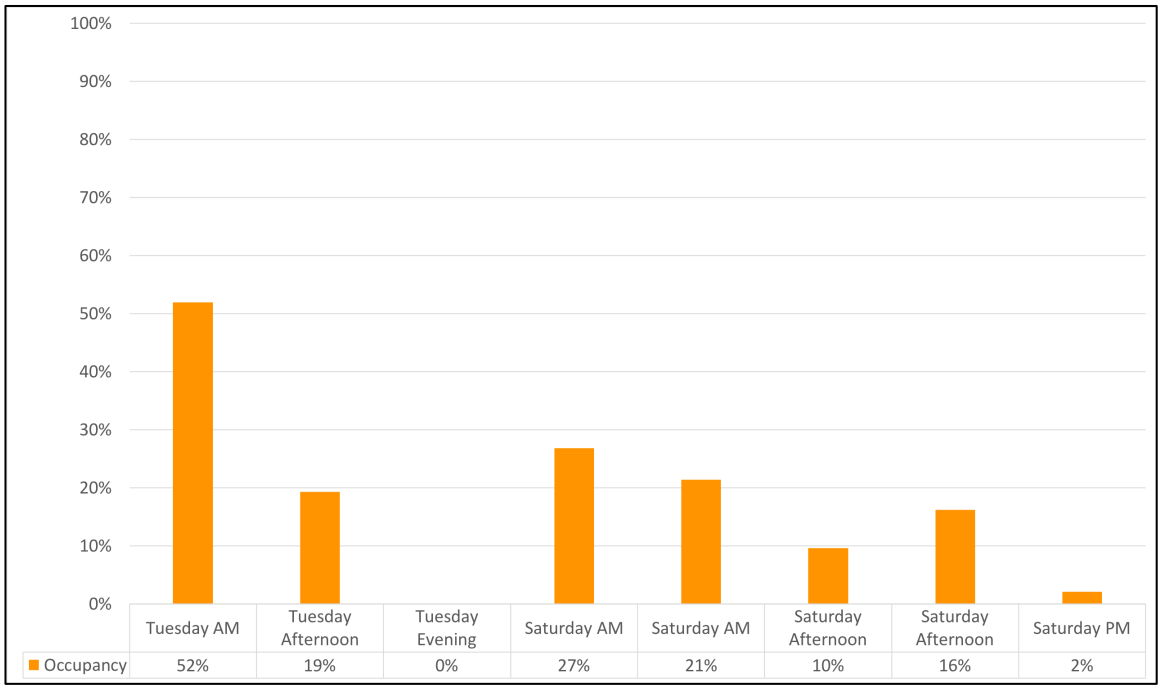
FIGURE 26: PARKING BAYS IN USE & VACANT MELBOURNE ZOO



Source: Phillip Boyle & Associates

Figure 27 below shows the shows the overall level of occupancy of the bays around the Melbourne Zoo.

FIGURE 27: OCCUPANCY OF PARKING BAYS MELBOURNE ZOO



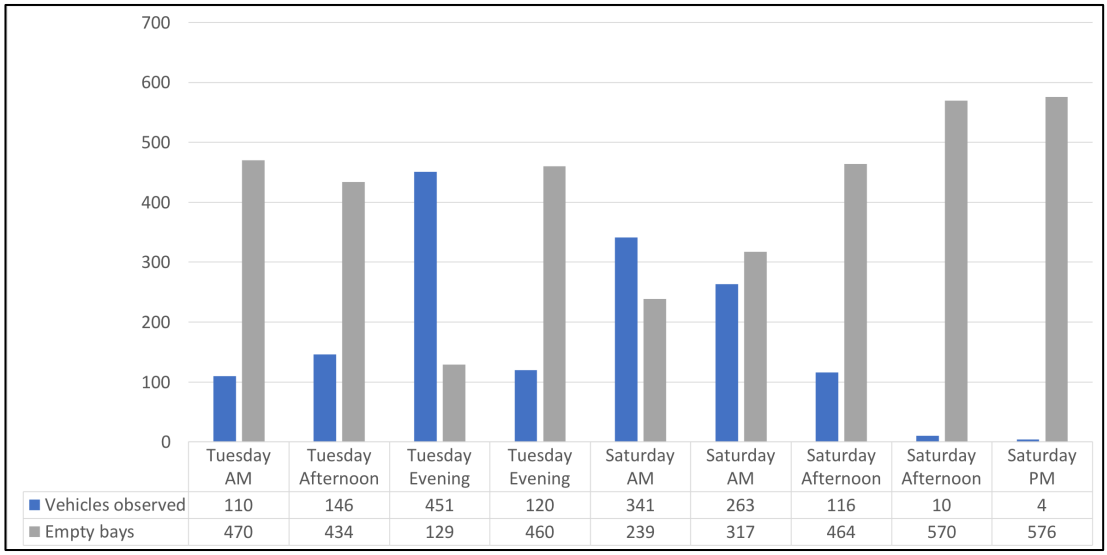
Source: *Phillip Boyle & Associates*

Parking bays around the State Netball & Hockey Centre

The supply around the State Netball & Hockey Centre came under some pressure on a Tuesday evening and a Saturday morning when occupancy reached 78%. The load was not consistently high on Tuesday evenings and Saturday mornings.

Figure 28 below shows the shows the overall level of utilisation of the bays around the State Netball & Hockey Centre

FIGURE 28: PARKING BAYS IN USE & VACANT STATE NETBALL & HOCKEY CENTRE

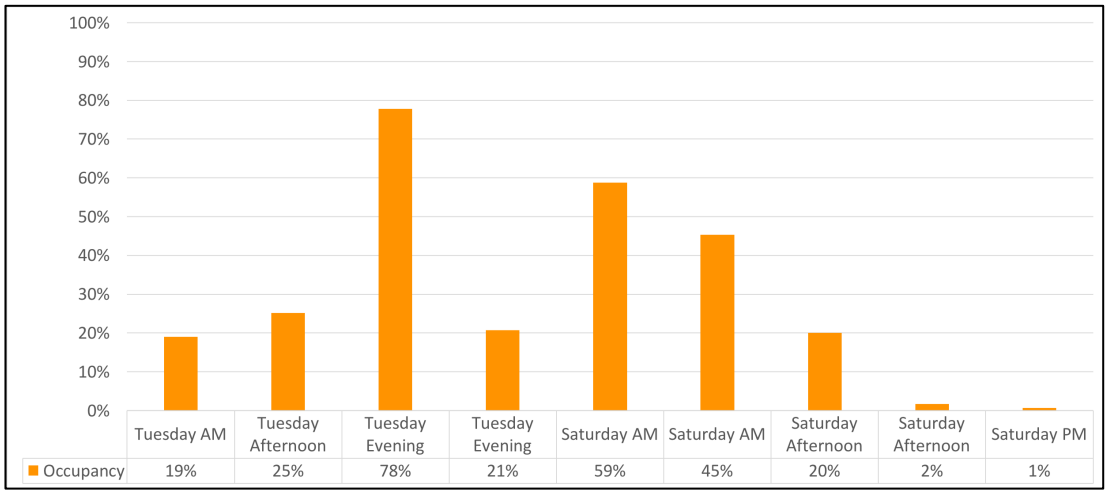


	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Vehicles observed	110	146	451	120	341	263	116	10	4
Empty bays	470	434	129	460	239	317	464	570	576

Source: *Phillip Boyle & Associates*

Figure 29 below shows the shows the overall level of occupancy of the bays around the State Netball & Hockey Centre.

FIGURE 29: OCCUPANCY OF PARKING BAYS STATE NETBALL & HOCKEY CENTRE



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Occupancy	19%	25%	78%	21%	59%	45%	20%	2%	1%

Source: *Phillip Boyle & Associates*

Non-compliant parking

The survey and observations revealed that vehicles park outside the designated parking areas. Figure 30 below shows some examples.

FIGURE 30: NON-COMPLIANT PARKING IN ROYAL PARK

Source: Phillip Boyle & Associates

Top left: Vehicles parked near the tram tracks north of Poplar Road near Royal Park Station

Middle left: Vehicles parked near the tram tracks north of Flemington Road near the Royal Children's Hospital

Bottom left: Vehicles parked in a No Standing area State Netball & Hockey Centre

Top right: Vehicles parked on the footpath near the Brens Oval toilets

Middle right: Vehicles parked on the grass near the Northern Ovals

Bottom right: Vehicles parked on the grass near the depot near the Norther Ovals

Bottom: Vehicles parked on the grass around the Ransford Oval

Patrons & Parking at the Melbourne Zoo

More than one third of Melbourne Zoo patrons told an intercept survey for this assessment that they would like to see more parking around the Zoo. Because this view is probably widely held, the case for additional parking areas is explored in this section.

It is important to emphasise that this view is not shared by either the State Netball & Hockey Centre or the Melbourne Zoo. Both organisations were definite in consultation for this report that there was no need for additional parking. Both stressed that improved management of the current parking was necessary. The Zoo emphasised that getting more people to come by train, bicycle and on foot was 'the number one priority'.

Additional parking would incur costs:

- Loss of land to car parking inside the walls would compromise the Zoo. Additional parking outside the walls of the Zoo, would compromise the park.
- The capital cost would be significant. Parking bays in underground and raised parking structures cost in the order of $50,000 for each bay.

The question is whether increasing the area of parking would increase attendance at the Zoo.

The Melbourne Zoo has had 15,000 – 18,000 visitors through the gate in a day in the past. This was judged to be beyond the capacity of the facility. (Facility capacity is based on measurable factors such as width of exits and number of toilets as well as measures based on judgement, such as the quality of the experience for the visitor and animal welfare.)

The maximum capacity of the facility is therefore probably around 14,000 people in a day.

Data suggests that for people who are visiting the Melbourne Zoo, the average car occupancy is 3.5 people per car. This number appears stable over a long period. The average length of stay also appears stable at an average of 3 hours.[57]

The Melbourne Zoo is open for 8 hours each day. It is therefore possible for each parking bay to support two 'shifts' of visitors. On this basis we can see that the maximum capacity of the 1,378 parking bays in close proximity to the Melbourne Zoo is around 9,500 people per day. (At this stage it is assumed that no patrons come by other modes and no patrons park in areas further from the Zoo such as the State Netball & Hockey Centre or Royal Parade).

This maximum capacity can be increased to 14,500 people if the number of visits per parking bay per day is increased to 3. Three shifts could be achieved by shorter stays or longer opening hours. Table 21 shows that increasing the number of people per car has a lower impact. (This change would also be difficult to achieve.)

TABLE 21: VEHICLE LOAD, LENGTH OF STAY & TOTAL VISITORS: MELBOURNE ZOO

BAYS	PEOPLE PER CAR (AVERAGE)	VISITS PER DAY PER BAY	NUMBER OF VISITORS
1,378	3.5	2	9,646
1,378	More people per car: 4	2	11,024
1,378	3.5	3	14,469

Source: Phillip Boyle & Associates

Attendance at the Zoo is highly seasonal:

- Peak loads reach 12,000 on around 20 'super busy' days each year. These days are usually weekends, school holidays or public holidays when the weather is fine.
- On around 73 days the visitation reaches 9,000 people per day.

- On other days in the year (75%) the visitation is at or below 3,500.
- On 20 days of the year the visitation is around 500 people per day.

This pattern of attendance means that the parking bays are lightly used overall. Utilisation of the available parking bays is high in the short seasonal peak (5% of the days that the Melbourne Zoo is open). For the rest of the year they would add to the number of bays that lie idle in the evenings or overnight when the Melbourne Zoo is closed (67% of the year). For half of the time that the Melbourne Zoo is open, more than half the bays are empty.

Higher future attendance

The Zoo expects its total annual audience to increase. The forecast is that over the next seven years the annual visitation will rise by 80% from 1.4m visitors a year to 2.6m.

The scenario prepared by the Melbourne Zoo suggests that:

- There will be the same number of 'super busy' days as these are determined by external factors. On those days the visitation will reach 13,000.
- The other categories of days will all get busier.

Increasing the number of patrons on days of lower attendance is appropriate. It will be easier to get 1,000 additional visitors on 20 quiet days than 1,000 additional visitors on each of the 20 super busy days. (Similarly, the AFL would find it hard to expand its overall match day attendance by concentrating on increasing crowds at finals.)

As the increase in patronage will occur on off-peak and shoulder times, the car park does not need to be expanded to cope with the forecast increase in the number of visitors to the site.

Other measures that would support increased attendance

There are also many other measures that can be used to support increased attendance at the Zoo without increasing the number of parking bays. These interventions are likely to be less costly than building more car parking bays. Measures include:

- Parking management can incentivise the use of:
  - The 580 parking bays at the State Netball & Hockey Centre
  - The bays in the wider walking catchment around Royal Park including those at the Hospitals
- Valet parking services coordinated by the Melbourne Zoo and State Netball & Hockey Centre could take advantage of parking bays outside the immediate area of the Zoo.
- 'Drop-offs' by family and taxis/Uber deliver patrons by car but do not require a parking bay
- 'Shuttles'. Ski resorts with limited parking provide services like the 'Snowball Express' to support their visitation. The Melbourne Zoo could organise coach trips on 'super busy' days. Short run shuttle services could link the Melbourne Zoo to underused parking structures in Docklands for example. These facilities are only 4km away along the freeway.
- The Zoo and the parking manager can design a complementary package of opening hours, parking and entrance fees that:
  - Enables the Zoo to support three visitor 'shifts' each day
  - Encourages attendance during off-peak and shoulder periods
- More patrons coming by public transport. If 30% of visitation could be based on public transport, (and current car park use continued) peak visitation could reach 20,000 per day – well above the capacity of the facility.[58]

Appendix B – Smaller areas of parking in & around Royal Park

This section uses the information gathered in the vehicle survey to explore whether the aims of the 1985 and 1997 Masterplans to recover land for the park can be achieved by replacing informal parking areas with park land.

Aims in the Masterplan

There are two key aims of the current Masterplan:

- The recovery of land by consolidating fragmented open space into useable areas[59]
- The rationalisation of parking by area, number and location to support the intended landscape character[60]

Several road closures were nominated:[61]

- The closure of the north end of The Avenue at its intersection with Park Street.
- Close The Avenue on the north side of its intersection with MacArthur Road.
- Close the south end of The Avenue at its intersection with Royal Parade

Informal areas investigated

The analysis considers the 400 mostly informal parking bays in Royal Park that are not associated with the Melbourne Zoo or State Netball & Hockey Centre. The areas are described as:

- The northern ovals south of Park Street
- The area around the Royal Park Tennis Club, the Old Poplar Road and the 'triangle' at the western end of that road west of The Avenue north of Walker Street (The Avenue (north))
- The area around the Brens Pavilion west of The Avenue between Walker Street and MacArthur Road (The Avenue (centre))
- The off-street parking to the south and east of the park near the Royal Park Nature Playground (Playground) and the Australian Native Garden (Native garden) west of The Avenue south of MacArthur Road (The Avenue (south))
- The area around the Ross Straw Pavilion east of the Oak Street off-street parking area

The observations found that these areas experience high levels of use and periods of no use at all. It was also noted that when the informal bays were full, other bays nearby were empty.

Because the observations were used to determine the capacity of the informal areas the data shows 100% occupancy for these locations at some times.

Informal bays & Park Street

Figure 31 below shows the location of all motor vehicles observed by the scans in Park Street and the Northern Ovals area on weekdays and weekends.

During the week most vehicles (light blue dots) are parked near the tram line at the western end of this section of Park Street. On the weekend these western bays are lightly-used and most vehicles are parked inside the park (orange dots). The dark blue line shows the marked kerbside bays. The group of kerbside bays in Park Street at (1) were not in use either during the week or on weekends. The 'weekday' vehicles at (2) are probably private vehicles belonging to Park maintenance staff based at the nearby depot.

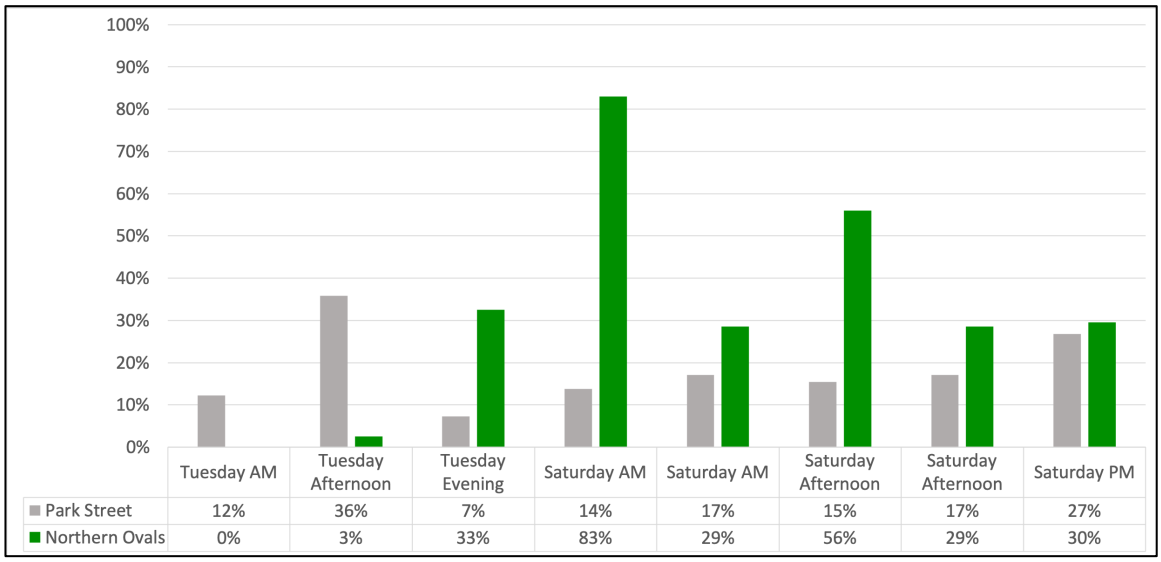
FIGURE 31: NORTHERN OVALS & PARK STREET

Source: Phillip Boyle & Associates

Figure 32 and Figure 33 below show the results of the surveys in this area.

- The supply of bays in the informal areas of the northern ovals is estimated to be 200.[62]
- The number of bays on the park side of Park Street on both sides of the railway line (based on the City of Melbourne GIS) is 123.
- Occupancy was low for both pools of bays.
- On one observation on one Saturday, the informal bays around the Northern Ovals (green bars) were 83% full. Full occupancy was not achieved because people tend to park near the Oval they are using, leaving the other areas empty.
- The off-street bays near the Royal Park Cricket Pavilion ((1) in the Figure above) were not fully used on any observation.
- The bays on Park Street were never more than 36% full.
- If the bays around the Northern Ovals had not been available during the periods of observation, Park Street would have been able to accommodate all the vehicles in the Northern Oval area except on one Saturday morning.

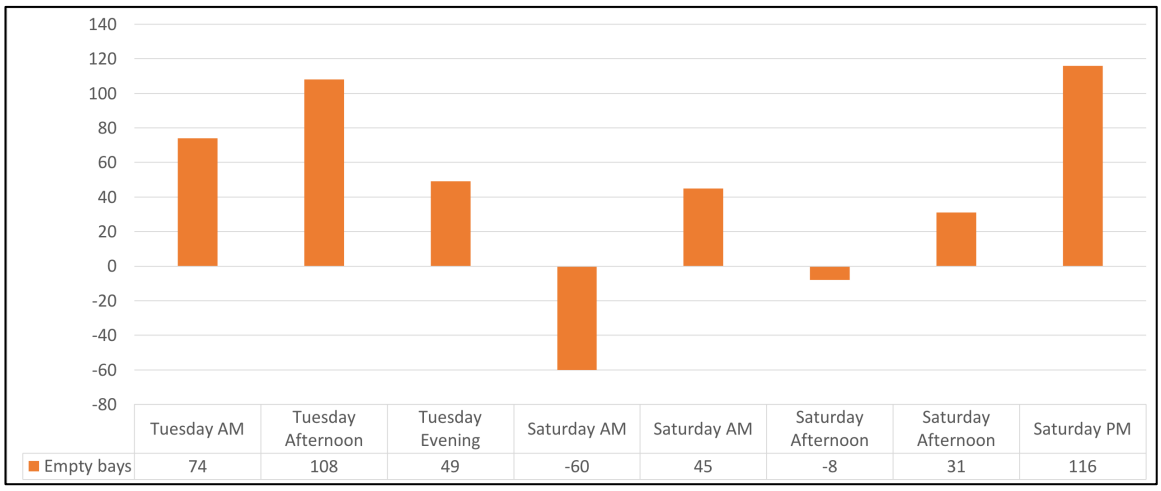
FIGURE 32: OCCUPANCY OF BAYS AROUND NORTHERN OVALS & IN PARK STREET



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Park Street	12%	36%	7%	14%	17%	15%	17%	27%
Northern Ovals	0%	3%	33%	83%	29%	56%	29%	30%

Source: *Phillip Boyle & Associates*

FIGURE 33: NUMBER OF VACANT BAYS ON PARK STREET WITHOUT THE INFORMAL BAYS



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Empty bays	74	108	49	-60	45	-8	31	116

Source: *Phillip Boyle & Associates*

Informal bays & The Avenue (north)

Figure 34 below shows the location of all motor vehicles observed by the scans in The Avenue (north) and the informal areas of the 'triangle', Old Poplar Road and Royal Park Tennis Club on weekdays and weekends.

Most areas are used on weekdays and weekends. The central section of The Avenue tends to be used on weekdays (light blue dots). The Royal Park Tennis Club area tends to be used more heavily on weekends (orange dots).

