

4 - MOVEMENT

OBJECTIVES

- Provide sufficient development intensity and land use mix to support high-frequency public transport.
- Maximise access to activity centres by walking, cycling and public transport while reducing private car trips.
- Develop a hierarchy of streets designed to accommodate desired transportation modes.

MOVEMENT

4.1 Regional Perspective

The Morley Activity Centre is located approximately eight (8) kilometres north of the Perth Central Business District (CBD) at the meeting point of several major roads including Walter Road West, Broun Avenue/Beaufort Street, Collier Road, Wellington Road and Crimea Street. Collier Road provides a direct connection to nearby Tonkin Highway (refer to Figure 34). The Structure Plan reflects these key connections and aims to promote greater connectivity within the region.

Currently, access to the Centre is provided almost exclusively by road, and primarily by private vehicle. The Morley Bus Station operates as an interchange servicing high frequency services from both the surrounding residential neighbourhoods and to and from the Perth CBD. The provision of infrastructure for pedestrians and cyclists is generally poor.

As the Centre develops, increasing demand for access both within and from surrounding areas may have adverse environmental and quality of life impacts due to increased peak period traffic congestion. This Structure Plan proposes a shift away from the current heavy reliance on private vehicles.

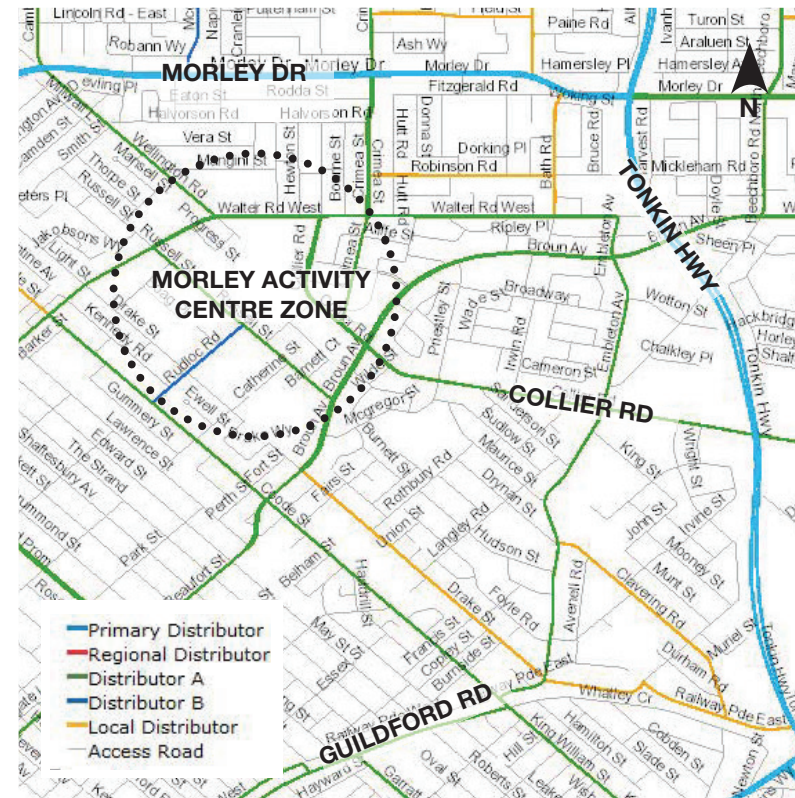


Figure 34 - Main Roads WA Road Network Hierarchy

4.2 Future Movement Network

Within the Morley Activity Centre, the introduction of more efficient and sustainable transport is key to creating a more compact, connected and modern urban environment that can accommodate increased intensity, diversity and productivity. In doing so, parking usage in the Activity Centre can eventually be reduced, freeing up land for more beneficial and productive uses.

In 2013, the City of Bayswater engaged consultants Cardno to develop a Transport Assessment for the Morley Activity Centre. The transport study models the transport environment and provides initiatives and recommendations to assist the development of this Structure Plan. The Transport Assessment considered the following:

- An overview of the road, freight and public transport connections within, to and from the Centre;
- A review of the road hierarchy within the Activity Centre to address future projected growth; and
- An overview of the road, freight and public transport connections within, to and from the Centre incorporating principles of 'transpriority' roads.

In 2016, consultants Uloth & Associates prepared an updated Transport Assessment Report for the Morley Activity Centre which primarily considered the following:

- The 2031 traffic model for the Morley Activity Centre Structure Plan;
- Road and intersection upgrades;
- Bus lanes and cycling facilities; and
- A future parking management plan.

The movement section of this Structure Plan was developed based on the above supporting background documents and demonstrates how transport and access to and from the Activity Centre will operate by 2031.

4.2.1 Mode Choice

One of the key considerations of this Structure Plan is the analysis and review of the various modes of transport used to access the Centre, known as mode choice. The 2016 Transport Assessment Report included a breakdown of non-resident trips to the Centre as illustrated in Figure 35 and shows that 91% of trips to the Centre are by car (including 84% driving alone and 7% car-pooling). This rate of car usage is above average for similar centres and demonstrates that users of the Centre have a strong reliance on car use. Mode choice is driven by traveller preference but is affected by a number of other factors, primarily travel time and cost. To support the ultimate vision of a diverse and vibrant activity centre designed around people and not solely the car, it is important to develop a more balanced mode share and encourage the use of alternative transport.

The 2016 Transport Assessment Report promotes a more efficient public transport system, improved cycling infrastructure and a more attractive pedestrian environment. To ensure the viability of the Activity Centre and prevent traffic congestion issues, traffic management is also an important component of this Structure Plan as the total number of trips by car is expected to only increase as the Activity Centre develops.

A target mode share proportion has been established for non-resident trips to the Activity Centre (refer to Figure 35). The targets represent a relatively minor shift in transport mode choice, acknowledging the current lack of high-capacity public transport infrastructure servicing the area. Initiatives to further reduce the number of car trips should be continually investigated as the Centre develops. The targets are as follows:

- Car - Driver: 71% (currently 84%)
- Car - Passenger: 8% (currently 7.5%)
- Public Transport: 12% (currently 5.5%)
- Cycling: 4% (currently 1%)
- Pedestrian: 5% (currently 2%)

4.2.2 Public Transport

Public transport serving the Morley Activity Centre is currently provided by the Transperth bus network. The majority of the bus services link with the Morley Bus Station located on Russell Street, and utilise Walter Road West or Broun Avenue to connect with residential catchments in Noranda and Beechboro. Currently, the Morley Bus Station primarily serves as an interchange point for passengers heading from these residential catchments into the Perth CBD and there are no exclusive commuter parking facilities provided.

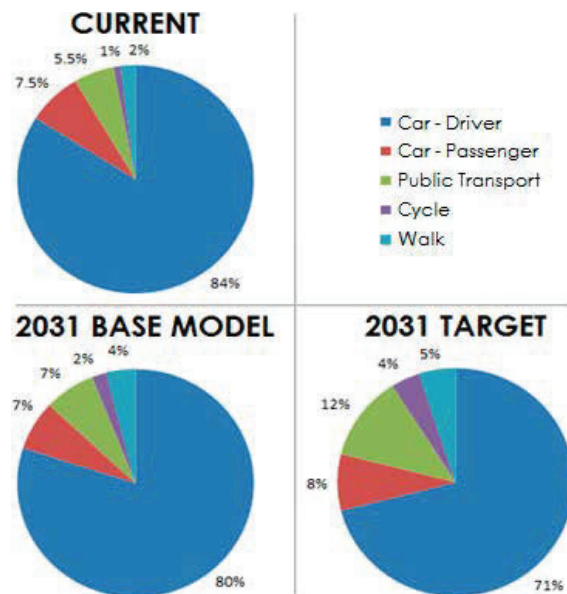


Figure 35 - Mode Share

As the Morley Activity Centre develops there will be a greater need for services to link to the surrounding public transport network, and improvements in regional public transport links will be required to support the Centre's future growth.

