Cycling and Walking Plan
City of Canning

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Cycling and Walking Plan

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Executive Summary

The City of Canning (the City) recognises that increasing cycling and walking will result in lower levels of driving which will lead to a range of societal benefits including reduced congestion, improved social cohesion, improved levels of health and fitness, and economic and environmental benefits across the region. The City has worked collaboratively with key stakeholders to develop a vision and strategies for increased levels of cycling and walking that will transform how people will travel around the City.

Vision

Cycling and walking will be a safe, attractive and viable travel option between

neighbourhoods and destinations within the City of Canning and beyond.

This vision is fundamental in engendering change in how people travel in the City. The City of Canning will work to forge partnerships, educate the community and design and implement facilities that are both safe and attractive for use.

Need for Cycling and Walking in Canning

A number of City of Canning strategic documents recognise the need for cycling and walking to be given a high profile. These include the:

- Strategic Community Plan – that will guide the development of the City over the long term. It identifies a Community Goal to have integrated, accessible, safe and sustainable transport options for the City. One of the ways this goal will be achieved is via the provision and continued improvement of pedestrian and cycling infrastructure and pathways.
- Integrated Transport Strategy – that considered all forms of transport in the City. It stated that walking was an often-neglected form of transport that had considerable potential to replace many short-length car trips. With regards to cycling, it found that cycling is becoming a more popular mode of transport and that uptake could be increased if better facilities were available.
- City of Canning Sustainability Policy – which defines sustainability and aims to embed sustainable practices into the City’s planning and decision making processes. Transport has been identified as a key area where sustainability improvements can be made.

Planning Principles

The planning principles for both cycling and walking in the City have been based on principles originally developed in the Netherlands for cycling. They are:

- Attractiveness – each route should feel attractive to use and include a feeling of personal safety for users.
- Coherence – there should be a choice of routes and the network should be legible and easy to use.
- Comfort – surfaces should be smooth and well maintained and shading should be provided along paths. Continuity of movement along the route should be preserved.
- Directness – direct routes with no unnecessary detours to provide journey times by bicycle that are competitive with the car.
- Safety – separate cyclists from motorists and pedestrians where necessary, but allow mixed use along low speed, low volume streets. Design should be predictable in terms of alignment and priority.

Cycling Mode Share Targets

Currently cycling mode share in the City is about the metropolitan average but well below that in the best performing municipalities in Perth. The mode share targets for cycling in the City of Canning are:

- Short term to 2021 - 4% mode share;
• Medium term to 2031 - 6% mode share; and
• Long term to 2051 - 10% mode share.

Walking Mode Share Targets
Walking mode share within the City of Canning is estimated to be a little lower than the metropolitan average of about 10%. Walking mode share to work is very low at less than 2%, well below that of the City of Subiaco which enjoys 12.4% mode share for walking to work and an all modes mode share approximately 20%. The walking mode share targets for the City are:
• Short term to 2021 - 11% mode share;
• Medium term to 2031 - 14% mode share; and
• Long term to 2051 - 18% mode share.

Within activity centres the walking mode share should be set to a higher level. The target mode share for walking to and within the Canning City Centre is:
• Medium term to 2031 - 15% mode share; and
• Long term to 2051 - 20% mode share.

Strategies to Increase Cycling and Walking
Six broad strategies have been adopted by the City of Canning to increase the uptake of cycling and walking:
• Land use change at activity centres, along activity corridors and transit oriented developments (TODs) around rail stations.
• Plan and implement a safe connected bicycle network that provides viable and direct linkage to the key activity centres, rail stations, schools, shops and other attractions.
• Change the mindset of planners, decision makers and daily travellers through education programmes.
• Develop travel plans and introduce behaviour change programmes.
• Develop policies that support best practice to improve accessibility and safety for cyclists and pedestrians.
• Provide for greater shading and tree cover for pedestrian and cycling paths.

Funding
Funding for cycling facilities in the Perth metropolitan area and in the City of Canning is currently below the level required to achieve the proposed mode share targets. The recommended annual funding for cycling should be increased to $15 per head of population by 2021, increasing to $20 per head of population by 2031. The City’s share of this funding should increase to $750,000 per annum in 2021 and rise to $1.25 million by 2031. Equivalent levels of funding should be sought from the State and Commonwealth governments, increasing overall funding for cycling in the City to $2.5 million by 2031, or $20 per head of population.

Cycling Network Plan
The proposed cycling network plan is shown in Figure E1 (this map is provided at A3 size in Appendix H, Map 5). It provides a connected network of off road shared paths and bicycle lanes complemented by bicycle boulevards along low speed, low volume streets. At the heart of the plan are five major bicycle routes which are shown in Figure E2 (this map is provided at A3 size in Appendix H, Map 6). These routes connect to major activity centres such as the Canning City Centre, Curtin University, major schools and rail stations. It is recognised that some of the routes will need to be extended beyond the City’s boundaries to connect to for example, major rail stations and the Perth City Centre. In this regard, discussion will need to be held with neighbouring councils. Further detail on the proposed major bicycle routes is contained in Section 10. The implementation timeframe for constructing the major bicycle routes will be dependent on the level of funding and is discussed in Section 10 of this report. A completion date for the five major routes of between 2023 and 2025 has been proposed.
Figure E1: Proposed City of Canning path network
Figure E2: Proposed routes in the City of Canning path network
Improving the Pedestrian Network
A comprehensive network of footpaths exists throughout the City of Canning but a degree of segregation exists where high volume, relatively high speed roads pass through centres and communities. A program to investigate safer, improved pedestrian crossings of major roads is proposed, including reducing waiting times for pedestrians at traffic signals where feasible. This will require negotiations with Main Roads (MRWA). A number of pedestrian improvements have been proposed as part of planning for the Canning City Centre and some have been approved as conditions of development of the Westfield Carousel shopping centre. This includes a new pedestrian overpass over Albany Highway to link the proposed residential development on the south side of Albany Highway with the main retail centre. Plans for a main street along Cecil Avenue are also well developed. The preliminary design provides for a shared path along Cecil Avenue.

Choice of Cycling Facilities
Austroads has provided recommendations on when it is appropriate for cyclists to travel along local streets in mixed traffic, when bicycle lanes could be recommended and when separate paths are preferred (refer to Figure E3). Complementing this are guidelines on where pedestrian and cyclist shared paths are appropriate and where separate cycling and walking paths are likely to be required based on the number of cyclists and pedestrians (refer to Figure E4). There guidelines have been used to determine the most appropriate type of facility to construct as part of the cycling network.

Figure E3: Recommended traffic volume/speed thresholds and cycle infrastructure (Source: Austroads)
The Department of Transport has advised that all future shared paths should be a minimum of 2.5 metres wide. Whilst 2.5 metres is an appropriate standard width for most shared paths, reference should be made to Figure E4 where volumes of cyclists and pedestrians are high. It is now legal for cyclists to cycle on footpaths unless specifically prohibited. It is expected that cyclists using footpaths would travel at low speeds and give way to pedestrians at all times. The standard width of these footpaths should remain at 1.5 metres, except where there are high volumes of pedestrians (for example, at shopping centres).

Bicycle lanes should be a minimum of 1.5 metres wide and are suitable for construction along neighbourhood connectors with a speed limit of 50km/h or less and a daily traffic volume of less than 7,000 vpd. Bicycle lanes can also be considered along slightly higher volume roads, but on such roads it is advised that bicycles be separated from general traffic, for example by raising the bicycle lane slightly above the road surface by use of a mountable kerb. On higher volume roads, with high volumes of cyclists, separated one-way cycle lanes along the verge are preferred. A minimum buffer of 0.7 metres should be provided between the cycle lane and the adjacent road or parking.

**Figure E4: Treatment of paths to be used by pedestrians and cyclists**

Bicycle boulevards are a new type of bicycle facility. They would generally be constructed on low volume streets and a speed limit of 30km/h would be applied. At the current time there are no specific design standards and the Department of Transport is encouraging councils to develop innovative designs in consultation with the Department and to monitor their operation.

**Behaviour Change Programmes**

The City of Canning recognises that a significant increase in cycling and walking will not be achieved through infrastructure improvements alone. A range of behaviour change programmes are proposed in this report to increase cycling and walking and to reduce the proportion of trips made as car drivers. It is proposed that the City of Canning employ a Travel Smart Officer with specific responsibilities to achieve high levels of cycling and walking as a part of a more integrated and safe transport system. Other measures aimed at encouraging greater levels of cycling and walking are recommended in the report. These include:
• Provision of end of trip facilities (bicycle parking and lockers and showers for cyclists, joggers and pedestrians). Rates for bicycle parking, showers and lockers are proposed for consideration as a condition of development approval.
• Individualised marketing programmes such as TravelSmart or Your Move designed to increase walking, cycling and public transport use and reduce the proportion of car driving.
• Wayfinding and improved signage to improve the legibility of cycling and walking routes and encourage greater use.
• Media campaigns to increase driver awareness of cyclists and pedestrians and encourage more peaceful co-existence between all road users.
• A variety of demand management measures designed to encourage cycling and walking and provide some discouragement of excessive driving (refer to Section 11.6).
• Proactive travel planning to encourage more cycling and walking to schools, to rail stations and to major office and retail developments.
Part 1 Strategic Section
1. Introduction

1.1 Objective

Cycling and walking are healthy, environmentally-friendly and sustainable forms of transport. Increased walking and in particular, increased cycling, has the potential to reduce the level of car driving for daily transport journeys. This can result in significant benefits including less congestion, less use of petrol and fossil fuels, improved health and fitness within the community and financial savings to governments from reduced expenditure on road infrastructure. Additionally, people who cycle and walk may make financial savings due to reduced driving and parking costs and in some instances, a lower level of car ownership.

In recognition of the above, the City of Canning is keen to increase cycling and walking within its boundaries. It has articulated a vision and objectives in its Integrated Transport Strategy to facilitate and encourage increased travel by active and public transport. This is in line with state government objectives to encourage local governments to create cycle-friendly infrastructure, which enables people to reach all destinations safely and conveniently by bicycle. Many of the provisions made for cyclists also assist pedestrians. Pedestrians too, require connected, safe, attractive and convenient routes to traverse. Behaviour modification and demand management are just as important as infrastructure provision in encouraging the uptake of cycling and walking. The promotion of cycling and walking can be aided at the local level by planning scheme provisions and the employment of a Travel Smart Officer. In addition, state government can provide design guidance for cycling and walking infrastructure and allocate appropriate funding to local government so that it can build the infrastructure.

The City of Canning has worked with various key stakeholders to produce this Cycling and Walking Plan. The objective of this document is to lay out a vision and a long term strategic plan, thereby providing a framework for the development, over time, of a cycling and walking friendly city. It will guide the City towards achieving a practical, appropriately resourced active transport system designed to significantly increase the mode share of daily cycling and walking trips.

1.2 Structure of this Plan

This Plan is presented in two parts. Part 1 (Chapters 2 to 8) focusses on the development of a vision and strategies for the increased uptake of cycling and walking. Part 2 (Chapters 9 to 11) indicates how these strategies could be implemented in the City of Canning.

Chapter 2 provides information about the population characteristics of the City of Canning. It goes on to discuss the level of mode share cycling and walking have in the City at present and then looks at the factors that influence mode share trends.

Chapter 3 looks at the benefits the City can expect to realise by promoting cycling and walking and making these viable transport options. Benefits can be social, economic or environmental and can occur both at the local area level and the individual personal level.

Chapter 4 incorporates a review of applicable policies and the City of Canning’s existing bicycle plan.

In Chapter 5 the available crash data and other data are analysed. A desktop exercise is conducted to identify the key attractors in the City. The results of the saddle survey are presented and discussed.

Chapter 6 details the community and stakeholder engagement as undertaken. Most notably this was in the form of two key stakeholder workshops. Input from the first workshop informed the vision, principles and strategies to be applied in the City and at the second workshop, participants firmed up the cycling and walking path network espoused for Canning. With regards to community engagement, schools were given the opportunity to comment on the cycling and walking routes around their schools. City of Canning residents were given the opportunity to participate in a survey asking about their cycling and walking habits. They were also asked to identify areas in the City that need walk or cycle improvements by pinpointing the places on an online map.
Chapter 7 articulates the vision, principles and targets developed in the City to increase the uptake of cycling and walking. It states the mode share that the City can aim for based on the results achieved by other cities.

Chapter 8 details the strategies to be employed to increase cycling and walking in the City. These are based on strategies developed by Dutch transport planners and have been refined to suit the City of Canning’s local circumstances.

Chapter 9 discusses the level of funding the City of Canning will need to allocate and/or secure in order to deliver the cycling and walking strategies. It advises on long term funding options.

Chapter 10 proposes an integrated network of foot and cycle paths for the City of Canning. There are five major routes through the City as well as a number of other identified links. Each route or link is split into sections, which have been assessed, prioritised and allocated to a works year between 2018 and 2036. An indicative cost for each project is also provided.

Chapter 11 outlines the promotion and behaviour change techniques that can be employed to complement the cycling and walking infrastructure improvements. It also discusses the employment of a Travel Smart Officer.

Chapter 12 concludes the report and provides recommendations.
2. **Current Cycling and Walking in Canning**

2.1 **Population and Potential Growth**

The City of Canning lies in the south-east of the Perth metropolitan area (see Figure 2.1). It is approximately 7km from the Perth CBD. The City comprises a number of residential suburbs as well as commercial and industrial areas. It is serviced by the Armadale rail line. Major roads passing through the City include Albany Highway, Leach Highway and Roe Highway. The City Canning already has expansive footpath and bicycle path networks (refer to Appendix H, Maps 1 and 2). Part of the challenge will be ensuring that these are sufficient to serve both walkers and cyclists, now and into the future.

*Figure 2.1: Location of the City of Canning (Source: City of Canning Intramaps, 2016)*
The City’s estimated 2016 population is 100,000. The City of Canning’s Local Housing Strategy estimates that 23,598 additional dwellings could be built within the City. The majority of these dwellings will be within the Caning City Centre, other activity centres or project areas. With significant proposed housing within these centres, possibly within apartments, an average occupancy rate of 2.2 is assumed. The estimated population growth is therefore about 50,000 people, making for an estimated population of 150,000 by around 2051.

2.2 Mode Share Trends

Since just after the turn of the century, the level of car driving per person has declined in almost all OECD \(^1\) countries. A wide range of factors have caused this significant change in travel patterns. They include:

- Congested streets are making car driving less attractive;
- Improved public transport systems with higher frequency services along priority routes are a more attractive travel alternative for some travellers;
- Price factors including higher parking fees are influencing travel behaviour;
- Young people are driving less; they are substituting some travel for electronic communications or travelling by public transport where they can communicate en route by electronic devices; and
- Many young people find it inconvenient and expensive to drive and own a car. This is evidenced in research undertaken by the RACV which indicated that the number of young people with a driving licence has declined substantially. The report estimated that in 2014, more than one third of 18-24 year old Victorians were not yet licenced to drive. It seems that driving is no longer considered a “right of passage” by young adults as it once was.

Figure 2.2 shows how car driving per person has declined in every Australian capital city.

In Perth, car driving per person declined by more than 15% between 2004/05 and 2011/12. This is broadly consistent with a reduction in car driver mode share from about 63% at its peak in the early to mid-1990’s to an estimated 56% at present. Over the past 10 or 15 years the average number of daily trips in Perth by all modes has been 3.5 trips per day. Applying these figures within the City of Canning (current population 100,000), the estimated daily travel is 350,000 trips per day, of which 196,000 (56%) are made as a car driver. Estimated trips by cycling and walking are 7,000 (2%) and 35,000 (10%) respectively.

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\(^1\) Organisation for Economic Co-operation and Development (OECD)

\(^2\) Car and transit use per capita in Australian cities, Charting Transport, October 2013
The trend to lower levels of car driving and higher levels of travel by public and active transport (cycling and walking) is corroborated by the Australian Bureau of Statistics (ABS) data for journey to work.

Table 2.1 shows that the trend towards higher levels of walking, cycling and public transport commenced between 2001 and 2006, but became more pronounced between 2006 and 2011.

Table 2.1: Journey to work mode change between 2001 and 2011 for Perth and Peel

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<td>Car Driver</td>
<td>- 1.2%</td>
<td>- 3.9%</td>
<td>- 5.0%</td>
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<tr>
<td>Car Passenger</td>
<td>0%</td>
<td>- 8.7%</td>
<td>- 8.7%</td>
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<tr>
<td>Public Transport</td>
<td>+ 11.1%</td>
<td>+ 25.9%</td>
<td>+ 40.0%</td>
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<td>Walking</td>
<td>+ 11.8%</td>
<td>+ 11.7%</td>
<td>+ 24.9%</td>
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<td>Cycling</td>
<td>+ 4.5%</td>
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The percentage of cycling and walking is much higher in inner areas than in outer areas as is shown in Table 2.2, showing mode share for journey to work.

Table 2.2: Journey to work mode share by municipality

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<td>Subiaco</td>
<td>52.8%</td>
<td>12.4%</td>
<td>5.3%</td>
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<tr>
<td>Vincent</td>
<td>58.1%</td>
<td>10.2%</td>
<td>4.3%</td>
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<td>Canning</td>
<td>72.2%</td>
<td>1.8%</td>
<td>1.3%</td>
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<td>Rockingham</td>
<td>73.6%</td>
<td>2.4%</td>
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<td>Wanneroo</td>
<td>75.2%</td>
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<td>Perth and Peel Average</td>
<td>72.9%</td>
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<td>1.3%</td>
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Across the Perth Metropolitan Area and in the City of Canning, journey to work as a car driver has declined by 5% on average. However, the level of decline has been greater in inner suburbs where there are more alternative travel choices:

- Subiaco (-16%)
- Vincent (-11.5%)

Walking mode share to work in the City is 36% less than for the Perth and Peel average (1.8% compared to 2.8%), whereas the cycling mode share to work in the City is at the Perth and Peel average of 1.3%.

Table 2.3 shows how the mode share of walking and cycling to work has changed between 2001 and 2011 in the City and in two municipalities (Subiaco and Vincent) with the highest walking and cycling mode shares.
Table 2.3: Journey to work mode share and growth in Canning compared to best performing municipalities

<table>
<thead>
<tr>
<th>LGA</th>
<th>Walking</th>
<th></th>
<th>Cycling</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001</td>
<td>2011</td>
<td>Growth</td>
<td>2001</td>
</tr>
<tr>
<td>Canning</td>
<td>1.3%</td>
<td>1.8%</td>
<td>+38%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Subiaco</td>
<td>10.5%</td>
<td>12.4%</td>
<td>+18%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Vincent</td>
<td>7.9%</td>
<td>10.2%</td>
<td>+29%</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

Walking to work in the City has increased by 38% but remains at less than 2% of travel to work. Cycling to work in the City of Canning has not grown in the 10 years to 2011 and remains at 1.3% of travel to work.
3. **Role and Benefits of Cycling and Walking**

There are many benefits of increased levels of cycling and walking. It is important that these benefits are properly understood by the community, government and decision makers responsible for the development of cycling and walking facilities and the development of policy. Local governments and the state Department of Transport should work together and lead in the promotion of the benefits of cycling and walking.

3.1 **Role of Cycling and Walking**

In some world cities, cycling plays a major role in the movement of people around the city for transport purposes on a daily basis. In some cities cycling has always been a popular mode of travel, whereas in others, increases in the numbers of cycling trips have been induced by supportive policies and strategies and by creating safe, continuous networks for cyclists to use. Even in cities with traditional high levels of cycling, the growth of car travel on city streets caused cycling to reduce substantially. This was partly because of the convenience of the car at the time and partly because the presence of large numbers of cars created more dangerous travel for cyclists on the road system. In Amsterdam, for example, cycling mode share decreased rapidly from 75% in 1955 to 25% in 1970. At this time it became apparent that increased use of cars was resulting in increased congestion and the initial comparative attraction and convenience of driving compared to cycling was much reduced. However, one significant barrier to cycling remained, namely the danger (real and perceived) to cyclists from the volume and speed of traffic on the roads. In the early 1970s, Amsterdam changed its policies to provide separate bicycle paths, instead of on-road cycle lanes and increased the number of traffic calmed low speed streets to provide safer cycling. This reversed the decline in cycling and the mode share of cycling increased from 25% in 1970 to 37% in 2001.