FIGURE 34: THE AVENUE (NORTH) & THE TRIANGLE, OLD POPLAR ROAD & ROYAL PARK TENNIS CLUB

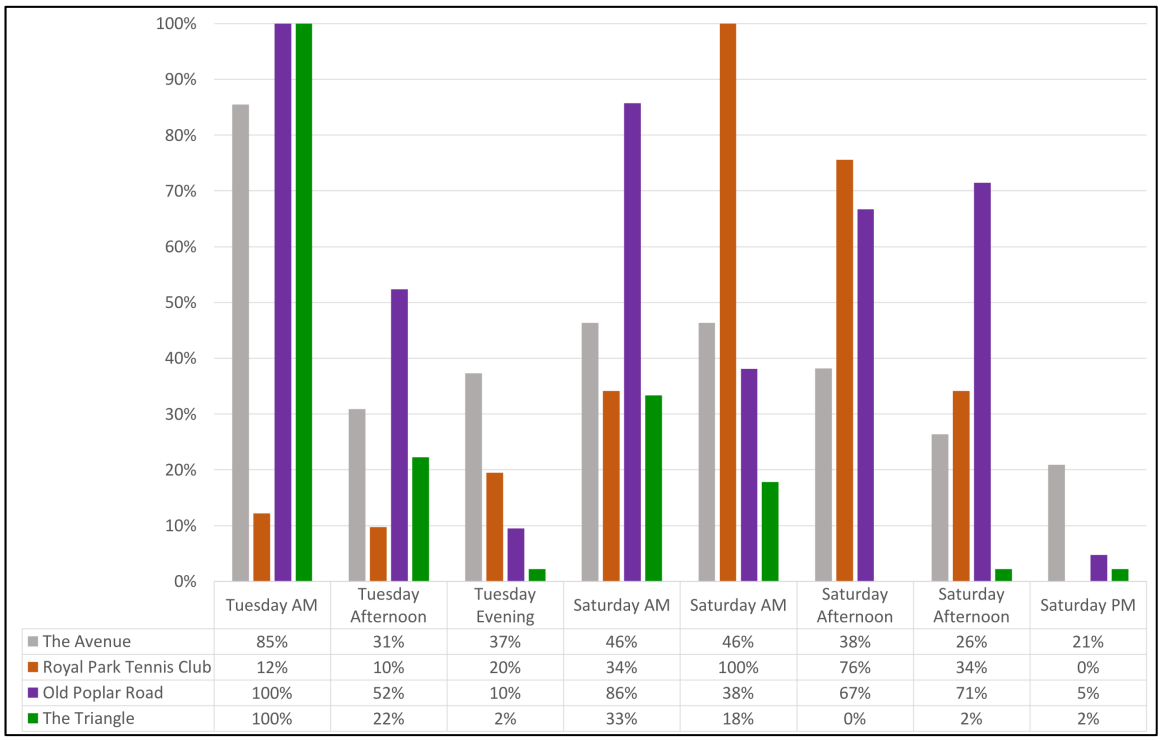
Source: Phillip Boyle & Associates

Figure 35 and Figure 36 below show the results of the surveys.

- The supply of bays in the informal areas of the 'triangle', Old Poplar Road, Royal Park Tennis Club is estimated to be 107 (based on observed vehicles).[63]
- The number of bays on The Avenue (north) (based on the City of Melbourne GIS) is 110.
- The occupancy of the bays on The Avenue was usually below 50% (grey bars)
- The 'triangle' was lightly used (green bars).
- The bays along Old Poplar Road were more often in use.
- On two occasions the bays at the Royal Park Tennis Club were well used.
- If the informal areas of the 'triangle', Old Poplar Road and Royal Park Tennis Club had not been available during the periods of observation, The Avenue (north) would have been able to accommodate all the vehicles in the Northern Oval area except on one

Tuesday morning.

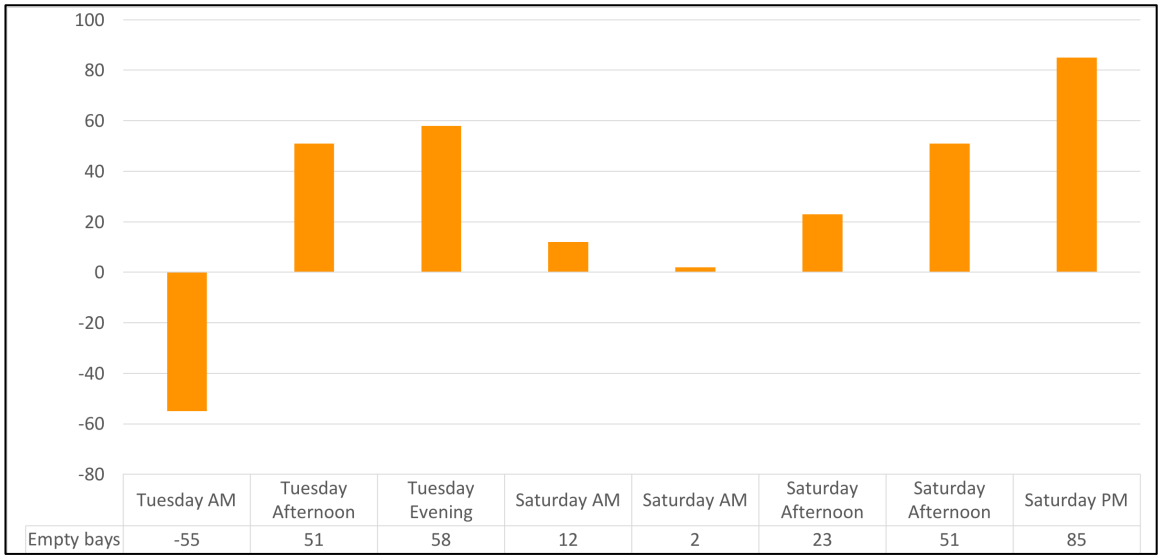
FIGURE 35: OCCUPANCY THE AVENUE (NORTH) & THE TRIANGLE, OLD POPLAR ROAD & ROYAL PARK TENNIS CLUB



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
The Avenue	85%	31%	37%	46%	46%	38%	26%	21%
Royal Park Tennis Club	12%	10%	20%	34%	100%	76%	34%	0%
Old Poplar Road	100%	52%	10%	86%	38%	67%	71%	5%
The Triangle	100%	22%	2%	33%	18%	0%	2%	2%

Source: Phillip Boyle & Associates

FIGURE 36: NUMBER OF VACANT BAYS ON THE AVENUE (NORTH) WITHOUT THE INFORMAL BAYS



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Empty bays	-55	51	58	12	2	23	51	85

Source: Phillip Boyle & Associates

Informal bays & Oak Street off-street parking

Figure 37 below shows the location of all motor vehicles observed in Oak Street off-street parking area and the informal area around Ross Straw Pavilion. Some vehicles use the Oak Street car park during the week (light blue dots). The Pavilion area is used on weekends (orange dots).

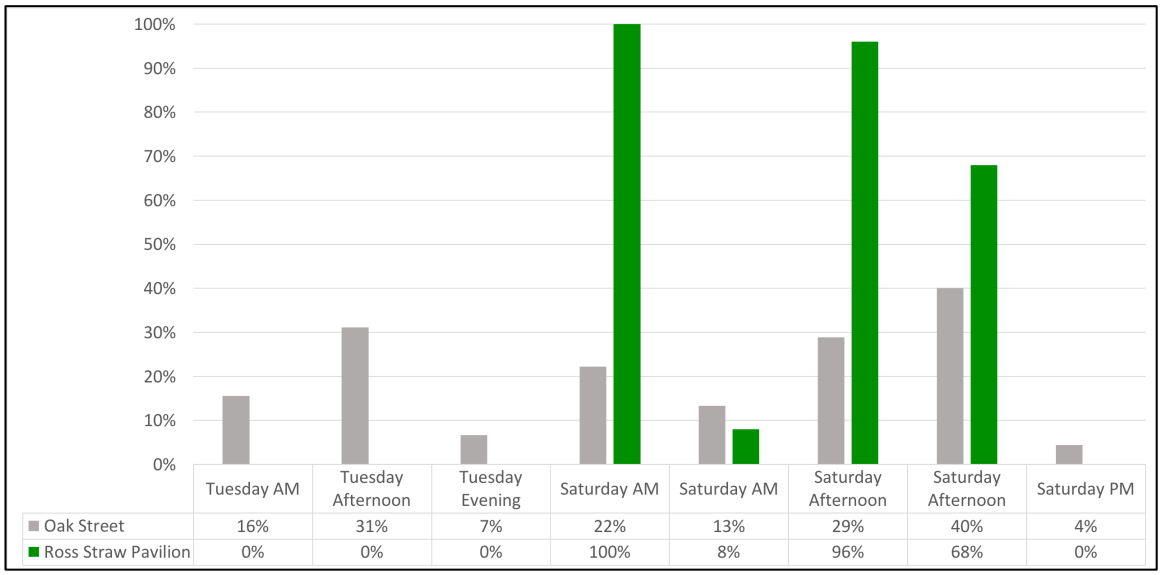
FIGURE 37: OAK STREET OFF-STREET PARKING AREA & THE AREA AROUND THE ROSS STRAW PAVILION

Source: Phillip Boyle & Associates

Figure 38 and Figure 39 below show the results of the surveys.

- The supply of bays in the Ross Straw Pavilion area is estimated to be 25.[64]
- The number of bays on Oak Street (based on the City of Melbourne GIS) is 45.
- The occupancy was low for both pools of bays.
- The bays near the Ross Straw pavilion were only used on the Saturdays.
- The Oak Street car park was never more than 31% full.
- On one observation on one Saturday, the informal bays around the Ross Straw Pavilion (green bars) were full. When this peak occurred, there were more than enough spaces in the Oak Street car park to accommodate these vehicles parked near the Pavilion.
- If the informal areas near the Ross Straw Pavilion had not been available during the periods of observation, The Oak Street car park would have been able to accommodate all the vehicles that parked near the Pavilion.

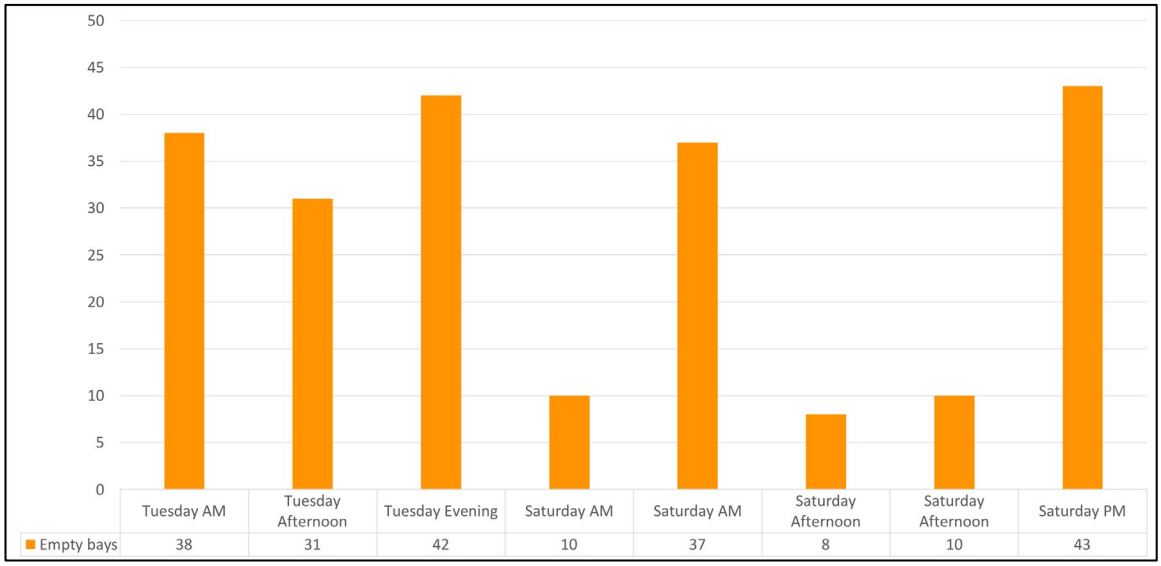
FIGURE 38: OCCUPANCY OAK STREET CAR PARK & THE ROSS STRAW PAVILION AREA



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Oak Street	16%	31%	7%	22%	13%	29%	40%	4%
Ross Straw Pavilion	0%	0%	0%	100%	8%	96%	68%	0%

Source: Phillip Boyle & Associates

FIGURE 39: NUMBER OF VACANT BAYS IN THE OAK STREET CARPARK WITHOUT THE INFORMAL BAYS



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Empty bays	38	31	42	10	37	8	10	43

Source: Phillip Boyle & Associates

Informal bays & the Melbourne Zoo & The Avenue (centre)

Figure 40 below shows the location of all motor vehicles observed by the scans in area around Brens Pavilion. This informal parking area lies between the bays on the south side of the Melbourne Zoo and the bays in The Avenue between Walker Street and MacArthur Road (centre). All areas are in use during the weekend (orange dots) and weekdays (blue dots).

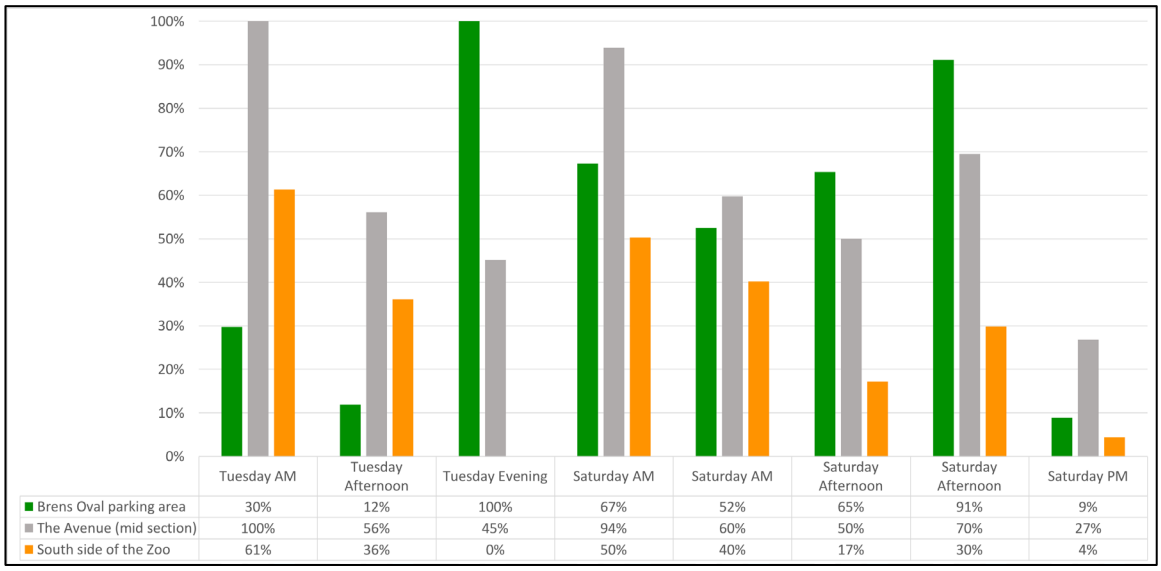
FIGURE 40: THE AVENUE (CENTRE), MELBOURNE ZOO (SOUTH) & THE AREA AROUND THE BRENS PAVILION

Source: Phillip Boyle & Associates

Figure 41 and Figure 42 below show the results of the surveys.

- The supply of bays in the Brens Pavilion area is estimated to be 101.[65]
- The number of bays on The Avenue (centre) (based on the City of Melbourne GIS) is 82.
- The number of bays in the south west and south east parking areas near the Melbourne Zoo (excluding the area to the west of the Zoo near the tram line) is 543.
- The maximum observed vehicles on the southern side of the Melbourne Zoo was 340.
- On five occasions the Brens Oval parking area was more than half full (green bars).
- These vehicles could not have been fully accommodated in The Avenue (centre) as occupancy in that location is high and few vacant bays are available at peak times.
- The bays on the south side of the Melbourne Zoo are lightly used.
- When the use of Brens Oval area peaked, the bays on the south side of the Melbourne Zoo were empty.
- If the informal areas near the Brens Pavilion had not been available during the periods of observation, the parking areas in The Avenue (centre) and the south side of the Melbourne Zoo could have accommodated the vehicles.

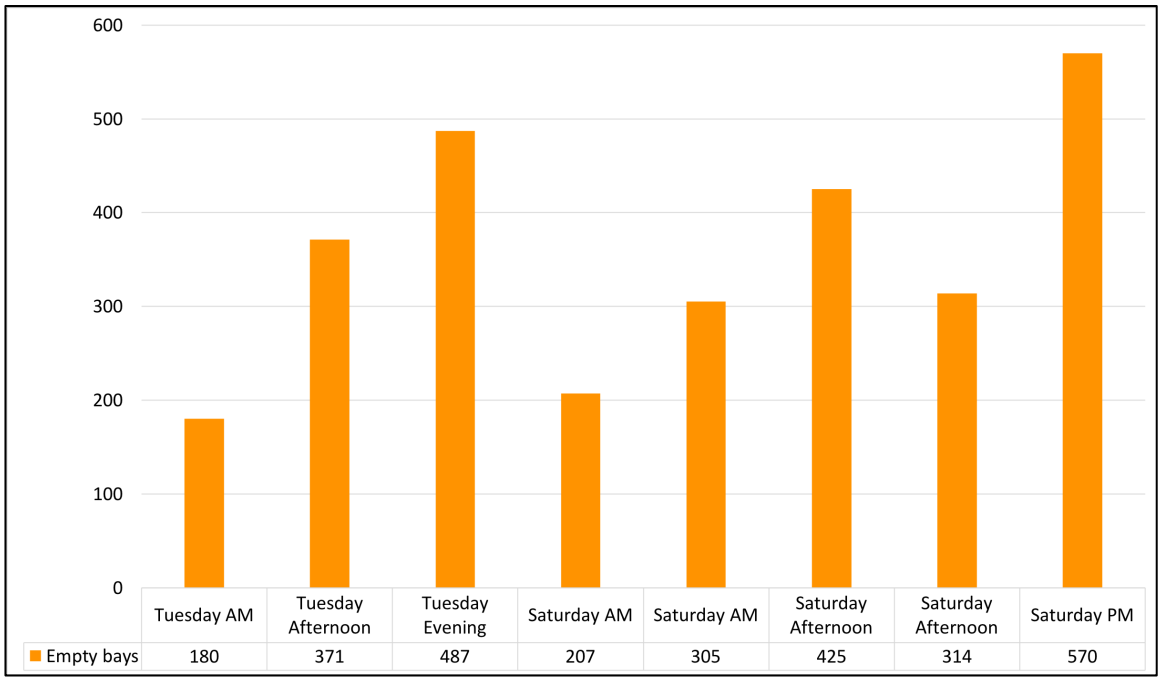
FIGURE 41: OCCUPANCY THE AVENUE (CENTRE), ZOO SOUTH & THE BRENS PAVILION AREA



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Brens Oval parking area	30%	12%	100%	67%	52%	65%	91%	9%
The Avenue (mid section)	100%	56%	45%	94%	60%	50%	70%	27%
South side of the Zoo	61%	36%	0%	50%	40%	17%	30%	4%

Source: Phillip Boyle & Associates

FIGURE 42: NUMBER OF VACANT BAYS IN THE AVENUE (CENTRE) AND ZOO SOUTH WITHOUT THE INFORMAL BAYS



	Tuesday AM	Tuesday Afternoon	Tuesday Evening	Saturday AM	Saturday AM	Saturday Afternoon	Saturday Afternoon	Saturday PM
Empty bays	180	371	487	207	305	425	314	570

Source: Phillip Boyle & Associates

Gatehouse Street, the playground, native garden & The Avenue (south)

Figure 43 below shows the location of all motor vehicles observed by the scans in area in the south east corner of the park. Two off-street parking areas have been provided along Gatehouse Street near the Royal Park Nature Playground (Playground) and the Australian Native Garden.

The Avenue (south) is used more heavily on weekdays (blue dots). The parking bays near the Australian Native Garden are well used on the weekend (orange dots).

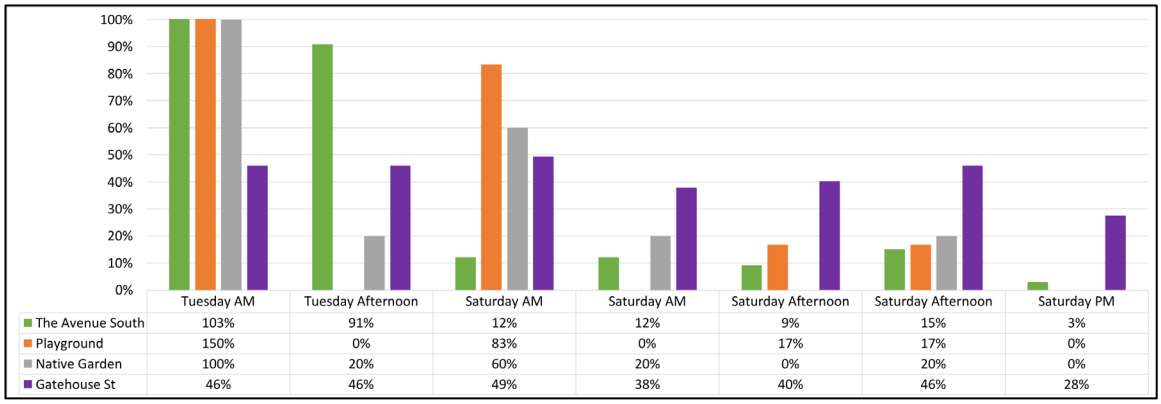
FIGURE 43: GATEHOUSE STREET, THE PLAYGROUND, NATIVE GARDEN & THE AVENUE (SOUTH)

Source: Phillip Boyle & Associates

Figure 44 and Figure 45 below show the results of the surveys.

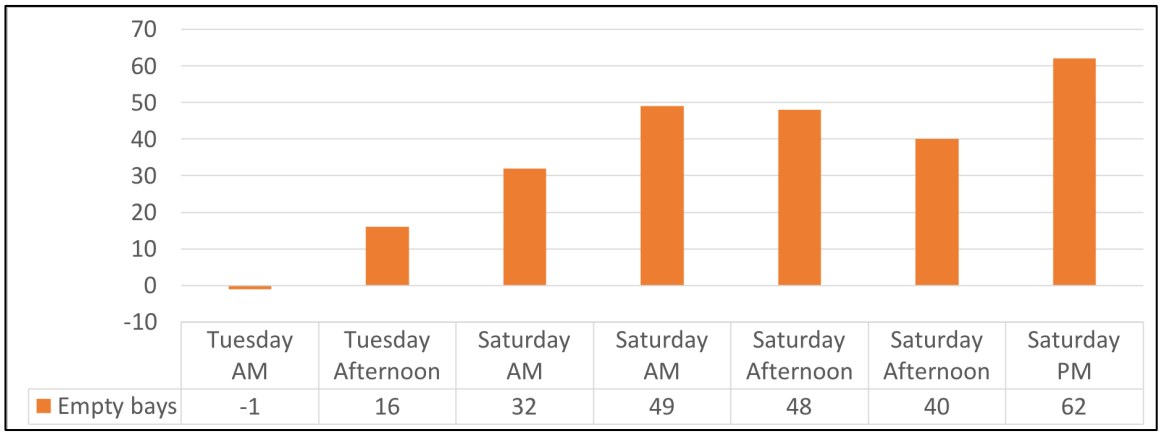
- The supply of kerbside bays is 33 in The Avenue (south) and 87 in Gatehouse Street
- The number of off-street bays is 6 in the Playground area (although 9 vehicles were observed on one occasion) and 5 at the Australian Native Garden.[66]
- There were vacant bays on Gatehouse Street (purple bars) at every observation.[67]
- The Avenue (south) was well used on the weekdays but only lightly used on weekends
- If The Avenue (south) and the off-street bays had not been available during the periods of observation, the parking areas in Gatehouse Street could have accommodated the vehicles.