Important linkages include Beaufort Street and Walter Road West towards the Perth CBD, Wellington Road and Grand Promenade towards Mirrabooka,

Bayswater train station, and also towards Ellenbrook and East Wanneroo. In the short to medium term the State Government is aiming to improve the current level of service and build upon the advantages of bus transit. The Morley Activity Centre has the advantage that bus routes are flexible and regional and high frequency services can interface well with local bus transport bringing residents into the Centre directly from home which reduces the need for commuter parking.

Route Frequency

Morley Bus Station is the busiest non-CBD bus-only facility in the Transperth network, catering for up to 12,000 passenger movements per day. Over half of its boarding's are transfers, with services feeding to the 950 "Superbus" for journeys to Perth. This service connects Morley Bus Station and the University of Western Australia/ QEII Medical Centre via Perth City. It is currently Perth's highest frequency bus service and has significantly increased patronage along its route. The route has achieved exceptionally high levels of customer satisfaction since its implementation.

The success of Route 950 bus service can be attributed to the provision of bus priority measures progressively being rolled out along its route, the attractors/ anchors along the route and most importantly the high frequency nature of the service running as frequently as every 1-2 minutes in the peak period. Peak period bus lanes are already operating along a significant portion of this service and the Structure Plan has identified further opportunities for bus priority lanes along its route. Across the local network the frequency of bus services range from 4-5 minutes for high demand routes during peak hour to 60-120 minutes for low tier routes during off-peak services (refer to Figure 36).

4.2.3 Rail

The State Government's *Perth Transport Plan for 3.5 Million People and Beyond* (draft for public consultation) identifies two new underground rail routes that will service the Morley Activity Centre in the medium to long term. The proposed East Wanneroo Rail Link will service Morley and East Wanneroo, connecting to the Joondalup line to service the far northern suburbs. Stage 1 from the Perth CBD to Morley is expected to be operational in the medium term when Perth's population reaches 2.7 million people. The proposed Stirling Murdoch Orbital Rail Link, a rail service connecting the activity centres of Murdoch, UWA/QEII, Stirling and Morley, is expected to serve the Morley Activity Centre in the longer term when Perth's population grows beyond 3.5 million people.

It is considered that the rail connection will significantly enhance the accessibility and connectivity of the Activity Centre and further reduce car usage. The City of Bayswater will work closely with the State Government and stakeholders to determine the location of the underground station and the associated access/egress points.

4.2.4 Pedestrian Movement and Amenity

The current pedestrian network within the Activity Centre largely reflects a low volume of pedestrian movement and will require significant improvement as the Centre develops. One of the key challenges for the Centre is to address the existing pedestrian amenity, which is characterised by narrow footpaths, poor road crossings, lack of connectivity with building entries, inconsistent street trees and lack of street furniture and public art. Pedestrian crossing points are compromised by the volume and speed of traffic along major roads, particularly Walter Road West. However, recent improvements have been made to provide signalised crossings at the intersection of Progress Street and Walter Road West as part of the Coventry Markets development. Pedestrian activity and connectivity are critical factors in the success and sustainability of the Activity Centre. A fine-grained network of pedestrian paths is proposed to permeate the Centre to provide for the movement of commuters, residents and visitors through the network. Activity and connectivity will be enhanced in the Activity Centre through the construction



Figure 38: Morley Activity Centre - Pedestrian Desire Lines

of high quality paths, shade trees, awnings and street furniture.

The activated Central Core, consisting largely of Russell Street, Bishop Street and Progress Street will be strongly oriented towards pedestrian accessibility, with wide, attractive pedestrian footways and legible road crossings. Areas towards the edge of the Centre, where densities and volume of traffic are lower, require less pedestrian amenity upgrades. However, crossing infrastructure will be particularly important to maintain pedestrian safety and

legibility. As the Centre develops, a consistent provision of safe crossing points and high quality pedestrian facilities will be employed across the Activity Centre particularly focused on identified desire lines from between major transport and land use nodes (refer to Figure 37).

The Galleria Shopping Centre, due to its large land area and internalised malls creates barriers to pedestrian connectivity, particularly outside its hours of operation. Activated frontages skirting the Galleria in strategic locations will help to enhance the pedestrian environment outside the Galleria's opening hours. Parking location is an important factor in determining pedestrian movement. The location of car parking towards the periphery of the Centre will require motorists to walk an additional distance to the destination. However, this could be compensated by the provision of attractive and legible pedestrian facilities.

4.2.5 Cycling

Cycling improves personal and environmental health, reduces congestion and is low cost. Consequently, cycling has significant potential as a mode of transportation for both local and regional trips to and from the Morley Activity Centre.

Currently, the cycling environment in and around the Centre is poor and is characterised by adverse road conditions and a lack of dedicated cycling infrastructure. However, the Centre's location along strategically important regional transport routes creates opportunities for cycling to grow its mode share. In 2014, the City of Bayswater engaged consultants Cardno to develop the Local Bike Plan which proposes significant cycling infrastructure improvements across the City (see Figure 38). The detail map (see Figure 39) illustrates several of the key projects proposed for the Morley Activity Centre.



Figure 39: City of Bayswater - Ultimate Cycling Infrastructure Map

Russell Street

The current provision of paths along this street is generally poor and should be rectified through the construction of on-street cycling infrastructure in both directions and shared pedestrian and cyclist footpaths. This Structure Plan proposes the provision of shared bus/cycle lanes for the majority of Russell Street which will provide an important link through the middle of the Activity Centre. Footpaths along Russell Street will be upgraded and widened to allow for shared pedestrian and cyclist use providing a lower speed environment that is separate from vehicle traffic.

Rudloc Road

The existing form of Rudloc Road is a wide, 2-lane road with a central median along a portion of its length. To facilitate a smooth transition from the proposed Coode Street cycle lanes, and to enable safe access to the Activity Centre, it is recommended that cycle lanes be marked in both directions, within the existing pavement. This treatment will generally require only line-marking within the existing wide lanes. However, the approach works to the Russell Street intersection will require additional consideration to ensure safe operation within a restricted roadway width.

Catherine Street

Catherine Street is a key link from Bedford and Inglewood into the Morley Activity Centre, avoiding Beaufort Street and Walter Road, as well as serving John Forrest Secondary College. Catherine Street has many sections where cyclists are segregated from the main traffic flow through the use of pedestrian and cycling public rights-of-way.

Due to the relatively safe riding environment that Catherine Street currently affords, it is proposed that any treatments made build upon the existing infrastructure. A bicycle boulevard treatment along Catherine Street is suggested to create an attractive and relaxing riding environment for cyclists of all levels.



Figure 40: City of Bayswater - Ultimate Cycling Infrastructure

Drake Street

This corridor has been recommended as a key long term route serving Morley and Bayswater through the Morley Activity Centre, eventually superseding Coode Street. The land uses accessed from this street suggest the implementation of a treatment to the road environment that caters for cyclists with varying levels of experience. To cater for the expected demand a bicycle boulevard treatment is recommended from Railway Parade to Walter Road, the timing of which will be determined as the Morley Activity Centre grows and an increased residential and retail density emerges.

Collier Road

Collier Road is a strategic link bisecting the Bayswater Industrial Precinct and linking Guildford Road to Walter Road West. In order to compensate for the narrow off-street path between Beechboro Road and Broun Avenue, it is recommended that on-street cycle lanes be installed on Collier Road from Broun Avenue through to Grey Street (east of Tonkin Highway), providing an alternative route for confident cyclists.

Walter Road West

Walter Road West is expected to carry a high volume of road traffic and on road will not be suitable for cyclists with low skill/confidence levels. This Structure Plan proposes the provision of shared bus/cycle lanes for the majority of Walter Road West which will provide a link through the middle of the Activity Centre for cyclists with higher skill/confidence levels. Footpaths along Walter Road West will be upgraded to allow for shared pedestrian and cyclist use providing a lower speed environment that is separate from vehicle traffic.