In Australian capital cities 50% of car trips are under 5 km, which if safe routes were to be available, is a comfortable cycling distance for most people. Time-wise, for short trips, cycling can take as little or less time as driving and is often quicker than travel by public transport. Given that about 80% of all trips are currently car trips (driver or passenger), it can be deduced that about 20% of all the short car trips (under 5 km) would need to be converted from car to bicycle over a 25 year period to achieve a growth of cycling from 2% to 10% mode share. An increase in cycling of this magnitude could reduce car driving in the City of Canning by 10% from a mode share of 56% to 50%. The trend to more development in inner city areas and higher density mixed use activity centres will increase the number of short trips and assist in increasing cycling mode share.

Walking plays a critical role in the transport system. It forms a part of every journey and is a near-universal human activity. It continues to maintain its importance even when there is an effective public transport or road vehicle network in place. Yet it is largely neglected in transportation planning. Pedestrians tend to be undercounted in travel surveys. Short trips, non-work travel, recreational travel, journeys by children or part-walk journeys are omitted. Under representation in surveys, tends to be perceived as lack of demand. This is an issue as planning for vehicle infrastructure (wide roads, parking which induces demand for driving) dominates at the expense of pedestrian paths. A further reason why walking is undervalued is because transport managers and decision makers are mostly concerned with higher speed and longer distance travel. Externalities such as environmental damage, congestion and vehicle ownership cost are largely ignored. Similarly, benefits like health and enjoyment of walking are given no value.

3.2 **Reducing Traffic Congestion**

Traffic congestion is a problem in many cities and a growing concern in Perth. It impacts upon both economic productivity and quality of life. More time expended travelling means less time for other activities in our daily lives. For Perth as a whole, one million car trips each day could be taken off the road system by 2051 if cycling mode share were to be increased to 10% and walking mode share increased to 20%. Cycling and walking along with public transport can make an enormous contribution to reducing congestion.

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3.3 Environmental Benefits

Environmental benefits of less car use could include reduced consumption of petrol and fossil fuels as well as a reduction in heat island effect. Reduced use of petrol and fossil fuels through more cycling and walking will improve air quality and help move Perth towards a low carbon economy with consequential benefits in reduced greenhouse gases.

Heat island effect refers to the overall increase in temperature of an urban environment relative to its non-urbanised surrounds, as a result of human activities. In occurs when surfaces that were once permeable and moist (such as undeveloped land with natural vegetation) become impermeable and dry (such as through the construction of buildings, roads and paving). Mitigation measures include increasing vegetation cover (such as by tree planting or the use of green roofs) and the use of so called cool roofs and pavements (on both paths and roads), that reflect heat and solar energy. If more cycling and walking can be achieved there is potential for a reduction in road users and following on from this, a reduction in the surface area dedicated to roads. Such areas could remain vegetated or be revegetated to assist in the reduction of heat island effect.

3.4 Improved Health and Fitness

Cycling and walking are attractive to some who choose to combine part of their daily exercise with a necessary transport journey, thus saving time in their overall routine. Cycling and walking for everyday travel can ensure that people engage in the 30 minutes of daily physical activity as recommended by the National Physical Activity Guidelines for Australians. Over-reliance on the car and commensurate inadequate physical activity is impacting on the health of the community. Australia is experiencing a major and growing health problem from obesity, diabetes and cardiovascular disease. More exercise through cycling and walking has the potential to reduce premature death and suffering of individuals, and make major savings to the health budget.

3.5 Reduced Road Trauma

Road trauma is a significant personal and community cost. Reduced driving per capita, through increased uptake of cycling and walking, should lead to reduced opportunities for a person to be involved in a motor vehicle accident.

There is an argument that higher levels of cycling and walking may result in higher injury rates for cyclists and pedestrians. The RACWA however argues that though the individual cost of an accident is high, overall this is offset by improvements in health and fitness community wide. There is also an argument that cycle and pedestrian accident rate will fall as there will be “safety in numbers” when more people ride and walk. This has proven to be the case in countries like Denmark and The Netherlands, where the proportion of travel by cycling is high. Safer, better maintained cycle and pedestrian infrastructure may be a further outcome of increased investment in path networks.

3.6 More Cost Effective Transport Infrastructure

Constructing safe connected cycling facilities is much less costly than constructing roads to meet capacity needs for the growing population. Despite this, there appears to be an assumption that large road or public transport projects could achieve a greater cost benefit return. Cycling projects have therefore not been considered to be a funding priority. The RAC (2013) released a business case for investment in cycling in Western Australia. The report showed that, in many cases the benefit cost for smaller cycling improvements is higher than for large road projects. It also found:

- Economic, social, health and environmental benefits for the community of between 3.4 and 5.4 times the costs incurred; and
- Financial returns in dollar terms are nearly twice the costs incurred because individuals who cycle will spend less on travel costs and gains in health and fitness will result in savings on health services.

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A further factor to consider is that the investment in cycle infrastructure to date has not had the opportunity to have full impact. Limited funding has meant that significant gaps remain in the cycle path network. Full economic return on investment on the money already spent will not be realised until the network is connected.

Roads take up space and accelerate urban sprawl. Less driving results in less demand for roads. Cycling and walking both benefit from more compact urban design, which also reduces urban sprawl.

### 3.7 Independent Travel Options

For young people under driving age, those without a car or others who choose not to drive, cycling and walking provide an independent means of travel (saving parents or others from having to escort passengers for a variety of trips). This can result in a significant benefit in improved accessibility, independent mobility and improved quality of life.

### 3.8 Improved Social Cohesion

Increased focus on planning for the needs of pedestrians and cyclists can also have social benefits. Physically, economically and socially disadvantaged people rely heavily on active transport so a focus on provision for these modes provides equity value. In a typical community some members of the population will be unable to drive due to disability, low income or age, but they can make short trips or errands by active transport, if cycling and walking are accommodated. It is further recognised that in the case of walkers, pedestrian environments are a critical part of the public realm and provide space for people to naturally interact, stand, wait, play and socialise. More activated places in the public realm are less subject to anti-social behaviour and real or perceived lack of safety, thus tying in with the aims of CPTED (Crime Prevention Through Environmental Design), in which the built environment is used to make people feel safer, thereby creating better liveability and quality of life in communities. Pedestrians and cyclists create “passive surveillance” and their presence deters crime.

A final social issue to consider is that building of roads can sever and split established communities, creating an insurmountable physical barrier that interrupts the social interactions within the community. A focus on cycling and walking can reduce the need for new roads and preserve existing social interactions. In communities where severance has already occurred, the provision of new cycling and walking infrastructure such as underpasses, overhead bridges, improved intersections or crossings can reduce this barrier effect, allowing social interactions to resume.

### 3.9 Economic Benefits to Private Business

Car parks are often not the highest and best use of land. Reduced need for car parking frees up land for redevelopment, particularly in activity centres, where available land is scarce and hence at a premium cost.

At a broader, state-wide scale, a suitable and well-maintained cycle network in local government areas such as Canning will reduce car dependence in the population. This will help to make Western Australia more resilient to supply shocks or other variability in price of fossil fuels. This has a roll-on effect for the stability of the price of goods and services.

Pedestrians are more likely to window shop when walking through strip shopping areas than if they drive past and this can lead to more spending at local businesses. There is a growing number of studies around the world that demonstrate that road lanes converted to bicycle lanes can result in increased retail sales. In Fort Worth, United States, a 4 lane street was re-configured into two traffic lanes in each direction and protected bicycle lanes were installed. After the change, restaurant revenues increased by 179%.

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In New York City, United States, the NY Department of Transportation has recorded increases in retail sales of up to 49% following the implementation of parking-protected bicycle lanes along 8th and 9th Avenues in Manhattan (depicted in Figure 3.1).

Figure 3.1: Parking-protected bicycle lanes in New York City, United States

In Melbourne, Masters Student, Alison Lee undertook research on the economic impact of shoppers who drove to Lygon Street Carlton, compared to those who rode bicycles. Her results are depicted in Figure 3.2. She found that the retail spend for one parking space was $27 per hour and the retail spend of one bicycle parking space was $16.20 per hour. However one car parking space could accommodate six bicycles, which in total had a retail spend of $97.20 per hour.

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3.10 Economic Benefits to Individuals

Cycling and walking are low cost means of travel. If individuals can substitute some journeys by car or public transport with bicycle or foot travel, saving in fuel, maintenance, parking and fare costs can be obtained. In some cases, mode substitution could even result in one less family car being required.

The annual cost of owning and running a car is high. The RACWA has estimated that the annual cost of car ownership in WA is:

- Small vehicles: More than $8,000;
- Medium vehicles: more than $10,000;
- Large vehicles: more than $12,000.

The cost of running a car represents an opportunity cost for households. Families or individuals who are able to reduce car ownership can make a substantial saving. This can be directed into other aspects of living such as mortgage payments.
4. Review of Policies, Strategies and Guidelines

4.1 Integrated Transport Strategy

The City of Canning’s Integrated Transport Strategy (ITS) (2015) gives consideration to all modes of transport within the City of Canning and provides strategies for managing the City’s transport needs now and for the period up to 2031. The City is experiencing a period of sustained urban growth. There has also been industrial development in Canning Vale, Welshpool and along Albany Highway. As the population increases, so too does the number of cars in the City and the negative impacts of car travel. This is despite increased uptake of public transport and active transport (cycling and walking). The ITS indicates that 68% of City of Canning residents travel by car to work. The use of active transport (public transit, cycling and walking) rose from 12.7% to 16.1% in the five years to 2011. The City wishes to maintain this upward trend.

The ITS mentions that the City currently has on-road cycle routes (many of which do not specifically separate cyclists from vehicle traffic), shared paths on the road verge (where cyclists and pedestrians share the space) and off-road shared paths (typically for recreational purposes and once again shared by cyclists and pedestrians). The ITS acknowledges that the City has an extensive network of pedestrian paths, but states that the number of people who identify themselves “in need of assistance” is increasing. People “in need of assistance” includes both people with a disability as well as those people who become less able as they age (the general aging of the population may increase the number of people in this category). The City has obligations under both the Disability Services Act 1993 [WA] and the Disability Discrimination Act 1992 [Cwlth]. It is important that footpaths are designed or retrofitted to meet the needs of these users. For example, these users may be aided by ramps to replace steps, hand rails to aid balance or street benches for resting.

Finally, the ITS recommends the review and update of the City of Canning Bicycle Plan (the purpose of this plan). The development of a clear vision and appropriate mode share targets in this plan will support the City to grow the use of sustainable transport.

4.2 Canning City Centre Movement Access and Parking Strategy (MAPS)

This study looked at the challenges and opportunities surrounding access in the Canning City Centre. Existing congestion on roads including Albany Highway and Liege Street is a significant challenge. Congestion acts as a disincentive for investors looking to develop in the centre. Subsidised (“free”) parking at the Carousel shopping centre does little to encourage people to use alternative transport to the private car. There is however scope for improvement in the future.

The planned high density residential development in the vicinity will increase the number of people living and working in the centre. The short distances to be travelled will mean that these people will have a greater opportunity and may have a preference for cycling and walking. This will provide impetus for the expansion of the limited existing path network in the area. Likewise, there is likely to be increased demand for public transport, so that commuters can access Perth City and other nearby strategic regional centres at Curtin, Murdoch and the airport. The existing rail station and bus routes will go some way to meeting this need.

This study noted the need to find a balance between transport and place-making in the centre. It proposes five key strategies (Figure 4.1). This cycling and walking plan expands upon Strategies 3, 4 and 5.
4.3 City of Canning Sustainability Policy

The City of Canning has a Sustainability Policy which aims to define sustainability and embed sustainability thinking into the City’s strategic planning and decision making processes.

The City of Canning is committed to an ongoing journey towards more sustainable processes and outcomes. The Council acknowledges its role as the guardian of the community’s quality of life with a responsibility for sustainably managing the social, natural and built environment without compromising opportunities for future generations. The Council is committed to leading by example, undertaking exemplary projects and practices which comply with the sustainability principles.

Transport is a key area where sustainability improvements can be made.

The Sustainability Policy provides the broad high level context and direction for the City of Canning, under which more detailed actions (such as this Cycling and Walking Plan) are undertaken.

4.4 City of Canning Housing Strategy

The Local Housing Strategy was written in September 2014. This document guides future residential development within the Local Government Area and indicates when more intense housing may be appropriate.

It has been developed in consideration with Directions 2031 and Beyond, the strategic plan for Perth, which targets 11440 additional dwellings in Canning by 2031. Assuming 100% development efficiency, the Local Housing Strategy yields 9358 additional dwellings, but at 85% development efficiency (which is more realistic), 7948 dwellings could be expected. This could be about 20,000 extra residents. In addition, the Local Housing
Strategy also makes provision for some additional areas of high intensity housing. At 85% development efficiency, this means there could be around 23,598 dwellings developed in total. The City of Canning population may therefore rise to about 150,000 people by around 2050 if the full development of the City Centre proceeds as planned.

The Local Housing Strategy informs the City of Canning Local Planning Strategy which in turn provides strategic direction for the City of Canning’s new local planning scheme. The Local Housing Strategy generally recommends that housing could be intensified around District, Neighbourhood and Local Centres; along Albany Highway, Manning Road and High Road; and within specific redevelopment projects in Bentley, Queens Park and Cannington.

All these additional residents will need to travel. Transport is therefore a consideration when planning for intensification. Supply of car parking, built form and transit-oriented development are linked with uptake of cycling and walking. Car parking is limited in some areas and provision of bicycle parking and shared paths will help to make cycling and walking more convenient modes than driving, thereby promoting uptake.

State Planning Policy 4.2 – Activity Centres for Perth and Peel, provides guidance about appropriate densities and uses in activity centres. It recommends the use of planning controls to regulate the supply of car parking, provide adequate levels of cycle parking and to prescribe appropriate built form. Built form (the height, size, style and positioning of the building on the lot) and more broadly, urban form, impacts walkability. Blocks should be small and walkable; buildings should address the street, providing natural surveillance; sleeving of bulky development or car parks with more active uses should occur; and town squares and/or parks must be attractive and useable.

Transit Oriented Development (TOD) is recommended for some areas in the City. TOD is the integrating of public transport with a high enough residential density to make the public transport infrastructure viable and to activate the surrounding area. Walkability is a key consideration. Threshold distances are prescribed in Development Control Policy - 1.6 Planning to Support Transit Use and Transit Oriented Development. These are 10-15 minutes walking time or 800m to access a rail station or major bus interchange and 5-7 minutes walking time or 400m to access a high frequency bus services.

The Western Australian Bicycle Plan 2012-2021 is considered in the Local Housing Strategy. This provides for the development of a high quality, connected bicycle network and considers how the network should integrate with other developments, projects and programs.

This cycling and walking plan takes into account the provisions of the Local Housing Strategy by:

- Focussing on the Cannington City Centre, Queens Park and Bentley.
- Providing links to the train stations and bus interchanges (Southlands, Curtin).
- Providing links to activity centres.
- Using the Serpentine Trunk Main (particularly through Riverton, Willetton and Canning Vale) as an off-road connection for pedestrians and cyclists.
- Suggesting routes that pass along the corridors of Albany Highway, Manning Road and High Road.
- Suggesting routes that pass via activity centres such as shopping centres and schools.

4.5 City of Canning Community Safety and Crime Prevention Plan

The City has a Community Safety and Crime Prevention Plan for the period 2016 to 2020. This plan provides an overview of the current status of crime and crime perception in the City, using community surveys, Australian Bureau of Statistics and WA Police figures. It also evaluates the City’s existing crime prevention programs and provides additional ideas and evidence to support expanding the capacity of crime prevention measures in the City. The future actions and activities identified by the plan fall into four categories:
Support for walking and cycling is encompassed in Goal 1.7 to “Raise awareness of road safety”. A key action to attain this goal is to “Expand the City’s TravelSmart/Your Move program and endorse the City’s Cycling and Walking Plan.”

### 4.6 City of Canning Disability and Inclusion Plan

The City recognises the value of people with disability and their right to the same opportunities as others within the community. The Disability and Inclusion Plan 2017 – 2022 (DIAP) outlines the way in which the City will provide for those with a disability. There is correlation between Outcome 2 of the DIAP and the principles (to be discussed in later chapters) of this Cycling and Walking plan. Outcome 2 states:

“People with a disability have the same opportunities as other people to access the buildings and other facilities of the City of Canning.”

In order to promote this outcome, the City already undertakes activities in support of disabled people. In particular, the City investigates and fulfils priority requests from people with disability seeking improved physical access via the installation and upgrading of footpaths, has improved pathways within the parks and reserves and has ensured that public conveniences (toilets and change rooms) meet high levels of accessibility.

The City also acknowledges that it has obligations under the:

- *Disability Services Act 1993* [WA]; and
- *Disability Discrimination Act 1992* [Cwlth].

The City has created an implementation plan for further improving access and inclusion for people with a disability going forward. Actions include:

- Investigating and implementing ways of minimising inconvenience and danger to people with a disability when paths and ramps are removed during works;
- Investigating and implementing ways of ensuring that footpaths are not blocked by overgrown bushes and overhanging branches or blocked by service vehicles during works;
- Seeking the advice of an access consultant when planning and designing new Council buildings;
- Working with the state government and adjoining local governments to improve road safety (such as difficult crossings) for people with disability; and
- Ensuring all signage complies with access standards and guidelines.

The Cycling and Walking Plan supports these actions, as many of the improvements to the path network that aid people with disability will also aid pedestrians and cyclists.
4.7 City of Canning Existing Bicycle Plan

The City of Canning has a Bicycle Plan dated April 2005, which was reviewed during the development of this current plan and compared to the City of Canning’s Intramaps aerial photography. The City does not have a Walking Plan at present.

The first finding in the review of the existing Bicycle Plan was with regards to the current path widths. As per the Austroads Guide to Road Design Part 6A (2009), 2.5 metres is the minimum width for paths having a predominant purpose of commuting and recreation respectively, during periods of peak use. In the past 2.0m has been considered an acceptable path width where paths experience very low use at all times and on all days, where significant constraints exist limiting the construction of a wider path, and may be acceptable for a commuting path where the path user flows are highly tidal in nature. However, the Department of Transport is now proposing that 2.5 metres is the minimum width required to designate a path as a shared path. A significant proportion of the developed paths designated as shared paths in the City of Canning Bicycle Plan 2005 are less than 2.0 m wide and therefore, would not qualify as shared paths if constructed now. There is however no intention to re-designate these paths which may be widened in the future when they are re-constructed.

Secondly, in the existing bicycle plan, “on road cycle routes” have been divided to 3 different types:

- Stage 1 Local Cycle Route;
- Stage 2 Local Cycle Route;
- Other On Road Cycle Route.

Comparing the plan with the existing path network shows that there are no on-road cycle lanes at the section of the roads that are marked as above on the plan. Some of the maps that are marked as above are marked a “Good Road Riding Environment” in the Department of Transport Canning and Armadale Comprehensive map.