FIGURE 44: OCCUPANCY GATEHOUSE STREET, THE PLAYGROUND, NATIVE GARDEN & THE AVENUE (SOUTH)



Source: Phillip Boyle & Associates

FIGURE 45: NUMBER OF VACANT BAYS IN GATEHOUSE STREET, THE PLAYGROUND, NATIVE GARDEN & THE AVENUE (SOUTH)



Source: Phillip Boyle & Associates

Flemington Road

Figure 46 below shows the location of all motor vehicles observed by the scans in area along Flemington Road. The bays at the northern end are used more heavily on weekdays (blue dots).

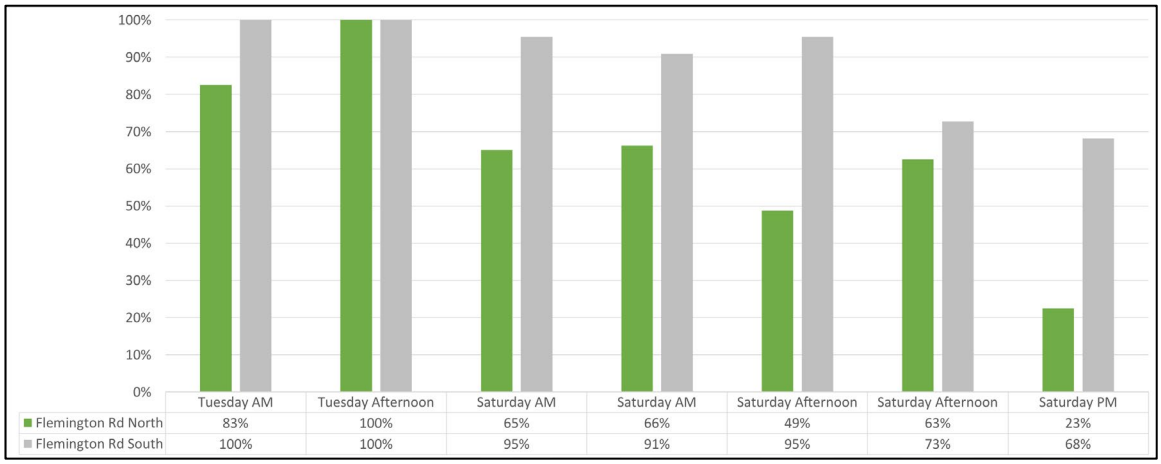
FIGURE 46: FLEMINGTON ROAD (NORTH & SOUTH)

Source: Phillip Boyle & Associates

Figure 47 below shows the results of the surveys.

- The bays in Flemington Road south were completely full on the Tuesday during the day. It would have been difficult to find a vacant bay on the Saturday during the day.[68]
- The bays in Flemington Road north are also intensively used on weekdays. All bays were full on the Tuesday afternoon. The bays in the northern section are less intensively used on weekends.

FIGURE 47: OCCUPANCY FLEMINGTON ROAD (NORTH & SOUTH)



Source: Phillip Boyle & Associates

Avoiding vehicle storage & peak loads

Data was gathered to understand whether the parking supply was being reduced by the storage of vehicles and whether the timetabling of sport activity was generating avoidable peaks in the flow of visitors.

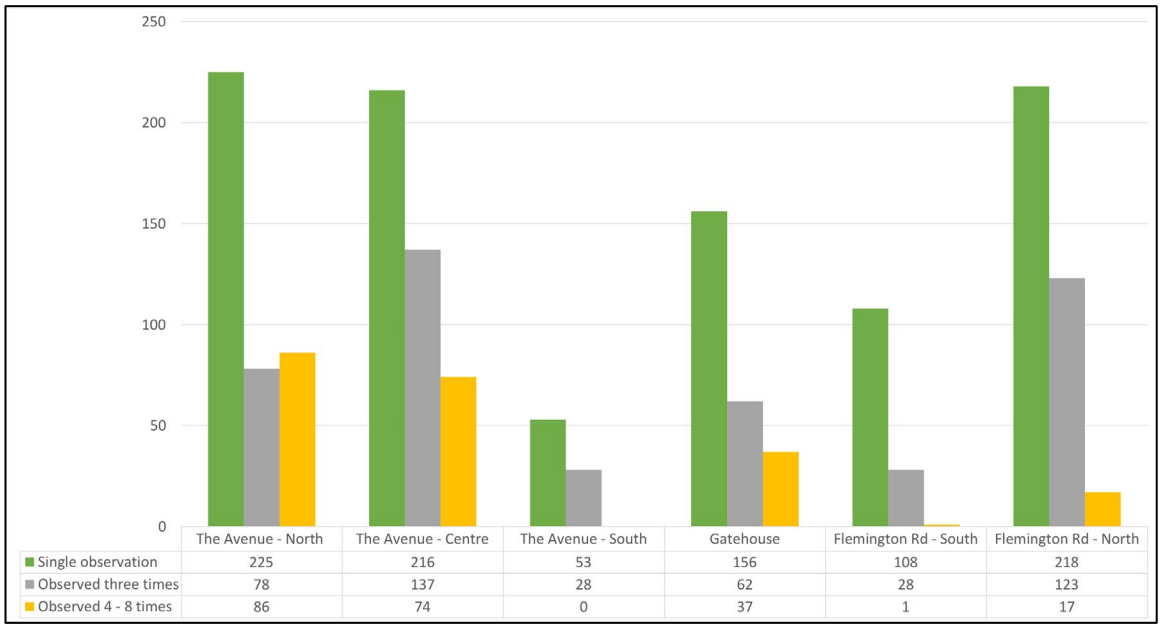
Avoiding the storage of vehicles

Access by car to a destination is compromised when people store vehicles in parking bays around the destination.

Two types of vehicle storage are likely to occur in and around the park. People who live near the park might store their vehicle in the bays around or inside the park. Employees who work in or near the park might store their vehicle during working hours. It is also likely that the park could be used for Park & Ride to jobs at the end of a public transport trips out of the park.

The vehicle survey data was used to understand the level of vehicle storage that takes place in and around the park. The number plates recorded during the survey were compared to understand the proportion of occasional and regular users. Figure 48 below shows the results of that comparison for The Avenue, Gatehouse Street and Flemington Road.

FIGURE 48: OCCASIONAL & REGULAR USE OF PARKING BAYS



	The Avenue - North	The Avenue - Centre	The Avenue - South	Gatehouse	Flemington Rd - South	Flemington Rd - North
Single observation	225	216	53	156	108	218
Observed three times	78	137	28	62	28	123
Observed 4 - 8 times	86	74	0	37	1	17

Source: Phillip Boyle & Associates

- There are 418 bays in this pool
- Most users were occasional visitors
- There were repeat users but no regular users observed in The Avenue (south) and only a small number in Flemington Road south
- The central and northern sections of The Avenue had a high proportion of regular users. Some regular use can be observed in Gatehouse Street.
- It is likely that vehicles that were observed 4 – 8 times are being stored for long periods rather than being parked during a short visit.
- Stored vehicles reduce the level of potential visitation by occupying parking bays for long periods. If the 232 vehicles that were observed more than 4 times were being stored in the 418 bays, the pool of bays available for visitors to the park would be reduced by 56%.

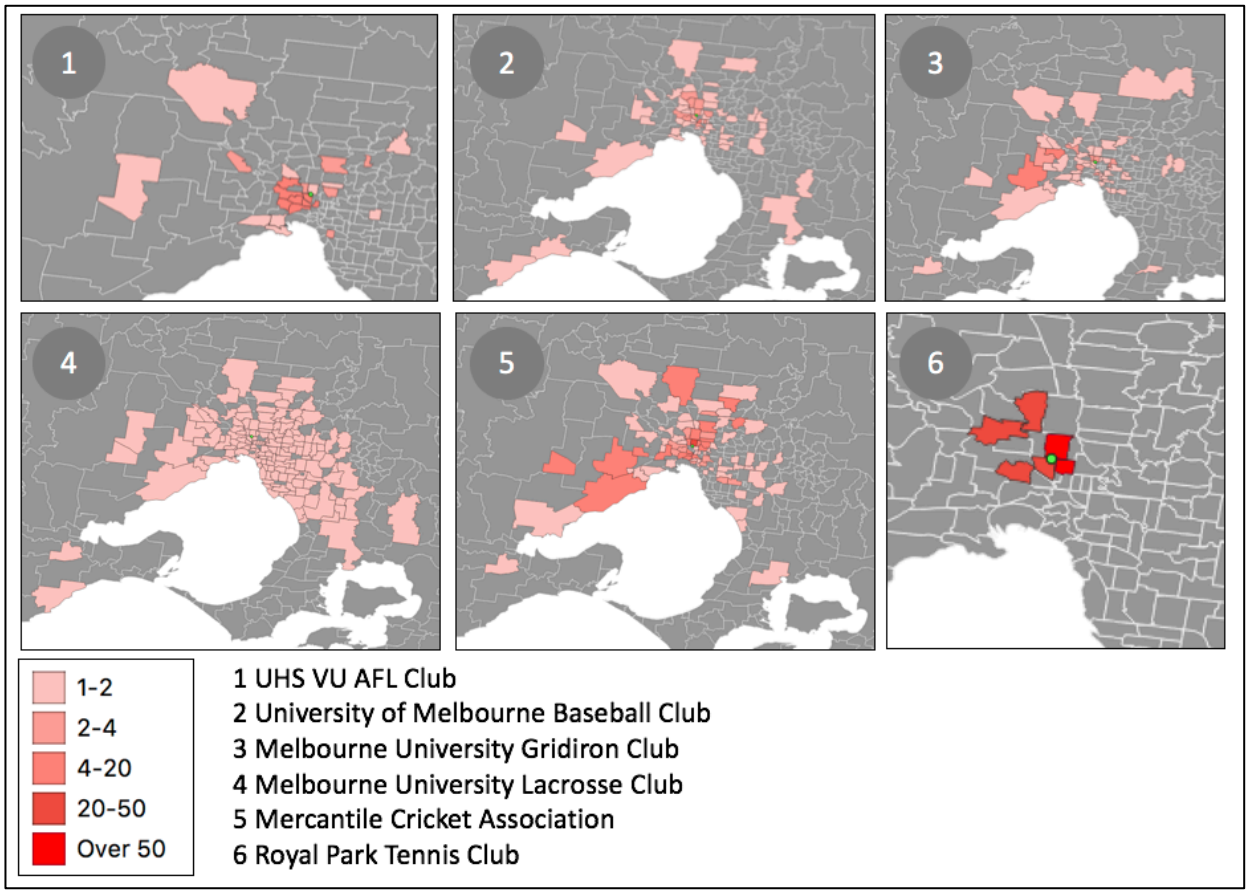
Sporting facilities: postcode origin

A survey of sporting clubs was conducted. Responses from 9 clubs and the provision of postcodes of members by six clubs allowed the following analysis.

Figure 49 below shows for the clubs that provided postcodes that:

- Most participants live in the metropolitan area.
- Some participants come from Geelong and the Surf Coast (Baseball, Gridiron, Lacrosse and Cricket).
- Many participants come from the north and west.
- In some sports the participants are spread evenly across a wide area (Lacrosse) while some are concentrated in areas closer to Royal Park (Tennis)

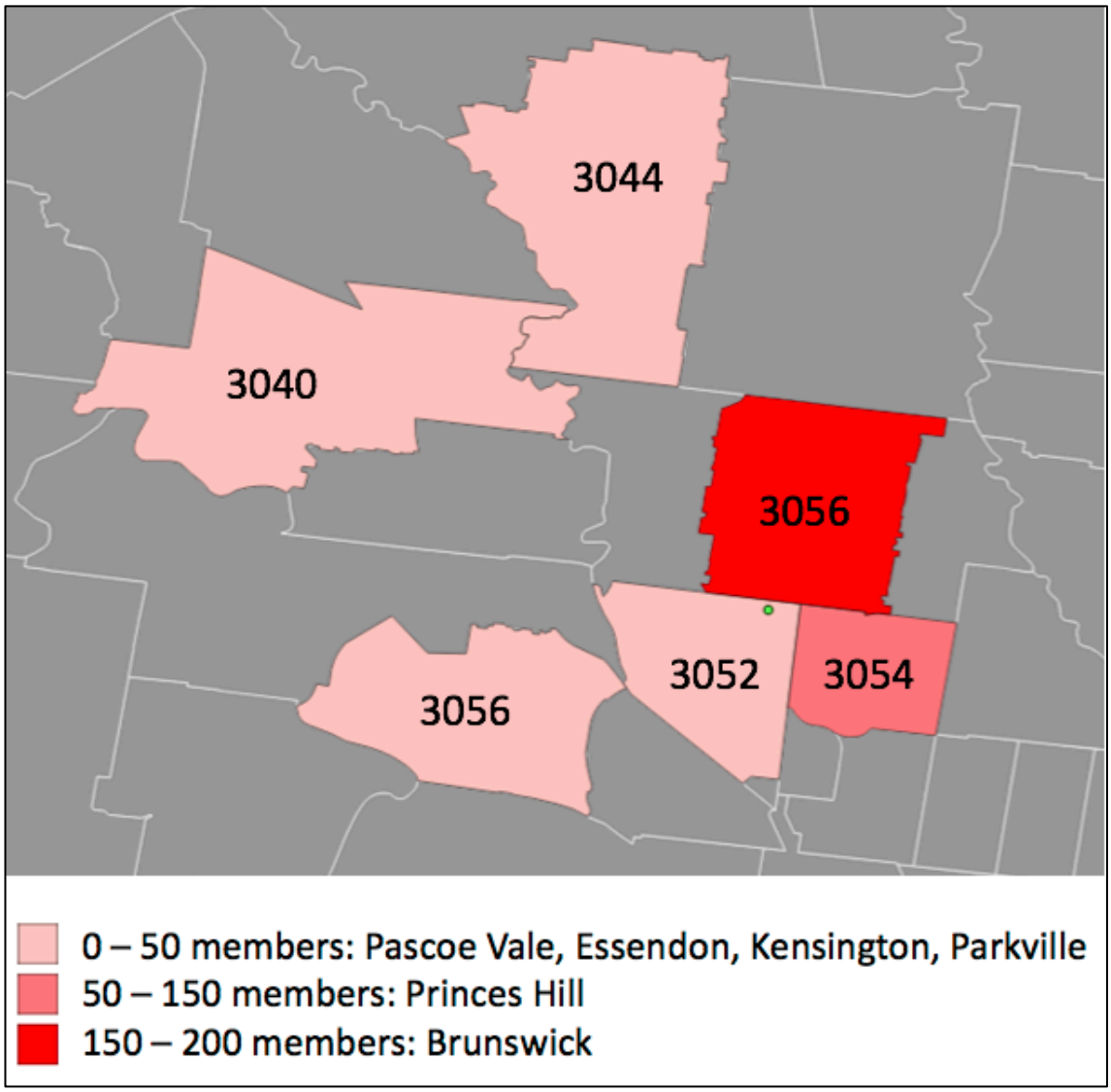
FIGURE 49: HOME POSTCODE OF MEMBERS OF SPORTING CLUBS



Source: Phillip Boyle & Associates

Figure 50 below shows the home postcode of the members of the Royal Park Tennis Club (6) above in greater detail. Many members of this Club live in the area of Brunswick (3056) abutting the park.

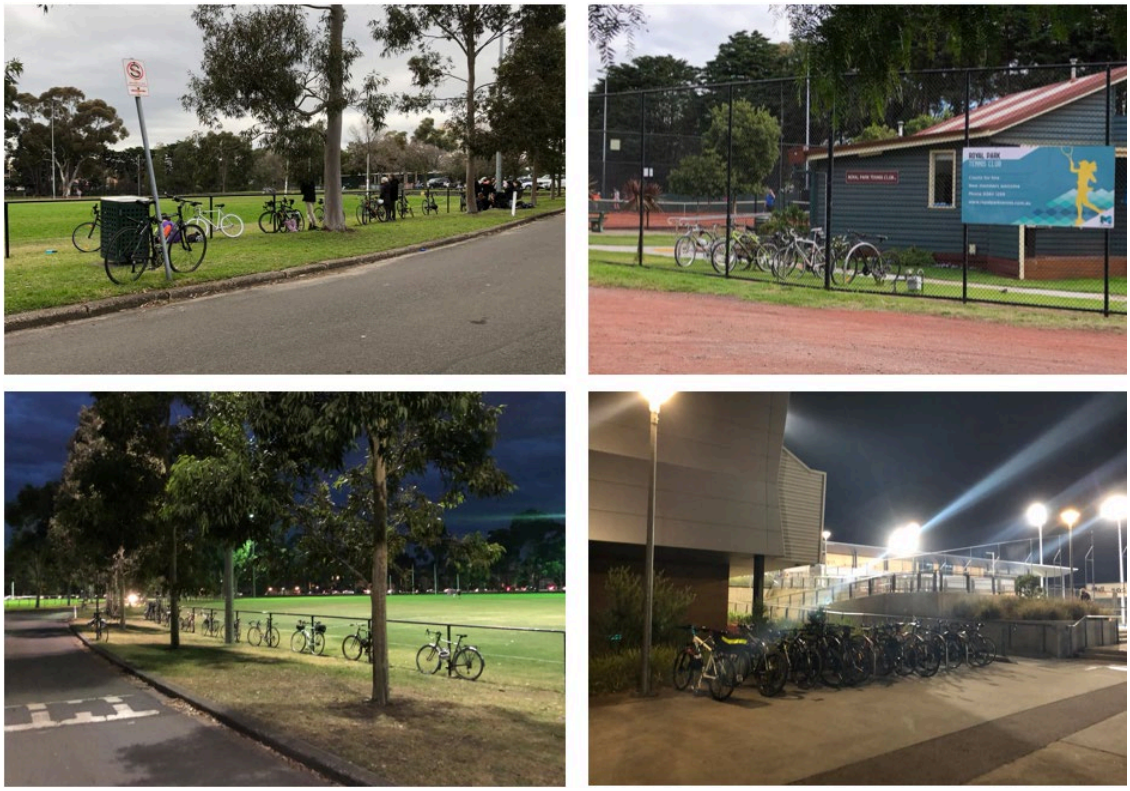
FIGURE 50: HOME POSTCODE OF MEMBERS THE ROYAL PARK TENNIS CLUB



Source: Phillip Boyle & Associates

The Assessment did not include an investigation of the modes used by people to reach sporting facilities in Royal Park. Observations suggest that some are using bicycles. Figure 51 below shows bicycles at some destinations.

FIGURE 51: USE OF BICYCLES TO REACH SPORTING FACILITIES



Source: *Phillip Boyle & Associates*

Top & bottom left: McAlister Oval.

Top right: Royal Park Tennis Club

Bottom right: State Netball & Hockey Centre

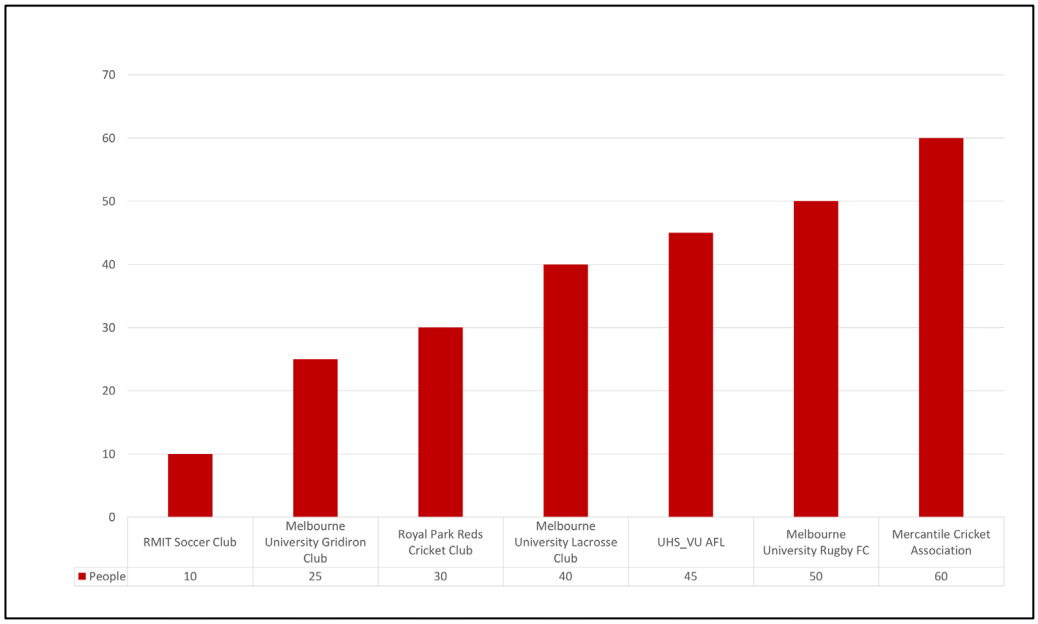
Avoidable peaks

The survey of sporting clubs[69] was used to understand the load on the parking bays in and around Royal Park. Clubs provided information on their scheduled training night and estimated the number of people who attend. Figure 52, Figure 53 and Figure 54 below show:

- The training groups can range from 10 – 60
- The most popular night for training is Thursday
- The load on Thursday is nearly double the Tuesday load (1.74). (This load is spread across a number of training sites.)

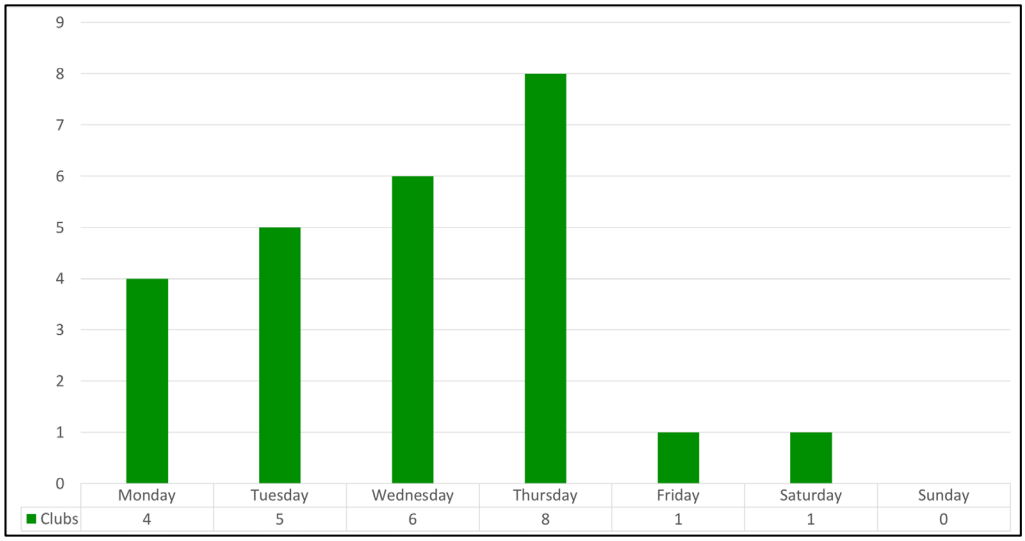
The City of Melbourne and the clubs have the opportunity to schedule club training nights so that the load on the parking bays is spread more evenly.