Other Connections

On-street cycling will be encouraged throughout the Centre, particularly in the activated pedestrian areas and along Russell Street. A network of off-street paths is planned for the retail precinct, to be shared with pedestrians in areas where vehicle traffic volumes are predicted to remain high. These shared paths are expected to be used at low speeds with strategic placement of street furniture and other passive obstructions. A core cycling network of on-street facilities, supplemented by dual use paths is shown in Figure 38.

End of trip facilities such as bicycle parking, showers, lockers and other ancillary infrastructure play an important role in supporting cycling as a comfortable and practical commuter mode choice. The City will also need to consider the provision of public bicycle parking for visitors and long term bicycle parking for cyclists making bus connections. As development of cycling progresses within the Centre large-scale bicycle parking facilities will be investigated for application in the Activity Centre, ideally near the core.

The Morley Activity Centre cycling infrastructure is aligned with the Western Australian Bike Plan and supports strategic regional cycling links. The Inglewood to Bassendean link follows along Walter Road East heading west to Broun Avenue and converges onto Beaufort Street from Coode Street, passing by five different schools along the route. This link serves as an important access route to the Morley Activity Centre and to the Bayswater Industrial Precinct.



4.3 Vehicle Movement and Access

Vehicle access to the Morley Activity Centre is achieved via a number of major roads including Walter Road West, Broun Avenue, Collier Road, Wellington Road and Crimea Street. These roads will continue to provide primary access as the Centre develops and will require improvements to maintain and enhance movement into and around the Centre.

4.3.1 Traffic Management

According to the Transport Assessment Report 2016, vehicle movements in the Morley Activity Centre are expected to increase significantly which will require careful management.

Currently, there is a significant supply of free long-term parking available within the Centre, largely within existing private car parks. As development intensifies, an unrestrained future parking scenario is expected to result in an unsustainable parking demand and a range of negative traffic and environmental issues such as congestion, noise, pollution and reduced cyclist and pedestrian safety. Therefore, a balance between providing vehicular access and minimising traffic impact is needed.

A 'Transpriority' assessment has been undertaken for the Activity Centre, assigning desirable transport modes to individual streets to create a network hierarchy for all modes (refer to Figure 40).

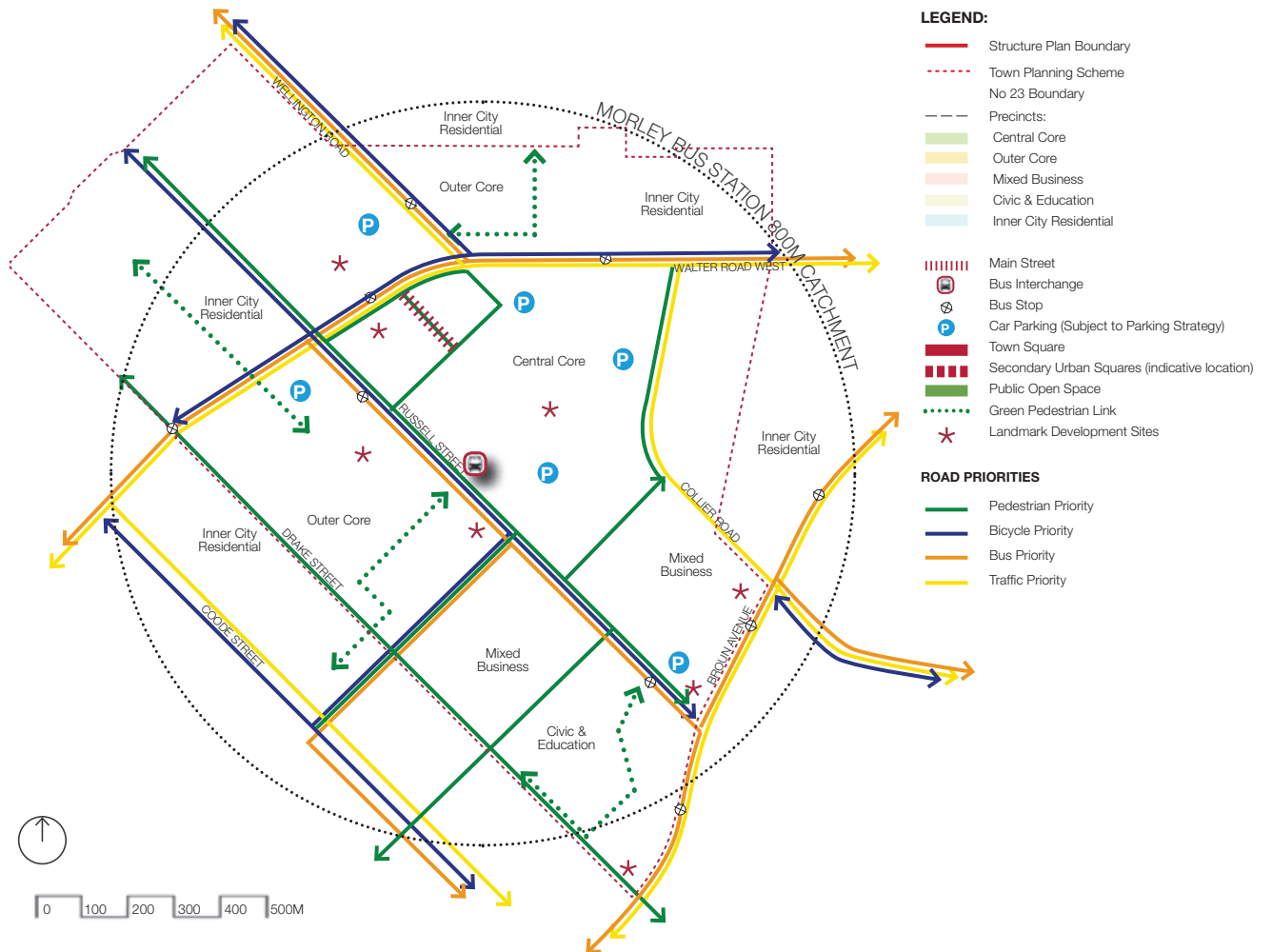


Figure 41: Future Transpriority Map

The results of this future analysis show that vehicle and freight traffic will continue to use the higher-order road network (Walter Road West, Wellington Road, Broun Avenue and Collier Road), with access to large-scale parking to be located as close as possible to these primary roads. Public transport movement is supported both along the primary road network and into the Centre, where the Morley Bus Station forms an important transport hub. For streets with activated street frontages, there will be an emphasis on slowing down vehicular traffic to create a walkable, safe and comfortable pedestrian environment.

4.3.2 Speed Limits

Boundary roads around the Morley Activity Centre such as Collier Road, Broun Avenue and Coode Street will remain at a 60km/hr speed limit due to the projected continued use of the roads by regional bypass traffic. Whilst the Transport Assessment Report 2016 recommends that Walter Road West remain as a 60km/hr speed limit, this recommendation will be further investigated based on the Structure Plan's designation of Walter Road West as part of the 'Central Core'.

This has arisen due to recent development proposals (including Coventry Village and the future Les Hansman Community Centre redevelopment) and the desire to better integrate these key sites and enhance connections with Galleria Shopping Centre. It is preferable that along Walter Road West, between Wellington Road and Russell Street, the speed limit is reduced to 40km/hr or a range of traffic calming measures are applied in order to create a more pedestrian friendly environment. To further promote a safe and legible pedestrian environment, the Transport Assessment recommends speed limit reductions to 40 km/ hr along Russell Street and Rudloc Road.

4.3.3 Freight and Delivery

Local freight movement is a fundamental requirement for the success of the Morley Activity Centre. The connectivity provided by the higher-order road network allows for excellent access for freight from nearby primary regional roads, including Morley Drive and Tonkin Highway. Access directly off the higher-order roads will be promoted where possible, with the exception of the key pedestrian activated streets including Russell Street, Progress Street and Bishop Street, where freight traffic is discouraged.