Lack of connectivity is identified within the existing path network. For example:

<table>
<thead>
<tr>
<th>Street</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marquis Street</td>
<td>Footpaths on both sides but these have not been marked on the plan.</td>
</tr>
<tr>
<td>Fleming Avenue</td>
<td>No footpath on any side south of Leach Highway.</td>
</tr>
<tr>
<td>Leach Highway</td>
<td>The paths proposed to be provided as part of the existing Bicycle Plan and along the Shelley bridge have not been built yet. There is also no connection between the PSP along Leach Highway to the east of Albany Highway and the shared path along Leach Highway west of Manning Road. There is also the path between Beatrice Avenue and Fifth Avenue.</td>
</tr>
<tr>
<td>Station Street</td>
<td>There is a path on the south side of Station Street from Albany Highway to the railway line but on the Bicycle Plan the path has been marked only on the south side from Albany Highway to Grey Street.</td>
</tr>
<tr>
<td>Corinthian Road East</td>
<td>There is a gap on the approach to Leach Highway.</td>
</tr>
<tr>
<td>Fern Road</td>
<td>There is a gap between the shared path (3 m wide separated, with red asphalt) provided on the south side of Fern Road adjacent to Wilson Park and a path extending along Bywater Way. The path along Fern Road on the approach to Fleming Avenue is too narrow to be considered as a shared path (less than 1.5m).</td>
</tr>
</tbody>
</table>

There is also a lack of connectivity to the major activity centres. For example:

<table>
<thead>
<tr>
<th>Street</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curtin University</td>
<td>1.8m paths extend along Manning Road from Albany Highway to the University. These paths are marked as shared paths on the City of Canning Bicycle Plan. There are a few paths from the surrounding residential areas that connect to Manning Road but the majority of them are less than 1.8 m wide. These paths are not well connected and there is lack of connectivity at a few points along these paths.</td>
</tr>
</tbody>
</table>
Cycling and Walking Plan

<table>
<thead>
<tr>
<th>Street</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welshpool Industrial Area</td>
<td>This is the major origin-destination in the metropolitan region for heavy freight vehicles. As per the Public Transport for Perth in 2031 (2011) 25,000 jobs are located in the Welshpool Industrial Area. The path network to and inside of this area is limited.</td>
</tr>
<tr>
<td>Westfield Carousel Shopping Centre</td>
<td>Shared paths are provided along at least one side of the road leading to Carousel, but apart from the paths along Albany Highway and Cecil Avenue, the majority of the paths are less than 2m wide. Trees are located at the centre of the path on the north side of Gross Avenue but the path on the south side is quite reasonable.</td>
</tr>
<tr>
<td>Willetton Senior High School</td>
<td>The path provided on the school side of Pinetree Gully Road is not of a high standard and the width varies from 1.5 to 2.0m.</td>
</tr>
<tr>
<td>Willetton Primary School</td>
<td>There is no foot path on any side of the access roads to the east, west and south of the school. The paths on the school side of the adjacent roads are less than 2.0m wide.</td>
</tr>
<tr>
<td>Train Stations</td>
<td>The Armadale line connects the Perth CBD to the south east through the City of Canning. Currently there is a PSP extending from Welshpool Train Station to Beckenhams Station and there is no on-road or off-road path from Welshpool Station to the north west. There are also 3.5m wide footpaths extended along both sides of Albany Highway to the northwest of Welshpool Train Station.</td>
</tr>
<tr>
<td></td>
<td>Apart from the shared path that extends along the railway line to the north west of the Beckenhams Train Station, there is no other path that connects the train station to the surrounding area.</td>
</tr>
<tr>
<td></td>
<td>Currently, there is no direct connection from the City toward Perth CBD. It is also noted that there are a lot of access points to Albany Highway from the adjacent lots.</td>
</tr>
<tr>
<td></td>
<td>Confident cyclists continue their path, on the road, along Albany Highway and Railway Parade toward the City.</td>
</tr>
<tr>
<td>Riverton Forum Shopping Centre</td>
<td>Paths are provided along both sides of High Road to the north of the shopping centre with the width varies between 1.5m to 2.0m.</td>
</tr>
</tbody>
</table>

Finally, some of the proposed paths in the 2005 Bicycle Plan have not been built yet.

### 4.8 Guideline for Developing a Bicycle Plan

In the preparation of this Cycling and Walking Plan for the City of Canning, the approach advocated in the Department of Transport guidelines\(^9\) to collect data, understand the local situation, plan for future requirements and prioritise actions has generally been followed. In agreement with the City of Canning, consultation was undertaken with key stakeholders and community engagement was undertaken as described in Section 6. Further public consultation was undertaken by the City of Canning through its website. The approach taken to prioritising projects differs slightly to that advised in the guidelines and has focussed on creating five continuous routes through the City of Canning. This is described in Section 10.

### 4.9 Cycling Imagineering Workshop Report

This plan incorporates many of the design ideas recommended in the Cycling Imagineering Workshop\(^10\) Report where circumstance permits. In March 2015 the Department of Transport (DOT) and the RAC hosted a visit by two Dutch cycle planners and designers to transfer knowledge on The Netherlands approach to bicycle planning and design and to explore innovative cycling solutions for Perth. Solutions discussed at the event, which may

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be appropriate for the City include: bicycle boulevards, consideration of whole routes rather than specific problem points, wayfinding, focussing on schools, connecting to train stations and hospitals and how the (state provided) Principal Shared Paths (PSPs) integrate with the (local government provided) shared paths.

A full day workshop was attended by planners, designers and decision makers. The attendees were presented with an overview of successful measures that are commonplace in The Netherlands and have increased the amount of cycling and the safety of cycling. Event attendees were challenged to keep an open mind on potential measures to improve cycling safety and increase cycling usage.

A number of design options were proposed to improve the level of service for cycling in Perth, including low speed bicycle boulevards along local streets, options for off-carriageway paths or lanes on the road verge of higher volume and speed roads, design options for intersections, including roundabouts and guidelines relating to path widths and intersection treatments along busy cycling corridors.

The DOT is commended for its initiative in organising the Imagineering Workshop and in progressing the workshop outcomes. It is recommended that the City of Canning works in close co-operation with the DOT in implementing measures promoted at the workshop to improve cycling safety and to increase the amount of cycling. In particular, the DOT’s assistance should be sought in gaining approval for designs of new treatments for verge paths, intersection treatments and bicycle boulevards.

### 4.10 DoT/Main Roads Planning and Designing for Pedestrians

This publication\(^\text{11}\) recognises that pedestrians are vulnerable road users and that there is a need to plan and design pedestrian infrastructure on streets and intersections that is safe, well-connected and comfortable for pedestrians (including people with disabilities) to use. In discussions at the first workshop it was agreed that the principles first developed in The Netherlands for cycling are also appropriate for planning walking networks. The principles, slightly modified, are:

- **Attractiveness** – each route should feel attractive to use and include a feeling of personal safety for users.
- **Coherence** – there should be a choice of routes and the network should be legible and easy to use.
- **Comfort** – surfaces should be smooth and well maintained and shading provided along paths. The number of stops along the route should be minimised.
- **Directness** – direct routes with no unnecessary detours to provide journey times by bicycle that are competitive with the car.
- **Safety** – separate cyclists from motorists and pedestrians where necessary, but allow mixed use along low speed, low volume streets. Design should be predictable in terms of alignment and priority.

These are discussed further in Section 7.4 of this report.

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5. **Data Collection and Analysis**

Data collection and analysis were undertaken to further understand the current state of cycling and walking in the City of Canning. This included:

- A desktop mapping study of the existing footpath and cycle network;
- Mapping of activity centres, employment centres, education facilities and public transport hubs likely to be key attractors for cyclists and to a lesser degree, walkers;
- Analysis of crash statistics, traffic volumes and speeds along different road types and intersections;
- Analysis of data from Strava which is an online application that allows cyclists and walkers to upload their routes, distances and times; and
- Conducting a saddle survey.

Together with key stakeholder input and community consultation (described in Chapter 6), outcomes of this analysis identify missing links in the cycling and walking network and locations in the City that are hazardous for cyclists and pedestrians. It is then possible to identify where safer connected routes may be achieved.

### 5.1 Identification of Key Attractors

A desktop mapping exercise was undertaken in order to become familiar with the extent of the City of Canning, its various land uses, its urban form and the amenities and services available to residents, workers and visitors.

The major activity centres are key attractors, including for cycling and walking trips and it is important to understand how the City is laid out and where people need to travel to and from as they partake in their daily routines to attend work or school, visit family and friends, partake in leisure activities or to obtain goods and services. This helps to determine people’s motivation for travel and begins to explain elements of their travel behaviour. It indicates popular destinations where there is likely to be existing demand for cyclist and pedestrian infrastructure and where there is potential to encourage mode shift (out of cars) to cycling and walking.

The key attractors are summarised in **Table 5.1** and mapped in **Appendix H, Map 4**.

**Table 5.1: Key attractors in the City of Canning**

<table>
<thead>
<tr>
<th>Type of Attractor</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train stations</td>
<td>Welshpool, Queens Park, Cannington, Beckenham (City of Gosnells), future Ranford Road, future Nicholson Road, Bull Creek (City of Melville), Murdoch (City of Melville)</td>
</tr>
<tr>
<td>Bus interchanges</td>
<td>Albany Highway/Cecil Avenue, Southlands, Curtin University (Town of Victoria Park)</td>
</tr>
<tr>
<td>High schools</td>
<td>Rossmoyne, Willetton, Lynwood, Sevenoaks, St Norberts</td>
</tr>
<tr>
<td>Universities</td>
<td>Curtin (Town of Victoria Park), Murdoch University (City of Melville)</td>
</tr>
<tr>
<td>Main shopping areas</td>
<td>Carousel, Bentley La Plaza, Riverton Forum, Southlands, Livingston</td>
</tr>
<tr>
<td>Hospitals</td>
<td>Bentley, Fiona Stanley Hospital (City of Melville) and St. John of God (City of Melville)</td>
</tr>
<tr>
<td>Sports areas and regional open space</td>
<td>Cannington Leisureplex, Riverton Leisureplex, Burrendah Reserve (opposite Southlands), Bentley (Hedley Place), Queens Park Regional Open Space, Canning Vale Regional Sports Complex (proposed), Centenary Park, Canning River Foreshore, Kent Street Weir</td>
</tr>
<tr>
<td>Industrial areas</td>
<td>Welshpool, Canning Vale, Willetton</td>
</tr>
<tr>
<td>Perth City</td>
<td></td>
</tr>
</tbody>
</table>
5.2 Crash Data and Analysis

Main Roads WA provided a Detailed Crash Extract for the City of Canning for the period of 5 years between January 2010 and December 2014. The data was analysed to identify and understand places of key concern in terms of the high number of crashes involving pedestrians or cyclists. These locations may be targeted for improvement later in this plan.

A total of 11,633 crashes were recorded, of which 162 involved cyclists and 88 involved pedestrians. Almost all of the crashes involved a motor vehicle. Proportionally to the mode share of car driving, cycling and walking, there is a higher rate of car crashes than for cycling and walking.

Crashes involving cyclists are summarised in Table 5.2 and shown graphically in Figure 5.1. Of the crashes that involved cyclists:

- 85% occurred on the carriageway;
- 14% occurred on the path;
- 1% occurred on the right verge after leaving the carriageway.

There was one fatal crash, which occurred at the intersection of Kewdale Road and Dowd Street in 2014.

Table 5.2: Crashes involving cyclists in the City of Canning (January 2010 to December 2014).

<table>
<thead>
<tr>
<th>Type \ Severity</th>
<th>Fatal</th>
<th>Hospital</th>
<th>Medical</th>
<th>PDO Major</th>
<th>PDO Minor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Angle</td>
<td>11</td>
<td>29</td>
<td>11</td>
<td>56</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>Rear End</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Sideswipe Same Direction</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Right Turn Through</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Hit Object</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Head On</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Non Collision</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>12</td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>21</td>
<td>41</td>
<td>17</td>
<td>82</td>
<td>162</td>
</tr>
</tbody>
</table>

Source: Main Roads WA Reporting Centre, February 2016
Crashes involving pedestrians are summarised in Table 5.3 and shown graphically in Figure 5.2. Of the crashes that involved pedestrians:

- 93% occurred on the carriageway;
- 5% occurred on the path;
- 2% occurred on the left verge after leaving carriageway.

There were five fatal pedestrian crashes, which occurred at the following locations:

- Intersection of Chapman Road and Pitt Street;
- Intersection of Albany Highway and Nicholson Road;
- On Gibbs Street between Davies Street and Batten Road;
- On Ferndale Crescent between Karri way and Crowea Way;
- On Nicholson Road between Brookman Avenue and Montrose Street.

Table 5.3: Crashes involving pedestrians in the City of Canning (January 2010 to December 2014).

<table>
<thead>
<tr>
<th>Type \ Severity</th>
<th>Fatal</th>
<th>Hospital</th>
<th>Medical</th>
<th>PDO Major</th>
<th>PDO Minor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit Pedestrian</td>
<td>5</td>
<td>38</td>
<td>20</td>
<td>1</td>
<td>24</td>
<td>88</td>
</tr>
</tbody>
</table>

Source: Main Roads WA Reporting Centre, February 2016
Further investigation of the crash data revealed that:

- Of crashes involving cyclists 69% occurred at an intersection;
- Of crashes involving pedestrians 70% occurred in a midblock location.

In order to reduce the potential for cyclist and pedestrian accidents as much as possible, this plan should focus on (but not be limited to):

- Provision of safe cyclist crossing facilities at intersections;
- Provision of sufficient and safe midblock crossing facilities for pedestrians.

Crash data held by the City of Canning for cycle and pedestrian incidents were also analysed. These datasets are mapped in Appendix H, Maps 1 (cyclists) and 2 (pedestrians). The data are summarised in Table 5.4.

**Table 5.4: City of Canning cyclist and pedestrian crash locations**

<table>
<thead>
<tr>
<th>Cyclist/Pedestrian</th>
<th>Location</th>
<th>Intersection Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclist</td>
<td>Welshpool Road and Swansea Street East</td>
<td>Uncontrolled intersection</td>
</tr>
<tr>
<td>Cyclist</td>
<td>Boulder Street and Ashburton Street</td>
<td>Roundabout</td>
</tr>
<tr>
<td>Cyclist</td>
<td>Roe Highway Principal Shared Path, Orrong Road and Welshpool Road East</td>
<td>Traffic lights</td>
</tr>
<tr>
<td>Cyclist</td>
<td>Nicholson Road and Bannister Road</td>
<td>Traffic lights and slip lanes</td>
</tr>
<tr>
<td>Cyclist</td>
<td>Acanthus Road and Karel Avenue</td>
<td>Uncontrolled intersection</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>Ashburton Street, Albany Highway, John Street</td>
<td>Traffic lights</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>Palmerston Street, Albany Highway, Tate Street</td>
<td>Uncontrolled intersection</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>Mallard Way and Sevenoaks Street</td>
<td>Uncontrolled/entry to park and ride</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>Cecil Avenue and Albany Highway</td>
<td>Traffic lights</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>Albany Highway, opposite Cockram Street</td>
<td>Uncontrolled intersection</td>
</tr>
</tbody>
</table>
Some of these accidents occurred at the borders of Canning and its neighbouring local government areas. It may be appropriate for the City of Canning to liaise with its neighbours when planning for and delivering infrastructure and this has been suggested in the Implementation Plan in Section 10 of this document. Cyclists and pedestrians ideally, should not be able to pick where the local government boundaries are and the infrastructure, when built, should be seamless.

### 5.3 Strava

Strava data was supplied by the City of Canning. The data is documented in Appendix A and mapped in Appendix H, Map 3. Strava data indicates popular bicycle travel patterns and volumes travelling along routes.

Strava is an online application where athletes (including cyclists and walkers) can upload their routes, distances, times and other statistics and compare themselves with others for competition or training purposes. The aggregated data is made available to local governments to inform where demand for cycling and walking is high and can be used to support decision making when planning, maintaining and upgrading cycling and pedestrian facilities.

Strava data is not without bias. As it is crowdsourced, it is likely to favour popular routes and reflect the preferences of technology-savvy, keen, commuter or recreational cyclists rather than provide a holistic assessment of the use of and need for paths within the City. Gaps in the Strava data may indicate gaps in the cycle network. These are documented in Appendix A. Some of these gaps have been recommended for improvement later in this plan.

### 5.4 Saddle Surveys

A saddle survey, commencing at the City of Canning office, was undertaken on Friday 11 March 2016 (see Figure 5.3). This consisted of three teams of two cyclists. Teams included staff members from the City of Canning or the Department of Transport. Teams had varying levels of cycling experience. This was intentional, to obtain a spectrum of views. The purpose of the survey was to provide an overview of the connectivity and riding conditions on key bicycle paths and also assist in identification of any missing links. The teams traversed their assigned routes and noted deficiencies or other problems.

Figure 5.3: Saddle survey participants preparing at City of Canning office.

The saddle survey results are presented in Appendix B.
The saddle survey comments have been categorised and are graphed in Figure 5.4. Upgrading of existing infrastructure is the primary category of issue reported.

Figure 5.4: Categories of issues reported in the saddle surveys

Note that Figure 5.4 shows that the saddle survey had no reports of cyclist and pedestrian conflict. This category is included to allow direct comparison of the saddle survey results with the results of the general community survey (presented in Figure 6.2). Saddle survey participants reported a much higher need for upgrades to the existing infrastructure than the general community, and had less of a focus on crossings. The need for maintenance, the need for new infrastructure and the provision of end of trip (EOT) facilities occupied about the same proportion of responses in both surveys.
6. **Community and Stakeholder Engagement**

6.1 **Consultation Strategy**

The City of Canning convened a steering committee comprising both engineering and planning staff from the City, as well as policy officers from the Department of Transport. The steering committee members guided the development of this plan and provided local knowledge as well as information about state policies. Monthly steering committee meetings were held throughout the development of this plan.

A consultation strategy to engage both key stakeholders and the community was developed.

The steering group identified the following stakeholders:

- State government agencies;
- Bicycle user groups;
- Disability representatives;
- Westcycle;
- Adjacent local governments;
- Local schools; and
- Interested community members.

Engagement was achieved through the facilitation of two workshops. The first was designed to discuss and agree on a vision and strategic plan for cycling and walking and the second focussed on proposals for implementation of any cycling and walking infrastructure. These workshops provided the opportunity for stakeholders to meet as a group, provide input on the plan, and assist in influencing key planning principles and strategies subsequently adopted. Community members were also engaged by handing out flyers notifying of the development of the Cycling and Walking Plan during Bike Week 2016 and by providing regular updates on the City’s website as the development of the Plan progressed.

Community consultation has the primary purpose of keeping the ratepayers and residents of the City of Canning informed and engaged about the development of important policy and future planning directions for the City. Successful community engagement enables residents and ratepayers to comment on the development of the plan early in the process and throughout the planning process. This is often referred to as “consult early and consult often”.

Community comments were invited in the form of an online survey. Written submissions were also accepted for those who do not use the internet. In addition, a survey was sent to all schools in the City of Canning, providing a chance for the school’s administration to assess and advocate for cycling and walking facilities in the vicinity of their schools.

Summaries of the outcomes from the two workshops and community consultation follow.

6.2 **Key Stakeholder Responses**

6.2.1 **Workshop 1**

Workshop 1 was held on Thursday 18th of February 2016 at the Canning River Eco Education Centre. The workshop was attended by 21 participants, including personnel from the City of Canning, state government departments and neighbouring local governments.
Participants responded to the icebreaker question: “What is the most important aspect to you with regards to cycling and walking in the City of Canning?” Powerpoint slides detailing the current situation as well as possible future options were presented. There was a group discussion on vision, with the consensus being that all streets in the City should accommodate cycling and walking. A short term target was not specified, but longer term targets were presented for consideration.