FIGURE 52: NUMBER OF PEOPLE AT TRAINING SESSIONS BY CLUB



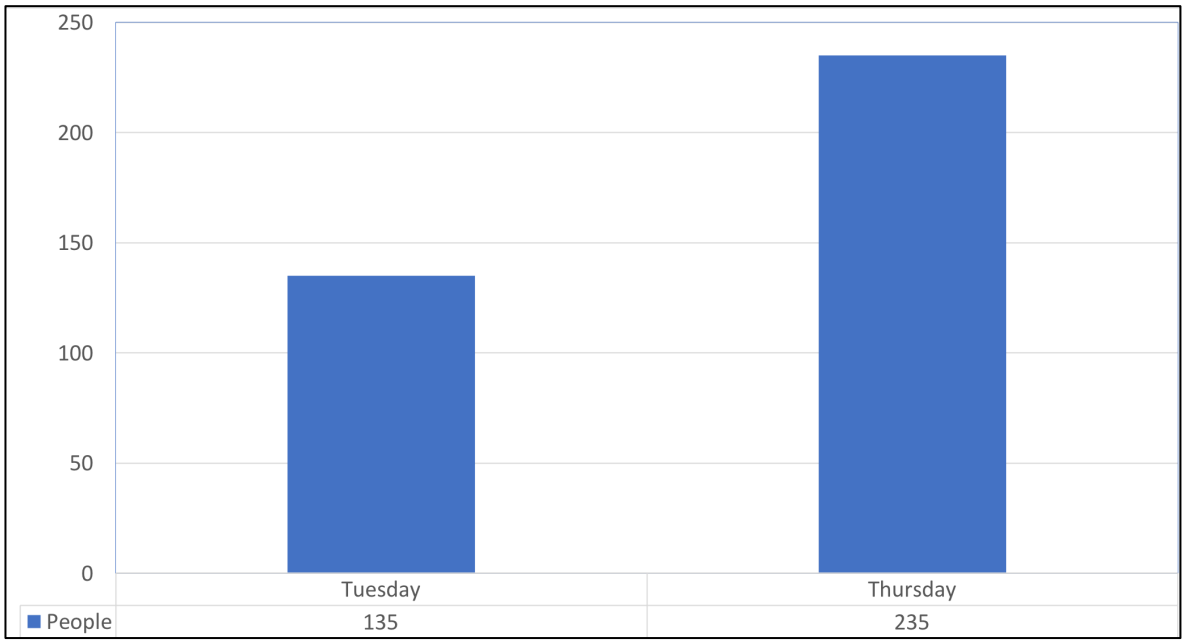
Source: Phillip Boyle & Associates

FIGURE 53: NUMBER OF CLUBS AT TRAINING BY DAY



Source: Phillip Boyle & Associates

FIGURE 54: NUMBER OF PLAYERS AT TRAINING ON TUESDAYS & THURSDAYS

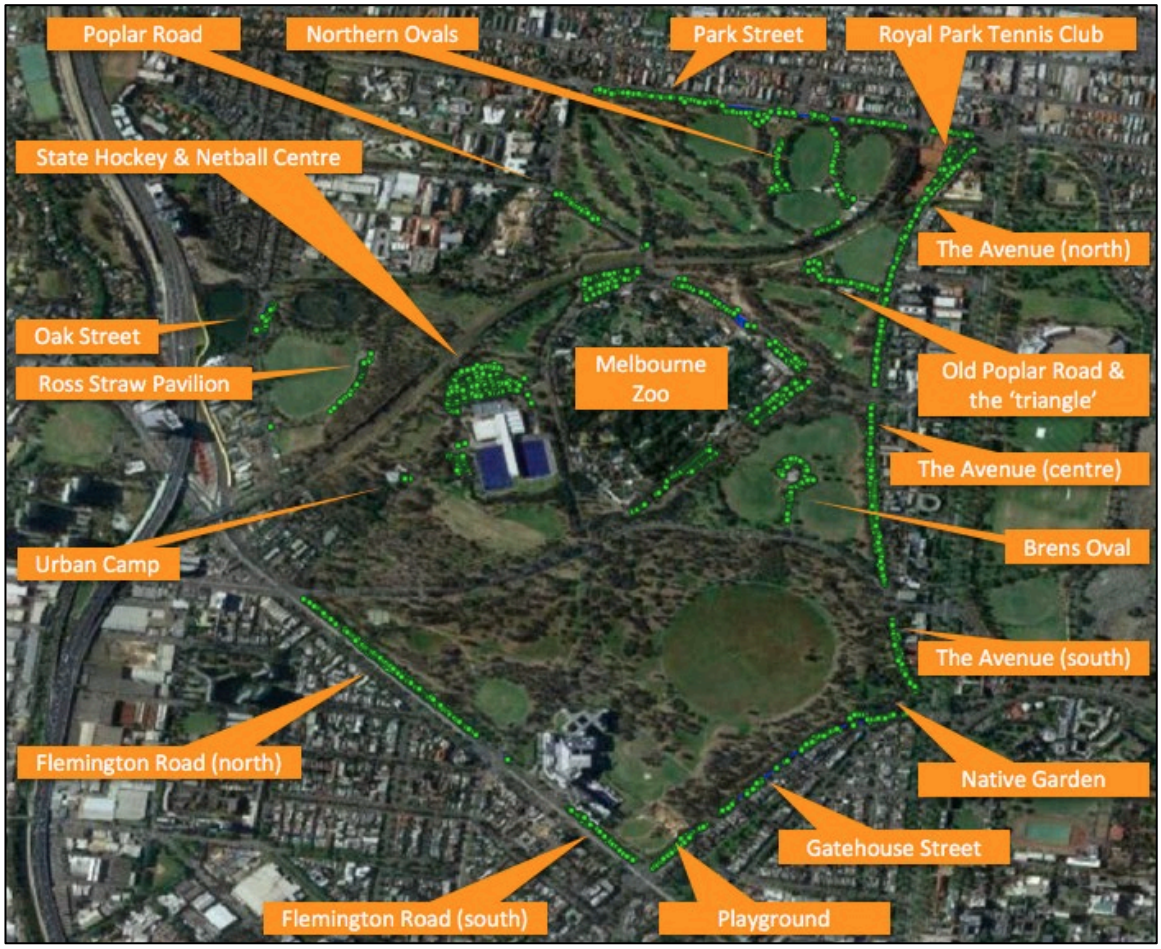


Source: Phillip Boyle & Associates

Appendix C – The number & type of parking bays in & around Royal Park

This Appendix provides detailed summaries of the number and type of parking bays in and around Royal Park. Figure 55 below shows the locations of the parking bays used in the Assessment.

FIGURE 55: PARKING LOCATIONS IN & AROUND ROYAL PARK



Source: Phillip Boyle & Associates

Method

The following data sets were used:

- GIS data from the City of Melbourne. This data includes all the marked kerbside bays on perimeter roads and many of the formal bays on asphalt around the Melbourne Zoo. It does not include:
  - The formal bays at the north entrance of the Melbourne Zoo. The licence plate scan was used to estimate the size of these pools.)
  - The informal bays at the kerb on Old and 'new' Poplar Road. (The licence plate scan was used to estimate the size of these pools.)
- Licence plate recognition surveys conducted for this Assessment.[70] This data includes nearly all the vehicles that were within the defined area during the scans[71]. A small

number of vehicles were not recorded as the camera was unable to record some registration plates. Also, some vehicles were parked in locations where they could not be photographed. This data was used to estimate the equivalent number of parking bays in informal areas where no bays are marked.

- Estimates provided in *Royal Park Destination Management Movendo 2018* for the formal and informal supply around the State Netball & Hockey Centre and Melbourne Zoo. .[72]
- An aerial photograph on NearMap for Sunday 13 September 2015 this shows 1,368 vehicles parked around the Melbourne Zoo and supports the estimate of the number of informal bays around the Melbourne Zoo.

Total bays

Table 22 below reports the total number of perimeter and internal bays.

TABLE 22: TOTAL OF ALL PARKING BAYS IN & AROUND ROYAL PARK

AREA	NUMBER
Perimeter of Royal Park (park-side only)	541
Bays inside Royal Park	2,459
Total all bays	3,000

Source: Phillip Boyle & Associates

Total bays by type: formal & informal / on & off-street

The inventory of parking bays includes informal and formal areas:

- Formal areas include bays at the kerb and off-street areas. Formal areas are on asphalt with defined corridors and marked bays. Generally, these areas use the space efficiently, accommodating the maximum number of cars in the available space according to established guidelines.
- Most of the informal areas are on gravel or grass and are off-street. Generally, these areas use the space inefficiently. Nearly half of the estimated number of bays (43%) in and around the park are informal. It is possible that the informal bays take up nearly 4 hectares in the park. (1,300 bays x 30m2 per bay = 3.9 hectares).

Table 23 below reports the bays by these categories.

TABLE 23: FORMAL, INFORMAL, ON & OFF-STREET PARKING BAY INVENTORY

TYPE	ON-STREET	OFF-STREET
Formal	541	1,114
Informal	45	1,300

Source: Phillip Boyle & Associates

Total bays by location

Most of the bays are around the Melbourne Zoo and State Netball & Hockey Centre.

Table 24 below shows the location of the bays.

TABLE 24: LOCATION OF ALL PARKING BAYS IN & AROUND ROYAL PARK

AREA	CATEGORY OF BAY	NUMBER
Perimeter of Royal Park (Parkside only)	**On street formal kerbside**	**541**
Inside Royal Park	Off- street informal parking on gravel & grass	400 (estimated)
	Off-street bays formal	56
	On-street parking bays Informal	45 (estimated)
	Off street parking at major venues	1,958
Total all bays		**3,000**

Source: Phillip Boyle & Associates

Total bays by type & management

Most of the bays are managed by the City of Melbourne. Table 25 shows the numbers of bays by type and management.

TABLE 25: PARKING BAYS IN RP ROYAL PARK BY TYPE & MANAGEMENT

	AREA	PRIVATELY MANAGED	COUNCIL MANAGED	ESTIMATED TOTAL CAPACITY	
Informal on gravel and grass	Areas of gravel & grass parking Areas where people park without permission	250 (SNHC)	650 (near Zoo) 400 (near ovals)	1,300	43%
Informal on asphalt – unmarked bays	Total unmarked and unmetered parking areas	-	101	101	3%
Formal on asphalt – marked bays	Total supply around State Netball & Hockey Centre and Melbourne Zoo	330 (SNHC)	728 (near Zoo) Kerbside and off-street	1,599	53%
	Total pool of bays in and around Royal Park			**3,000**	

Source: Phillip Boyle & Associates

Subset: Formal, on-street bays

Table 26 below reports the formal kerbside parking bays around Royal Park.

TABLE 26: FORMAL ON-STREET PARKING BAYS

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	TOTAL CAPACITY (GIS)
The Avenue between Park Street and Walker Street (north)	23	94	110
The Avenue between Walker Street and MacArthur Road (centre)	16	82	82
The Avenue south of MacArthur Road (south)	0	34	33
Total for The Avenue			**225**
Park Street	**6**	**44**	**123**
Gatehouse Street	**24**	**43**	**87**
Flemington Road North	18	80	83
Flemington Road South	15	22	23
All Flemington Road			**106**
Total kerbside bays			**541**

Source: Phillip Boyle & Associates

Subset: Informal on-street bays

Table 27 below reports the informal kerbside parking bays around Royal Park.

TABLE 27: INFORMAL ON-STREET PARKING BAYS

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	TOTAL CAPACITY (ESTIMATED)
'New' Poplar Road	0	24	No marked bays Probably equivalent to maximum observed
Old Poplar Road	1	21	No marked bays Probably equivalent to maximum observed
Total estimated informal bays			**45**

Source: Phillip Boyle & Associates

Subset: Formal off-street bays

Table below reports the formal kerbside parking bays around Royal Park.

TABLE 28: FORMAL OFF-STREET PARKING BAYS

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	TOTAL CAPACITY (GIS & ESTIMATE)
Oak Street	2	18	45
Playground	0	9	6
Native Garden	0	5	5
Total unmetered off-street and unmarked kerbside parking areas			**56**

Source: Phillip Boyle & Associates

Subset: Informal, off-street bays not at the Melbourne Zoo & State Netball & Hockey Centre

Table 28 below reports the Informal, off-street bays not at the Melbourne Zoo & State Netball & Hockey Centre.

TABLE 28: INFORMAL OFF-STREET BAYS NOT AT THE MELBOURNE ZOO & STATE NETBALL & HOCKEY CENTRE

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	COMMENT ON ESTIMATE
Triangle area near Women's Pavilion	0	45	Probably slightly greater than the maximum observed number as observed utilisation was low
McAlister Oval, Ryder Oval (and depot)	0	37	Probably slightly less than the maximum observed due to non-compliant parking outside defined parking areas. At the time of the scans some bays were being repaired and were unavailable.
South of Ryder Oval		18	Vehicles are being parked outside defined parking areas (possibly by Depot staff)
East of Flemington Oval		6*	Vehicles are being parked outside defined parking areas (possibly by tramways staff)
On tram reservation near Royal Park Station		14**	Vehicles are being parked outside defined parking areas.
Ransford Oval	0	99	Probably slightly less than the maximum observed due to non-compliant parking outside defined parking areas.
Western Oval	0	30	Probably slightly greater than the maximum observed number as observed utilisation was low

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	COMMENT ON ESTIMATE
Brens Oval	9***	101	Probably slightly less than the maximum observed due to non-compliant parking outside defined parking areas.
Royal Park Tennis Club	0	41	Probably equivalent to maximum observed
Ross Straw Field	0	25	Probably slightly greater than the maximum observed number as observed utilisation was low
Total gravel & grass parking (excluding areas around the Melbourne Zoo)		**396**	**Estimated as 400**

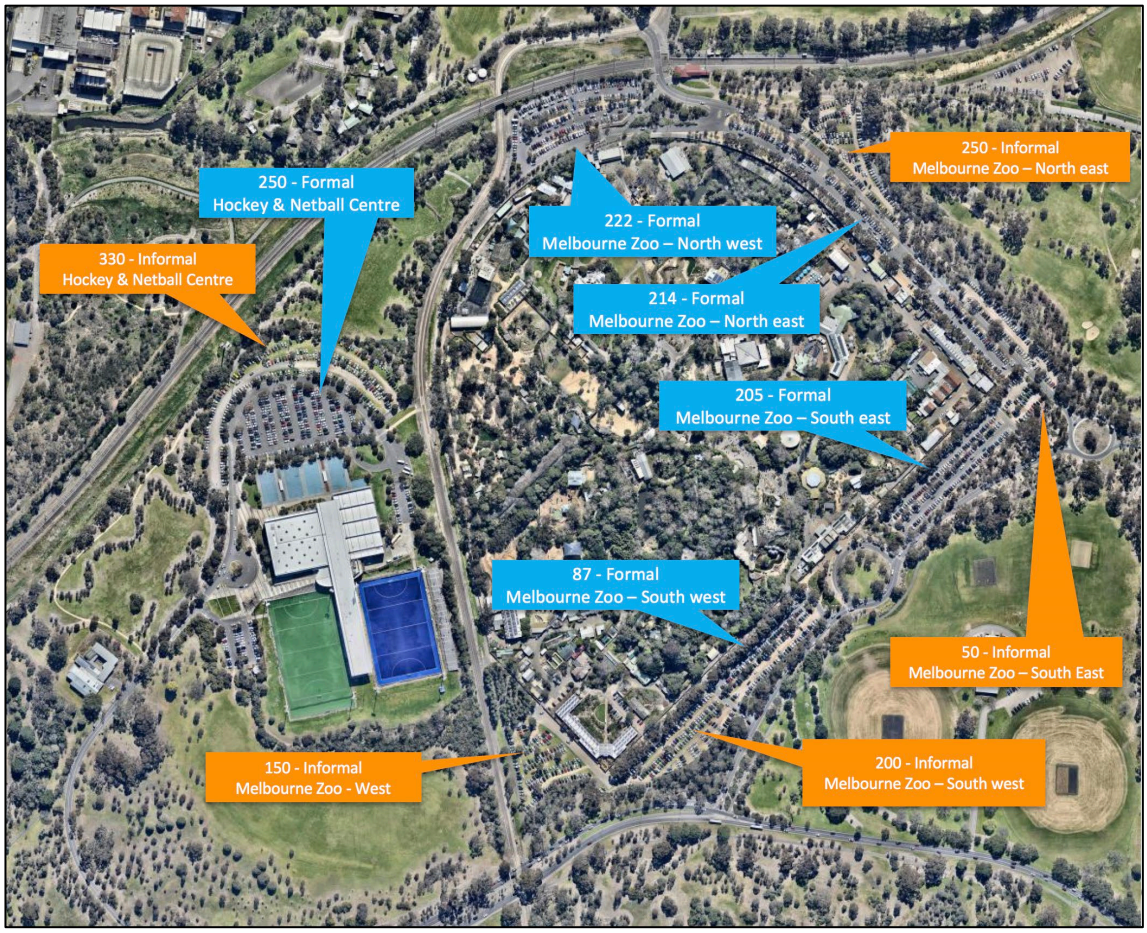
* 23 June 15:40, ** Recorded 2 August 11:00, *** Vehicles were always observed in this location during each scan. It is possible that commuters are using this site.

Source: *Phillip Boyle & Associates*

Total bays at Melbourne Zoo & State Netball & Hockey Centre

Figure 56 shows the formal and informal bays around the two main centres.

FIGURE 56: FORMAL & INFORMAL PARKING AREAS AROUND THE MELBOURNE ZOO & STATE NETBALL & HOCKEY CENTRE



Source: *Phillip Boyle & Associates*

It is difficult to establish precisely the number of bays around the Melbourne Zoo:

- The number of formal bays is not defined by the City of Melbourne GIS records as these do not include the formal bays to the north of the Melbourne Zoo.
- The total capacity of the informal areas is difficult to establish as people park more or less efficiently at different times.

The number of formal bays has been estimated by combining the total number of bays on the GIS system (1,862) with the number of observed vehicles in the northern car park (222). This number (728) is higher than the estimate in the *Royal Park Destination Management Movendo 2018* (668). A difference of 60 vehicles. This higher number has been used.

The number of informal bays was provided in the above report as 668. An aerial photograph of 13 September 2015 shows 680 vehicles parked informally. A difference of 30 vehicles. The lower number has been used.

The estimate used in this Assessment may be too high or too low by up to 5%.

Table 29 below shows the data used for the estimate in the estimate.

TABLE 29: ESTIMATES & GIS DATA AROUND MELBOURNE ZOO

AREA	FORMAL BAYS GIS	INFORMAL BAYS ESTIMATED	TOTAL
Zoo West	No formal bays – no GIS data	150	150
Zoo SW	87	200	287
Zoo SE	205	50	255
Zoo NE	214	250	464
Zoo NW	Formal bays – no GIS data	Formal bays	222
Total Estimate	**728**	**650**	**1,378**

Source: Phillip Boyle & Associates

Table 30 below summarises the number and type of parking bays around the two centres.

TABLE 30: MELBOURNE ZOO & STATE NETBALL & HOCKEY CENTRE PARKING SUPPLY

AREA	FORMAL	INFORMAL	TOTAL
Melbourne Zoo *Royal Park Destination Management Movendo 2018*	668	650	1,318
Count from aerial photograph 13 September 2015	688	680	1,368
Total bays on City of Melbourne GIS (this does not include bays in north west or informal bays)	506		
Estimated total formal bays around the Melbourne Zoo for this assessment (Bays recorded in GIS + maximum observed in northern pool)	728		
Total for this Assessment	**728**	**650**	**1,378**
State Netball & Hockey Centre *Royal Park Destination Management Movendo 2018* *Used for this Assessment*	330	250	580
Total supply around State Netball & Hockey Centre and Melbourne Zoo			**1,958**

Source: Phillip Boyle & Associates

Appendix D – Assessment of public transport & its use

Railway stations near Royal Park

In addition to Royal Park Station there are five stations relevant to the park.

- Arden and Parkville Metro
- Jewell Station north of the park in Brunswick
- Flemington Bridge south west of the park near the Freeway exit
- Newmarket Station on the Craigieburn Line

Metro stations

It is likely that the two Metro Stations at Arden and Parkville will be relevant to the park. Both stations will be within a 10 – 15-minute walk of the park.

- Arden Station raises the importance of the Abbotsford Street tram service Route 57. This more infrequent service provides a link between Arden and the park as well as the opportunity for transfers to the Route 58 service through the park.
- Parkville Station will be closer than Arden. Tram services along Flemington Road and Royal Parade will provide alternatives to walking. This new station raises the importance of a link along Story Street from Royal Parade to the park and the Royal Park Nature Play Playground.

Upfield line

In addition to Royal Park Station, two stations on the Upfield line are relevant:

- Jewell Station in the north is close to the Royal Park Tennis Club and the northern ovals.
- From Flemington Bridge Station it is a 500m walk to the Wetlands area. A suitable underpass of the Upfield line would put this station within 800m of the western entrance to the State Netball & Hockey Centre.

Craigieburn line

- Newmarket Railway Station is slightly more than 2km from the centre of the park. This is slightly further than a walk from Flinders Street station to the far side of the MCG. Route 57, the supporting tram service along Racecourse Road is relatively infrequent.

Public transport Amenity in Royal Park

The Masterplan identified weaknesses in the park's public transport links including:

- Frequency of services
- Public information
- Access to and from the mode including footpaths
- Amenity at stops and nodes

Frequency and span of services

It is likely that the frequency of public transport services to the park has improved over the period of the current Masterplan. Four of the six services can be described as frequent and the span of service as wide.

Three of the tram services have a 'turn up and go' service of 10 minutes or less. The rail service falls short of this benchmark. Population growth and public transport usage along the Upfield line is likely to lead to the introduction of a 'turn up and go' frequency. Such a change would benefit the park.

Two public transport services are less frequent. The Route 57 tram is infrequent on the weekends. There is therefore a weak link between the park and Newmarket Station on the Craigieburn Line. The Route 505 bus service is the least frequent public transport service operating an hourly service on a narrowest span of hours.

The six public transport services that travel through or near the park are listed in Table 31 below. The relatively frequent services are shown in bold type.

TABLE 31: PUBLIC TRANSPORT SERVICES IN & NEAR ROYAL PARK

SERVICE	WEEKDAY FREQUENCY	WEEKEND	WEEKDAY SPAN OF HOURS	WEEKEND SPAN OF HOURS
505 Bus	60 minutes	60 minutes	0647 - 2207	0749 - 2214
19 Tram	**5 minutes**	**8 minutes**	**0510 - 0053**	**0240 - 0048**
57 Tram	10 minutes	20 minutes	0529 - 0005	0744 - 0046
58 Tram	**5 minutes**	**10 minutes**	**0456 - 0118**	**0636 - 0036**
59 Tram	**5 minutes**	**10 minutes**	**0520 - 0114**	**0649 - 0058**
Upfield Line	**20 minutes**	**20 minutes**	**0518 - 0328**	**0354 - 0047**

Source: Phillip Boyle & Associates

Public information

Public transport information has improved. People with smartphones have access to all timetables and 'real time' information on the actual location of trams and trains. There is now a digital tram departure board at the Station. There are however no digital passenger information displays at the station, tram platforms or bus stops.