For large office/commercial buildings, access to dock areas through a laneway network is preferred to minimise the impact of service/ delivery vehicles on other modes. Given that laneways are limited in the Activity Centre, an increase in on-street loading zone areas is expected, particularly in the Central Core.

4.4 Proposed Street Improvements

The proposed movement network takes into consideration both the existing road infrastructure and the desired character and land uses of the individual precincts. To implement the movement network a range of street improvement projects are required. These road configurations address vehicular traffic, public transport, cycling and pedestrian movement. Each road in the proposed Centre network has been assessed according to function to determine a desirable road cross-section.



4.4.1 2031 Traffic Model

The 2031 traffic model for the Morley Activity Centre Structure Plan was developed from the calibrated existing traffic model described in the Transport Assessment Report 2016. Intersections were assessed for the ultimate demand scenario including redistribution of local traffic to reflect regional growth.

While the 2031 STEM model includes improved levels of public transport, it is important to note that the model does not include any parking caps within the Morley Activity Centre to artificially increase the levels of public transport patronage to/from the Centre. Accordingly, changes in travel modes within the future traffic model are only minor, even though significantly greater mode shift towards public transport is considered possible in the long term, as depicted in Figure 35.

The future traffic model and corresponding overall road and intersection upgrades are considered to be conservative. With the recommended introduction of shared bus/cycle lanes and bus priority measures, the introduction of parking caps in the long term, and the construction of the underground rail network servicing the Activity Centre, it is expected that some of the identified long term road upgrades may not ultimately be required. Further information is available within the Transport Assessment Report 2016.

4.4.2 Land Requirements

There are a number of land takings outlined in the Transport Assessment Report 2016 and the following sections of this Structure Plan. The land required to widen the road reserves will be applied as a condition of subdivision and development applications to be ceding free of cost to the Crown. Where no subdivision or development has occurred prior to the time that the City determines it wants to undertake the road widening works, the City may determine to acquire the property utilising the City's powers under the *Land Administration Act 1995* to compulsorily acquire for a public work.



Figure 42 - Existing Broun Avenue

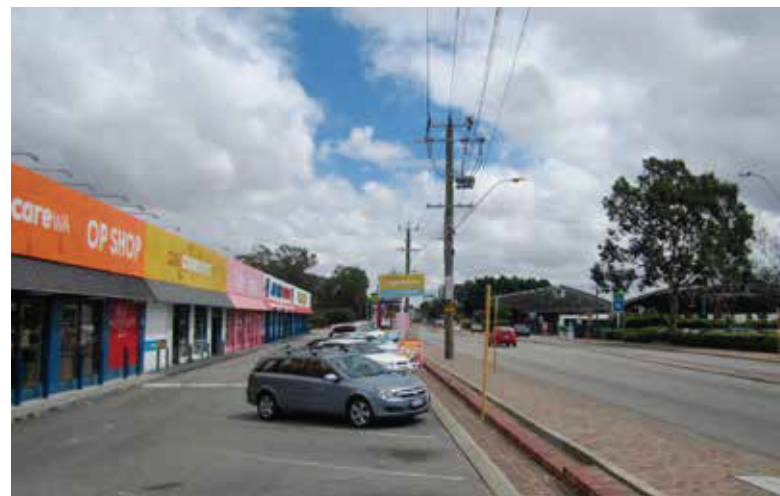


Figure 43 - Existing Russell Street



Figure 44 - Existing Collier Road



Figure 45 - Existing Rudloc Road

4.4.2 Broun Avenue

Broun Avenue currently consists of two lanes in each direction with a speed limit of 60km/hr. Broun Avenue is located on the boundary of the Morley Activity Centre and provides primary access for north-south trips into the Perth CBD for relatively high volumes of traffic.

Future works (refer to Figure 46) will aim to widen the shared paths to standards more conducive to high volumes of cycling and pedestrian transport, as well as an extension of the existing part-time bus lanes from Beaufort Street, Inglewood. Only minor alternations to the existing road reserve will be required, and to the immediate south of the Activity Centre boundary (between Drake Street and Coode Street) road widening reservations are already in place under the MRS to increase the road reserve from 20m in width to 25m in width.



Figure 46: Broun Avenue Proposed Cross-section (Coode Street to Russell Street)

4.4.3 Russell Street

Russell Street is projected to support shared bus/cycle priority lanes into the Morley Bus Station. A shared cycling and pedestrian path will also be available for casual cyclists who wish to ride at a slower speed. Improvements to the pedestrian environment should include street trees to reduce visual width, a speed limit of 40km/hr and high quality pedestrian crossing facilities.

The proposed road configuration (refer to Figure 47) slightly increases the road reserve width to allow sufficient median width for shared paths, pedestrian crossings and turning pockets (where necessary). While car parking is not supported along Russell Street due to the impact on bus movements, strategically located bike corrals are.

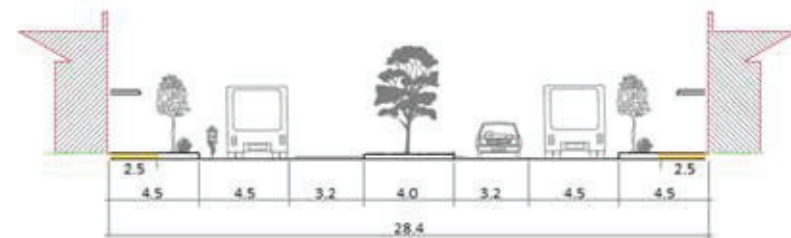
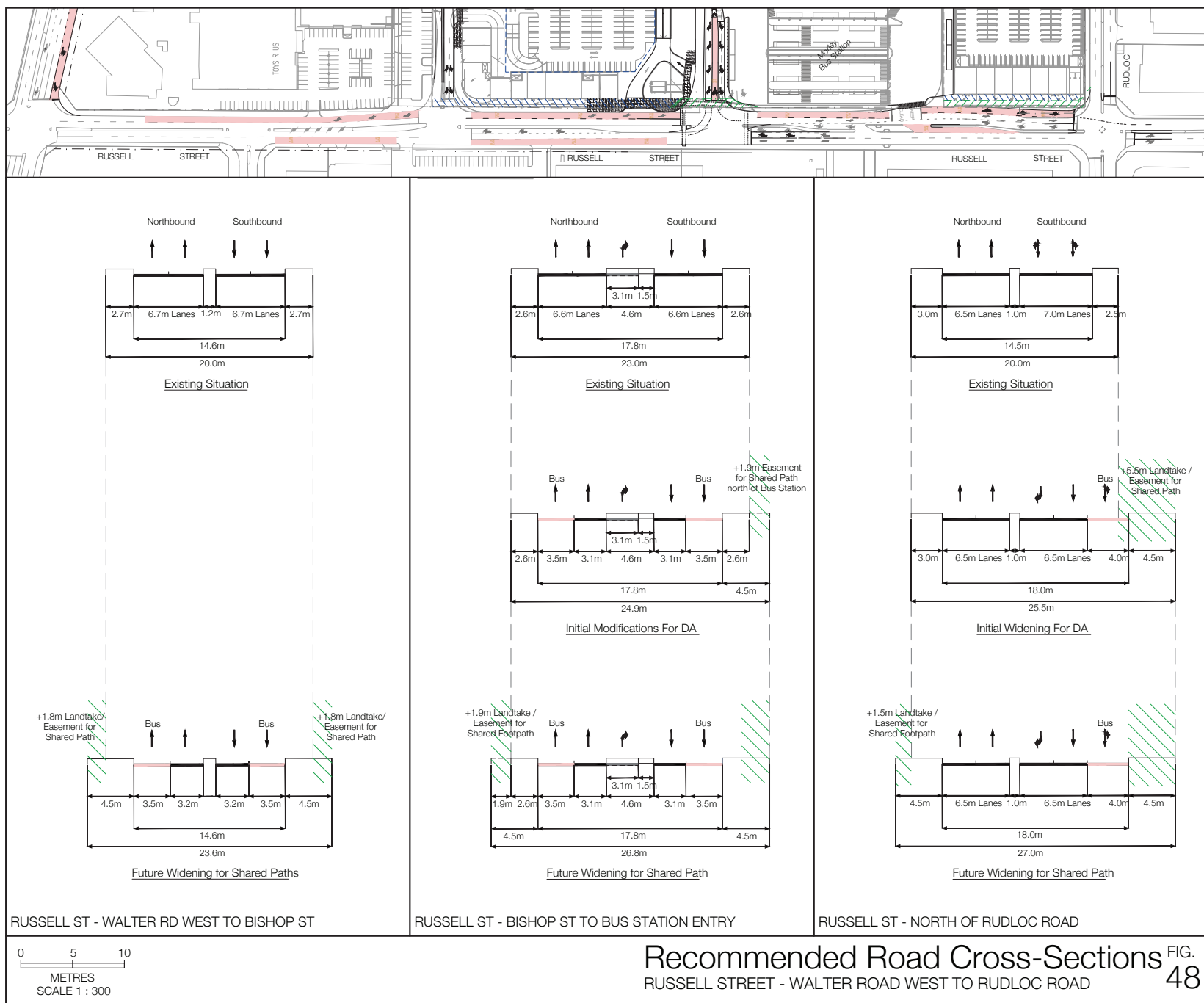