Strategies for promotion and behavioural changes were discussed. There was discussion on the Dutch bicycle planning principles, which were subsequently adopted by the workshop group as appropriate for the City. Participants completed a questionnaire on City-specific issues and a group activity to map areas in the City requiring improvement was undertaken. It was agreed to refine the vision, targets, principles and strategies for the next Steering Committee meeting which was held on 8th March 2016 and to map network links for discussion at Workshop 2, which would be held to consider proposals for network improvements.

6.2.2 Workshop 2

Workshop 2 was held on Tuesday 5th of April 2016 at the City of Canning offices. The workshop was attended by 14 participants, including personnel from the City of Canning, state government departments and neighbouring local governments.

Workshop participants were updated on the progress of the project and then presented with a map showing a suggested path network for the City. Participants split into two groups. One group focussed on the portion of the City north of the Canning River. The other group focussed on the portion of the City south of the Canning River. The groups were asked to provide comment about the suggested routes, such as where a known route has not been identified and to suggest a priority for each route. A key issue that arose was the interfacing of the City of Canning with its neighbouring local governments. Some neighbouring local governments (such as the City of Belmont) are also active in providing cycling and walking infrastructure and wish to continue to work together with the City of Canning to provide seamless facilities across the boundary. This will benefit residents in both Cities. The City will need to liaise with some of its other neighbouring local governments to encourage commitment (in the form of infrastructure provision) to cycling and walking and ensure seamless transition as pedestrians and cyclists move across local government boundaries.

Information collated in Workshop 2 has been used to inform the final proposed routes and prioritisation later in this plan.

6.3 Community Response

6.3.1 Schools

Survey forms were sent to all primary and high schools in the City of Canning. Four schools provided a response. These were Bannister Creek Primary School (in Lynwood), Lynwood Senior High School, Shelley Primary School and Queen of Apostles Primary School (in Riverton). Results can be found in Appendix C. It should be noted that four schools is a low response rate to this survey. The majority of schools in the City of Canning did not provide a response.

In summary, at all responding schools except Queen of Apostles, 5% or more of the children ride to school (either with their parents or alone). At Queen of Apostles, the figure is 2-3%. At Shelley and Bannister Creek Primary Schools more than 20% of children walk to school. At Lynwood Senior High 15-20% of students walk to school. Queen of Apostles estimates that less than 5% of its students walk to school. Bicycle parking/storage is provided at all schools. At Bannister Creek Primary, demand for bicycle parking presently exceeds supply. Shower facilities are available to students at Lynwood Senior High and Bannister Creek Primary. No schools have plans (or Education Department funding) to increase the level of end of trip (EOT) facilities.

All the schools that responded to the survey conduct programs to promote active travel. These include: Cycle/Walk to School Days, Bike Ed, the Walking School Bus and the School, Drug and Road Aware (SDERA) initiative. Bannister Creek is a Travel Smart school.
The responders reported that the cycle routes to their schools were inadequate or non-existent. Crossing Metcalfe Road was identified by both Lynwood Senior High and Bannister Creek Primary as a hazard. These schools also flagged Romney Way, Gama Court, Lynwood Avenue, Woodford Ave, High Road and Nicholson Road as dangerous for cyclists and walkers. Shelley Primary flagged crossing of Leach Highway (between Riverton and Shelley) as an issue. All schools ranked the quality of shared paths near their schools to be poor, but most ranked the footpaths to be of medium quality.

Convenience, distance, weather and time were flagged as key motivators/disincentives to partake in active transport. Lack of safe crossings and paths, feeling of safety/security and lack of confidence/training were also identified as disincentives.

All schools said they would promote active transport if provision for cycling and walking could be improved. Shelley and Bannister Creek particularly expressed a desire to be more involved with the Travel Smart Officer at the City of Canning or to be consulted about future upgrades, programmes and works.

Particular attention has been given to the schools that responded to the survey in the plan and suggestions are made to address many of the issues of concern.

6.3.2 General Community

The community was given the opportunity to participate in a survey aimed at understanding current cycling and walking habits, opinions and concerns. There was also a map, where community members could pinpoint areas needing infrastructure provision or upgrade for pedestrians and or cyclists.

The survey was completed by 71 respondents. It was not compulsory for participants to provide demographic details, but from the people who did provide these details, we know that the survey reached both men and women across a range of age groups and suburbs within the City and outside of it. The sample included 51% male and 49% female respondents. Figure 6.1 shows the age of respondents, with the 26-35 years and the 56-65 years having the largest proportions. Table 6.1 shows the suburbs in which respondents reside. There are responses from people resident outside of the City. This indicates that non-residents also use (and therefore have an interest in) the City’s cycling and walking amenities, possibly to access work or other services.

**Figure 6.1: Age of respondents**

**Table 6.1: Place of residence of respondents**

<table>
<thead>
<tr>
<th>Canning Suburbs</th>
<th>Percentage</th>
<th>Non-Canning Suburbs</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bentley</td>
<td>3.1</td>
<td>Bull Creek</td>
<td>1.5</td>
</tr>
<tr>
<td>Canning Vale</td>
<td>1.5</td>
<td>Gosnells</td>
<td>1.5</td>
</tr>
<tr>
<td>Cannington</td>
<td>7.7</td>
<td>Langford</td>
<td>1.5</td>
</tr>
<tr>
<td>East Cannington</td>
<td>3.1</td>
<td>Leeming</td>
<td>1.5</td>
</tr>
</tbody>
</table>
There were 15 questions in the survey. The initial question asked which mode of transport the participant regularly uses. Remaining questions then target either the cycling or walking habits of the participant. Responses given by participants to the survey questions are depicted in Figure A1 to Figure A15 of Appendix D.

In Figure A1, it can be seen that car as driver is the dominant means of transport with 39% of respondents regularly using this mode. Cycling is next most regularly used mode at 25%, followed by walking at 16%. Given that this community survey is likely to attract people already engaged in walking and especially in cycling, car-only users are likely to be under-represented, so the mode share demonstrated in this result cannot be extrapolated to all of the City’s residents. Rather, this result provides some indication of the long term mode share that could be achieved if enthusiasm for cycling and walking was more widespread in the City’s population.

Recreational cycling is popular with 47% of respondents engaging in this activity (Figure A3). Cycling for the purpose of commuting is the next most popular reason for using a bicycle at 33%, followed by cycling for a sport at 18%. In Figure A5 it can be seen that more than two-thirds of respondents cycle either daily or weekly (during the weekdays). The key destinations people ride to broadly support this dominant reason for cycling (Figure A7). Parks and rivers are the most popular destination at 37%, followed by workplaces at 19% of cycle trips and train stations at 13% of cycle trips. These two destinations reflect the commuter cyclists in the survey. 15% of respondents go to the shop by bicycle and 8% reach school by bicycle.

In Figure A6, we see that 96% of respondents believe they have average to high levels of bicycle riding skills. Only 4% of people indicated that they cannot ride a bicycle. Nobody claimed to have poor to average skills. This indicates that, in general, the respondents represent the more experienced riders and feel competent in the operation of a bicycle.

89% of respondents claim to currently cycle (Figure A2) and 97% of respondents own a bicycle (Figure A4). Access to a bicycle (or economic means to purchase a bicycle) is therefore not an impediment to cycling. A perceived or real lack of cycling paths and facilities is the main barrier to cycling in the City, with 62% of participants giving this response (Figure A8). 94% of respondents would consider cycling more if the correct infrastructure was available (Figure A9). This indicates that infrastructure provision is a key need for the encouragement of cycling in the City.

21% of respondents do not wish to cycle more than 10km (Figure A10). A further 21% of respondents will cycle up to 15km. These distances are longer than could be expected for a broad range of cyclists, confirming again that the sample is representative of more serious cyclists.

Moving to the questions specific to walking, Figure A11 reveals that 73% of respondents walk either daily or weekly (during the week days). 81% of people will walk up to 2km (Figure A12).
We see in Figure A15 that, similar to cycling, parks and river areas are key destinations for walkers at 35%. 30% of respondents walk to the shop. Walking to reach the train station or bus stop is also popular at 22%. It is rarer for respondents to access schools or workplaces by walking. These destinations attract only 7% and 4% of respondents according to the survey. This number of people who walk to school is not as high as might be expected and again, indicates that the survey is likely not representative of all the City’s residents.

There are numerous barriers to walking in the City (Figure A13). Safety and security is perceived to be the key issue at 21%, followed closely by inconvenience (for example when carrying shopping) at 20%. Related to safety and security, 17% of respondents say there is insufficient lighting at night and a further 17% cite a lack of footpaths or footpaths being too narrow as a barrier to walking. 15% of respondents find the weather to be a deciding factor and a final 10% believe a lack of safe pedestrian crossings or intersections is a problem. 83% of respondents would consider walking more if these issues could be rectified. The results to this question suggest that the barriers to walking are more varied than those that stop cycling. Walkers are likely a more diverse group than cyclists and warrant special attention. It would appear there is no one, clear response to how the barriers to walking can be overcome. Though cyclists and pedestrians in some ways have similar needs, in other ways they are not congruent. Section 10.2.1 provides guidance for accommodating cyclists and Section 10.2.2 addresses the needs of pedestrians.

It should be understood that the survey was not completed by a cross-section of people throughout the community. The responders are most likely keen, competent cyclists. The views of those who do not cycle, those who only walk, as well as those who are less able (perhaps children) are almost certainly under-represented. The sample size (number of people completing the survey) was also low, given the population of the City. The results of the survey should be interpreted with these caveats in mind.

Results of the mapping exercise are in Appendix E. 194 locations were pinpointed by the public (including the school survey and responses received in hardcopy at the City of Canning office). Many of these places have subsequently been targeted for improvement later in this plan. Similar to the saddle survey comments, the public reports have been categorised according to the nature of the problem (Figure 6.2). The public sees cyclist and pedestrian conflict as a big problem, with 35% of reported places on the map having this issue. Crossings and the need to build and maintain new cycling and walking infrastructure also rate highly as concerns (at 19%, 15% and 13% of the reports). The manner in which cyclists and pedestrians interact is a behavioural issue as well as an infrastructure provision one and is addressed later in this plan.

Figure 6.2: Categorising of issues reported by the public
7. Vision, Principles and Targets

7.1 Vision for Cycling and Walking in Canning

The following vision was developed by the City of Canning following discussion at the workshops:

Cycling and walking will be a safe, attractive and viable travel option between neighbourhoods and destinations within the City of Canning and beyond.

This vision of how the City of Canning wants to be perceived in relation to cycling and walking in the future is fundamental in engendering change. The City of Canning wants to promote an environment friendly to both cyclists and walkers by improving the connectivity between neighbourhoods and destinations; where shared paths, greenways and bicycle facilities are further developed and integrated and all users are provided safe and convenient access. The City of Canning will work to forge partnerships, educate the community and design facilities that are both safe and attractive for use.

7.2 What Increases Cycling and Walking? Case Studies in Other Cities

Major change in mode share due to resident uptake of active transport is not unprecedented. Berlin, Germany and Portland, United States provide case study examples for cycling, whilst The Hague in The Netherlands provides a case study for walking.

The successes achieved by these cities in uptake of active transport, give encouragement to the City to set challenging, aspirational targets for mode shift. Common to all these case studies is that to achieve high levels of mode shift, local governments must commit to the implementation of proposed strategies and invest heavily in cycling and walking. Achievement of a transformational change of the type proposed will require the Council at all levels to understand the benefits, (including financial) that can accrue from the change.

7.2.1 Cycling

Cities that have high mode shares for cycling typically have continuous off road carriageway cycling facilities where cyclists are physically separated from cars and trucks on busy roads. The raised bicycle lanes installed in Copenhagen, Denmark (and now colloquially termed “Copenhagen-style” paths in Australia) were successful in increasing cycling 70% between 1970 and 2006. Another European city, Berlin never had the historic high level of cycling that cities such as Copenhagen are famous for, but it experienced considerable cycling mode share increase from 3% (in 1970 in West Berlin and 1990 in East Berlin) to 10% (Berlin-wide) by 2005. The introduction of safe (mostly off road) facilities is also credited with transforming cycling in Berlin. In 2004, Berlin had:

- 620 km of separate bicycle paths;
- 60 km of on road bicycle lanes;
- 50 km of bicycle lanes on paths;
- 70 km of shared bicycle lanes;
- 100 km of joint pedestrian / cyclist sidewalks;
- 190 km of off road bicycle ways through parks and forests; and
- 3,800 km of traffic calmed neighbourhoods.

The transformation that has occurred in Portland, Oregon in the USA is perhaps more relevant to bicycle transport planning in Australia. The level of car dependence in the USA is similar to that in Australia and it can be argued that the factors that reduce car dependence in favour of more cycling in Portland are likely to be applicable in Australia.
Between 1996 and 2008 the mode share of cycling in Portland, Oregon increased from 2% to 8%. As was the case in the European cities, a key success factor was the construction of many kilometres of separate bicycle paths. 480km of bicycle way have been constructed, most of these after 1991. Much of the bicycle way has been constructed with Copenhagen-Style raised bicycle lanes (see Figure 7.1). The experience in Portland is that people will cycle if they are provided with safe facilities separated from motor vehicles.

Figure 7.1: Copenhagen style raised bicycle lanes

The Hague, in The Netherlands provides an example of a city that has identified and implemented specific strategies to encourage walking. The City recognises that walking is clean, healthy, cheap, takes up less public space than other modes, and that the presence of pedestrians contributes to a vivid, safe and secure city. It realised that walking had been neglected in its previous transport plans, despite recognising that walking plays a part in nearly every individual journey (such as getting to the car park or public transport stop, or after leaving the bicycle rack). The City has subsequently employed both “hardware” and “software” measures are to promote walking. Walking mode share in The Hague is now about 30%.

The “Hardware” aspect has four main themes:

- Safety – walking in the neighbourhood. Residential areas are designed so that daily services can be reached by foot in a safe way. This may incorporate speed calming of vehicles, wide paths and crossings to make pedestrians feel safe. Accessibility measures for vulnerable pedestrians (the elderly, disabled) and walking routes to school are given attention.

- Connectivity – walking as part of a trip. This concerns the logical placement of public transport stops and stations. The stations and stops themselves as well as routes to the stations and stops should be of high quality, comfort and safety, barrier free and well lit.
- Predominance – walking in the city centre. This recognises that people walk as a leisure activity, not just as a form of transport and that walking can contribute to the local economy. Design for walking in The Hague city centre incorporates public spaces, street furniture and signage to points of interest.

- Attractiveness – walking in parks. In The Hague green areas are made accessible and safe so as to encourage walking and increase quality of life. Where possible traffic is diverted away from green areas.

“Software” measures that have been successfully employed in The Hague include, marketing campaigns, provision of information and targeting people at periods of change in their life (such as moving house) to reassess their travel habits. These measures respond to the notion that a person’s daily travel patterns can be strongly habitual and encouraging ingrained car-users to walk more can be difficult if only the “hardware” aspects are focussed on.

### 7.3 Relationship Between Cycling and Train Stations

In 2011, Painted Dog Research conducted a study to investigate cycling and non-cycling behaviour amongst train passengers. Of the sample of train users who cycle to the station, only 11% used the Armadale line (which runs through the City of Canning). This is a low proportion in comparison to the other train lines and may suggest that there is scope to encourage people to cycle to the train stations in the City. Most people who currently cycle to the station live within 1 to 2 km or 2 to 5 km of the station. 5 km appears to be the optimum maximum distance a public transport user will cycle. The study found that 80% of those who cycle to the stations are male and fall within the 20-39 and 40-59 years age groups. Motivations were exercise, environmental concerns and proximity to the train station.

Cyclists were asked about the provision of amenities at train stations. There was a strong preference to use Lock and Ride Shelters. Bicycle lockers were the next most popular form of storage. Many cyclists expressed a desire to take their bicycles on the train with them (this preference increased as the value of the bicycle rose, suggesting that security or perception of security of storage facilities was an issue). Cyclists strongly agreed that cycling is a better alternative than driving to the station and parking a car, they also agreed that cycling is a better alternative than catching a bus to the station, although cycling is not necessarily faster than driving or catching a bus to the station. Secure storage facilities, end of trip (EOT) facilities, ability to take bicycles on trains in peak periods and provision of cycling paths were raised as areas for improvement.

Train users who do not cycle to the station were also surveyed. Key reasons for not cycling were convenience, time taken, and distance from the station. Concerns about the inconvenience of changing from cycle clothes to work clothes were raised, as was the need to use the car for other tasks before or after taking the train. 46% of non-cyclists own a bicycle and of these, over one third cycle at least once a week for recreational purposes. This group may be the easiest to target to mode shift from cars/feeder buses to active transport to reach the station since, it can be inferred that lack of skill or dislike of cycling in general is not an issue. The profile of these respondents is actually somewhat similar to the profile of those who cycle to the train station, (again most fall in the 20-39 and 40-59 years age groups and whilst the proportion living more than 5km from the station is higher, a majority still live either 1 to 2km or 2 to 5km from their nearest station; 53% are male) so the possibility of increasing the number of people cycling to stations exists if the reasons for not cycling can be mitigated. Non-cyclists strongly agreed that cycling to train stations is good for the environment and for exercise. Many perceived they would also save money compared to taking the bus or driving. Non-cyclists identified the same areas for improvement as cyclists. In addition, a bicycle hire scheme was also suggested (it can be inferred that lack of access to a serviceable bicycle and-or cost are issues for some non-cyclists).

Applicability to the City of Canning:

- Ensure a connected network of bicycle paths and crossings particularly in the 5km catchment of rail stations. Address issues of cyclist and pedestrian conflict. Rail stations in the City of Canning are located at Welshpool, Queens Park and Cannington. Bull Creek, Oats Street and Beckenham stations are not located in the City of Canning, but are close enough to its boundaries to be considered as trip attractors in this plan. Train stations are shown in Appendix H, Map 4.
When undertaking behaviour management programs, promote cycling to the station as a viable alternative to taking a feeder bus or driving a car.

Work with Transperth to provide and maintain weatherproof bicycle storage facilities and monitor their security.

Make City facilities, in particular showers and lockers available for end of trip (EOT) purposes. The Cannington Leisureplex may be particularly well placed for this role, as it is in close proximity to both the Queens Park and Cannington Stations. Alternatively, work with Transperth to provide lockers and showers at train stations.

Work with Transperth to determine if it is feasible for changes to shorten the period where bicycles on trains are banned (comments from participants in the study suggest it could be half an hour shorter, rather than 7am-9am and 4.30 to 6.30pm, bicycle could be permitted after 8.30am and after 6pm) and or for dedicated bicycle carriages on trains.

### 7.4 Planning Principles for Cycling and Walking

Planners in the Netherlands adopted the following principles to guide bicycle planning:

- **Attractiveness** – each route should feel attractive to use and include a feeling of personal safety for users.
- **Coherence** – there should be a choice of routes and the network should be legible and easy to use.
- **Comfort** – surfaces should be smooth and well maintained. The number of stops along the route should be minimised.
- **Directness** – direct routes with no unnecessary detours to provide journey times by bicycle that are competitive with the car.
- **Safety** – separate cyclists from motorists and pedestrians where necessary, but allow mixed use along low speed, low volume streets. Design should be predictable in terms of alignment and priority.

These principles have been used successfully in many countries and jurisdictions to guide bicycle planning. These principles were discussed at the first key stakeholder workshop (18th February 2016) and the general consensus was that these principles should be applied to walking as well as cycling. It was also noted that the Department of Transport has adopted the Dutch planning procedure for cycling.

The City of Canning has determined that in Perth’s hot climate, shading for pedestrians and cyclists is a critically important part of the comfort criterion. It should therefore be modified as follows:

- **Comfort** – surfaces should be smooth and well maintained and shading should be provided along paths. Continuity of movement along the route should be preserved.