Access & amenity – Melbourne Zoo & Royal Park Station precinct

Figure 57 below shows the Melbourne Zoo & Royal Park Station precinct in October 2009 (before tree growth obscured the layout).

FIGURE 57: ROYAL PARK STATION PRECINCT

Source: Phillip Boyle & Associates

The area was reorganised after the Masterplan was published. The car park occupies much of the space and is well laid out – although only some pedestrian movements through the car park have been supported. However, the refurbishment did not meet the aims in the Masterplan. Rather than the high level of amenity for people arriving by train, tram and bus at the northern end of the Melbourne Zoo imagined by the Masterplan, the station and Station/Zoo precinct provide a low level of amenity.

FIGURE 58: EXAMPLES OF LOW PRIORITY AND AMENITY AT ROYAL PARK STATION

Source: Phillip Boyle & Associates

Examples of weaknesses include:

- Directness:
  - The path between the Zoo entrance and the Station is not aligned.
  - The ramped path is circuitous.
  - The pram ramps on Poplar Road are not aligned either with the crossing point between the Zoo and the Station or the shared path route
- Legibility – the Melbourne Zoo is not visible when leaving the 'down' platform of the station
- Attractiveness – a wall faces people leaving the Zoo.
- Priority is given to Poplar Road, no priority is provided to those crossing the road to the Station including to and from the bus, the tram and the Zoo.
- The tram and bus stops are remote from the station and the Zoo entrance and each

other

- The link between the Melbourne Zoo the tram service has been compromised by building two platforms within 200m of each other and avoiding the most suitable location where a single platform would be less than 100m from the Melbourne Zoo entrance and less than 200m from the station.
- Vehicles protrude across the shared path

Access & amenity – other public transport facilities

Away from the Station precinct the following conditions can be observed:

- Most of the tram stops in and around the park have platforms and shelters either on the platform, in the safety zone or at the kerb.
- The State Netball & Hockey Centre stop is located further from the entrance than any car parking bay, beyond even the coach layover bays.
- There are no shelters or hard stand areas at the bus stops in the park.
- None of the three stations on the Upfield Line have toilets.

Personal risk

Jewell and Royal Park Stations are patrolled by Protective Service Officers.

Feedback from the intercept surveys at the Station revealed that women use the Station in good weather when it light but switch to other stations and modes when the light and activity in the park is low. Similar feedback has been provided about the tram stop near the State Netball & Hockey Centre.[73]

The use of Royal Park Station

Three studies were used to understand the role and use of Royal Park Station. Public Transport Victoria (PTV) studied all stations in 2015. Two intercept studies were undertaken for this assessment over three days in the Station precinct.

PTV survey 2015: Royal Park Station

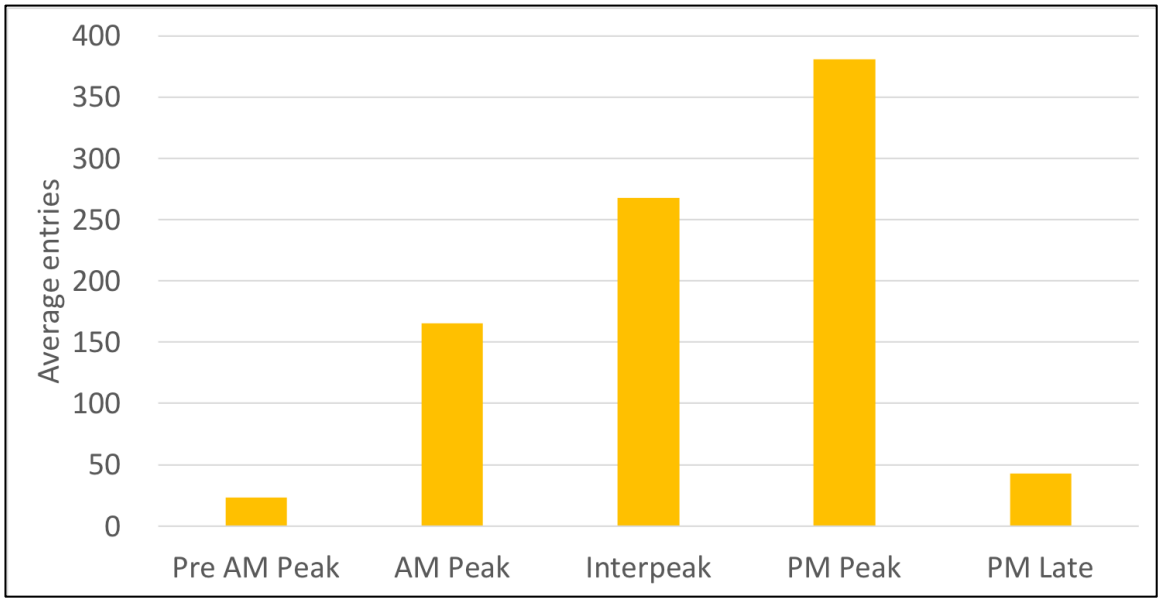
Royal Park Station was studied in a PTV station survey in 2015. This survey found that around 300,000 people use the station each year (around 6,000 each week).

In 2013-14 there were around 900 passengers on a weekday and 700 on a Saturday and on a Sunday. People access the station by tram (around 150 people each day) and on foot (nearly 700 people). Some come by bus (34) and by car (22).

People come and go from the station throughout the day. The largest single group are traveling to work (50%). 20% are making trips to education. A similar proportion reported their trip purpose was a 'leisure activity'.

Figure 59 below shows the distribution of trips.

FIGURE 59: ROYAL PARK STATION WEEKDAY USE – 2013/14



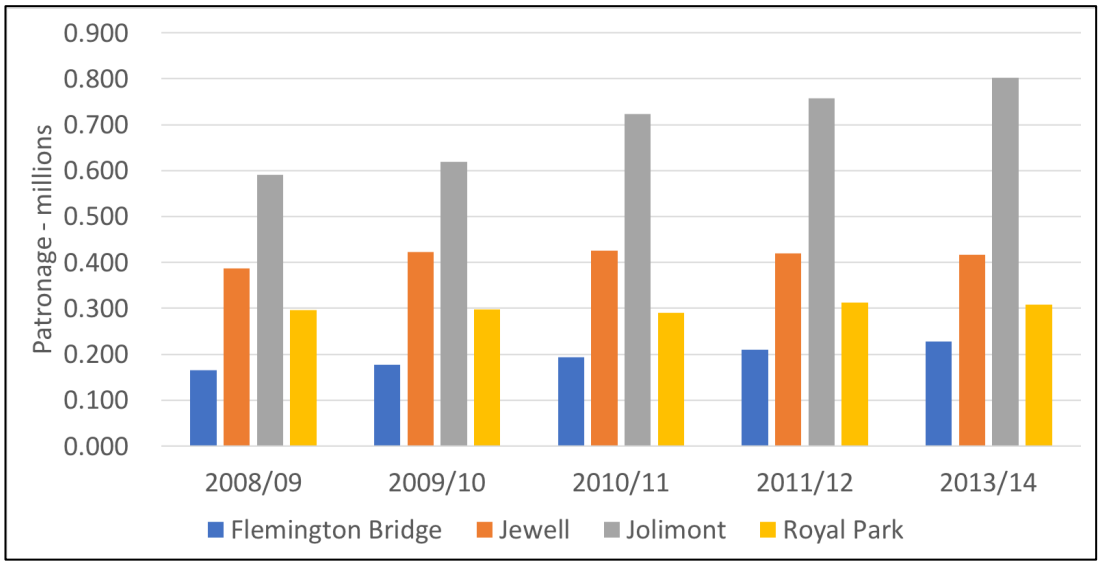
Source: PTV 2015

Comparison with other stations

The PTV data was used to compare activity at Royal Park station with Jewell Station (one station to the north) and Flemington Bridge (one station to the south) as well as Jolimont. Jolimont was chosen as it is a station surrounded by park land and, like Royal Park, Jolimont is near a major venue – the MCG.

Figure 60 shows patronage at the three 'Royal Park stations' remained steady over the period 2008 – 2009 to 2013 – 2014 while patronage at Jolimont increased by one third. At the end of the period the number of passengers using Jolimont was 2.6 times greater than the number using Royal Park Station.

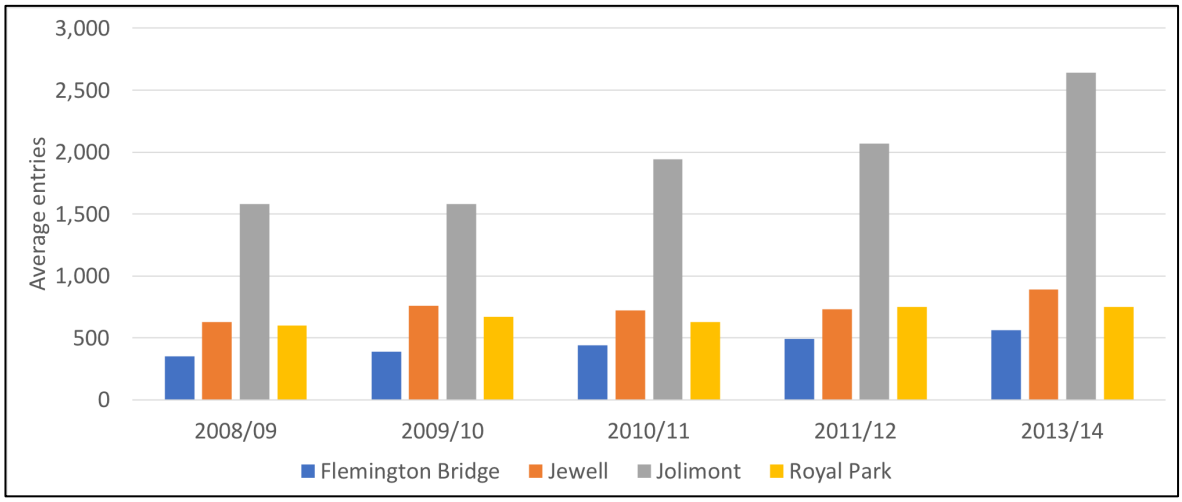
FIGURE 60: ROYAL PARK STATION ANNUAL PATRONAGE - 2008/09 – 2013/14



Source: PTV 2015

Figure 61 shows Jolimont Station is used heavily on Saturdays. Jolimont has 3.5 times as many passengers as Royal Park (2,640 Jolimont – 750 Royal Park).

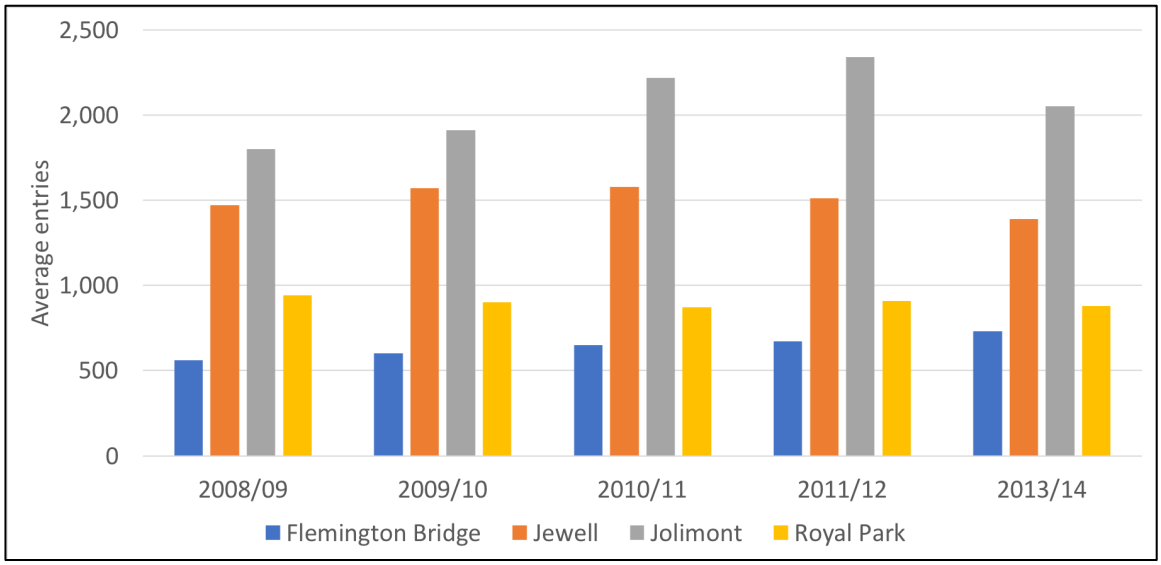
FIGURE 61: ROYAL PARK STATION SATURDAY USE – 2013/14



Source: PTV 2015

Figure 62 shows the use of Royal Park Station and the other stations near Royal Park increases on weekdays. Jolimont is used slightly less on weekdays than on Saturdays.

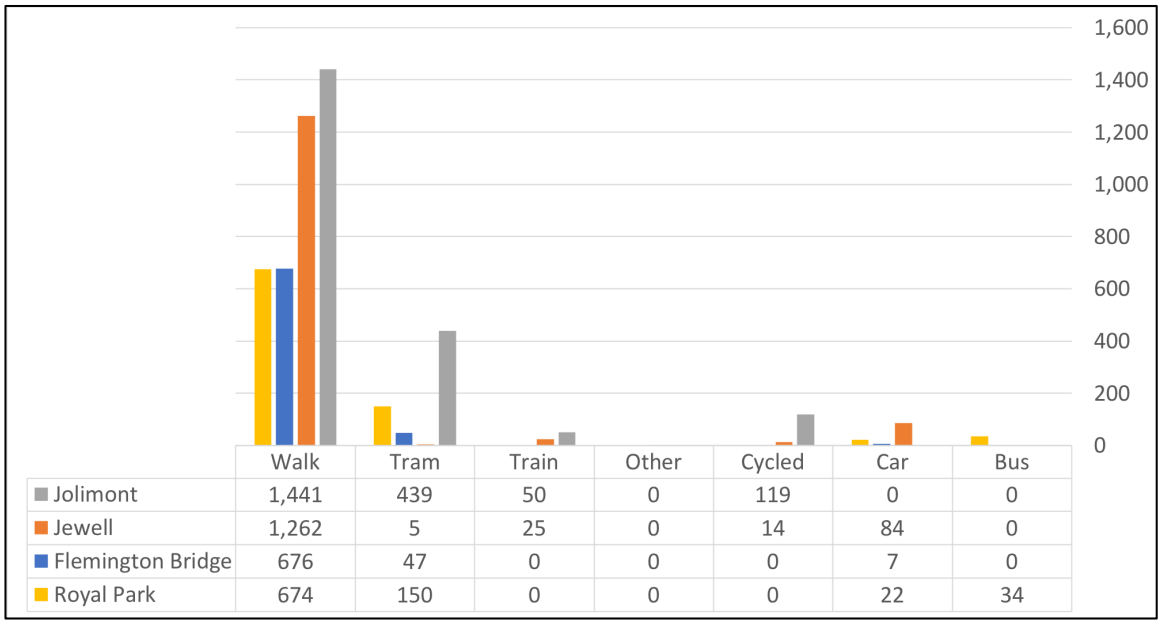
FIGURE 62: ROYAL PARK STATION WEEKDAY USE – 2013/14



Source: *PTV 2015*

Figure 63 shows all four stations are 'walking' stations – more than 70% of the passengers arrive on foot. Some passengers arrive at Royal Park by tram, car and bus.

FIGURE 63: ROYAL PARK STATION WEEKDAY USE – 2013/14

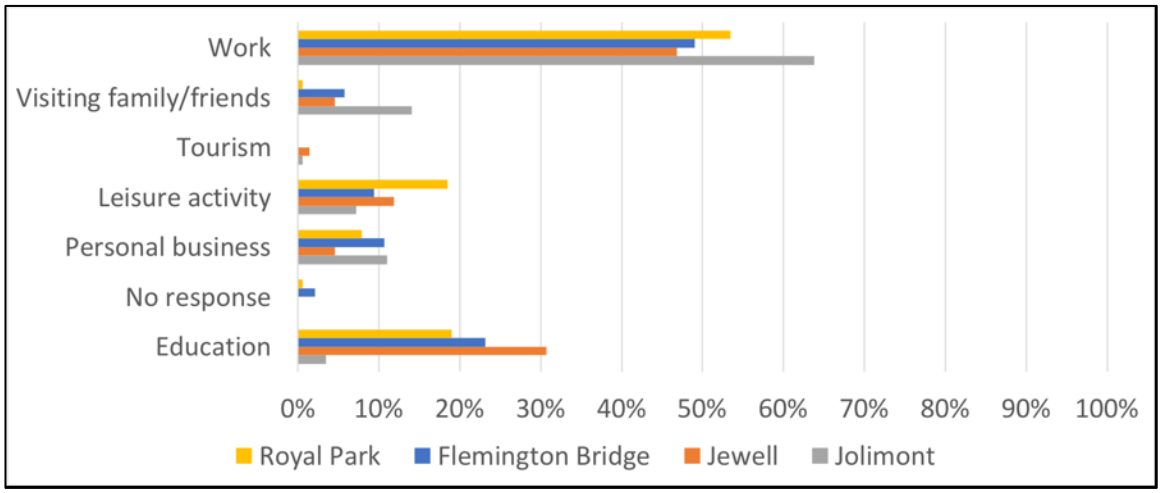


	Walk	Tram	Train	Other	Cycled	Car	Bus
Jolimont	1,441	439	50	0	119	0	0
Jewell	1,262	5	25	0	14	84	0
Flemington Bridge	676	47	0	0	0	7	0
Royal Park	674	150	0	0	0	22	34

Source: PTV 2015

During the week Royal Park Station's main role is supporting trips to work and education. The station also supports leisure and personal business trips. Figure 64 below shows the distribution of trip purposes.

FIGURE 64: ROYAL PARK STATION WEEKDAY USE – 2013/14



Source: PTV 2015

Intercept survey Royal Park Station precinct weekend

For this report 60 people were interviewed between 1000 – 16000 on Saturday 23 June 2018 at Royal Park Station. (Gender: Male 28, Female 24, not recorded 8).
Some of this cohort were outbound from the station precinct others were returning from an activity.

FIGURE 65: TRAIN PASSENGERS CROSSING POPLAR ROAD AT ROYAL PARK STATION

Source: Phillip Boyle & Associates

- This cohort were planning to stay in Royal Park for more than three hours (47%). Others were also planning long stays: 3 hours (10%), 2 hours (16%) or an hour (28%).
- Most of the train passengers were heading to an activity that was not in the park (42%) or going home (35%). Smaller proportions were going to the Melbourne Zoo (20%) or the State Netball & Hockey Centre (3%),
- At other times 65% of the group are Melbourne Zoo patrons while 2% visit the State Hockey and Netball Centre. 17% participate in other activities in Royal Park. 17% do not participate in any activities in Royal Park.
- Most had arrived in the station precinct by train (62%), some by tram (15%) or on foot (15%). A handful had arrived by other means including by car (3%) by bicycle, bus or by getting a lift (2% each).

Mode

- People in the station precinct had spent 15 minutes (63%), 30 minutes (15%) or up to an hour (15%) travelling to the station precinct. Some had spent up to two hours (5%) or more than two hours (2%)
- Most thought the station was convenient (57%). Others felt that it was less than convenient in varying degrees (1 – 5 where 5 is the least convenient), (2: 22%), (3: 8%), (4: 12%), (5: 3%)

People who come by public transport consider car

- Most of the public transport passengers would not consider coming to the Melbourne Zoo by car (62%). The balance would consider using a car.

Intercept survey Royal Park station precinct weekday

For this report 110 people were interviewed on between 0700 – 0900 on Wednesday 20 & Thursday 21 June 2018 at Royal Park Station. (Female 50, Male 50, not recorded 10).

FIGURE 66: ROYAL PARK STATION 0700 21 JUNE 2018

Source: Phillip Boyle & Associates

- Most of this cohort were 'passing through' planning to spend 15 minutes in Royal Park (78%) or had arrived for work and planned to stay longer than 3 hours (17%).
- Most had arrived in the station precinct on foot (36%), some by train (25%), tram (22%) or bus (6%). A smaller proportion arrived by other means including by car (3%) by getting a lift (5%) or by bicycle (3%).
- Most had spent up to 15 minutes (79%) to reach the station. Other journeys took 30 minutes (7%) or up to an hour (11%) travelling to the station precinct. Some had spent up to two hours (3%).
- Most (95%) were heading to a destination outside Royal Park including work in areas abutting the park or in the CBD. Some were heading home (2%). Others were heading for activities in Royal Park (2%) or the Melbourne Zoo (1%).
- Most had visited the station within the last week. (Last day (69%), Last 3 days (12%), Last week (12%)). Less frequent visitors had returned within the last month (3%) or year (4%).
- Other activities in the park undertaken at other times included visiting the Melbourne Zoo (18%), other (3%) or the State Hockey and Netball Centre. Most (78%) did not come to the park at other times. The activities mentioned were walk (16 people), run (8 people), bike (7 people), football (2 people). Walking the dog, exercise, golf, bird watching, tennis and bringing children were also mentioned by individuals.

- Many thought the station was convenient (37%) but most felt it was less than convenient (1 – 5 where 5 is the least convenient), (2: 33%), (3: 21%), (4: 6%), (5: 4%)

Travelling to the Melbourne Zoo

Two studies were undertaken for this report to understand behaviours and attitudes among people who come to the Zoo. An intercept study was undertaken on a Saturday at the south entrance to Melbourne Zoo. (Royal Park Station is near the northern entrance). An online survey was conducted of Melbourne Zoo members.

Intercept survey Melbourne Zoo south entrance

192 people were interviewed on Saturday 14 July 2018 (during school holidays) at the south entrance of the Melbourne Zoo. (Gender: Male 81, Female 79, not recorded 32)

FIGURE 67: MELBOURNE ZOO PATRONS SATURDAY 14 JULY 2018

Source: *Phillip Boyle & Associates*

- This cohort were planning to spend 3 hours (34%) or more (43%) at the Melbourne Zoo. A smaller proportion were planning to spend around 2 hours (21%) or an hour (2%).
- Most had last visited the Melbourne Zoo more than a year ago (82%). Some had visited in the last year (17%) or month (1%).
- Most were not planning to spend time in Royal Park outside the Melbourne Zoo (89%). 11% expected to spend time in the park.