Figure 47: Russell Street Proposed Cross-section (Broun Avenue to Walter Road West)



4.4.4 Collier Road

Minor improvements along Collier Road are recommended including improved pedestrian crossings and wider shared paths. Some widening of the reserve will be required to accommodate the proposed road configuration. The provision of street trees will enhance the pedestrian environment. Figure 48 shows the desired future cross-section for Collier Road.



Figure 49: Collier Road Proposed Cross-section (Broun Avenue to Walter Road West)

4.4.5 Rudloc Road

Currently, Rudloc Road has a two lane configuration with wide carriageways. The street is commonly used for informal parking. It is recommended that the Rudloc Road carriageway be modified (refer to Figure 49) to provide embayed on-street parking in each direction intended for parking purposes associated with the adjacent commercial/mixed uses. Wider footpaths will be provided for better pedestrian amenity and on-road cycling is supported through the provision of on road cycle lanes. A reduction in speed limit to 40km/hr is recommended for this road. These improvements will increase the link between the core of the Morley Activity Centre and the proposed bicycle route along Drake Street.



Figure 50: Rudloc Road Proposed Cross-section (Russell Street to Coode Street)

4.4.6 Drake Street

Drake Street is currently characterised by a low volume, slow speed environment that is suitable for cycling access. Light Street/Drake Street (refer to Figure 50) provides the opportunity to create a cycling connection between the Morley Activity Centre and strategic destinations such as Mirrabooka and the Bayswater train station.

To reinforce this primary cycling corridor, further calming measures are recommended to create a prevailing speed of approximately 40km/hr. As the vision for the Centre is realised and residential density along Drake Street increases with more parcel consolidation and less individual driveways, indented parking is recommended to facilitate the requirements of both residential visitors and cyclists. Figure 19 shows the proposed future vision for Drake Street.



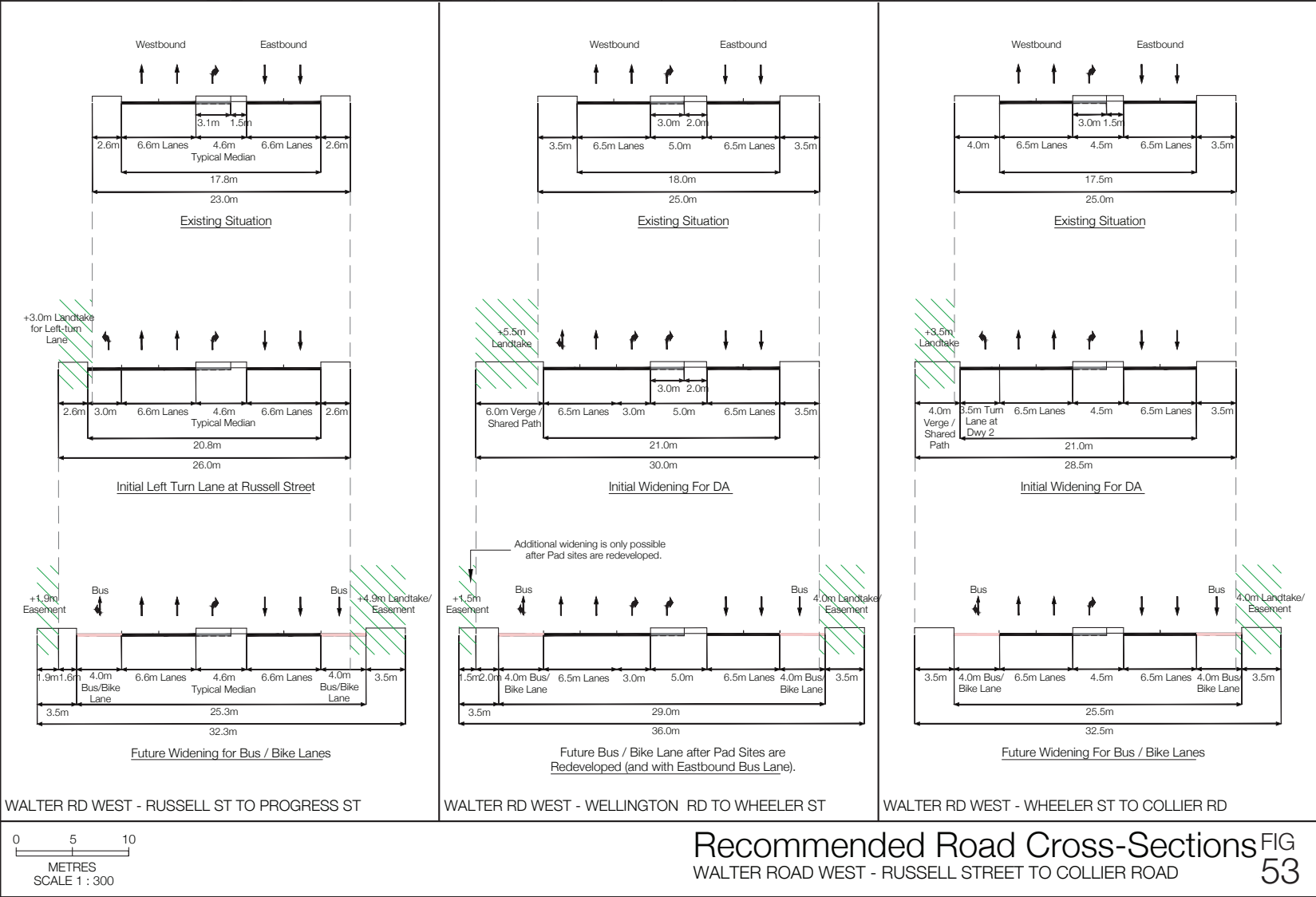
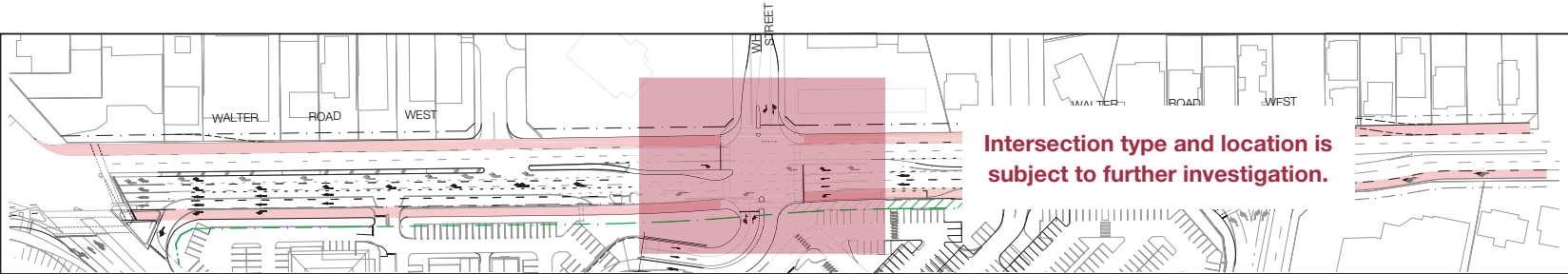
Figure 51: Drake Street Proposed Cross-section (Broun Avenue to Smith Street)