### 7.5 Mode Share Targets

#### 7.5.1 Cycling Mode Share Targets

Currently cycling mode share in the City is about the metropolitan average of 1.3% for journey to work and 2% for all modes. However, the rate of growth of cycling in Canning is well below that in inner areas and less than the average rate of growth in metropolitan Perth.

There are examples in Germany (Berlin) and America (Portland, Oregon) where significant growth in the mode share of cycling has been achieved in a relatively short timeframe. In Perth, cycling to work has achieved 50% growth to an average of 3.8%, in the ten years to 2011 (on average) in the inner city municipalities of Vincent, South Perth, Victoria Park, Subiaco and Cambridge. The mode share of cycling by all modes is likely to be greater, although no data is available.
The City of Canning has a street network that is reasonably conducive to cycling and there are plans to increase density and the level of mixed use in its activity centres, particularly the Canning City Centre. The City is therefore well placed to increase the mode share of cycling in the short, medium and long term in accordance with the following targets:

- Short term to 2021 – to 4% mode share;
- Medium term to 2031 – to 6% mode share;
- Long term to 2051 – to 10% mode share.

### 7.5.2 Walking Mode Share Targets

Walking mode share in the City of Canning is estimated to be a little lower than the metropolitan average. The current mode share of walking in the City for all trips is estimated at about 10%, although there is a lack of data to verify this. The street network in the City is reasonably well suited to walking and the Local Housing Strategy which advocates for more mixed use development in centres, in particular the Canning City Centre, provides hope that walking can become a more popular mode of transport in the future.

Walking mode share in the City of Subiaco is already much higher than in the City of Canning. Journey to work mode share in Subiaco was 12.4% in 2011 and mode share for all purposes is likely to be approaching 20%. Suggested mode share targets for walking city wide in the City are:

- Short term to 2021 – to 11% mode share;
- Medium term to 2031 – to 14% mode share;
- Long term to 2051 – to 18% mode share.

However within activity centres in the City of Canning, the walking mode share targets should be set at a higher level. The Canning City Centre should set walking mode share targets of:

- Medium term to 2031 – to 15% mode share;
- Longer term to 2051 – to 20% mode share.

### 7.5.3 Overall Mode Share Targets - City of Canning

The above mode share targets and projected increases in public transport have the potential to reduce the amount of car driving by more than 25% (or 80,000 vpd) when compared to current mode shares. The targeted mode shares for all modes for the City of Canning are shown in Table 7.1.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Mode Share (2011)</th>
<th>Mode Share (2050)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car driver</td>
<td>57%</td>
<td>42%</td>
</tr>
<tr>
<td>Car passenger</td>
<td>22%</td>
<td>14%</td>
</tr>
<tr>
<td>Public Transport</td>
<td>7%</td>
<td>14%</td>
</tr>
<tr>
<td>Cycling</td>
<td>2%</td>
<td>10%</td>
</tr>
<tr>
<td>Walking</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>
8. Strategies to Increase Cycling and Walking in Canning

Six broad strategies have been adopted by the City of Canning, to increase the uptake of cycling and walking.

### 8.1 Land Use

<table>
<thead>
<tr>
<th>Land use change at activity centres, activity corridors and Transit Oriented Developments (TODs) around railway stations.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> to get more people living close to jobs, shops and other activities.</td>
</tr>
<tr>
<td><strong>Status:</strong> already a part of City of Canning policy.</td>
</tr>
<tr>
<td><strong>Key benefits:</strong> will benefit both cycling and walking.</td>
</tr>
</tbody>
</table>

### 8.2 Develop Safe Connected Network

<table>
<thead>
<tr>
<th>Plan and implement a safe connected bicycle network that provides viable and direct linkage to the key activity centres, rail stations, schools, shops and other attractions.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> to overcome people's fear of cycling and increase the level of cycling.</td>
</tr>
<tr>
<td><strong>Key features:</strong> safe, off street bicycle facilities separated from traffic and (where necessary) pedestrians; bicycle boulevards along local, low speed, low volume streets in specific locations, shared paths to access schools and lower level centres where bicycle and pedestrian use is relatively low; safer improved intersections and road crossings.</td>
</tr>
<tr>
<td><strong>Status:</strong> initial planning work has commenced. Significant planning and design work required.</td>
</tr>
<tr>
<td><strong>Benefit:</strong> will mainly benefit cycling but will also benefit walking in some areas.</td>
</tr>
</tbody>
</table>

### 8.3 Change Mindset Through Education

<table>
<thead>
<tr>
<th>Change the mindset of planners, decision makers and daily travellers through education programmes.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> to encourage more cycling and walking, increase the level of cycling and walking facilities and provide for a safer transport network for all.</td>
</tr>
<tr>
<td><strong>Key features:</strong> promote the benefits of cycling and walking and work with partners such as schools, major employers, local and state governments and the RAC in development and delivery of the programme.</td>
</tr>
<tr>
<td><strong>Key benefits:</strong> improved community health and fitness; reduced congestion through less car driving per person; reduced overall cost to fund transport system; travel cost savings to individuals; improved accessibility for more people, including independent travel for youth; environmental benefits (reduced pollution and greenhouse gases).</td>
</tr>
<tr>
<td><strong>Status:</strong> Education and training, although fundamental to improving road safety and changing mindsets, needs further development in WA. Will benefit all travellers regardless of how they travel.</td>
</tr>
</tbody>
</table>
### 8.4 Develop and Implement Travel Plans

**Develop travel plans and introduce behaviour change programmes.**

**Objectives:** to encourage more cycling and walking.

**Key features:** travel plans for universities, TAFE, government and local government offices and schools; travel plans and end of trip facilities for major developments as condition of development; Travel Smart behaviour change programmes to schools, community facilities and mixed use centres.

**Status:** where introduced delivers benefits through less car ownership and more walking, cycling and public transport. Implementation has been inconsistent and patchy.

**Benefits:** all travellers through reduced congestion around schools, in centres and throughout community.

### 8.5 Policy Development for Improved Safety and Accessibility

**Develop policies that support best practice to improve accessibility and safety for cyclists and pedestrians.**

**Objectives:** enable pedestrians and cyclists to move around more safely in a way that improves overall accessibility.

**Key features:** safer bicycle and pedestrians road crossings; safer intersections with priority for cyclists and safe crossing for pedestrians; design guidelines for bicycle and shared use paths, including road crossing facilities.

**Status:** existing policies need reviewing and design guidelines for separate bicycle and shared use paths need to be developed in the light of proposals suggested at the 2015 Cycling Imagineering Workshop (Department of Transport). The Department of Transport and the City would need to work closely on these matters.

### 8.6 More Tree Cover and Shade

**Provide for greater shading and tree cover for pedestrian and cycling paths.**

**Objectives:** Provide sufficient shading of paths to ensure the comfort of pedestrians and cyclists.

**Key features:** Additional tree planting along pedestrian and cycling paths, appropriate tree species selected.

**Status:** Tree planting and shading policies need to be reviewed to ensure appropriate tree planting and street awnings to provide improved amenity for pedestrians and cyclists. Awnings along shopping streets in centres to be addressed as part of structure planning.
Part 2 Implementation Section
9. Funding

In the 2014/2015 and 2015/2016 financial years, the City of Canning spent approximately $650,000 on cycling path projects. The City has around 100,000 residents, so this funding amounts to $6.50 per head of population. The amount of money available for the City to spend may from time to time be supplemented by grants from the Department of Transport for specific cycling or walking infrastructure projects (the $650,000 include a Department of Transport contribution).

It is recommended that the annual funding for cycling in the City of Canning is doubled, increasing to $15 per head of population by 2021, and then more than tripled, increasing to $20 per head of population by 2031. This compares to the following levels of funding either existing or proposed in countries and cities that either have or aspire to have good cycling infrastructure:

- The Netherlands - $48 per person (existing);
- London - $28 per person (proposed);
- UK - $20 per person increasing to $40 per person (recommendation of the All Party Parliamentary Cycling Group).

Assuming a population of 100,000 within the City of Canning, expenditure on cycling should reach $1.5 million by 2021, rising to $2.5 million by 2031 (assuming an increased population of 125,000). These figures should be based on the real purchasing power of the dollar (ie. the expenditure in future years should be indexed upwards to compensate for the future increased cost of infrastructure).

This proposed expenditure should be shared between the City of Canning and the State Government notionally on a 50/50 basis, which is the basis in which state grants to local government are dispensed. The City of Canning’s share of funding could therefore be expected to increase from the current average of about $650,000 (including DoT contribution) to about $750,000 excluding DoT contribution by 2021 and to $1.25 million excluding DoT contribution by 2031.

The State Government has spent an average of $17 million per annum over the last 3 or 4 years. This expenditure includes bicycle expenditure within the roads budgets (on projects like the PSP along Roe Highway). To meet these targets in the future, the State Government will need to increase its overall expenditure to $34 million per annum with the vast majority of the additional funding going to Local Government grants based on a 50% contribution by the Local Government. This implies that there would need to be a large increase in State Government grants to Local Government. This may not be achieved in total, but also not all Councils will have good projects approved and the matching funding in their budgets. Those councils that do will be better placed to receive a higher proportion of State Government grants.

Not all of the expenditure would necessarily need to be expended on infrastructure. Some level of expenditure could be allocated to TravelSmart/Your Move behaviour change programmes, education programmes and to employment of a TravelSmart/Your Move Officer with responsibilities for implementing and managing cycling and walking initiatives.

In summary, the current level of expenditure on cycling is low compared to expenditure on roads. There is certainly a reasonable annual increase in funding that would need to be budgeted to double cycling in the City by 2021 and triple it to 6% by 2031. However, the benefits to the community will be substantial and it could be expected that per capita funding for car travel would reduce in line with lower per capita car use. As road infrastructure is more expensive than cycling infrastructure, there could even be a saving in the long term.
10. Cycling and Walking Network

This report suggests a network of safe, connected cycling and walking routes will need to be implemented to improve safety and increase participation in cycling and walking. These have been developed based upon analysis of the existing situation, consideration of community and stakeholder comments and the need to create bicycle routes that accord with agreed bicycle planning principles and strategies as outlined in Sections 7 and 8 of this report.

10.1 Legislation Change

On Tuesday the 26 April 2016, the Western Australian Road Traffic Code was changed to permit cyclists of any age to ride along footpaths. Previously this had been prohibited for people aged over 12.

This change brings Western Australia into line with the rest of Australia and is designed to improve safety for cyclists travelling at low speed and who do not feel safe riding on the road.

It means that all footpaths effectively become shared paths, although the intent remains that footpaths continue to give priority to pedestrians. Cyclists are expected to travel with care on footpaths at low speed and who do not feel safe riding on the road.

Education of both cyclists and pedestrians to share the amenities is discussed in Section 11.6.

10.2 Design Guidelines

10.2.1 Cycling

The City of Canning should encourage the Department of Transport (DOT) to develop a cycle design guide and then adopt the provisions of the guide, as appropriate, within the City. In its role as the lead agency for the transport portfolio, the DOT should liaise with Main Roads WA, the Public Transport Authority and local government in the development of this guidance. Austroads\(^\text{12}\) has existing guidance, but there is an opportunity for DOT to customise the guide to Western Australian conditions and local governments would further apply the guidance to local conditions. Four aspects that the guide could address and which would be applicable in the City are:

- Cycle facility development and management at large shopping centres such as in the Canning City Centre / Carousel shopping centre;
- On verge bicycle path designs to create safe, convenient facilities, particularly at intersections;
- On road lane designs; and
- Road markings for cyclists, particularly where cyclists enter and negotiate intersections.

Space to ride, smooth surfaces, speed maintenance, sight lines, connectivity and information are the basic considerations when designing for cyclists. The cyclist envelope (Figure 10.1) gives the minimum dimensions for designers to focus on.

The following should be considered in the development of design guidelines for cyclists:

- Cyclists require additional clearances to fixed objects (the “car dooring” described in the saddle survey results) and to passing vehicles.

- It is desirable that surfaces used for cycling be smoother than roads. Since bicycles have narrow, highly inflated tyres and no suspension, smooth paths make a large impact on cyclist comfort and safety.

- Paths should be maintained to be free from debris. Designs should minimise the likelihood of debris going on to paths. Appropriate landscaping choices should be made.

- Continuous routes where cyclists do not have to slow down or stop frequently are desirable, but in practice this may be difficult to achieve on a shared path where pedestrian safety is a consideration. On a cycle path, cyclists typically travel at a speed of 20-30 km/h, but this may rise as high as 50km/h in some circumstances. It takes effort to brake and then regain speed.

- Designing for cyclist sight lines helps to minimise cyclist/pedestrian conflict and to view and react to hazards on the path.

- Infrastructure provision should be continuous and changes between treatments (eg. from shared path to bicycle lane) should be seamless.

- Bicycle routes should be signposted to indicate distance, direction, time and points of interest.

When providing paths for cycling, consider:

- Design criteria including bicycle operating speed, horizontal alignment, width, vertical alignment, crossfall and drainage, clearances/batters/fences and sight distances.

- How paths cross roads. Options may include grade separation, signalised crossings, with movements to allow cyclists or un-signalised crossings, such as median refuges.

- How paths cross other paths. Designs should cause cyclists to lower their speeds and the angle of intersection is relevant. Painted give way or stop markings may be appropriate.

- Path terminal treatments, where a path ends or is about to intersect and road or other hazard.
• Lighting for paths that are heavily used at dawn, dusk or night.

When providing for cyclists on-road consider:

• Design criteria including road geometry, gradient, cross section and clearances.

• Accommodation of cyclists on-road. Methods include wide kerbside lanes, sealed shoulders or dedicated bicycle lanes. The decision needs to balance the needs of all groups of road users.

• The various types of bicycle lane treatments available. Choose the one that is best for the road being designed for. Lanes should ideally be provided on both sides of the road so that cyclists can travel in the same direction as the vehicles. Integration of lanes with parking spaces and public transport stops will need additional attention.

• Curves and turns, which can present a hazard for cyclists. In terms of curves, cyclists can experience sideswipes and rear impact accidents from motor vehicles that are too close. Protection to cyclists, for example in the form of raised traffic islands or mountable kerbs to allow the cyclist to move off the road, may be appropriate.

• Lane channellisation can be used where it is necessary to reinforce the exclusive nature of bicycle lanes and could be in the form of continuity lines, rumble edge lines or low profile rubber kerbing.

When providing for cyclists at intersections, consider:

• How to remove or mitigate common hazards, including “squeeze points”, vehicles turning left into a side street or driveway, areas where motor vehicles converge and diverge, cyclists having to weave through traffic to turn right and motorists misjudging cyclist speeds or not looking for cyclists.

• At signalised intersections, the needs of on-road (typically experienced cyclists) such as detection, signal phasing/timing and road space, and for off-road cyclists, the incorporation of cycle paths as they feed into intersections. A bicycle box that provides cyclists a head-start in relation to motorists may be desirable at some intersections.

• At roundabouts cyclists are at particular risk. It may be possible to provide a ramp to allow on-road cyclists to join the path to negotiate the roundabout. Or a specific (painted and marked) cycle lane can be provided within the roundabout.

10.2.2 Walking

A number of design measures can improve the walking environment. The document “Planning and designing for pedestrians: guidelines” (2016) produced by the WA Department of Transport is useful. Considerations include:

• Road Safety: pedestrians are the most vulnerable road users and it is highly desirable that they are separated from traffic.

• Pedestrian safety: design of path networks should take the principles of passive surveillance into account. For example, footpaths can be overlooked from buildings and sufficient lighting provided.

• Walking speed: the typical adult walking speed is 1.5m/s, but for an elderly person this may drop to 1m/s. These measures become important when assessing how long a crossing will take.

• Path widths: can vary from 1.2m (which will permit a wheelchair) to 3-4m in a very busy CBD area. At least 2.4m is desirable for commercial and shopping areas.
Street furniture: such as benches and bins can aid walker comfort but it should be situated off the path. The colour of street furniture should contrast with the background. Water fountains may provide for a more comfortable pedestrian experience in hot climates.

Drainage grates: must meet minimum slot sizes so as to prevent feet, wheels or canes from becoming caught.


At crossings consider the need for kerb ramps, landings, pedestrian refuges, grab rails, directional and warning TGSI and audio tactile amenities. Ensure that signalised intersections have pedestrian phases.

Consider the need for zebra crossings in mid-block areas. Crossings should be located conveniently to ensure pedestrians are able to cross nearby facilities and public transport stops.

Various types of pedestrian crossing control are available for railways. These range from bridges and underpasses to at grade crossings that use pedestrian mazes or lockable gates to protect pedestrians.

Consider the need for markings on footpaths e.g. walking to school and other signage such as to alert motorists to a school zone.

Maintenance of footpaths.

Streetscape designs to incorporate tree planting where possible to provide ample shade to the path.

Integration of garden beds where appropriate to enhance the streetscape as well as incorporating urban water wise principles.

10.3 Network Plan Implementation

A precinct by precinct planning approach was undertaken to create a connected network within and between precincts in the City. Routes were developed, costed and prioritised. For cost reasons, it will not be possible to develop a fully connected city network within the first 5 years.

The implementation plan was developed based upon the knowledge gained during the workshop, survey and consultation processes described earlier in this report. It can be seen in Appendix G and should be read in conjunction with Appendix H, Maps 7 to 12.

10.3.1 Cycling Network Improvement Options

It is recommended that consideration be given to the following design options when planning and delivering a connected network of cycling routes within the City of Canning.

- **Bicycle boulevards** along low speed, low volume streets. The Department of Transport (DOT) recommends bicycle boulevards for roads with less than 1500 vehicles per day. Currently there is no single template for design. The DOT is encouraging local councils to develop innovative designs, to consult with the local community and to apply for grants for implementation of trial schemes. The intention is that these bicycle boulevards would have a maximum speed limit of 30km/h for all vehicles.

- **Shared use paths** are provided for both pedestrians and cyclists to use. These paths may be built to the standard determined by DOT or to a different standard as determined by the City. In the main, the shared paths recommended in this Cycling and Walking Plan will be built to DOT standards. Non-DOT standard shared paths will only be shown for the Canning City Centre (refer to additional detail in Section 10.3.3). The DOT has recommended that newly approved shared use paths have a minimum width of 2.5 metres. Some principal shared paths may have a width of up to 4 metres depending on potential future usage of both pedestrians and cyclists. This design option is often preferred for access to schools and local centres where the facility is likely to be used by many young or inexperienced cyclists.
• **Cycle lanes.** Cycle lanes are most commonly created by providing a 1.5 to 2.0 metre painted or coloured bitumen lane adjacent to the kerb (see Figure 10.2). In the past, these lanes have been provided along both neighbourhood connector streets and high speed / high volume arterial roads. Experience in Perth and other cities in Australia, Europe and North America has shown that very few cyclists use on-street cycle lanes along arterial roads. Austroads has also developed guidelines that recommend against using on-street cycle lanes on busy high speed streets. For streets with either a speed limit of greater than 50km/hr or a traffic volume of more than 70,000 vpd, on street cycle lanes are not recommended.

• **Separate cycle lanes.** These lanes provide a cycling facility that is separated from both vehicles and pedestrians. They are most commonly provided along the verge of moderately high to high volume traffic streets. They can be either one way or two-way. At this stage of their development in Western Australia, it is recommended that implementation be restricted to one-way separate cycle paths. Being one way in the same direction as normal traffic, these lanes generally provide a safer crossing of intersections and driveways and are preferred to shared paths where there are a large number of crossing streets or where there are large numbers of pedestrians and cyclists projected to use the street in the longer term. Guidelines (refer to Figure 10.6) have been developed for use in determining when a separate cycle path may be preferred based on the volume of cyclists and pedestrians. There are various potential designs for separated paths. Figure 7.1 shows designs used in Portland, Oregon and Figure 10.3 shows a design prepared for the Yanchep City Centre.