Mode

- 78% of this group came by private car and a further 10% by taxi/Uber.
- The balance came on foot (8%), by tram (3%), train and bicycle (1% for each). (The southern entrance is 350m from the nearest bus stop, 450m from the nearest tram stop,

and 700m from the train station.)

People who come by car

- Drivers and car passengers spent 15 – 30 minutes (44%) or up to an hour (31%) travelling to the Melbourne Zoo. Some spent less than 15 minutes (10%), more than one hour (9%) or more than two hours (5%)
- Most drivers parked their car less than 5-minutes' walk away (80%). Some estimated their walk time to be 5 – 10 minutes (18%) or more than 10 minutes (2%).
- The $2 parking fee was considered by many to be 'reasonable' (66%).
- Others felt that is was less than reasonable in varying degrees (1 – 5 where 5 is the least reasonable), (2: 20%), (3: 5%), (4: 6%), (5: 3%)
- 77 people responded to an open-ended question about the car parking. 39% wanted to see more parking bays and 23% wanted to spend less time looking for a vacant bay. 12% mentioned the fees, most saying they would like there to be no fees.

People who come by car consider public transport

- One third of the drivers would consider coming to the Melbourne Zoo by public transport (35%)
- (Some of the people interviewed were surprised to find there was a station near the Zoo)
- Of that third, many were unsure of the cost of a public transport ticket (38%). The same proportion made an accurate estimate ($5 - $10 – 38%). The rest were split between estimates that were too low for a non-concession ticket (less than $5 - 13%) or too high for a single ticket ($20 – 13%)
- Most thought the public transport ticket prices were reasonable (63%). Others felt that they were less than reasonable in varying degrees (1 – 5 where 5 is the least reasonable), (2: 13%), (3: 25%)
- Most thought public transport was convenient (58%). Others felt that it was less than convenient in varying degrees (1 – 5 where 5 is the least convenient), (2: 25%), (5: 17%)
- 82 responded to an open-ended question about the barriers to public transport. Public transport was rated less convenient by 16%, less convenient with children (12%). 7% said they used a car out of habit. Some noted disadvantages of public transport as travel time (28%) and transfers (24%).

People who come by public transport consider car

- Most of the public transport passengers would not consider coming to the Melbourne Zoo by car (62%). The balance would consider using a car.

On-line survey: Zoo members

Zoo members were asked in an on-line survey in September 2018 to provide information about future travel to the Melbourne Zoo. 701 responses were received although not all respondents answered all questions.

The respondents are familiar with the Zoo. All were members and most had visited the Zoo within the last year (69%), others less recently (more than a year 16%) or more recently (within the last month 15%).

The respondents' Zoo visits last around three hours. On their last visit they reported staying for more than (54%) or about 3 hours (33%). Some had had a shorter visit (2 hours 12%), (about an hour 1%).

The respondents visit the Zoo regularly. They predicted that their next visit would be in the next three months (92%) and that on their next visit they would stay for a similar period (3 or more hours 87%).

82% expected to travel as part of a group.

Most expected to come by car either as a driver (71%) or passenger (12%). 12% would come by train, 2% by tram or bicycle. Four people (1%) said they would walk.

Travel time across these modes was expected to be 30 minutes to 1 hour (48%), 1 – 2 hours (29%), or longer (8%). Some expected to travel for 15 – 30 minutes (12%) or less (3%).

The proportion of non-car travellers was higher for the shortest two categories and the longest two categories. Only one third of this group (34%) expected to travel for 30 minutes – 1 hour. Half the car drivers (51%) expected to travel for 30 minutes to one hour. 36% of car drivers expected their trip would be longer than one hour.

Many car drivers and passengers did not know the name of the station near the Zoo (71%) nor did many of the group know any tram routes to the Zoo (71%).

However, half (53%) of the car drivers and passengers said that they would consider using another mode. 41% nominated the train and 9% the tram. 3% nominated evenly for the bus, bicycle and walking.

When the whole group were asked whether zero cost public transport tickets would influence their choice, 13% said yes and 19% maybe. 68% said no. Of the group of car drivers and passengers who would consider public transport, 19% said yes and 27% said maybe.

161 people answered an open-ended question on the barriers to the use of public transport. These were analysed by noting the first topic or main topic raised. A small group (7%) cited issues related to DDA. 21% ruled out public transport as they were bringing small children. Responses suggest that visits with older children by public transport can or are being undertaken. The convenience of the car was a key reason for 19%. The other half referenced the actual or perceived inconvenience of public transport. Key factors were travel time (37%), and the inconvenience of transfers (11%). Some respondents said that they did choose public transport sometimes.

The open-ended responses suggested that some are not aware that there is a railway station near the Zoo.

- Cost is not a problem because I have a Seniors Myki. I would have to drive to local station and find a car parking place then take train to Southern Cross (or station closer to the Zoo), then find suitable transport (tram or bus) to get close to the Zoo.
- Not sure on what public transport is to get from the city, tram or train, being a pensioner I get free transport on Sunday
- From outer east. Need to train then tram. Not familiar with closer train station but if there is one, we'd definitely consider it.

When asked about the car parking at the Zoo, 83% knew that it was not free. Half (56%) knew the correct fee ($2). 18% were unsure and 26% thought it was higher than it is. ($5 – 17%) ($10 – 18%)

Half (51%) rated the car parking as convenient (1 – 2 on a scale of 1 – 5). One third (31%) thought it was acceptable (3 on a scale of 1 – 5). 7% thought it was not convenient (5 on a scale of 1 – 5)

When asked about parking whether they would prefer to 'pay rather than walk' a third (33%) said yes. 9% said they would prefer to 'walk rather than pay'. 58% said it would depend on the situation.

Melbourne Zoo: train & car access by home postcode

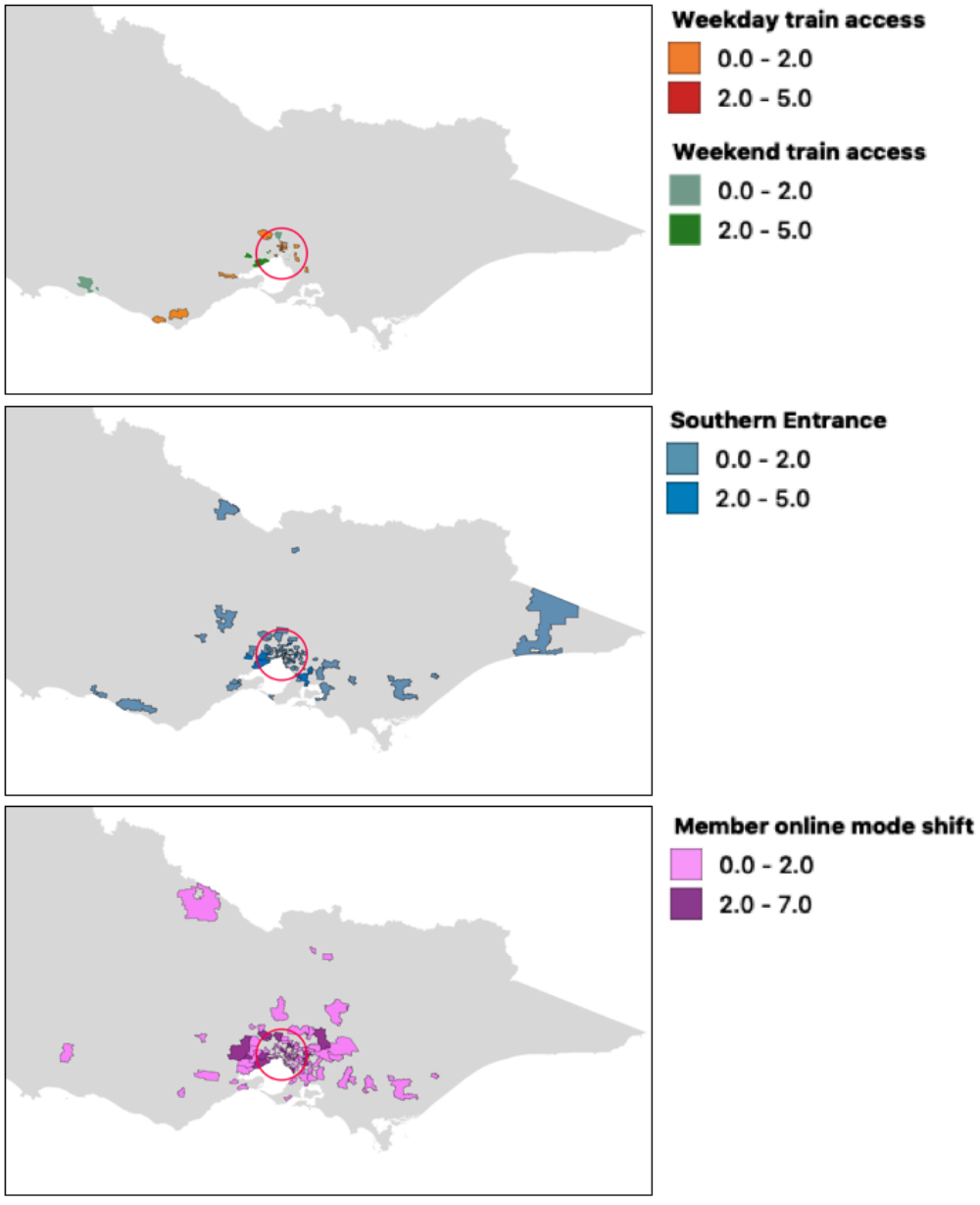
Three sets of postcodes were studied. Postcodes from the two Royal Park Station intercepts above were used to understand the train catchment. The postcodes of the online respondents who come by car but are prepared to come by train were also plotted.

Figure 68 below shows:

- Top: people travelling by train to Royal Park Station on weekdays (yellow and orange areas) and the weekend (green areas).
- Middle: people who came by car and responded to the intercept survey at the southern entrance to Melbourne Zoo
- Bottom: People who responded to the online survey and said they would consider coming by train to the Melbourne Zoo

The red circle indicates the catchment of the metropolitan train service.

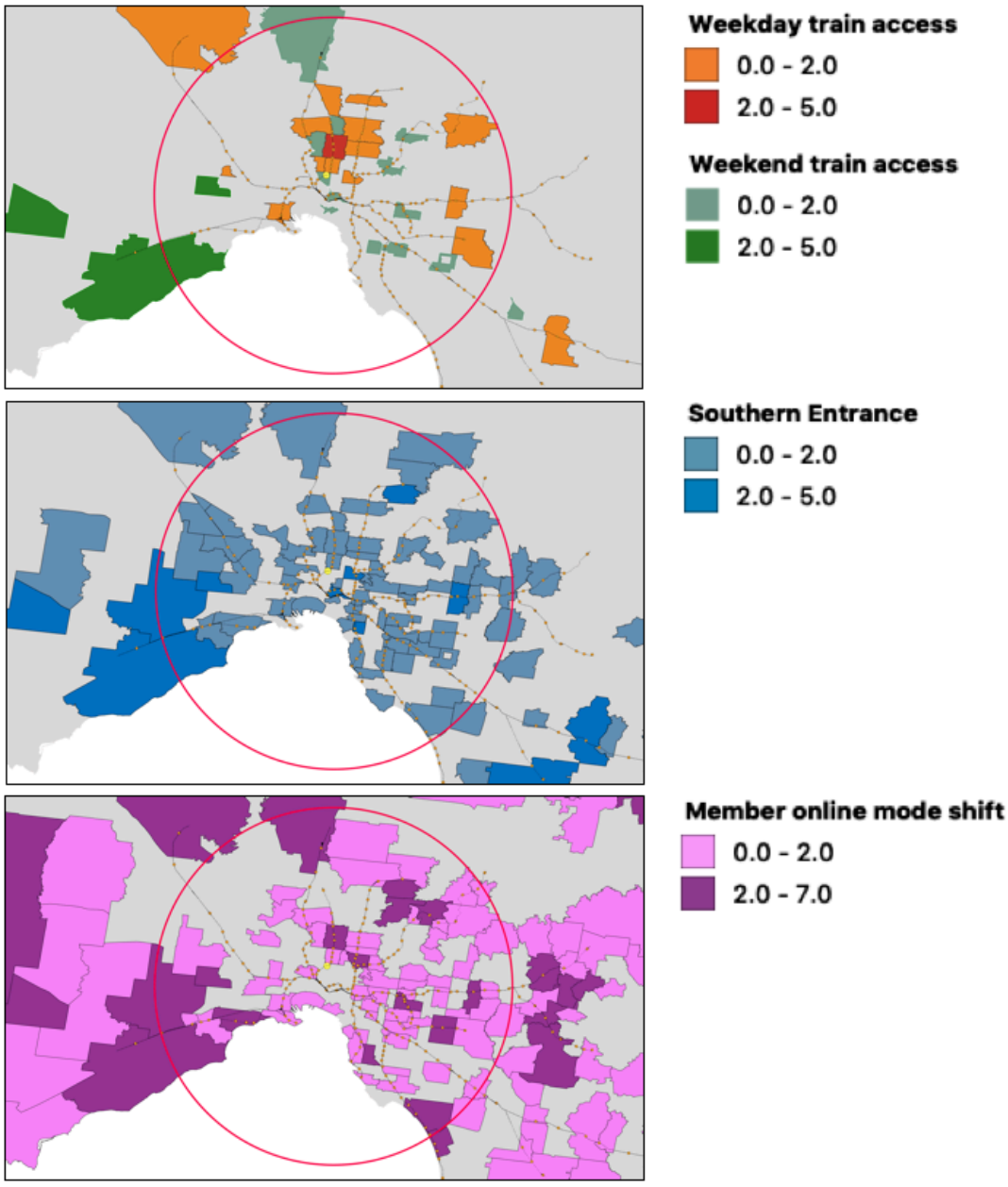
FIGURE 68: HOME POSTCODE OF TRAIN PASSENGERS USING ROYAL PARK STATION - VICTORIA



Source: *Phillip Boyle & Associates*

Figure 69 below shows a closer view of the same information. Many of the people prepared to travel by train to the Melbourne Zoo live in the same areas as people who already catch the train to Royal Park Station.

FIGURE 69: HOME POSTCODE OF TRAIN PASSENGERS USING ROYAL PARK STATION



Source: *Phillip Boyle & Associates*

Table 32 below shows the home postcodes of train passengers based in the metropolitan area who arrived at Royal Park Station and participated in the surveys in June 2018. The third column identifies the number of Melbourne Zoo patrons who reported that they would consider coming by train who share postcodes with the current passengers. (This does not represent all the postcodes where this group Melbourne Zoo patrons live.)

TABLE 32: HOME POSTCODES OF PASSENGERS BASED IN MELBOURNE

POSTCODE AREA	POSTCODE AREA	TRAIN PASSENGERS WEEKDAYS	TRAIN PASSENGERS WEEKENDS	ZOO PATRONS PREPARED TO TRAVEL BY TRAIN
Neighbouring areas				
Brunswick	3056	1	5	1
Brunswick West	3055	1	2	
Parkville	3061	1	1	
Metropolitan area				
Ardeer	3022	1		
Blackburn	3130	1		
Camberwell	3124		1	4
Carnegie	3163		1	1
Caulfield	3162		1	
Clayton	3168		1	
Clifton Hill	3068	1		
Craigieburn	3064		1	5
Coburg	3058	5		3
Doveton	3177		1	
Eltham	3095	1		1
Fawkner	3060		2	
Glenroy	3046	1	1	2
Glen Waverley	3150	1		2
Ivanhoe	3079		1	
Lalor	3075	1		
Macleod	3085		1	
Melbourne	3000		1	
Narre Warren	3805	1		
Pascoe Vale	3044		1	2
Point Cook	3030		3	7
Preston	3072	2		1
Reservoir	3073	1	1	
South Melbourne	3205		1	
Spotswood	3015	1		2
Sunbury	3429	2		

Source: Phillip Boyle & Associates

Appendix E – Community feedback

In the preparation of the report meetings were held with the following local groups:

- Friends of & Royal Park Protection Group
- North West Melbourne Association.
- Parkville Association
- Parkville Gardens Residents Association

The City of Melbourne requested comment through Participate Melbourne. 68 submissions were received from 97 people. These respondents reported on their use of the park:

- The most popular reasons to visit the park were to exercise, play sport and enjoy the natural environment
- Around half said that they visit the park on average one to three times per week
- Most of the participants said they have more than one reason for visiting Royal Park
- Driving is the most common form of transport to get to destinations within Royal Park
- Walking is also a popular way for people to get around the park (for those using the park for recreation and leisure)

General concerns about the next Masterplan

- Concern that some actions form the previous master plan have not been completed – how will this Masterplan be different?
- The importance of public consultation on the Masterplan

Park land issues

- The need to protect the natural parkland character and ensure the best biodiversity outcomes whilst allowing all the access and admire the parklands.
- Passive recreational; uses of the park are highly valued and there is concern that data capture on this is difficult to do. The assessment should consider the passive uses of the park and not just the institutions and organised recreation.
- Royal Park has been the victim of many bad government decisions – The train line, roads, trams
- The park has been cut up and now feels like multiple smaller parks – connecting these should be the focus
- The threat of East West link is still alive
- Concern about the large area occupied by the golf course
- Concern around any addition of roads to the park
- Rumour of a helipad to be built in the park near the Hospital
- Harm to park land caused by events and ballooning

Motor vehicle use

- Concern about rat running in the area
- Concern about high levels of vehicle traffic along the internal and surroundings roads

Car parking

- Need for improved carpark management in Royal Park
- When the Zoo parking was expanded this was to meant to be general use parking rather than exclusive Zoo parking – there is a feeling that this is not the case.
- All parking within the park should be for all park users – rather than institutions. There has been an increase in 'commuter' parking to Royal Children's Hospital, Melbourne Zoo and other institutions causing congestion in the park and negatively affecting park users.
- There should be 'park & ride' at the station to discourage commuters using park parking

Mode shift

- Melbourne Zoo and State Netball & Hockey Centre advocate for more parking and fail to see the value in promoting public transport use
- The Zoo should look at promoting public transport through deals / experience improvements and increased zoo parking costs.
- Positive measures to encourage public transport usage in and around the park should be taken including staff Myki cards for employees and promotions with the Zoo ticketing. These services need to compete with the very affordable option of parking at the Zoo currently.

Public transport

- Intensification of density in the area around the park has concerns for impacts on public transport infrastructure and roads which are already struggling at capacity
- There are high levels of tram use and this mode should not be overlooked in the study.

Circulation network

- Better lighting and security
- Concern about lighting in the park – the park should remain a 'dark park'
- Cyclist behaviour is not always safe in the park especially on the Capital City Trail where there is a steep dip which cyclists speed through, a danger to pedestrians.
- Cyclists speed – this is stressful for pedestrians
- The train line is a huge barrier to the park for Parkville Gardens residents
- Royal Park station is a 'spaghetti junction' – tangles bike path, pedestrian space, tram and train functions with car parking

Connections to surrounding areas

- Endorsement of the concept presented about links rather than entrances to the park
- Flemington Primary School is the local school zoned for West Parkville – need for better access to the school such as a bridge
- The possibility of a bridge over CityLink, to link Travancore to the park should be revisited
- Difficulty crossing Flemington Road. North Melbourne Primary School students do not

visit park as too risky

PHILLIP BOYLE & Associates

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References

[1] Recommendations in the 1997 Masterplan (each with PBA emphasis added):

- Rationalise the number and locations of car parking spaces, *while ensuring* that park users who have specific car parking requirements are adequately and efficiently served.
- Ensure that the location and design of roads and carparks *supports* the intended landscape character *without imposing* undue costs or loss of efficiency.
- Off-street car parks should be consolidated in selected areas, to provide reasonable service to facilities *while minimising impacts* on the park.

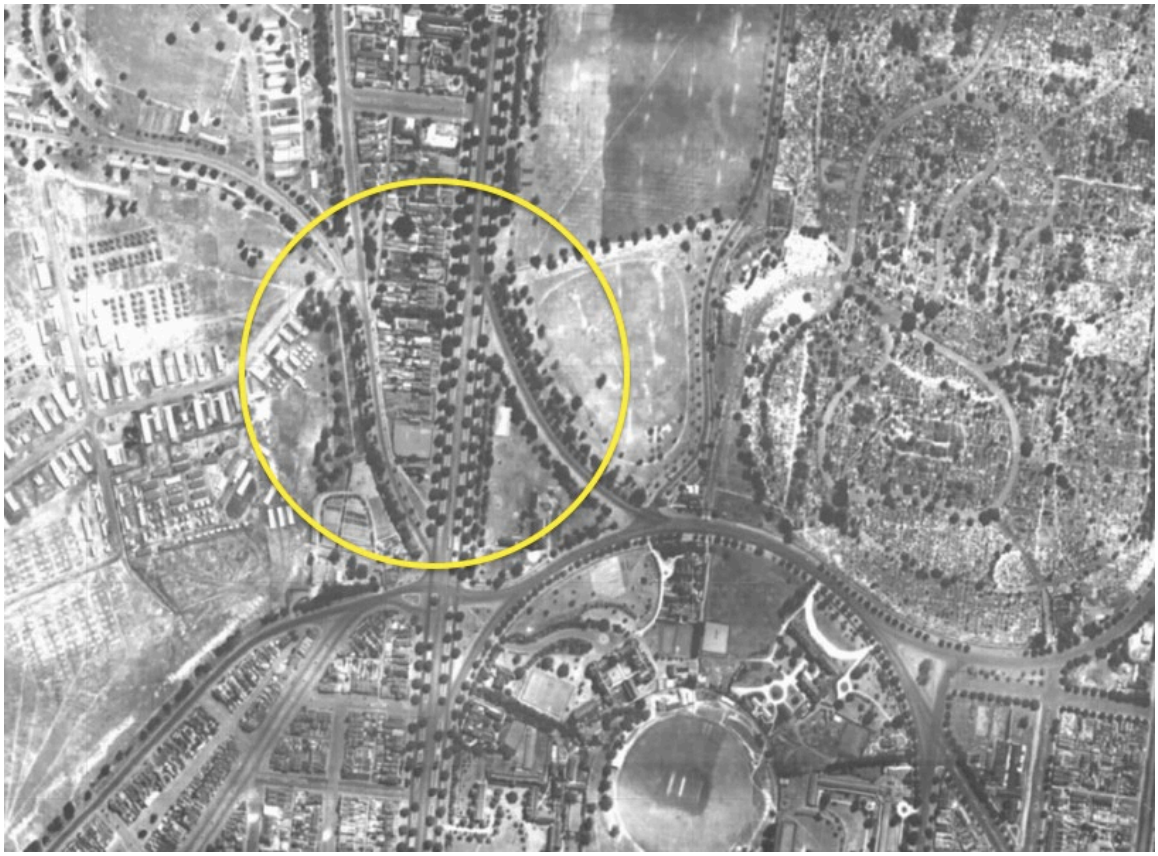
[2] Such initiatives put into practice a priority action of the Future Melbourne 2026 Plan: *Melbourne will restore and maintain its natural environment for the benefit of all its inhabitants, including flora and fauna. It will modify built environments in the municipality to include initiatives such as the urban forest, green roofs, vertical gardens and community gardens to mitigate the consequences of climate change, such as the urban heat island effect.*

[3] For well over a century Royal Park has been eaten away by transport facilities and other uses. Major transport interventions have included:

- 1884 Railway line (1888 - 1981 linked to Inner Circle line)
- 1887 Horse tram to the Melbourne Zoo
- 1927 Tram line. The Royal Park Trustees, long time opponents of transport corridors through the park, were facing significant public criticism in the 1920s. When the M&MTB came to negotiate the tramway, the trustees' resolve had weakened. The park was described as little more than a large open paddock where stock grazed for a fee and sporting clubs hired the limited facilities. Lack of funds had restricted park maintenance and development since its inception.