4.4.7 Walter Road West

Walter Road West is a major east-west link that runs parallel to Morley Drive. It is one of the main approaches to the Morley Activity Centre and is strategically important to the region. Future widening is proposed to accommodate for additional traffic lanes including shared bus/cycle lanes. Shared bus/cycle lanes are proposed from Russell Street to Crimea Street in the long-term with the potential for the lanes to be extended in the direction of the Perth CBD. In the event that bus lanes are deemed unnecessary, allocation of road space to create a dedicated cycle lane is recommended. Improvements to the off-street shared path network are recommended under any future scenario, in addition to improved crossings at Light Street/Drake Street (refer to Figure 51). Consideration may also be given to a reduced or variable speed limit of 40km/hr for sections of Walter Road West.



Figure 52: Walter Road West Proposed Cross-section (Wellington Road to Russell Street)



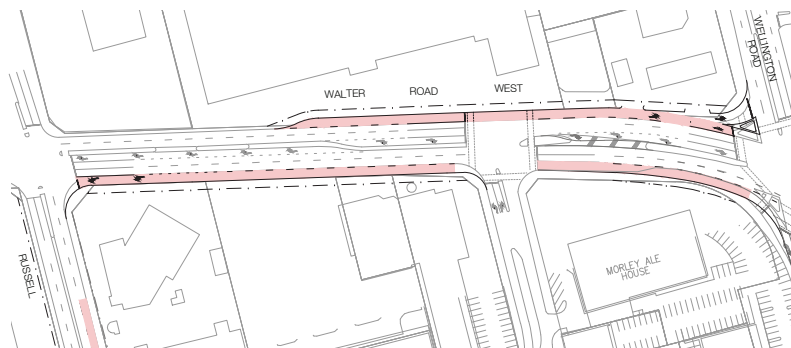


Figure 53: continued

4.4.8 Wellington Road

Wellington Road will eventually be widened to accommodate two lanes of traffic in each direction between Morley Drive and Walter Road West. Wider shared paths for pedestrians and cyclists are proposed in the short to medium term. In the longer term it is proposed that future bus/cycle lanes will be provided as depicted in Figure 52.



Figure 54: Wellington Road Proposed Cross-section (Walter Road West to Morley Drive)

4.5 Intersection Upgrades

In order to accommodate the development proposed by this Structure Plan together with the ongoing growth of general traffic flows within the surrounding metropolitan area, a series of road and intersection upgrades may be required. The extent of works largely depends on the progress of development in the Morley Activity Centre and the growth of regional traffic along the boundary roads. The City of Bayswater will continue to monitor traffic within the Centre and undertake intersection upgrades as needed. Moreover, developers will be required to undertake detailed traffic impact studies for major developments and in the case of significant traffic impacts will need to contribute to intersection upgrades.

The intersection improvements are classified into one of four categories (as shown in Figure 55), as follows:

1. Minor Upgrades

Extensions of turn lanes, or other minimal roadworks, with no land-take requirements.

2. Significant Upgrades

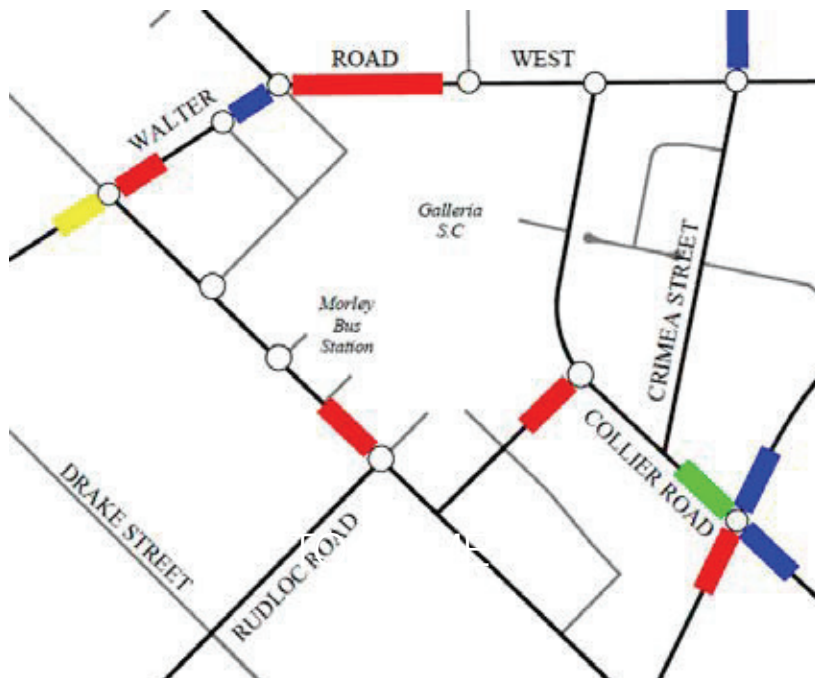
Minimal roadworks as described above, but with land-take requirements.

3. Considerable Upgrades

Road widenings for additional lanes, or other significant roadworks, with no land-take requirements.

4. Extensive Upgrades

Significant roadworks as described above, but with land-take requirements; or multiple additional lanes or major reconfiguration of intersections, with or without land-take requirements.



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Minor Upgrades (Minimal Roadworks, No Landtake)	Considerable Upgrades (Significant Roadworks, No Landtake)
Significant Upgrades (Minimal Roadworks, with Landtake)	Extensive Upgrades (Significant Roadworks, with Landtake, or Major Roadworks, with or without Landtake)

Figure 55: Future Intersection Upgrades (for 2031)



Figure 56: Progress Street and Walter Road East Intersection



Figure 57: Rudloc Road and Russell Street Intersection

4.5.1 Broun Avenue/Collier Road

Future modifications to this intersection are considered necessary to accommodate the forecast growth in regional traffic. The modelled intersection scenario and depiction of the potential space requirements are illustrated in Figure 55. The works required to accommodate the traffic growth include the following:

- Lengthen right turn lane on Broun Avenue (NE) approach (Minor).
- Lengthen turn lanes on Collier Road (SE) approach (Minor).
- Widen Broun Avenue (SW) approach to accommodate two right turn lanes, two through lanes and one left turn lane (Extensive).
- Widen Collier Road (NW) approach to provide a left turn auxiliary lane (Considerable).



Figure 58: Broun Avenue/ Collier Road – Modelled Scenario

4.5.2 Walter Road West/Crimea Street

The modelled intersection scenario and depiction of the potential space requirements are illustrated in Figure 56. The works include the following:

- Lengthen right turn lane on Crimea Street (N) approach (Minor).



Figure 59: Walter Road West/Crimea Street – Modelled Scenario

4.5.3 Walter Road West/Wellington Road

This intersection is projected to carry a significant volume of right turning traffic from Walter Road into Wellington Road and a corresponding left-turn demand from Wellington Road. Its location between Coventry Village and the Galleria Shopping Centre attracts significant pedestrian volumes and therefore controlled pedestrian phasing should be incorporated into peak signal operation.

The modelled intersection scenario and depiction of the potential space requirements are illustrated in Figure 57. The works include the following:

- Modify right turn lane on Walter Road West (W) to maximise queuing space (Minor)
- Widen Walter Road West (E) approach to provide additional right turn lane (Extensive).