• **Footpaths.** In May 2015 legislation in WA was amended to permit cyclists to ride on footpaths. Previously only young people under 12 years old were legally able to ride on footpaths. The right to ride on footpaths is conditional on cyclists riding slowly and carefully and giving way to pedestrians at all times. This change in legislation is not intended to replace shared paths. Rather it provides an option for a cyclist to travel along a footpath for a short distance, where it is safer than the alternative. Inexperienced cyclists or adults accompanying children may also find it convenient to use this option.

With regard to choice of options, it is considered that all of these options could potentially be used and the preferred option will depend on the circumstances.

The City can also give consideration to improvements that would benefit cyclists and pedestrians at intersections, for example cycle head starts, dedicated cycle and pedestrian phases.
Figure 10.2: Example of painted bicycle lanes in Apsley Road, Willetton (Image source: Google Earth Street View)
10.3.2 5 Key Routes and Other Links

An integrated cycling and walking path network has been developed for the City (Appendix H, Map 5). It consists of five key routes and a number of other identified links (Appendix H, Map 6). These routes are a response to Strategy 8.2.

Essentially, the City of Canning can be thought of as having three dominant attractors. The first of these is the Canning City Centre. The second attractor is Curtin University, located on the western boundary of the City, which is shared with the Town of Victoria Park and the City of South Perth. Finally, the area around the Southlands Shopping Centre and Willetton Schools is an attractor in the southern part of the City.

The routes were developed to link the three dominant attractors. The routes pass via rail stations, shops, schools, sports areas and other attractors. Local streets, rather than highways, are used where possible. The City has an extensive network of parks, some of which are drainage easements and these too, where possible, have been used rather than busy roads. These parks provide shade for cyclists and pedestrians in accordance with Strategy 8.6. The Canning River is a focal point in the City. Several routes have been proposed along and adjacent to the Canning River. These can be used by commuter cyclists, they also provide a pleasant environment to encourage people to cycle and walk for recreation.

The five recommended routes are:

- Welshpool Road to Curtin University via Cannington and Bentley;
- Carousel to Southlands via Ferndale and Willetton;
- Carousel to Rossmoyne High School via Lynwood and Willetton;
- Carousel to Curtin University via Wilson;
- The North South Route from Curtin University to Canning Vale.

In addition, a number of other links have been identified. These have been termed other identified links. The five routes and other identified links are shown in Appendix H, Maps 7 to 12.

10.3.3 Canning City Centre

The Canning City Centre is a designated strategic metropolitan centre within the Perth Metropolitan Region. As such, it is being planned and developed as the major activity centre within the Canning Region. It will be a major hub for all modes of transport, including walking, cycling and public transport. Over 30 to 40 years it is planned that the Canning City Centre will expand as follows:

- 80,000m² of additional commercial floor space;
- 60,000m² of additional retail floor space;
- 40,000m² of additional community/institutional floor space; and
- 10,000 new dwellings to house about 20,000 new residents.

The Canning City Centre Structure Plan is shown in Figure 10.4.
Figure 10.4: Canning City Centre map
There are five major strategies to guide the transport planning for the growth of the Canning City Centre. Combined, these strategies are planned to decrease the mode share of car driving by over 30%. The mode share of walking is projected to grow from 9% in 2011 to 15% and that of cycling from 2% in 2011 to 12% in the longer term (refer to Table 10.1).

Table 10.1: Short and long term mode share targets for Canning City Centre

<table>
<thead>
<tr>
<th>Mode</th>
<th>Mode Share in 2011</th>
<th>Mode Share Longer Term (2040-50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car driver</td>
<td>58%</td>
<td>40%</td>
</tr>
<tr>
<td>Car passenger</td>
<td>23%</td>
<td>10%</td>
</tr>
<tr>
<td>Public transport</td>
<td>7%</td>
<td>16%</td>
</tr>
<tr>
<td>Cycling</td>
<td>2%</td>
<td>12%</td>
</tr>
<tr>
<td>Walking</td>
<td>9%</td>
<td>20%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

In the future we are likely to see about 20,000 walking trips and 12,000 cycling trips to, from and within the Canning City Centre each day. A significant level of improvement to the cycling and walking network will be necessary within the city centre as well as to/from the city centre to meet the future demand for cycling and walking. Previous planning for city centres in major Australian cities largely ignored provision for cycling and walking and this has resulted in difficulties in providing the required accessibility retrospectively. For example, whilst bicycle access to the edge of Perth City is well-developed, access within and through the Perth City is more limited. One means of providing access for bicycles within a city centre is to build bicycle lanes, preferably at verge level, to ensure cyclists are separated from both pedestrians and motor vehicles. One design option that will provide separation from vehicles and pedestrians is to raise the cycle lane to half the verge height.

The City is currently refining its plans for cyclists and pedestrians within the City Centre. Cecil Avenue is a particularly important street for both cyclists and pedestrians. It is being proposed that Cecil Avenue be developed as an activity corridor or main street between Albany Highway and the Cannington Railway Station. Whilst the final provision for cyclists and pedestrians within the City Centre is not yet finalised, it is envisaged that shared paths will be provided. As discussed in Section 10.3.1, these may be a combination of DOT standard shared paths and shared paths built to a standard approved by the City. A preliminary plan for the provision of cycling infrastructure in the City Centre is shown in Figure 10.5.

It is proposed that a significant level of bicycle parking be provided both at Cannington Railway Station and within the city centre.

Albany Highway is a major segregator of that portion of the city centre adjacent to the River and the main retail core of the City Centre. It is desirable that a new pedestrian and bicycle bridge be provided over Albany Highway as it will provide improved access into the core of the retail area.
10.3.4 Assessment, Costing and Prioritisation

Appendix G shows the recommended treatment, estimated cost and priority for each section of the planned network as referred to in this sub-section.

The suggested path network has been split into small sections for needs analysis. For each section, the estimated length and current treatment have been obtained using aerial imagery and measuring tools available in the City of Canning’s Intramaps application. The treatment suggested for each section has been added. In Appendix H, Maps 7 to 12 show each of the routes plus the other links, symbolised according to the type of treatment recommended.

Treatments include:
- Bicycle boulevards on low volume/low speed streets;
- Bicycle lanes;
- Shared paths for cyclist and pedestrians.

Some sections in the path network are not in the City’s boundaries, but are included in the implementation plan to demonstrate continuity and the desire to have seamless provision of infrastructure across local government boundaries. It is suggested that City of Canning officers liaise with counterparts in neighbouring local governments to encourage them to provide cycling and walking infrastructure at the boundary interfaces to a similar standard as the City of Canning.

Figure 10.6: Treatment of paths to be used by pedestrians and cyclists

The treatment most frequently recommended is a 2.5m shared path, which can be used by both pedestrians and cyclists. This width was agreed in consultation with the City of Canning Steering Committee and reflects a balanced approach to gradually upgrading the City’s already extensive footpath network to a series of shared path routes. In addition, the City of Canning should refer to Figure 10.6 which provides guidance as to when a
wider or narrower path might be appropriate depending on the volumes of cyclists and pedestrians using the path. Further, Figure 10.7 indicates when volumes may become sufficient to consider segregation of pedestrians and cyclists.

A second recommended treatment is bicycle lanes. Bicycle lanes should be implemented where the traffic volume and vehicle speed are insufficient to warrant the building of separate paths. Figure 10.7 (from Austroads) provides guidance.

Figure 10.7: Recommended traffic volume/speed thresholds and cycle infrastructure (Source: Austroads)

The final recommended treatment is the bicycle boulevard. Bicycle boulevards are a new concept for cycle management in Perth, but have been used successfully in The Netherlands for a number of years. They are low speed roads (30km/h) where cars must give way to bicycle riders. The DOT recommends the treatment only for roads that have a volume of less than 1500 vehicles per day. The roads will be clearly marked and designed to reduce the need for cyclists to stop frequently. In addition, crossings are optimised for cyclist safety and cyclists are permitted to ride two-abreast. Some diagrams showing the concepts for the Belmont Bicycle
Boulevard are below in Figure 10.8. There are various factors to take into consideration when deciding whether to implement bicycle boulevards, including bus routes and street parking. There is a need to determine whether these functions are compatible with the intent and operation of streets to be treated as bicycle boulevards or if bicycle boulevards should only be placed on streets that do not already have these functions.

Figure 10.8: Example bicycle boulevard designs (Source: City of Belmont)

The first bicycle boulevards are to be implemented in the City of Belmont in 2016. The City has also expressed a desire to have bicycle boulevards as "signature projects" in its path network. The first bicycle boulevard in the City is proposed for Gibbs Street. This has been prioritised in the first five years, nominally in 2018. There are no set designs yet for bicycle boulevards in Perth. This is a new and evolving active transport prioritisation method. As such, it is recommended that there be active evaluation of the different bicycle boulevard designs with a view to continuous improvement for cyclists and other road users.

A cost to build each section was approximated for the purposes of preliminary budgeting. In calculating the approximate cost, the following assumptions have been made:

- All paths recommended in this plan are to be 2.5m wide shared (pedestrian and cyclist) paths;
- The City of Canning advised that paths cost approximately $100 per square metre ($250,000 per kilometre) to design and construct;
- Bicycle lanes are also assumed to cost $250,000 per kilometre.
- The Department of Transport has advised that bicycle boulevards are likely to cost $500,000 per kilometre.

It should be noted that these cost estimates will need to be refined as designs are developed.

The priority of the works on each section was then assessed. The criteria applied in the prioritisation include:

- That the section falls within the City of Canning boundary;
- That there is no existing treatment or (for sections where shared path is recommended) that the existing footpath is less than 2m in width;
- That the section contributes towards a connected network (one of the five identified City of Canning Path Routes or an extension to one of these routes).
Each section was then given a priority of high, medium or low:

- Yes to all criteria gives high priority.
- Yes to two criteria gives medium priority.
- Yes to one criterion gives low priority.

It is also possible for sections to be identified as “No work needed” if the treatment in place is the treatment recommended. Where a path is recommended, the section will not be marked “no work needed” until all the paths in the section are at least 2.5m wide.

The sections and their priorities were then considered further by the City of Canning Steering Group members for:

- Ability to implement;
- Level of support/reference to the section in the community consultation;
- Background knowledge of the City of Canning Steering Group members; and
- Cost and cost effectiveness.

After calculating the cost of each section and assessing its priority, a determination was made as to which year the project could be undertaken in. The speed with which the suggested path network can be implemented is highly dependent on the level of funding the City of Canning can secure from the Department of Transport for active transport infrastructure. This report recommends that cycling and walking funding should rise to $15 per head of population per annum by 2021 and to $20 per head of population by 2031. With a population of 100,000 this means that the City should secure at least $1.5 million per annum. There should be a 50/50 split in funding between the City of Canning and the Department of Transport. The City of Canning has committed to increasing the funds it allocates to cycling from the current $650,000 (including DOT contribution) to $750,000 (excluding DOT contribution) per annum. Ideally DOT would match this contribution by way of grants to local governments, but in recent years has provided as little as $250,000 to the City of Canning.

Figure 10.9 to Figure 10.11 graphically indicate how much more quickly the suggested path network can be completed if more substantial levels of funding are forthcoming. The projects are tabulated into 5 year increments in Table 10.2.
Figure 10.11: Timeline to implement with 1.5 million pa funding

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Work Achievable $1m</th>
<th>Work Achievable $1.25m</th>
<th>Work Achievable $1.5m</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018-2022</td>
<td>Route 1 finish</td>
<td>Route 1 finish</td>
<td>Route 1 finish</td>
</tr>
<tr>
<td></td>
<td>Route 2 part</td>
<td>Route 2 finish</td>
<td>Route 2 finish</td>
</tr>
<tr>
<td></td>
<td>Route 3 part</td>
<td>Route 3 finish</td>
<td>Route 3 finish</td>
</tr>
<tr>
<td></td>
<td>Route 4 part</td>
<td>Route 4 finish</td>
<td>Route 4 finish</td>
</tr>
<tr>
<td></td>
<td>Route 5 part</td>
<td></td>
<td>Route 5 part</td>
</tr>
<tr>
<td>2023-2027</td>
<td>Route 2 finish</td>
<td>Route 5 finish</td>
<td>Route 5 finish</td>
</tr>
<tr>
<td></td>
<td>Route 3 finish</td>
<td>City Centre part</td>
<td>City Centre finish</td>
</tr>
<tr>
<td></td>
<td>Route 4 finish</td>
<td>Other identified links part</td>
<td>Other identified links finish</td>
</tr>
<tr>
<td></td>
<td>Route 5 finish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2028+</td>
<td>City Centre finish</td>
<td>City Centre finish</td>
<td>City Centre finish</td>
</tr>
<tr>
<td></td>
<td>Other identified links finish</td>
<td>Other identified links finish</td>
<td>Other identified links finish</td>
</tr>
</tbody>
</table>

### 10.3.5 Pedestrian Improvements

Three types of improvements are recommended to cater for pedestrians in the City of Canning. These are:

- Footpaths;
- Shared paths; and
- Safer crossings.

The City of Canning already has an extensive network of footpaths as shown in Appendix H, Map 2. Many of these footpaths are around 1.5m in width. Change to the recommended footpath width of 1.5m is not envisaged, notwithstanding that cyclists are legally entitled to use the paths. The primary intention of these paths is to serve pedestrians, though since the change of legislation in May 2016, cyclists travelling carefully at low speeds are also permitted to use footpaths. Cyclists must give way to pedestrians. The legislation provides for a local government to prohibit cyclists from footpaths by by-laws, in selected areas, if it becomes the case that cyclists fail to respect pedestrians when using footpaths.

Shared paths have been extensively described in Section 10.3.1. A minimum width of 2.5m has been recommended by the Department of Transport for shared paths. The Implementation Plan in Appendix G proposes a width of 2.5m for new shared paths. It is proposed that existing shared paths of less than this width...
remain until such time as there is a need for their re-construction. Pedestrians would benefit as well as cyclists from these new or upgraded shared paths.

This report does not aim to provide detailed engineering designs for the footpath network. Safer street crossings and intersection improvements for pedestrians should be a key consideration when designing solutions and delivered when construction or upgrading of infrastructure occurs. Reference should be made to Appen-"dices B and D where the saddle survey participants and community members have identified locations as needing particular attention in the design stage. These identified crossings or intersections include but are not limited to those listed in Appendix F. This list has not been prioritised.

10.3.6 Considerations for Aged Care Residents and Mobility Scooter Users

There are a number of aged care faculties in the City. Elderly people may be less agile than the general population, but still benefit from physical exercise, such as walking. People with a disability who are in a wheelchair or reliant on walking frames also benefit from well-maintained paths. A further consideration for the City is the provision of street furniture in the form of park benches close to aged care facilities, so that residents have a known place to rest, if needed. The City may also wish to work with state authorities to ensure pedestrian crossing phases of adequate length at traffic lights near aged care homes and to provide crosswalks. Application of universal design principles in general will aid elderly residents.

Residents may like to use the upgraded path network in the vicinity of these their establishment. These are listed in Path network near aged care homesTable 10.3. Refer to Map 6 in Appendix H.

<table>
<thead>
<tr>
<th>Aged Care Establishment</th>
<th>Location</th>
<th>Nearby Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adventist Care</td>
<td>31 Webb Street, Rossmoyne</td>
<td>Other identified links</td>
</tr>
<tr>
<td>Margaret Hubery House</td>
<td>62 Fifth Avenue, Rossmoyne</td>
<td>Other identified links</td>
</tr>
<tr>
<td>Pallotine Centre</td>
<td>50-60 Fifth Avenue, Rossmoyne</td>
<td>Other identified links</td>
</tr>
<tr>
<td>Joseph Cooke Hostel</td>
<td>36 Fifth Avenue, Rossmoyne</td>
<td>Other identified links</td>
</tr>
<tr>
<td>Queens Park Day Centre</td>
<td>Lot 1637 Elshaw Street, Queens Park</td>
<td>Route 1; Other identified links</td>
</tr>
<tr>
<td>Homestay Village</td>
<td>267 Wharf Street, Queens Park</td>
<td>Route 1; Other identified links</td>
</tr>
<tr>
<td>Wilson Village</td>
<td>22 Beaton Street, Wilson</td>
<td>Route 4; Route 5; Other identified links</td>
</tr>
<tr>
<td>Castledare Village</td>
<td>108 Fern Road, Wilson</td>
<td>Route 4; Other identified links</td>
</tr>
<tr>
<td>Howard Solomon Home</td>
<td>91 Hybanthus Road, Ferndale</td>
<td>Route 3</td>
</tr>
<tr>
<td>Canning Lodge</td>
<td>8 Caprice Place, Willetton</td>
<td>Route 2; Other identified links</td>
</tr>
<tr>
<td>River Pines Community</td>
<td>25-27 Parkhill Way, Wilson</td>
<td>Route 4; Route 5; Other identified links</td>
</tr>
<tr>
<td>Multiple Sclerosis WA</td>
<td>1 Wendouree Road, Wilson</td>
<td>Route 4; Route 5; Other identified links</td>
</tr>
<tr>
<td>Agmaroy Home</td>
<td>81 Bungaree Road, Wilson</td>
<td>Route 4; Other identified links</td>
</tr>
</tbody>
</table>

It is also suggested to consider mobility scooters as possible users of the path network. Mobility scooters can allow people with limited walking ability to maintain a certain level of independence, day to day convenience,
connection with others and mental well-being. These affordable, electric devices may increase in popularity as the City’s population ages. In Western Australia, mobility scooters (and motorised wheelchairs) are classed as pedestrians if the maximum speed of the device is less than 10 km/hr. These devices are permitted therefore to travel on footpaths, shared paths and the side of a road (as per a pedestrian) if there is no path. Devices capable of a maximum speed of over 10km/hr must be registered as vehicles.

Planning for mobility scooter users can involve:

- Continuing to roll-out the strategies in the Canning Disability Access and Inclusion Plan. Scooter users, like other mobility impaired people, will benefit from wide debris-free footpaths, kerb ramps and pedestrian crossings;
- Obtaining advice about universal design when building, renovating or upgrading City facilities;
- Providing circulation/manoeuvrability space in car parks, at intersections and in public spaces;
- Providing scooter parking. As most scooter users can actually walk for short distances, a place to leave the device at public locations (such as at City facilities or shopping centres) will be needed;
- Creating a “mobility map” for Canning – depicting routes that are currently accessible by scooter users (over and above the standard footpath maps); and
- As scooters run off electric batteries, provision of battery charging stations would increase the range scooter users can cover.

It should be noted that mobility scooters are not meant to be used as a replacement for a motor vehicle. They can be dangerous and there have been accidents and fatalities. Mobility scooters do not have effective headlights and are impractical for use in rainy, windy or very hot weather. They cannot be used to travel long distances. People who are long term or permanently unable to walk may be better off to investigate the use of on-demand transport (including taxis or services such as Uber and Chofer) together with accessible public transport to cater for their accessibility needs. Seniors and pensioners travel for free on Transperth services.

Finally, as there are currently no laws in Western Australia that prohibit the use of mobility scooters by people who do not have limited mobility, there are certain people may who abuse mobility scooters and use them without having a medical need for the devices. State and local authorities should monitor this phenomenon and take action to restrict this behaviour so that the problem does not exacerbate to a level such that people who have a genuine need for assistance are deprived. Further to this, though there may be mental well-being benefits to those who use mobility scooters to stay connected, everybody who is able, benefits from light exercise, such as walking a short distance. It is not advised to encourage the use of mobility scooters in the general population as it ages.

10.3.7 Pedestrian/Cycle Bridge Over Freight Rail Line

A pedestrian/cycle overhead bridge is required to provide connectivity in the North-South Route and allow users to pass over the freight rail line in Canning Vale. The location of the bridge is: 32.073593°S, 115.906129°E (the closest road on the north side is Mordaunt Circuit and on the south side, the closest road is Park Lane). Figure 10.12 below shows the situation.