  The M&MTB won agreement from the trustees to build a tramway, adjusting the route around a number of recreation facilities to satisfy the trustees' concerns….While the Royal Park Trustees and others proposed routes along the park's eastern or western boundaries, the M&MTB's preferred route through the middle of Royal Park would have several advantages: redirect some passenger traffic away from the congested Sydney Road corridor; maximise the tramway's appeal to passengers as the quickest route between the city and West Coburg; and, service Royal Park Station and the Melbourne Zoo's northern entrance.

  http://www.hawthorntramdepot.org.au/papers/westcoburg.htm
- After 1945 houses along Royal Parade were demolished to link Cemetery Road West to MacArthur Road.



This 1945 aerial photo shows no link between MacArthur Road and Cemetery Road West

[4] Since 1945:

- Elliott Avenue west of the tram line has been duplicated
- Brens Drive has been widened at the intersection with Elliott Avenue and two slip lanes added

[5] The area set aside for parking has not been monitored closely enough to know whether the net area has been expanding or contracting. Some areas of parking have been removed while others have been introduced. A recent example is the parking area introduced at the Australian Native Garden and Royal Park Nature Play Playground.

[6] 'Realignment and lowering Elliott Avenue/MacArthur Road, placing a section of the new road in a cut-and-cover tunnel to provide a 'landbridge' linking the hilltop of Royal Park South with the parkland east of the Melbourne Zoo.'

1985 Masterplan

[7] 'Negotiate with VicRoads and other stakeholders to put MacArthur Road into a tunnel, in keeping with Council's wider transport policy.'

1997 Masterplan

[8] 1.2.2 The need for the northbound ramps of the Elliott Avenue interchange

The north/east facing ramps at the Elliott Avenue interchange are unnecessary and represent a risk to the good management of traffic through Royal Park to the north of MacArthur Road. The additional direct access to the Melbourne Zoo and recreational facilities is outweighed by the likely inducement of significant additional traffic volumes

around the Melbourne Zoo which experience heavy pedestrian traffic during school holidays and special events.

Removal of this ramp will reduce some the intrusive impact of this portal on Royal Park including noise, light spill, creating a barrier to movement and loss of parkland and trees.

1.2.3 Impact on Royal Park

The CIS does not adequately address the impact of the project on Royal Park especially Manningham Reserve and the proposed Elliott Ave interchange. The City of Melbourne's preference would be that the project would not have any negative impact on Royal Park. Of particular concern is the inadequate estimate of the area of open space that will be lost or permanently degraded and alienated from a range of park uses and the inadequate assessment of the impact of noise, light spill, tree loss and other impacts on the park. The permanent loss of usable open space in Royal Park will be 9.3ha or 6 per cent of 160ha, not 1.3 ha or 1 per cent as noted in the CIS.

The City of Melbourne proposes that the design of the interchange between the proposed East West Link and CityLink be reviewed to reduce the impact on the community in West Parkville and the Manningham Reserve area of Royal Park, which includes the Trin Warren Tam-bore wetlands and Ross Straw Field. The City of Melbourne proposes three initial design options for reducing the project's impact on Manningham Reserve and West Parkville. These are presented in Section 4.

While the reference design aims to use tunnelling as much as possible through Royal Park to minimise impacts, three potential construction methods are proposed to be used in the park. They include more extensive cut and cover, but the impacts of these alternative construction methods have not been thoroughly evaluated.

City of Melbourne Submission to East West Link Assessment Committee November 2013

[9] This inefficiency in the area around the Melbourne Zoo has been estimated at 25%. (*Royal Park Destination Management Movendo 2018).* That is the parking bays occupy 25% more land than in an efficient layout without landscaping.

[10] 'However, the objectives for access, circulation and car parking in the park have been reaffirmed and are unchanged from those stated in the 1985 Master Plan:

- Rationalise the number and locations of car parking spaces, while ensuring that park users who have specific car parking requirements are adequately and efficiently served.
- Ensure that the location and design of roads and car parks supports the intended landscape character without imposing undue costs or loss of efficiency.'

[11] **Parking areas may have been growing in Royal Park.**

Without a measure of area, analysis and discussion about parking relies on reference to the number of parking bays. Bays are an unreliable measure of area as some bays – especially the informal bays – take up more land than a standard bay-and-corridor layout.

The historical data on the number of parking bays has been investigated to understand changes in the number of bays.

It is likely that the number of bays around the Melbourne Zoo has increased. The 1985 Masterplan noted that there were 1,260 parking spaces within 600m of a Zoo entrance.[11]

The location of 1,200 bays is shown in the 1990 Royal Park Traffic Management Study. An aerial photo on Sunday 13 September 2015 shows 1,368 vehicles parked around the Melbourne Zoo representing a 14% increase over 25 years.

On the other hand, some of the data suggests that the overall number of bays has been reduced. The 1985 Masterplan was based on an overall estimate of supply in Royal Park of 'around 3,600' bays. 3,155 bays were recorded in several areas in 1997 and it appears that in those reported areas there are now 2,384 bays. This suggests a reduction in the order of 771 bays or 24%. This might represent an increase in park land of 2.3 hectares or slightly more than one percent of the park area.

The following table reports on historical and more recent data found in reports to the City of Melbourne as well as observations based on aerial photographs and Google Street view.

AREA	1985	1997 MASTERPLAN	1997 ACTUAL	CURRENT
Zoo area	1,560	1,595	1,985	1,368
State Netball & Hockey Centre (and previous facilities)	450	650	400	605
McPherson Field (Off Poplar Avenue west of rail station)	100		60	Removed
North Park Precinct (This is probably the northern ovals area)	350	380	350	125
Royal Park West (Pavilion environs)	180	220	180	Reduced
Southern Hill top	100		-	Removed
Tennis Courts	50	50	50	50
Old Poplar Road triangle	80		80	85
Brens Oval	100	50	50	110
Total	2,970	2,945	3,155	2,384

This Assessment views this data with caution.

The total supply reported is not the actual total supply as the areas from which data was collected in 1985 are probably not the only parking areas.

Nor is it clear where and how there has been net reduction of 600 bays from the 'Zoo area'. Certainly, as part of the 1985 Masterplan, the area to the south of the Melbourne Zoo was extensively reshaped and Marconi Crescent and the associated parking was removed. However, the Melbourne Zoo area is not defined and may be different in the different periods.

[12] A case can be made for dual use. There may be opportunity to establish sporting uses – perhaps bicycle polo, basketball or other 'asphalt-based activities' – in the parking areas around the State Netball & Hockey Centre for example. Some land managers allow parking grassy areas. For example, in Yarra Park, the parking of 2,000 cars is permitted by the MCG Trust from time to time.

[13] 'A problem for tree health is car parking during events at the MCG and other nearby venues. Intensive car parking over long periods causes irreparable damage to tree health as well as other open space areas. The damaging effects are mainly due to the direct physical impact on tree trunks (from collisions) and the indirect effect of soil compaction, which leads to increased soil density and increased soil restraining pressure that resists root penetration and growth. Soil compaction also leads to a reduction of oxygen in the soil, which creates an environment that is toxic to tree growth. In combination, these effects are leading to a more rapid demise of trees in Yarra Park and have already led to the decline and stress of the majority of the park's trees.'

https://www.melbourne.vic.gov.au/about-council/committees-meetings/meeting-archive/MeetingAgendaItemAttachments/473/7689/7.1.pdf

[14] Compaction and erosion are visible in the informal area to the east of the Melbourne Zoo

[15] Emergency vehicle in Hampstead Heath using the shared path system

[16] Vehicle Standard (Australian Design Rule 83/00 - External Noise) 2005

[17] "However, if a bike was manufactured before 2005, or was manufactured after 2005 and has a modified exhaust system, it will have a limit of 94 decibels (dB). All bikes manufactured prior to 1 March 1985 will have a noise limit of 100dB. Put into context, 100dB sounds like a jet taking off from 305 meters away and 94dB would be like standing on a platform when a train goes past."

http://www.epa.vic.gov.au/about-us/news-centre/news-and-updates/news/2016/december/14/epa-releases-noisy-motorbike-notices-data

VicRoads and EPA policy on noise

http://www.epa.vic.gov.au/your-environment/noise/motor-vehicle-train-and-tram-noise

[18] A study of the Tiergarten (which includes the Berlin Zoo) and Treptow Park found that noise in these parks exceeded the German Industrial Standard (DIN) 18005

https://www.stadtentwicklung.berlin.de/umwelt/umweltatlas/ed703_05.htm

[19] The main pollutants resulting from fuel combustion include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (minute particles suspended in the air) and sulphur dioxide (SO_2).

The health effects associated with breathing in these contaminants include:

- **carbon monoxide** – reduces the ability of the blood to carry oxygen
- **nitrogen dioxide** – may trigger asthma attacks and other respiratory disorders
- **ozone** – may trigger asthma attacks and other respiratory disorders
- **particulates** – the effects depend on the chemical composition of the particles
- **sulphur dioxide** – may trigger asthma attacks and other respiratory disorders.

https://www.betterhealth.vic.gov.au/health/healthyliving/air-pollution

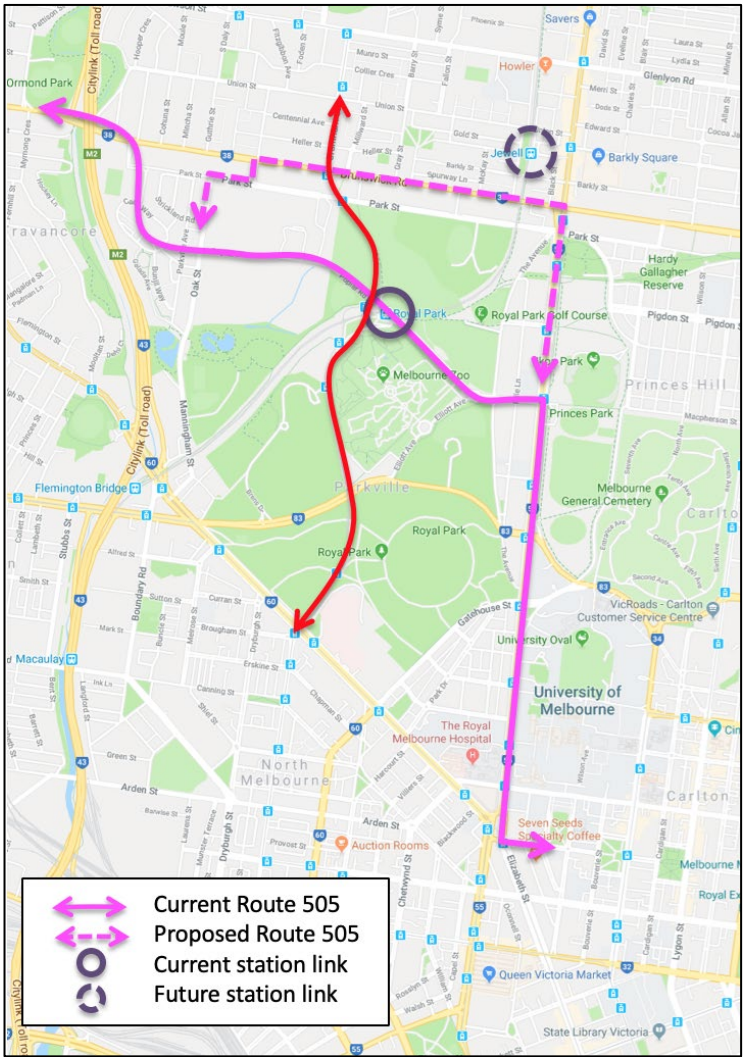
[20] Successful projects to reduce the area of land set aside for transport under the current Masterplan include removal of:

- An unsealed road around the west side of the Melbourne Zoo

- A small existing unsealed car park south of Poplar Road, north of the tramline
- An unsealed car park south of Elliott Avenue near the tramline
- All parking west of the Urban Camp and north of the existing netball courts.
- Much of the road system and car parks north and east of the Ross Straw Field
- Roads and parking areas in the northern area of the park

[21] Rerouting Route 505 to allow the closure of Poplar Road

Route 505 buses provide a link between Parkville West and Royal Park Station. They may also provide a link to the tram service at the same location. In order to remove Poplar Road, it would be necessary to relocate this service. This can be done without loss of connection by routing the bus along Park Street or Brunswick Road allowing passengers to reach the same rail and tram lines from Park Street and Brunswick Road.



[22] The proposal to extend Park Street is not included as a recommendation in this report as the kerbside bays along the Street are needed to support the removal of the roads and parking areas in the Northern Ovals.

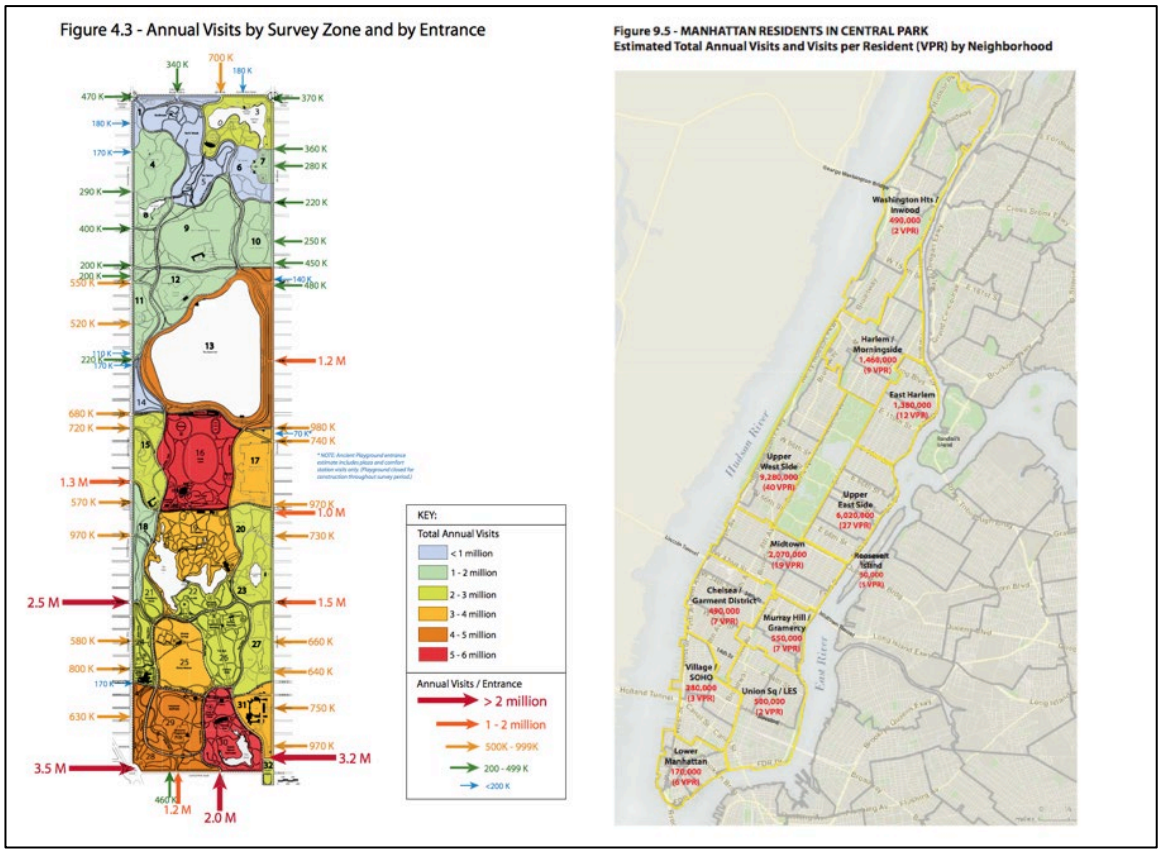
[23] 2015 – 2016 Cranbourne Gardens 177,000 visitors, Melbourne Gardens 1.6m visitors. Royal Botanic Gardens Annual Report 2015 - 2016

[24]

The data collected for Central Park includes:

- Volume
- Time of day
- Day
- Season
- Destination Location Area
- Purpose Activity
- Group size: solo, social groups
- Total visits
- Unique individuals
- Frequency of return visits
- Duration
- Origin (Origin can provide an understanding of socio-economic status)
- Age
- Gender
- Disability

[25] Report on the public use of Central Park April 2011



[26] Although the Melbourne Zoo is a major attraction for visitors to the park, few of these visitors use the park other than for car parking. Also, vast numbers of people travel through the park on the MacArthur Road - Elliott Avenue road link.

1997 Masterplan

[27] Central Park Active and Passive recreation

Passive Recreation

- Walking / Wandering / Sight-Seeing
- Relaxing / Socializing
- Nature Study / Appreciation
- Dog Walking
- Photography & Art
- Commuting
- Attractions, Programs & Events
- Metropolitan Museum Visit (Includes only those museum visitors who also visited/exited the park. The museum receives approximately 5 million visitors annually.)
- Boating & Fishing

Active Recreation

- Exercise / Physical Activity
- Playground
- Team Sports
- Spectating (sports, races, etc.)
- Races

[28] Some statements in the Masterplan equate a visit to a major facility with a visit to small scale recreational facility:

- Both the sporting facilities (and the Melbourne Zoo) are seen to be 'complementary objectives' of the park.
- 'The visitors to what is today a large-scale facility at the State Netball & Hockey Centre were not identified separately from those participating in other sports or recreations.'

Other statements in the Masterplan suggest that a visit to the Melbourne Zoo is not a visit to the park.

- One of Royal Park's fundamental roles is to provide 'a setting and access' for Zoo visitors.
- 'Although the Melbourne Zoo is a major attraction for visitors to the park, few of these visitors use the park other than for car parking.'
- Ensure other facilities, including the Royal Melbourne Zoo and sporting facilities, complement the objectives of the Royal Park Master Plan

[29] Transport Canberra and City Services (TCCS) utilises Bluetooth technology, such as that found in mobile telephones, as part of its traffic studies. It can gauge vehicular speeds and

travel times as well as gauge the route choices that people make. It is particularly useful in determining the level of 'rat running' in suburbs.

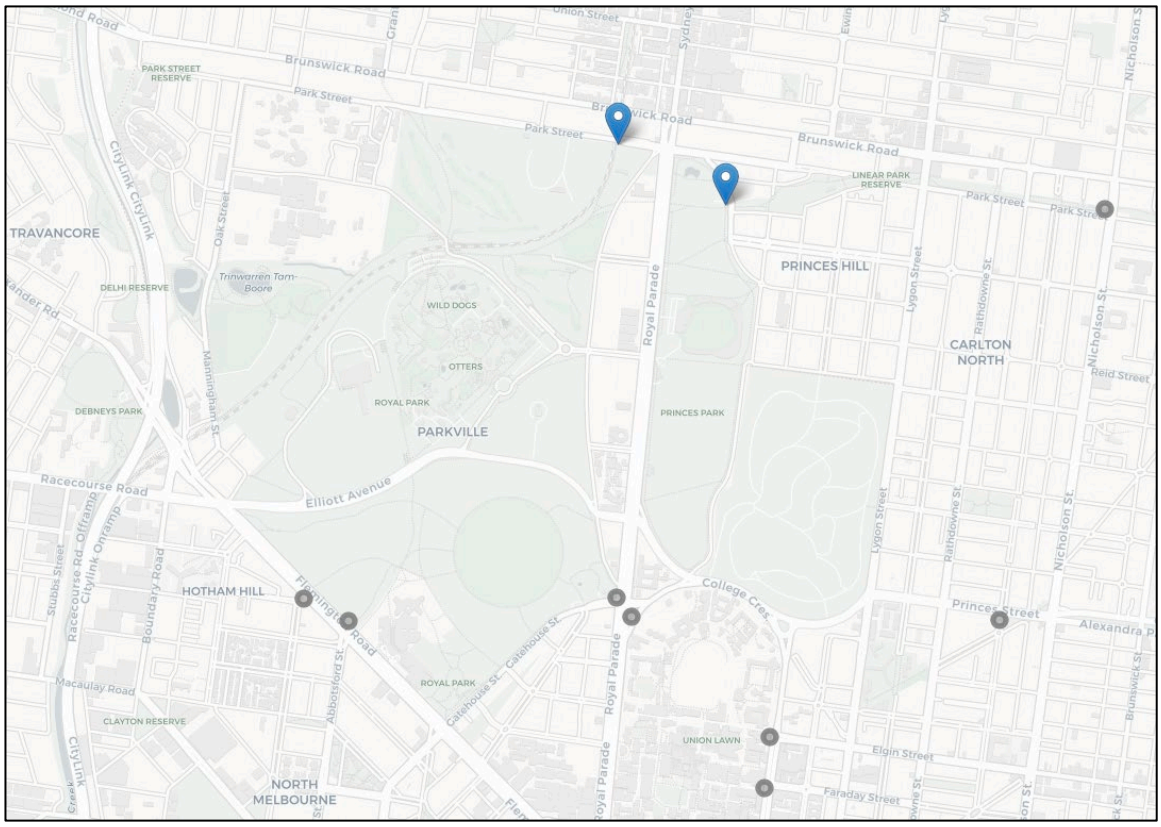
http://www.tccs.act.gov.au/roads-paths/traffic/use-of-bluetooth-technology-for-traffic-studies

[30] Measuring recreational visitation at U.S. National Parks with crowd-sourced photographs