Figure 60: Walter Road West/Wellington Road – Modelled Scenario

4.5.4 Broun Avenue/Russell Street

A large increase in regional traffic has been modelled along the Broun Avenue corridor. The modelled intersection scenario and depiction of the potential space requirements are illustrated in Figure 58. The works required to accommodate the traffic growth include the following:

- Widen Russell Street (W) approach to provide left turn auxiliary lane plus one right turn bus/cycle lane and two right turn lanes (Considerable).
- Lengthen turn lanes on Broun Avenue (NE and SW) approaches (Minor).



Figure 61: Broun Avenue/Russell Street – Modelled Scenario

4.5.5 Walter Road West/Russell Street

Proposed modifications are illustrated in Figure 59, alongside a depiction of the potential space requirements.

- Widen Walter Road West (E) approach to provide left turn auxiliary lane (Extensive).
- Lengthen right turn lane on Walter Road West (W) approach (Significant).

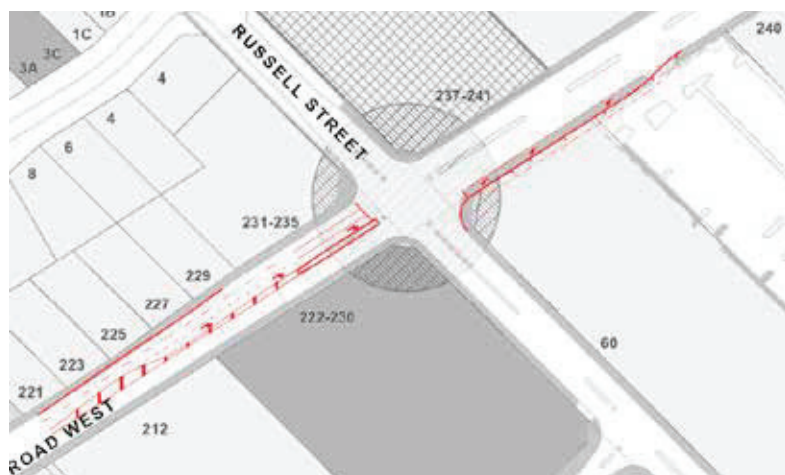


Figure 62: Walter Road West/ Russell Street – Modelled Scenario

4.5.6 Walter Road West/Collier Road

The proposed mitigation measures are intended to improve intersection operation and limit queue lengths. The modelled intersection scenario and depiction of the potential space requirements are illustrated in Figure 60. The mitigation measures recommended for this intersection are as follows:

- Installation of new bus/cycle lane on Walter Road West in both directions;
- Extension of the existing right turning pocket on Walter Road West;
- Installation of a left-turn pocket/bus/cycle lane at the Walter Road West east approach; and
- Modification of signal phasing to accommodate pedestrians.



Figure 63: Walter Road West/ Collier Road – Modelled Scenario

4.5.7 Walter Road West/Coode Street

The works required to accommodate the traffic growth include the following:

- Lengthen right turn lanes on Walter Road West (W) approach (Minor).
- Widen Coode Street (S) approach to provide one right turn lane, 1 shared right turn lane and one left turn auxiliary lane (Significant).

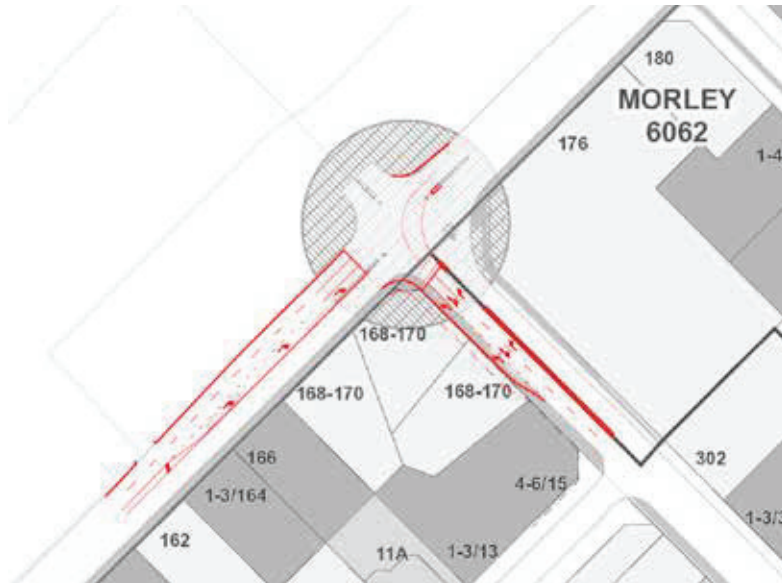


Figure 64: Walter Road West/Coode Street– Modelled Scenario

4.5.9 Collier Road/Dewar Street

The works required to accommodate the traffic growth include the following:

- Introduce a traffic signal controlled intersection at Dewar Street and Collier Road.
- Widen Dewar Street (W) approach to provide one left turn lane and one right turn lane (Considerable).



Figure 65: Collier Road/Dewar Street– Modelled Scenario

4.5.10 Russell Street/Rudloc Road

The works required to accommodate the traffic growth include the following:

- Widen Russell Street (N) approach to provide right turn lane (Extensive).

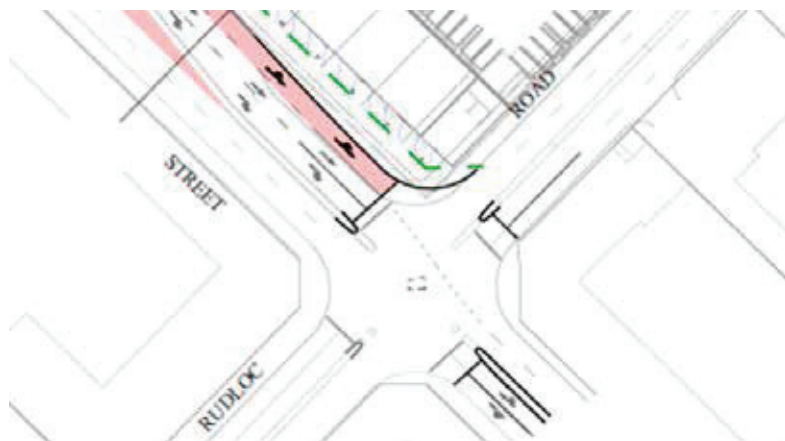


Figure 66: Russell Street/Rudloc Road – Modelled Scenario

4.5.11 Old Collier Road/Bishop Street

The works required to accommodate the traffic growth include the following:

- A roundabout is proposed at the Bishop Street/Centre access intersection.



Figure 67: Old Collier Road/Bishop Street – Modelled Scenario

4.5.12 Walter Road West/Wheeler Street

A new traffic signal controlled intersection is proposed at the intersection of Walter road West and Wheeler Street. Wheeler Street provides an important local access road function to the residential area north of Walter Road West. These traffic signals will also provide pedestrian/cyclist linkages across Walter Road West, helping to encourage non-motorised travel between land uses within the overall Activity Centre.

However, the traffic signals may encourage 'rat-running' through the residential area to Wellington Road. The intersection type and location will be further investigated in consultation with the local residents.

Intersection type and location is subject to further investigation.

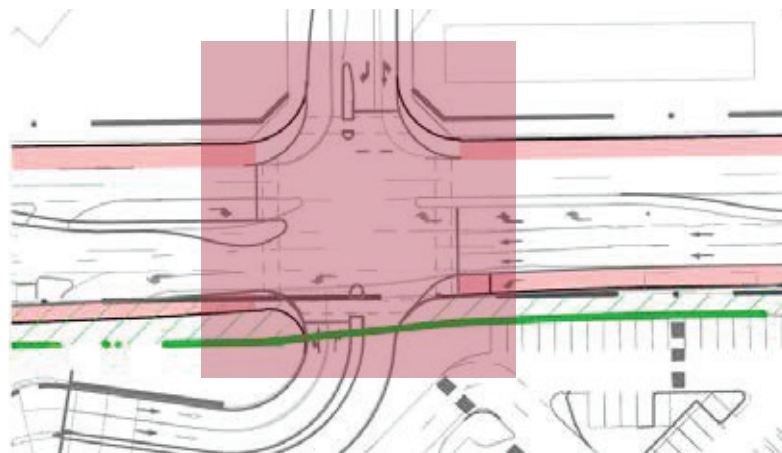


Figure 68: Walter Road West/Wheeler Street - Modelled Scenario

4.6 Parking

In order to address traffic congestion and improve the environmental sustainability of the Morley Activity Centre, it will be necessary to engender a shift toward sustainable modes of transport such as cycling, walking and public transport. The Activity Centre has a large commercial precinct at present with significant growth in commercial and mixed use development planned in the future. It is expected that there will continue to be a consistently high demand for short-stay parking and some commuter parking, in addition to residential parking requirements.