The situation has been notionally examined by a structural engineer in a desktop exercise using aerial photography. This seems to indicate that as the bridge ramp launches and rail reserve appear to be similar in level, the ramp lengths will need to be in the order of 90-100m in length to ensure the required clearance over the rail reserve. This would however depend on obtaining exact ramp launch levels and the available space for the ramps (i.e. circular or straight ramps). The cost of the bridge is estimated to be around $6.5 million to $7 million. This provides for:

- A span of approximately 30-35m.
- A width of approximately 3.5m.
- Height sufficient to allow for freight trains to pass underneath.

This budget would likely include:
• Delivery agency fees;
• Professional fees;
• Contractor overhead and margin; and
• Project risk and contingencies.

Figure 10.12: Google map aerial image of site

Though this bridge has a significant cost, it is an important and strategic link in the cycling and pedestrian network and it is recommended that the City of Canning liaise with the Department of Transport to determine if funds may be available to facilitate its construction in future years.

Due to its expense, the bridge is likely to be a longer term project. However if funding could be secured to build the bridge, it could be needed as early as 2024 (in the $1m funding scenario), 2023 (in the $1.25m funding scenario) or 2022 (in the $1.5m funding scenario), in order to complete the North-South route.

Design guidance, including for ramp gradients, tactile ground surface indicators (TGSIs) and balustrading for pedestrian overhead bridges is contained in “Planning and designing for pedestrians: guidelines” produced by the WA Department of Transport and should be considered in the detailed design of this bridge.

A different option for cyclists and pedestrians needing to cross the freight railway line is by using the path on the Ranford Road bridge. The upgrade of the bridge is to be undertaken as a part of the Ranford Road works programmed for 2016.
11. Changing Behaviour

Increasing the mode share of cycling and walking will not be achieved by the implementation of physical infrastructure changes alone - a level of behavioural change in the residents, workers and those who visit the City of Canning is required. Consideration of behavioural change strategies to promote cycling and walking is therefore warranted. These may be complemented by changes to local planning strategies and regulations.

In addition to behavioural change programmes, such as Your Move, promotional strategies are recommended to highlight improvements in connections to schools and public transport hubs as well as other public areas such as hospitals. Promotional products, such as leaflets, webpages or information sessions should inform the general public on the improvements as they are planned and implemented in order to gain buy in from the general public for the plan. Cycling and walking maps depicting routes, cycle parking and end of trip facilities would also be beneficial. Promotion of the environmental and health benefits to the user may further assist in encouraging cycling and walking as alternative modes of transport (these were detailed in Chapter 3).

Behavioural change programmes or promotional strategies should be discussed with the Department of Transport to determine what subsidies or grants may be available for specific programmes within the City of Canning. Discussions with other stakeholders (for example, schools or tertiary education institutions or major centres) should also be held.

11.1 TravelSmart/Your Move Officer

It is recommended that the City of Canning employ a dedicated TravelSmart/Your Move Officer. This officer would focus on attaining mode shift and ensuring that cycling and walking measures are integrated with the overall land and transport planning activities of the City. This Officer would also have a role to:

- Organise education and cycle proficiency programmes in schools;
- Conduct cycle training and driver awareness campaigns with city residents;
- Develop walking programmes that link to existing national and local walking initiatives that offer a variety of routes, paces and distances at different times of the day;
- Organise community cycling events such as Bike to Work or Cycle on Wednesdays;
- Organise community walking events, such as walking groups, community challenges, ‘walkathons’ or programmes for adults who are not active enough;
- Ensure all programmes address safety, cultural and disability issues;
- Provide information tailored for individuals who want to walk or cycle without joining a group or club;
- Define and promote appropriate and safe cycling and walking routes to other community events;
- Liaise with neighbouring councils regarding provision of cycling and walking facilities at the interface of City boundaries; and
- Work with workplaces to minimise car use or create incentives for not using car parking.

The Department of Transport may provide seed funding (first year salary) for the establishment of TravelSmart/Your Move Officer positions within local governments.

11.2 Identifying Target Groups for Promotion and Behaviour Change Programmes

The ultimate objective of behaviour change programmes is to transform the current mindset that makes the car the priority. Cycling and walking need to become habitual. To quote Ceri Woolsgerove, road safety policy officer at the European Cycling Federation in an interview for the BBC on how to get a city cycling – March 2015:
“Once cycling becomes your main mode of transport, your go-to mode, then it takes pretty bad weather to shift you from that formed habit,” he says. “After all, the Danes carry on cycling even when conditions are much colder than those London experiences, while in sunny Australia cycling is the exception rather than the rule.”

Promotion must be as wide as possible. This can be achieved by campaigns and measures that target specific groups within the community. Differing methods may be needed to reach and then encourage cycling and walking within each targeted group.

At the Key Stakeholder Workshop 1 (held on 18th February 2016), participants identified various target groups:

- Schools and universities;
- Workers;
- Householders who make trips both for shopping/utility purposes and recreation;
- Event attendees; and
- People who drive or take feeder buses only a short distance to rail stations.

Suggestions for reaching the various target groups include:

- Brochures, fact sheets and maps advising residents of the City about cycling and walking and the recommended routes to travel in and around the City. New residents could be targeted in particular, possibly with a “Welcome to the City” package;
- People who have started walking as a leisure activity to also consider walking as a means of transport;
- Social media, as many cyclists love sharing their thoughts and opinions on good and bad facilities. Being on a bicycle makes it easy to stop and take a photo to share with others electronically;
- Bicycle try-out days and weeks or testing events; and
- Advertising at train stations.

11.3 TravelSmart/Your Move and Personalised Travel Planning Programmes

Behaviour is influenced by a range of economic, cultural and environmental conditions, social and community networks and individual factors such as age and sex. Combinations of interventions that tackle population, community and individual-level factors are needed to help people change their behaviour in both the short and longer term. Interventions tailored to the needs of individuals as well as user groups have had success in other Western Australian and international jurisdictions.

11.3.1 TravelSmart and Your Move

The Western Australian Department of Transport has run its TravelSmart programme since the late 1990s. The programme has enjoyed considerable success in achieving mode shift from vehicles to walking, cycling and public transport. It has since been taken up by other cities in Australia and overseas. TravelSmart uses individualised marketing to inform households about non-car travel options and how their decisions may provide environmental, financial and health benefits.

TravelSmart can also be implemented at a community level in conjunction with local governments, schools, universities, hospitals and workplaces. Necessary information is provided so that these organisations can encourage desirable travel behaviour changes in their residents, staff, students or customers. In 2013, the schools programme achieved a 12% increase in active transport and a 9% reduction in car trips14 and the workplace programme achieved a 13% average reduction in single car travel15. See Table 11.1 for further results by area. The figures for cycling, whilst encouraging, need to be considered with caution, since the base levels of cycling were low.

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### Table 11.1: TravelSmart Individualised Marketing Results for Perth

<table>
<thead>
<tr>
<th></th>
<th>Sth Perth</th>
<th>Cambridge</th>
<th>Subiaco</th>
<th>Marangaroo</th>
<th>Fremantle</th>
<th>Melville</th>
<th>Vincent</th>
<th>Armadale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>35,000</td>
<td>24,000</td>
<td>15,000</td>
<td>11,000</td>
<td>17,000</td>
<td>19,000</td>
<td>15,000</td>
<td>7,000</td>
</tr>
<tr>
<td>Car trips</td>
<td>-14%</td>
<td>-7%</td>
<td>-12%</td>
<td>-4%</td>
<td>-12%</td>
<td>-12%</td>
<td>-9%</td>
<td>-9%</td>
</tr>
<tr>
<td>Car km</td>
<td>-17%</td>
<td>-9%</td>
<td>-16%</td>
<td>-7%</td>
<td>-14%</td>
<td>-13%</td>
<td>-12%</td>
<td>-11%</td>
</tr>
<tr>
<td>Bicycle trips</td>
<td>+61%</td>
<td>+67%</td>
<td>+25%</td>
<td>+140%</td>
<td>+38%</td>
<td>+75%</td>
<td>+30%</td>
<td>+29%</td>
</tr>
<tr>
<td>Walk trips</td>
<td>+35%</td>
<td>+11%</td>
<td>+11%</td>
<td>+57%</td>
<td>+25%</td>
<td>+22%</td>
<td>+22%</td>
<td>+45%</td>
</tr>
<tr>
<td>Public transport patronage</td>
<td>+20%</td>
<td>+10%</td>
<td>+12%</td>
<td>+8%</td>
<td>+14%</td>
<td>+11%</td>
<td>+10%</td>
<td>+9%</td>
</tr>
</tbody>
</table>

The Department of Transport, in conjunction with the Department of Sport and Recreation, has recently introduced the Your Move programme. Also aimed at generating behavioural change, this programme focuses on helping people to find simple ways to become more active and connected. Again, individualised information is provided to participants so that they may tailor opportunities for increased physical activity to their lifestyle. As with TravelSmart, the programme is implemented via local governments\(^{16}\).

In 2014, Your Move was implemented in the City of Cockburn. Over 10,000 households were engaged. A 5% reduction in car driver trips per participant was achieved (410,000 fewer trips) along with 10.5 minutes of increased physical activity per participant per day. In 2015, Your Move was rolled out in the City of Wanneroo and so far 10,556 households have agreed to participate. 91% of these households have set goals to increase their levels of physical activity and active transport use.

TravelSmart and/or Your Move would be suitable for introduction in the City of Canning. The Department of Transport is the lead agency for this programme and can be approached for further advice and guidance on establishing the programmes in the City.

11.4 **Demonstrating How Cycling and Walking Integrate with Other Forms of Mobility**

The City already provides many paths for residents to make use of. It is relevant to educate the community about these provisions for cycling and walking and indicate how they integrate with the other types of mobility and allow access to destinations. Measures include:

- Mobile phone apps and/or paper maps (for those without smartphones) that illustrate cycle routes and linkages with key destinations such as shops, schools, universities, work places and recreation areas;
- Advertising of the availability of end of trip (EOT) facilities at workplaces, shopping centres and public buildings to encourage use;
- Installation of clear bicycle signage (e.g.: eye-catching City of Canning branding or route numbering) on all bicycle routes, and at vital road intersections to assist navigation;
- Bicycle library, pedelecs and E-bike infrastructure and rental schemes may encourage use of bicycles by those who do not wish to own and maintain a bicycle. In Seville, Spain passengers arriving at the

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main bus station can use their ticket to borrow one of nearly 200 rental bicycles, free for the whole day\textsuperscript{17}. Ideas such as this have helped Seville increase its cycle share from 0.5\% to 6\% in only a few years.

- Ensure walking routes are integrated with accessible public transport links to support longer journeys. Signage should give details of the distance and/or walking time, in both directions, between public transport facilities and key destinations.

11.5 Wayfinding

The establishment of a user-friendly way-finding system can promote the use of active travel. Wayfinding systems serve multiple purposes:

- To inform users about the availability and location of facilities;
- To inform users of the time/distance/direction to a facility; and
- To create community pride, provoke conversation and communicate local knowledge (to locals and visitors).

Types of wayfinding systems may include notice boards, pole-top or ground-based signage. A local government may wish to consider the following factors when choosing which method is appropriate for their area:

- Cost;
- Need for permanence;
- Size of geographical area to be covered;
- How close together the signs need to be (legibility and walkability of streets); and
- The number of facilities/amenities in the locality.

What could the signs show:

- Name of facilities/amenities but also what you can do there. For example, Smith Park (which has basketball rings) could say Smith Park – shoot some hoops. For example, Willetton Park (which has natural bush or a formal garden) could say Willetton Park – relax in with nature;
- Direction, distance and time (to walk as well as to cycle for an average person);
- Instructions for use of bicycle maintenance stations, end of trip (EOT) facilities or bicycle store facilities;
- Safety/Courtesy signs. For example, cyclists please sound bell/watch for pedestrians;
- Location of bicycle parking;
- Advertising for local businesses;
- Footprints to show children the safe (desirable) path they should take to school (ie. via manned crossings, avoiding busy roads etc);
- Link in with public transport. For example, take this stop – go to Perth, Fremantle etc;
- Marking route of recreational trails/community walking tours;
- Location of public toilets/water fountain;
- Location of disabled/child facilities/ramps/Stairs;
- Teaching or history points. For example, about trees or old buildings.

Design considerations should include:

- Text size and font for readability and to achieve a sense of consistency (also ensure it meets requirements of visually impaired people including tactile features as appropriate);
- Colours for readability in bright light and at night (does it need to be lit up at night?);
- Use of symbols where possible;
- Cardinal points – N, S, E, W best. Try to avoid anything more complex eg, SE, NW or bendy arrows;
- Use distance in metres and a time estimate for the distance to a place;
- Consider multilingual signage if relevant for the local area;

\textsuperscript{17} http://www.theguardian.com/cities/2015/jan/28/seville-cycling-capital-southern-europe-bike-lanes
- Number the signs and provide a number/email people can call the Local Government to report damage/problems;
- Where to install – before you reach a destination (to guide your user) rather than at the destination. Consider where “decision points” are, eg. At corners. These are typically good places to put signs. Be aware of “clustering”. Placing too many signs together creates visual confusion and makes it hard for user to find/understand information.

Potential funding sources for a wayfinding system:

- Local government;
- State Government programs, such as Your Move;
- Sustainable travel advocates, such as the RAC or bicycle and walking groups;
- Business owners who also get to advertise; and
- In terms of installation and maintenance costs: noticeboard signage is likely to be the most expensive option and ground signage is likely to be the cheapest. Pole signage will be in between.

The recent Your Move Wanneroo programme saw the delivery of the world’s largest ground-based wayfinding project. It involved the installation of over 800 signs onto City of Wanneroo footpaths (see Figure 11.1). An extensive process of mapping locations where signage was needed, determining the links between places and the activities to engage in at the places, was undertaken using Google Maps. From here, a spreadsheet of a point, together with the features N, S, E and W of it was developed. A “mail merge” process was used to produce a sign for each point in graphic design software. The signs to be installed on the paths were then printed onto a hardwearing, purpose developed, aluminium-based material called Enviro Non-Slip, specifically designed for resilient footpath marking. As its name implies, the material is non-slip, being infused with glass to create a rough, sand-like texture. When installed, signs appear as if they have been “painted” on to the path. Signs have a lifespan of around two years, although this will vary with the amount of foot/cycle traffic the path takes, and environmental factors like sun/rain. The company producing the signs has made changes to the materials it makes the signs from as new, improved materials become available.

Feedback from the community has been positive, with many people indicating that the signs had helped them to become aware of facilities in the local area of which they were not aware. There was some initial damage (it is possible to “lift” the signage, if someone deliberately wants to dislodge it with a knife). The City of Wanneroo’s response was the same as for graffiti – to rectify the damage as soon as possible so that offenders see that their damage will not be tolerated.

The key reason for the choice of ground-based signs was cost. The City of Wanneroo is an extensive, outer-metro (some parts still rural) local government area. This meant that hundreds of sign posts would be required to service the area adequately. This was prohibitively expensive. Ground based signs were a low cost infrastructure initiative to achieve way finding in the area.

Figure 11.1: Examples of signage used in the City of Wanneroo
Pole based signage has been installed in Perth City (see Figure 11.2). Perth City benefits from more visitors that the outer-metropolitan regions of Perth, has a number of “big-ticket” attractions, and has more footpath space to install the signs, but a smaller local government area (so there are actually less way-finding signs than in City of Wanneroo). It also has different budget considerations. The volume of people on the footpaths is higher and it is hard to read ground signs when many pedestrians are walking on them. Pole base signs have the same design considerations as for ground based signs. Placement of poles also requires consideration.

Figure 11.2: Pole based signage in the City of Perth

A further option is notice board signs. Typical in large cities, these provide the user with a large scale geographical map of the walkable catchments (typically 400 to 800m) surrounding the sign. These are good for dense cities with a number of attractions in a small area, conversely they are good when a whole small area can be depicted all at once (such as in small regional Western Australian towns, typically in a shelter as you enter the town). This type of sign is very expensive to install and modify as facilities/attractions change. As with the design of colour, typology and symbols on the other two sign types, the clarity of the cartography on the map will influence how easily and effectively users can find their way. Heads-up mapping is a more recent manner of presenting a walkable route and may also be suitable in some cases.

It is recommended that the City of Canning examine the potential to implement a way finding system for cyclists along its proposed major cycling routes. The general approach adopted in Wanneroo may be applicable to the City. The lower cost ground maps can be installed at regular intervals along the major City of Canning cycle routes with reinforcement after each turn on the route.

11.6 Reducing Car Use, Re-educating Drivers

Provision of increased cycling and walking infrastructure and behaviour modification programmes can be accompanied by measures to provide a disincentive to excessive car use and re-educate drivers. “Share the road” media education campaigns may help to increase driver awareness and encourage more peaceful coexistence between pedestrians, bicycles and drivers (ie. All road users).
Local government can work with state government on demand management and legislative change to protect cyclists and pedestrians. For example:

- Laws to protect cyclists from bigger and heavier vehicles on the road. In the Netherlands and Denmark (two countries in the world that have come closest to restoring the bicycle to its pre-auto role), cyclists are protected by an extensive legal framework and are fully recognised users of the road;
- Demand management measures designed to reduce car traffic whilst encouraging cycling and walking;
- Develop the Safe Routes to School agenda and 40km/h zones programme. The local government can promote Safe Routes to School Schemes in association with School Travel Plans every year and also 30kph zones. These provide improvements to pedestrian facilities and speed-reducing features around schools and residential roads in the City.
- Reducing vehicle speed limits to 30km/h in the City Centre and activity centres and giving priority to cyclists in designated “bicycle boulevards” to mitigate car and bicycle conflict. Three streets in metropolitan Perth have also been identified as suitable to be bicycle boulevards and will be converted shortly. These are the first for Western Australia, and are located in Shakespeare Street, City of Vincent; Leake Street, City of Bayswater and Surrey Road, City of Belmont.

Push policies may also be appropriate. Studies by the municipality of Amsterdam have shown that push policies such as discouraging car use are more effective than “pull policies” such as improving bicycle facilities, in increasing bicycle use. Push policies (which again may require the State government to intervene) include:

- Car exclusion zones around schools (such as 2km zone enforced by police);
- Reducing the supply of free car parking;
- Introduction of paid parking at shopping centres and in surrounding streets;
- Car free days.

### 11.7 Travel Plans and Parking Requirements During Development Approval Process

Cycling and walking can become normalised at the planning level by considering them in existing processes. Travel plans are often required as a condition of development for major centres, office developments or retail expansion. Following negotiation, developers are required to implement measures such as improved and safer bicycle access and provide a greater level of bicycle parking and other end of trip facilities such as lockers and showers. The City of Canning can consider mandating such Travel Plans as part of all significant development approvals. This would ensure that the cycling and walking consequences of proposed development are rigorously evaluated. This includes evaluating their impact on health inequalities, in all processes in the city governance. In addition, the City can require cycle and pedestrian audits of all proposed road building or widening, and traffic management schemes. Audit procedures need to be adopted to make sure that opportunities are not missed to enhance cycling and walking conditions, and help avoid inadvertently making them worse.

The City of Canning can encourage development patterns and plan the location of residences in the vicinity of other land uses, so that only short trips may need to be made to work, places of education and other locations. This can be achieved by providing developers with clear guidelines on the requirements for cyclists and walkers in their developments.

It may also be appropriate for the local government review its car parking requirements and set maximum desirable car parking levels for new and existing development rather than minimum quotas. This will reduce the amount of land utilised for car parking, which could be instead employed for pedestrian or cycle facilities.