Sessions et al Journal of Environmental Management December 2016,

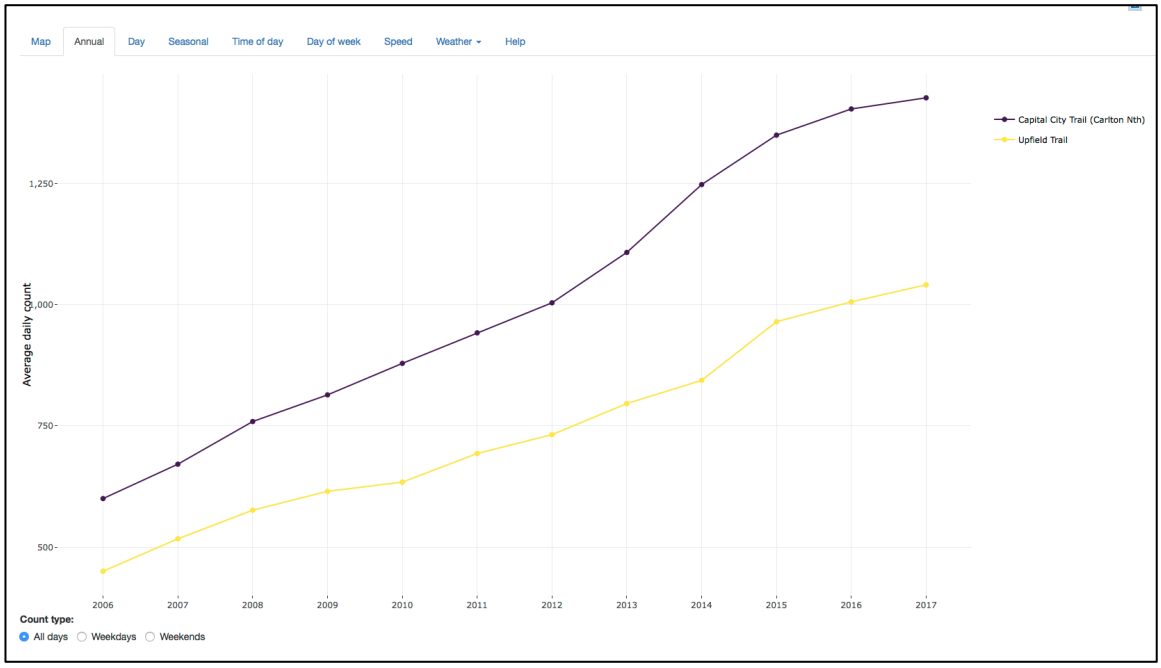
https://www.sciencedirect.com/science/article/pii/S0301479716306685

[31] Bicycle counter locations in Royal Park



Visualisation CDM Research

[32] Average number of bicycle riders each day by year. Capital City Trail (purple), Upfield Railway path (yellow)



Data from VicRoads, visualisation and summaries CDM Research

[33] Perimeter path Central Park New York

34 Wildlife Bridge Singapore

sanspression.fr/ponts-passage-animaux-routes

[35] Data from VicRoads, visualisation and summaries CDM Research

[36] Cycle Notes 21 Widths of off-road shared use paths VicRoads 2013

37 Parked vehicles protrude across the shared path south of the railway line and west of Royal Park Station (below)

38 Park roads should be designed and managed to discourage unnecessary through traffic, favour park users over other traffic, maximise public safety and reduce travelling speeds. Specifically:

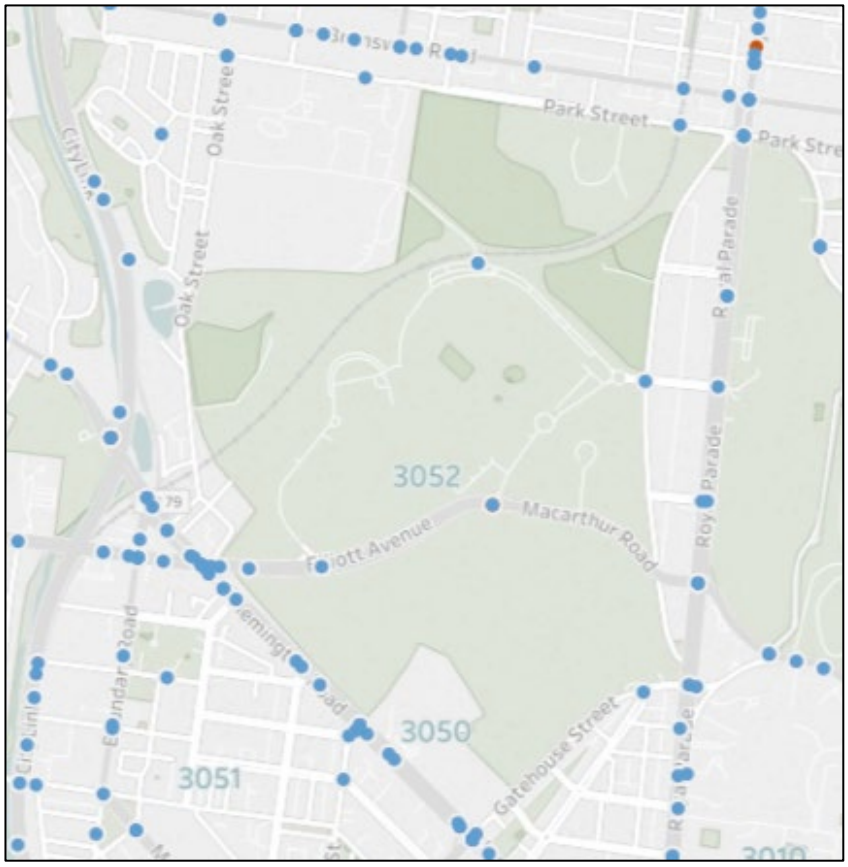
25.1 Investigate with VicRoads the potential narrowing of the eastbound carriageway of Elliott Avenue between Brens Drive and the tramway. This would provide a transition from two lanes to a single lane in a straight section of the road, rather than on the bend, as now exists, to increase safety.

25.2 Design all roads to minimum standard lane widths.

25.3 Extend the application of the 40 kmh speed limit to cover all remaining roads within the park, except Elliott Avenue West and MacArthur Road.

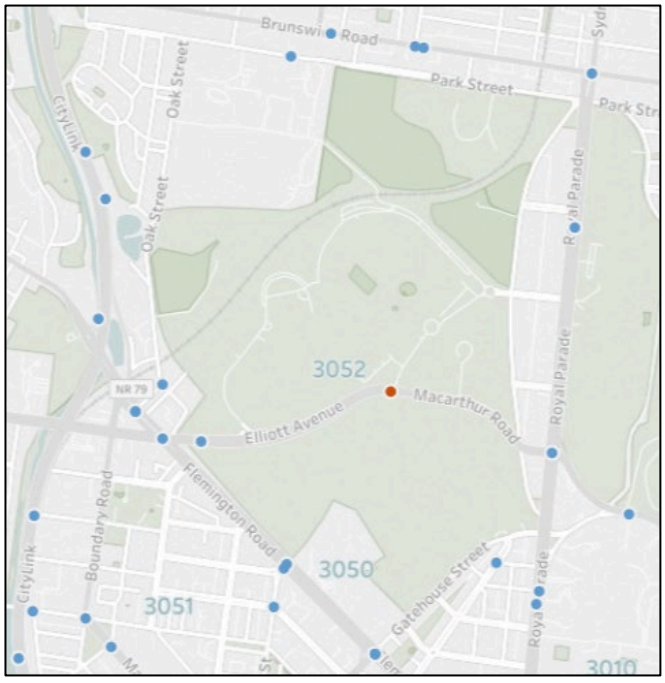
25.4 Install traffic calming devices as necessary.

[39] All collisions leading to fatal or serious injuries CrashStats (2012 – 2017)



Pedestrian collisions CrashStats (2012 – 2017)

Motorcycle collisions CrashStats (2012 – 2017)



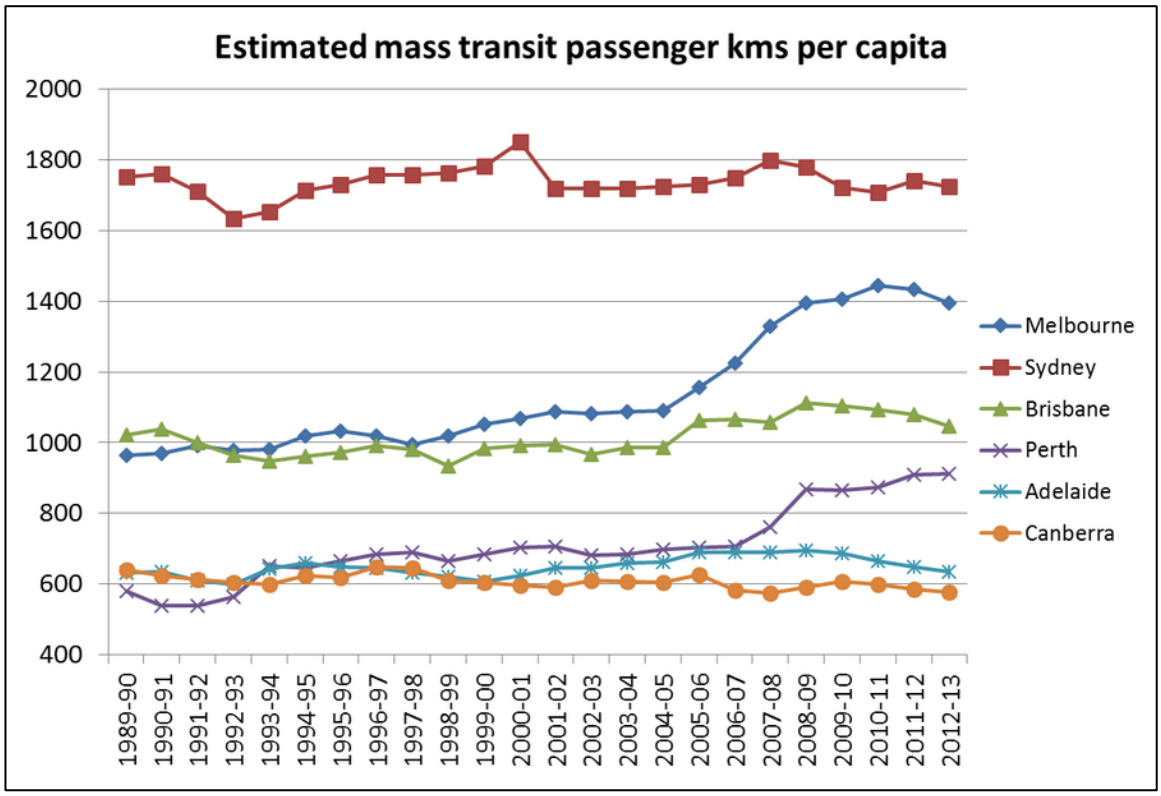
[40] Truck/tram collision on Elliott Avenue

https://www.theage.com.au/national/victoria/truck-collides-with-tram-near-melbourne-zoo-20170522-gwa14w.html

[41] Brens Drive Elliott Avenue intersection looking north

[42] Light-on-demand Motion sensor lighting on the Strandstien foot and cycle path in the city of Kalundborg April 2015

[43]



Australian infrastructure statistics—Yearbook 2014 BITRE

https://chartingtransport.com/2010/11/13/public-transport-patronage-trends/

44 The Masterplan states that public transport should be 'supported and encouraged' in several ways. The recommendations concentrate on the Melbourne Zoo and State Netball & Hockey Centre:

- 'Major facilities and attractions in the park should be planned and designed to encourage use of public transport.'
  - The area near the Melbourne Zoo north entry should be redesigned to provide a high level of amenity for people arriving by train, tram and bus.
  - The proposed Netball and Hockey Centre west of the Melbourne Zoo should be designed with the adjacent tram stop treated as a key arrival point and with good pedestrian access to Royal Park station.
- 'Redevelopment of northern Zoo area to facilitate public transport access to Zoo'
- 'Increased use at peak attendance times for the Melbourne Zoo and other facilities near the park should especially be targeted.'

45 The Melbourne Zoo has in the recent past surveyed visitors which indicated approximately 14% of visitors arrive by public transport. There is currently no data available on why there is such an apparent low utilisation of public transport. It has been suggested that it could be a result of the low cost and convenience of travelling by car to the Zoo with a family.

Royal Park Destination Management Movendo 2018

https://petapixel.com/2014/04/11/creative-photo-series-turns-paris-metro-literal-zoo/

Book your parking space for the Parc Zoologique de Paris

If, like us, you dream of traveling the world and discovering the astonishing beauty of Mother Nature, but you have no money, then the Paris Zoo can calm your frustration (which we understand and share).

The Paris Zoo has something to please everyone. You can visit five biozones on 14.5 hectares, in the Bois de Vincennes. Patagonia, Amazonia and Guyana, Madagascar and Sahel-Sudan are finally within reach!

Regarding your car: have you thought about where you are going to park? You have probably said to yourself that there will be a parking lot right next to the zoo, which will allow you to park without getting stressed.

Wrong!

As we kindly explain to you on the official website of the Zoological Park of Paris, there is no parking provided for visitors. Hang on, we will stop you right there: we are not 'the bad guys': there is a good reason for this. Imagine thousands of motorists parking a few meters from a breathtaking ecosystem? Nobody would like a zoo that smells of diesel.

To reach the Vincennes Zoo, you will have to leave your car a little further and then, either walk or use public transport.

And that's where ParkingsdeParis comes in.

With ParkingsdeParis, you can book your parking space to guarantee your place on arrival, pay less, and choose the space you want. With more than a hundred car parks in Paris, there will be something to please you (we think they will all please you, but that is just our personal opinion).

Knowing that it is difficult to park near the Bois de Vincennes and the Porte Dorée, especially during the tourist season, it's a good idea to leave your vehicle a little further away in a reserved parking space, and then to take public transport, specifically :

- metro line 8 (Porte Dorée station);
- bus line 46 (stop Zoological Park).

If you like to walk, you can also reach the zoo on foot from the parking you have selected. It may take you up to half an hour, but it's a good opportunity to visit the Bois de Vincennes :)

www.parczoologiquedeparis.fr

[47] Distances People Walk for Transport, Burke, Brown. Road & Transport Research 2007

[48] 'Although the Zoo is a major attraction for visitors to the park, few of these visitors use the park other than for car parking. Also, vast numbers of people travel through the park on the MacArthur Road - Elliott Avenue road link. A major challenge is to entice these and other visitors to use and enjoy the park more fully.' 1997 Masterplan.

[49] Car parking in the park should be subject to an integrated management approach that deals with the entire precinct, including streets around Royal Park and Princes Park. Appropriate measures to favour parking by park users should be investigated and introduced as possible. 1997 Masterplan.

[50] Wildlife bridges are typically shorter in span but much wider. They also necessarily include a thick layer of soil and vegetation—a landscaped surface—that must emulate local habitats.

https://arc-solutions.org/new-materials/

[51] On the north side of the railway line there is an opportunity to place the main pedestrian path on the side of the railway embankment to take advantage of views to the north west

[52] It should be noted that this definition underestimates the actual total supply by a considerable margin as it is not equivalent to 'all bays used by people who visit Royal Park'. Such a definition would include all bays within walking distance of the park. A wider zone would be more reflective of the actual scale of the supply but would be harder to define geographically and allowance would have to be made for other parking activity occurring within the wider zone. For these reasons a narrower definition is preferred.

[53] Efficient layouts in buildings use 30m^2 per bay. 1,300 bays x 30m^2 per bay = 3.9 hectares. The actual area of informal bays may be larger as these areas are unlikely to be efficiently laid out.

[54] An infra-red camera linked to software that records licence plates, date, time of day and GPS location was used to capture the time, location and number plate of vehicles in parking bays in the precinct. Nine 'runs' were completed in the precinct over four days – two Tuesdays and two Saturdays.

The runs were designed to overlap to provide an understanding of the use of the bays over the day. The earliest Tuesday run was at 1045 and the latest finished at 2100. The earliest Saturday run was at 1000 and the latest finished at 2000. The scan on Tuesday 19 June only covered the State Netball & Hockey Centre (Tuesdays are typically busy nights).

DATE IN 2018	TIME PERIOD OF SCAN	ORDER OF SCAN
Tuesday 19 June	1045 – 1315	5
Tuesday 12 June	1400 - 1600	1

Tuesday 19 June	1900 – 2000	6
Tuesday 12 June	2000 – 2100*	2
Saturday 23 June	1000 - 1230	7
Saturday 16 June	1100 – 1400	3
Saturday 23 June	1400 - 1600	8
Saturday 16 June	1500 - 1700	4
Saturday 23 June	1900 - 2000	9

55

Charging for parking is unlikely to happen while the SRO levy is applied to the State Netball & Hockey Centre. If 100 bays were set aside and fully used twice a week, the bays would support just over 10,000 visits (10,400). The levy on the bays would be $100,000. The fee that the users would have to pay would therefore have to be at least $10 a visit to cover the levy. Other costs including the parking system would also have to be covered.

If the levy could be avoided by agreement, for example by reinvesting the revenue in the park, or the requirement waived as it has been for the Melbourne Zoo and Abbotsford Convent, then paid parking could be introduced.

56 An infra-red camera linked to software that records licence plates, date, time of day and GPS location was used to capture the time, location and number plate of vehicles in parking bays in the precinct. Nine 'runs' were completed in the precinct over four days – two Tuesdays and two Saturdays.

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57 *Royal Park Destination Management Movendo 2018*

58 Estimate of total attendance at the Melbourne Zoo based on increasing mode share of public transport

PARKING BAYS	VISITATION BY CAR	NUMBER OF VISITORS	NUMBER ARRIVE BY PUBLIC TRANSPORT	SHARE OF TOTAL VISITATION
1,300	13,650	14,000	350	3%
		15,000	1,350	9%
		16,000	2,000	13%
		17,000	3,000	18%
		18,000	4,000	22%
		19,000	5,000	26%
		20,000	6,000	30%

59 'Road closures or re-alignments, where possible, should consolidate fragmented open space into useable areas and improve pedestrian amenity at key entrances to the park.'

60 'However, the objectives for access, circulation and car parking in the park have been reaffirmed and are unchanged from those stated in the 1985 Master Plan:

- Rationalise the number and locations of car parking spaces, while ensuring that park users who have specific car parking requirements are adequately and efficiently served.

Ensure that the location and design of roads and car parks supports the intended landscape character without imposing undue costs or loss of efficiency.'

61 Road closures or re-alignments, where possible, should consolidate fragmented open space into useable areas and improve pedestrian amenity at key entrances to the park. Specifically:

33.1 Investigate and consult further with the community regarding the closure of the north end of The Avenue at its intersection with Park Street. This would consolidate the open space, including the reserve between The Avenue and Royal Parade, and create a more attractive entrance to the park.

33.2 Close the south end of The Avenue at its intersection with Royal Parade to consolidate the open space including the reserve between The Avenue and Royal Parade with Royal Park and create a more attractive entrance to the Australian Native Garden.

34.1 Close The Avenue on the north side of its intersection with MacArthur Road.

62 The total number of equivalent bays in this area is estimated at 200. This may be an overestimate of the capacity of this area as many vehicles in this area were parking inappropriately. However, the off-street bays near the Royal Park Cricket Pavilion were not fully used on any observation. At the time of the observation some bays near the depot were under repair and not available

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	TOTAL CAPACITY
McAlister Oval, Ryder Oval (and depot)	0	37	Less than maximum observed due to informal parking Some bays were being repaired
Depot staff parking south of Ryder Oval		18	
Ransford Oval	0	99	Less than maximum observed due to informal parking
Western Oval	0	30	Greater than maximum observed Low utilisation
Total gravel & grass parking Northern Ovals		**184**	**Estimated as 200**

63

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	TOTAL CAPACITY
Old Poplar Road	1	21	No marked bays Probably equivalent to maximum observed
Royal Park Tennis Club	0	41	Probably equivalent to maximum observed
Triangle area near Women's Pavilion	0	45	Greater than maximum observed Utilisation low
Total bays			**Estimated as 107**

64 The total number of equivalent bays in this area is estimated at 70. This may be an underestimate as it is likely that more vehicles could fit into the area to the east of the playing fields.

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	TOTAL CAPACITY
Oak Street	2	18	45
Ross Straw Field	0	25	Greater than maximum observed
Total bays			**Estimated as 70**

65

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	GIS	TOTAL CAPACITY
Brens Oval	9*	101	Not available	Less than maximum observed due to informal parking
Zoo SE and SW	0	340	292	Possibly twice as many bays when all informal bays are in use Some repairs were underway Unpaved areas were not in use
The Avenue between Walker Street and MacArthur Road	16	82	82	82

66

AREA	MINIMUM OBSERVED	MAXIMUM OBSERVED	GIS	TOTAL CAPACITY
The Avenue south of MacArthur Road (south)	0	34	33	33
Gatehouse Street	24	43	87	87
Playground	0	9	6	6
Native Garden	0	5	5	5

67 Unfortunately, the GPS failed to work on this section during the Tuesday PM scan so the vehicles that were recorded in this section could not be located.

68 Unfortunately, the GPS failed to work on this section during the Tuesday PM scan so the vehicles that were recorded in this section could not be located.

69 Nine clubs responded to an online survey

- Royal Park Reds Cricket Club
- Mercantile Cricket Association
- Melbourne University Gridiron Club
- University of Melbourne Baseball Club
- Melbourne University Rugby FC
- RMIT Soccer Club
- Melbourne University Lacrosse Club
- Royal Park Tennis Club
- UHS_VU AFL

[70] An infra-red camera linked to software that records licence plates, date, time of day and GPS location was used to capture the time, location and number plate of vehicles in parking bays in the precinct. Nine 'runs' were completed in the precinct over four days – two Tuesdays and two Saturdays.

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[71] The infra-red camera and licence plate recognition software has limitations.

The system can only record vehicles that the camera can 'see'. The camera may not 'see' a licence plate because:

- There is no number plate, the plate is obscured, bent or coated with dirt or other 'visually confusing' matter
- The camera cannot be aligned onto the number plate. A double-parked car may obscure a vehicle parked at the kerb. A vehicle may be or because the vehicle is parked in a location where the survey vehicle cannot or may not access. (The vehicles parked at the tram depot near the Royal Children's Hospital were not recorded for this reason.)

Phillip Boyle & Associates estimate that the number of vehicles that were not recorded were in the order of 1 in 100.

[72] Estimate of informal bays *Royal Park Destination Management Movendo 2018:*

The number of informal bays

The total number of parking spaces at the Melbourne Zoo is estimated at around 1,318 [This investigation found 1,368 vehicles] comprising:

• 668 formal/permanent parking spaces, distributed as follows:

• 588 parking spaces that operate as five-hour with ticket – $2 for five hours

• 13 spaces for people with disabilities

• 67 parking spaces designated as bus zones on school days (operating as five-hour with ticket spaces on weekends and holiday periods). Buses are directed to the SNHC when these bus parks are full.

• Approximately 650 spaces in grassed overflow parking areas that are used when additional spaces are needed. Parking bays are not marked and parking can be ad hoc.

The State Netball and Hockey Centre has 580 free parking spaces and 7 permanent bus zones. On some days, when large events are held at the SNHC, patrons have to pay for parking.

The 580 parking spaces include:

• 330 parking spaces including 320 unrestricted spaces and 10 spaces for people with disabilities.

• Approximately 250 spaces in one grassed overflow parking area that is used when additional spaces are needed. Parking bays are not marked and parking can be ad hoc.

[73] Players (particularly women) feel unsafe catching trams at the 'back' of SNHC at night (this is also an issue with the more remote car parking spaces being located at the back of SNHC). Movendo 2018