4.6.1 Parking Management Principles

The following fundamental principles are considered important for the development of the Centre:

- Parking should be shared between multiple land uses, providing benefits where peak operating times differ;
- Development should be located such that multiple destinations can be accessed by foot, reducing the need for parking at each destination (reciprocal parking);
- Parking should be located adjacent to primary approach routes to minimise vehicular traffic in pedestrian zones;
- Parking should be monitored and constrained to achieve the balance desired between economic, social, cultural and environmental goals;
- Parking management should consider both supply and demand (this may include time restrictions and/or paid parking);
- Parking should be provided for various modes and uses, including private vehicles, freight/delivery, people with disabilities and bicycles, and located appropriately; and

- Public parking represents the most efficient and equitable use of a scarce resource, and also allows the most control over the quantum and target consumer (note that 'public' parking may also include large scale private car parks which operate as de-facto public parking for the Morley Activity Centre as a whole such as the Galleria Shopping Centre).

A parking management plan will also need to be introduced to maintain a level of supply and demand which can be sustained by the local road network.

4.6.2 Parking Rates and Future Cap

This Structure Plan provides for minimum parking rates in lieu of maximum parking rates as specified under SPP 4.2, the parking rates for specific land uses are significantly less than those required under the former town planning scheme. It is anticipated this approach will encourage business and investment in the Morley Activity Centre in the short term. However, as the Activity Centre develops an ever-increasing provision of parking infrastructure will become both unsustainable and undesirable. It also implies that there can be an ever-increasing level of road capacity to cope with the corresponding increase in traffic.

The alternative method is to apply limits or 'caps' to the amount of parking that can be provided throughout the overall Activity Centre. Parking caps are implemented to provide an acceptable overall balance of parking infrastructure, roads and intersections, public transport, cycling and pedestrian facilities, to achieve a balanced transport outcome for the long term. The Transport Assessment Report 2016 recommends that the introduction of parking caps is considered as part of an overall parking management plan to be implemented in the medium term.

Parking rates for community land uses are to be determined at the discretion of the local government. In considering such applications regard should be given to the specific nature of the use, parking requirements for similar uses and the availability of public parking in the vicinity. The local government should have regard to the context of the Activity Centre and the objectives of this Structure Plan when considering discretionary parking rates. For further guidance the New South Wales Roads and Traffic Authority Guide to Traffic

Generating Developments provides a detailed study of standard parking requirements for a range of land uses.

4.6.3 Parking Distribution

An assessment of potential parking structure locations has been undertaken based on development scenario modelling. Figure 61 shows potential locations for large public and private parking, to be supplemented by smaller-scale parking at the individual development level.

Commuter Parking

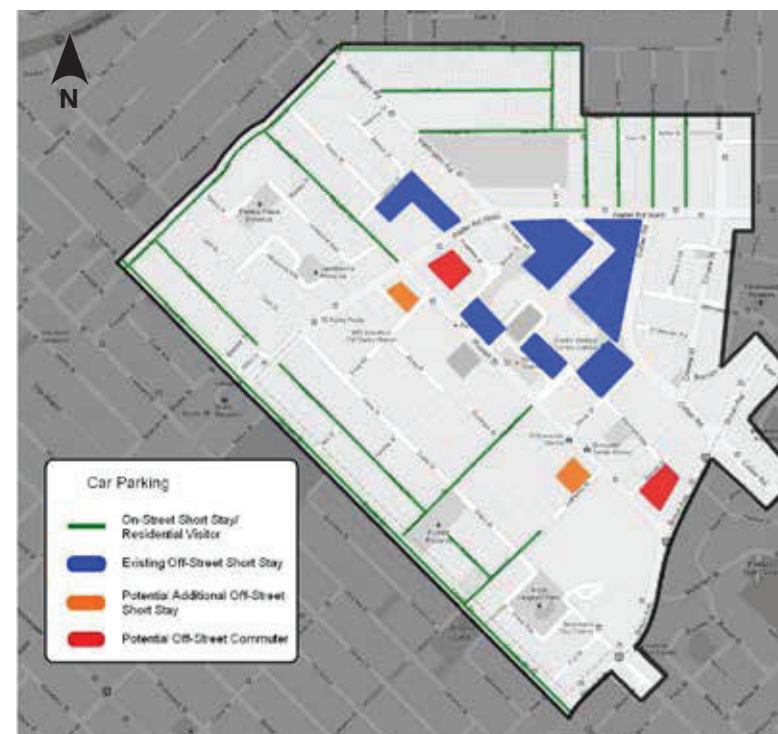



Figure 69: Location of Potential Car Parking Facilities



Commuter parking is of lesser value to the Morley Activity Centre and should be supplied in large-scale parking structures priced to support all-day parking. Ideally, these will be located outside of the active pedestrian areas. Removing this parking type from the main activity areas improves pedestrian and cycling safety, public transport efficiency and intersection operation.

An ideal location for large scale commuter parking is towards or within the Mixed Business zone; along Dewar Street, Marchant Way or Barnett Court. Upon designation of any major commuter parking areas, the local government will need to ensure that there is a pedestrian friendly environment which links the commuter parking with the Morley Bus Station. Commuters are also more willing to walk long distances if the pedestrian environment is comfortable and attractive. Access to commuter parking will be primarily via major approach roads (such as Broun Avenue) outside of the Central Core, to minimise the impact of commuter traffic on the operation of the internal road network.

Residential Parking

Residential traffic is generally not considered to impact significantly on the Activity Centre road network due to its prevailing contra-flow direction. However, to ensure that residential traffic does not become an issue in the future, parking provision in line with the R-Codes is proposed as part of this Structure Plan. This will assist in supporting sustainable transport through reduction in private vehicle trip generation.

As the Centre develops, consideration may be given to the introduction of an 'unbundled' parking policy which would provide tenants or owners with the opportunity to rent or sell parking spaces. This means owners are able to purchase additional parking if required or sell parking spaces which are not required. This may reduce the total amount of parking required for a residential development. It is expected that residential development will provide sufficient parking on-site, therefore on-street parking for residential uses is not supported. Short-stay on-street parking will be available for visitors.

Short-Stay/Visitor Parking

Currently, visitor parking within the Activity Centre is free of cost and provided by on-street and off-street retail parking facilities. Retail parking should be located adjacent to, but outside of, areas with high levels of activation. Parking is expected to be provided in primarily public or private multi-deck parking facilities adjacent to these areas. The Galleria Shopping Centre will likely remain the primary site for retail parking and continue to operate as a de-facto public car park. The remainder of short-stay parking bays will be distributed across the Centre.

The on-street parking supply will primarily be reserved for visitor parking, through the use of timing restrictions. On-street parking within the Centre is encouraged in the majority of access streets, as well as along Rudloc Road and Coode Street. Parking along Russell Street is acceptable only beyond Walter Road West. Where suitable, embayed on-street parking is preferred to minimise pedestrian crossing distances and allow street trees to be planted closer to traffic lanes, thereby reducing the street's perceived width.

Bicycle Parking

In activated streets and any streets with on-road cycling facilities, bicycle parking is recommended to be located in on-street corrals to provide sufficient capacity and prevent pedestrian conflicts, as shown in Figure 62.



Figure 70 - On-street Bike Corral