### 11.8 Bicycle Parking, End of Trip (EOT) and Maintenance Facilities

It is essential that sufficient parking and end of trip facilities be provided for cyclists. Bicycles, on average, require about one sixth of the parking space required for cars. The amount of bicycle parking required should be determined based on the future mode share of parking. For example, in the Canning City Centre a mode share of cycling of 12% is projected and a mode share for car driving of 40%. As a rough guide therefore, the amount of bicycle parking in the city centre should be about 30% of car parking.
As part of development control, the City of Canning will achieve future levels of bicycle parking in the same way as it does for car parking by requiring developers to provide a certain level of parking or by requiring developers (of generally smaller developments) to pay a cash-in-lieu payment.

Intensity of development is planned to be greater in the Canning City Centre than it is outside of the centre. For this reason the provision of bicycle parking and end of trip facilities may be at a higher rate in the City Centre than it is for the remainder of the City.

The following estimates of bicycle parking (per 100m² of NLA unless otherwise specified) are provided for the City of Canning:

### Table 11.2: Bicycle parking rates

<table>
<thead>
<tr>
<th>Land use</th>
<th>Canning City Centre</th>
<th>Outside of Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office, commercial, health, civic</td>
<td>0.6 bicycle bays (0.5 workers + 0.1 visitors)</td>
<td>0.4 bicycle bays (0.3 workers + 0.1 visitors)</td>
</tr>
<tr>
<td>Retail uses, restaurant, child care</td>
<td>0.5 bicycle bays (0.4 visitors + 0.1 staff)</td>
<td>0.5 bicycle bays (0.4 visitors + 0.1 staff)</td>
</tr>
<tr>
<td>and other uses with low staff:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>customer ratio¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential apartments²</td>
<td>1 bicycle bay per 3 dwellings (residents) +</td>
<td>1 bicycle bay per 3 dwellings (residents) +</td>
</tr>
<tr>
<td></td>
<td>0.1 bicycle bays per dwelling (visitors)</td>
<td>0.1 bicycle bays per dwelling (visitors)</td>
</tr>
<tr>
<td>Industrial, showroom (bulky goods) and</td>
<td>Not a permitted use in the City Centre</td>
<td>0.2 bicycle bays (mainly staff)</td>
</tr>
<tr>
<td>veterinary centre¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education²</td>
<td>Primary and secondary</td>
<td>Primary and secondary</td>
</tr>
<tr>
<td></td>
<td>0.5 bicycle bays per student +</td>
<td>0.5 bicycle bays per student +</td>
</tr>
<tr>
<td></td>
<td>0.1 bicycle bays per staff member</td>
<td>0.1 bicycle bays per staff member</td>
</tr>
<tr>
<td>Tertiary</td>
<td>0.15 bicycle bays per staff and students</td>
<td>0.15 bicycle bays per staff and students</td>
</tr>
</tbody>
</table>

*This is in accordance with the R-Codes (SPP 3.1) as amended on 23/10/2015 but could be increased to 1 bicycle bay per dwelling (residents) + 0.1 bicycle bay per dwelling (visitors).

¹These uses presume that mainly staff will require the bicycle bays but customers will drive.

²These uses presume that both staff and customers will require the bicycle bays.

For smaller developments, in some cases it will be necessary to charge a cash-in-lieu payment for bicycle parking. Given that bicycle parking requires about one sixth the space of car parking, the cash-in-lieu payment should be around $8000 per bay. It is recommended that the City undertakes further due diligence about cash-in-lieu payments.

In addition, the City will require developers to provide other end of trip facilities including lockers and showers. The Department of Transport has advised that lockers should be provided at a rate of 1.3 times the number of staff bicycle parking bays. This is because some walkers or joggers also have a requirement for lockers.

The following estimates for lockers (per 100m² of NLA unless otherwise specified) and other end of trip facilities are provided for the City of Canning:
Table 11.3: Rates for provision of lockers

<table>
<thead>
<tr>
<th>Land use</th>
<th>Canning City Centre</th>
<th>Outside of Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office, commercial, health, civic, child care and restaurant</td>
<td>0.65 lockers</td>
<td>0.39 lockers</td>
</tr>
<tr>
<td>Retail uses</td>
<td>0.13 lockers</td>
<td>0.13 lockers</td>
</tr>
<tr>
<td>Residential apartments*</td>
<td>No requirement</td>
<td>No requirement</td>
</tr>
<tr>
<td>Industrial, showroom (bulky goods) and veterinary centre</td>
<td>Not a permitted use in the City Centre</td>
<td>0.26 lockers</td>
</tr>
<tr>
<td>Education</td>
<td>0.13 lockers per staff member</td>
<td>0.13 lockers per staff member</td>
</tr>
</tbody>
</table>

Showers should be provided in relation to the number of commuter bicycle bays as follows:

- 1 male and 1 female;
- Plus 1 male and 1 female shower for every further 8 commuter bays, to a maximum of six male and six female showers per building.

Provision of bicycle parking at recreational areas such as Kent Street Weir is also recommended. The rate of parking will be related to the mode share of people visiting the site and the amount of people stopping at the site (rather than passing through). Kent Street currently provides parking for 90 cars. Applying the rate of bicycle parking at 30% of the number of car parking bays (as described above), the provision of 27 bicycle parking bays would be an appropriate starting point. The City may need to alter this number depending on the popularity of cycling to each individual recreation area.

As is the case with cars, bicycles need to be properly maintained. The City of Canning supports bicycle maintenance facilities being provided close to major bicycle routes or near major bicycle parking areas or end of trip facilities (e.g. at rail stations or in activity centres). Two maintenance facilities have already been installed in the City at the Cannington and Riverton Leisureplexes. The stations are fitted with tools, a foot pump and a gauge to allow cyclists to maintain tyre pressures, fix punctures or undertake other minor repairs. These first two stations will be used as a trial, and additional maintenance stations may be installed in future. Kent Street Weir may be a further future location. As maintenance facilities are identified and developed, it is suggested that their location be recorded as an addendum to this Cycling and Walking Plan.

11.9 Bike Share Schemes

Bike share schemes have been introduced in a number of cities in Australia and worldwide (e.g. Brisbane, London). At this stage, no large scale schemes have been introduced in Perth. In Australia, compulsory helmet legislation makes implementation more difficult on a commercial basis. A number of micro bike sharing schemes are being trialled in hotels in Perth and Fremantle. These are aimed mostly, though not exclusively, at hotel guests - tourists and businesspeople. A large scale bike share scheme is not likely to be feasible exclusively to the City of Canning in the short to medium term. A more sub-regionally based scheme may become viable in the longer term.
12. Summary and Recommendations

12.1 Summary

The City of Canning recognises that increasing cycling and walking will result in lower levels of driving which will lead to a range of societal benefits including reduced congestion, improved social cohesion, improved levels of health and fitness, and economic and environmental benefits across the region. The City has worked collaboratively with key stakeholders to develop a vision and strategies for increased levels of cycling and walking that will transform how people will travel around the City.

Vision

*Cycling and walking will be a safe, attractive and viable travel option between* 

*neighbourhoods and destinations within the City of Canning and beyond.*

This vision is fundamental in engendering change in how people travel in the City. The City of Canning will work to forge partnerships, educate the community and design and implement facilities that are both safe and attractive for use.

Need for Cycling and Walking in Canning

A number of City of Canning strategic documents recognise the need for cycling and walking to be given a high profile. These include the:

- **Strategic Community Plan** – that will guide the development of the City over the long term. It identifies a Community Goal to have integrated, accessible, safe and sustainable transport options for the City. One of the ways this goal will be achieved is via the provision and continued improvement of pedestrian and cycling infrastructure and pathways.
- **Integrated Transport Strategy** – that considered all forms of transport in the City. It stated that walking was an often-neglected form of transport that had considerable potential to replace many short-length car trips. With regards to cycling, it found that cycling is becoming a more popular mode of transport and that uptake could be increased if better facilities were available.
- **City of Canning Sustainability Policy** – which defines sustainability and aims to embed sustainable practices into the City’s planning and decision making processes. Transport has been identified as a key area where sustainability improvements can be made.

Planning Principles

The planning principles for both cycling and walking in the City have been based on principles originally developed in the Netherlands for cycling. They are:

- **Attractiveness** – each route should feel attractive to use and include a feeling of personal safety for users.
- **Coherence** – there should be a choice of routes and the network should be legible and easy to use.
- **Comfort** – surfaces should be smooth and well maintained and shading should be provided along paths. Continuity of movement along the route should be preserved.
- **Directness** – direct routes with no unnecessary detours to provide journey times by bicycle that are competitive with the car.
- **Safety** – separate cyclists from motorists and pedestrians where necessary, but allow mixed use along low speed, low volume streets. Design should be predictable in terms of alignment and priority.
Cycling and Walking Plan

Cycling Mode Share Targets
Currently cycling mode share in the City is about the metropolitan average but well below that in the best performing municipalities in Perth. The cycling mode share targets for cycling in the City of Canning are:

- Short term to 2021 - 4% mode share;
- Medium term to 2031 - 6% mode share; and
- Long term to 2051 - 10% mode share.

Walking Mode Share Targets
Walking mode share within the City of Canning is estimated to be a little lower than the metropolitan average of about 10%. Walking mode share to work is very low at less than 2%, well below that of the City of Subiaco which enjoys 12.4% mode share for walking to work and an all modes mode share of approximately 20%. The walking mode share targets for the City are:

- Short term to 2021 - 11% mode share;
- Medium term to 2031 - 14% mode share; and
- Long term to 2051 - 18% mode share.

Within activity centres the walking mode share should be set to a higher level. The target mode share for walking to and within the Canning City Centre is:

- Medium term to 2031 - 15% mode share; and
- Long term to 2051 - 20% mode share.

Strategies to Increase Cycling and Walking
Six broad strategies have been adopted by the City of Canning to increase the uptake of cycling and walking:

- Land use change at activity centres, along activity corridors and transit oriented developments (TODs) around rail stations.
- Plan and implement a safe connected bicycle network that provides viable and direct linkage to the key activity centres, rail stations, schools, shops and other attractions.
- Change the mindset of planners, decision makers and daily travellers through education programmes.
- Develop travel plans and introduce behaviour change programmes.
- Develop policies that support best practice to improve accessibility and safety for cyclists and pedestrians.
- Provide for greater shading and tree cover for pedestrian and cycling paths.

Funding
Funding for cycling facilities in the Perth metropolitan area and in the City of Canning is currently below the level required to achieve the proposed mode share targets. The recommended annual funding for cycling should be increased to $15 per head of population by 2021, increasing to $20 per head of population by 2031. The City’s share of this funding should increase to $750,000 per annum in 2021 and rise to $1.25 million by 2031. Equivalent levels of funding should be sought from the State and Commonwealth governments, increasing overall funding for cycling in the City to $2.5 million by 2031, or $20 per head of population.
Cycling Network Plan
The proposed cycling network plan is shown in Figure 12.1 (this map is provided at A3 size in Appendix H, Map 5). It provides a connected network of off road shared paths and bicycle lanes complemented by bicycle boulevards along low speed, low volume streets. At the heart of the plan are five major bicycle routes which are shown in Figure 12.2 (this map is provided at A3 size in Appendix H, Map 6). These routes connect to major activity centres such as the Canning City Centre, Curtin University, major schools and rail stations. It is recognised that some of the routes will need to be extended beyond the City’s boundaries to connect to for example, major rail stations and the Perth City Centre. In this regard, discussion will need to be held with neighbouring local governments. Further detail on the proposed major bicycle routes is contained in Section 10. The implementation timeframe for constructing the major bicycle routes will be dependent on the level of funding and is discussed in Section 10 of this report. A completion date for the five major routes of between 2023 and 2025 has been proposed.

Improving the Pedestrian Network
A comprehensive network of footpaths exists throughout the City of Canning but a degree of segregation exists where high volume, relatively high speed roads pass through centres and communities. A program to investigate safer, improved pedestrian crossings of major roads is proposed, including reducing waiting times for pedestrians at traffic signals where feasible. This will require negotiations with Main Roads (MRWA). A number of pedestrian improvements have been proposed as part of planning for the Canning City Centre and some have been approved as conditions of development of the Westfield Carousel shopping centre. This includes a new pedestrian overpass over Albany highway to link the proposed residential development on the south side of Albany Highway with the main retail centre. Plans for a main street along Cecil Avenue are also well developed. The preliminary design provides for a shared path along Cecil Avenue.
Figure 12.1: Proposed City of Canning path network
Figure 12.2: Proposed routes in the City of Canning path network
Choice of Cycling Facilities
Austroads has provided recommendations on when it is appropriate for cyclists to travel along local streets in mixed traffic, when bicycle lanes could be recommended and when separate paths are preferred (refer to Figure 12.3). Complementing this are guidelines on where pedestrian and cyclist shared paths are appropriate and where separate cycling and walking paths are likely to be required based on the number of cyclists and pedestrians (refer to Figure 12.4). These guidelines have been used to determine the most appropriate type of facility to construct as part of the cycling network.

Figure 12.3: Recommended traffic volume/speed thresholds and cycle infrastructure (Source: Austroads)

The Department of Transport has advised that all future shared paths should be a minimum of 2.5 metres wide. Whilst 2.5 metres is an appropriate standard width for most shared paths, reference should be made to Figure 12.4 where volumes of cyclists and pedestrians are high. It is now legal for cyclists to cycle on footpaths unless specifically prohibited. It is expected that cyclists using footpaths would travel at low speeds and give way to pedestrians at all times. The standard width of these footpaths should remain at 1.5 metres, except where there are high volumes of pedestrians (for example, at shopping centres).

Bicycle lanes should be a minimum of 1.5 metres wide and are suitable for construction along neighbourhood connectors with a speed limit of 50km/h or less and a daily traffic volume of less than 7,000 vpd. Bicycle lanes can be considered along slightly higher volume roads if the bicycle lane is raised slightly above the road surface by use of a mountable kerb. On higher volume roads, with high volumes of cyclists, separated one way cycle lanes along the verge are preferred. A minimum buffer of 0.7 metres should be provided between the cycle lane and the adjacent road or parking.
Bicycle boulevards are a new type of bicycle facility. They would generally be constructed on low volume streets and a speed limit of 30km/h would be applied. At the current time there are no specific design standards and the Department of Transport is encouraging councils to develop innovative designs in consultation with the Department and to monitor their operation.

**Behaviour Change Programmes**

The City of Canning recognises that a significant increase in cycling and walking will not be achieved through infrastructure improvements alone. A range of behaviour change programmes is proposed in this report to increase cycling and walking and to reduce the proportion of trips made as car drivers. It is proposed that the City of Canning employ a Travel Smart Officer with specific responsibilities to achieve high levels of cycling and walking as a part of a more integrated and safe transport system. Other measures aimed at encouraging greater levels of cycling and walking are recommended in the report. These include:

- Provision of end of trip facilities (bicycle parking and lockers and showers for cyclists, joggers and pedestrians). Rates for bicycle parking, showers and lockers are proposed for consideration as a condition of development approval.
- Individualised marketing programmes such as TravelSmart or Your Move designed to increase walking, cycling and public transport use and reduce the proportion of car driving.
- Wayfinding and improved signage to improve the legibility of cycling and walking routes and encourage greater use.
- Media campaigns to increase driver awareness of cyclists and pedestrians and encourage more peaceful co-existence between all road users.
- A variety of demand management measures designed to encourage cycling and walking and provide some discouragement of excessive driving (refer Section 11.6).
- Proactive travel planning to encourage more cycling and walking to schools, to rail stations and to major office and retail developments.
12.2 Recommendations

It is recommended that the City accepts the findings in Part 1 of this report and then begins to implement the measures discussed in Part 2, thereby progressing towards the creation of a connected network of cycling and walking routes, supported by appropriate travel behaviour. Key recommendations are:

1) Planning:

The City needs to accommodate cycling and walking in its planning process. It is recommended that the City of Canning adopts the vision for cycling and walking in Canning (Section 7.1), accepts the proposed mode share targets (Section 7.5) and takes on the principles for cycling and walking as these help to guide planning (Section 7.4). The broad strategies (Chapter 8) provide direction for how to go about increasing the uptake of cycling and walking and should be borne in mind as infrastructure and behavioural change programmes are developed.

It is recommended that the City communicates this Cycling and Walking Plan to the public when it is adopted by Council, and provides updates on the status of its implementation to both residents and the Council at regular intervals. This may be achieved in various ways.

At adoption of the Plan by Council:

- Advising the adoption of the plan on the City’s website;
- Printing the maps at full size and displaying the hardcopies at key local government facilities;
- Reporting the adoption of the plan in the local newspaper;
- Informing the participants of the two workshops undertaken during the development of the plan;
- Informing those who responded to the public and school surveys undertaken during the development of the plan;
- Organising a public launch of the plan, ideally at a cycling or walking event; and
- Making all City staff aware of the adoption of the plan so that it can be considered in other works and planning.

As implementation of the plan progresses, it will be important to:

- Provide residents with an annual update of works completed (via the local newspaper, the City’s website and other Council communications such as in the newsletter delivered with rates notices);
- Keep local bicycle user and walking group contacts informed;
- Report progress to the Council and champion for continuation and increase in funds per head for cycling and walking; and
- Work with neighbouring local governments and state governments to achieve the plan.

All communications should be made accessible to people with a disability as per the City’s Disability Access and Inclusion Plan 2017 – 2022.

The City may have scope in its current revision of the Local Planning Scheme to strengthen statutory requirements to support the uptake of cycling and walking. It is therefore recommended that the City requires applicants to address cycling and walking during the statutory development approvals process (Section 11.7). The City can mandate certain levels of bicycle parking (in a similar manner that it does for car parking) for prescribed land uses within its local planning scheme. For now, the City can lead by example and it is recommended that appropriate bicycle parking and end of trip (EOT) facilities are provided at City of Canning public buildings and that private businesses within the City are encouraged to provide similar facilities for their customers and staff (Section 11.8).

2) Working with the State and Local Governments:

It is recommended that the City of Canning work closely with state government and other funding agencies to secure appropriate levels of funding for the implementation and ongoing maintenance of infrastructure and behaviour change and promotional programmes (Chapter 9). The City should also actively participate with the
state government in the development of cycling and walking design guides, as appropriate, or when detail designing cycling and walking infrastructure (Section 10.2). Bicycle boulevards are a key new type of infrastructure for Perth that will require refining to local circumstances. It would also be appropriate for the City of Canning to work with the Public Transport Authority to ensure sufficient provision of bicycle parking and storage at train stations in the City of Canning (Section 11.8). It is appropriate for the City to liaise with neighbouring local governments, particularly in the provision of paths in order to enable a smooth transition in infrastructure at the boundaries of local government areas and to facilitate “through” travellers (particularly cyclists) that transit the City of Canning.

3) Build the Infrastructure:

As time and budget permits, it is recommended that the City of Canning builds the five key routes and other identified links as detailed in the implementation plan (Section 10.3 and Appendix G). It is further recommended that the City develops a wayfinding system for the City of Canning (Section 11.5) to enable cyclists and walkers to better navigate and use the full extent of the network and access destinations.

4) Behavioural Change:

It is recommended that the City employs a Travel Smart Officer who can focus on attaining mode shift to cycling and walking, particularly through the implementation of behavioural change programmes (Section 11.1). This recommendation should be actioned in the short term as this Officer will be responsible for implementing suitable behavioural change programmes, such as Your Move (Section 11.3) and conducting events that promote cycling and walking. It may be particularly appropriate to target school children in these campaigns (Sections 11.2 and 11.4). It is further recommended that the City works to educate all road users (drivers, cyclists and pedestrians) to share the facilities it provides (Section 11.6). This may be in conjunction with suitable government agencies or even the private sector, for example, the RAC or bicycle groups.