



SMITHFIELD REGENERATION CODE AMENDMENT

TRANSPORT INVESTIGATIONS REPORT



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1. EXECUTIVE SUMMARY

CIRQA has been engaged to provide transport investigations to inform the Code Amendment for the potential rezoning of approximately 163.1 ha of land at Smithfield and Elizabeth North to enable urban renewal and infill opportunities.

This report includes assessment of the forecast traffic generation associated with the proposed rezoning and anticipated future development and renewal of the subject land, the associated impact on the adjacent existing road network and consideration of potential infrastructure provisions and upgrades.

In preparing the assessment, two yield scenarios have been considered, namely Scenario 1 with an assumed 2,130 additional dwellings and Scenario 2 with an assumed 4,130 additional dwellings.

Forecasting of the future traffic generation identifies that the proposed rezoning of the Affected Area and subsequent development would generate in the order of 1,385 and 2,685 peak hour trips for Scenario 1 and Scenario 2, respectively.

The forecast volumes would be distributed via a number of access routes to, from and within the Affected Area. This includes existing connections via Konanda Road, Warooka Drive, Broadmeadows Road, Morialta Drive, Woodford Road and Anderson Walk as well as the potential for an additional connection to/from Main North Road. Direct connectivity to/from the west is restricted by the existing rail corridor for the Gawler line (an additional level crossing would not be supported by DIT and an at-grade solution is likely to be cost prohibitive). A new local road network is envisaged within the (currently) vacant portion of the Affected Area. This will generally comprise low volume, local roads. However, a new north-south collector road is proposed (between Broadmeadows Road and Morialta Drive).

The forecast additional volumes will not alter the nature or function of the existing roads within and surrounding the Affected Area. However, the additional forecast volumes will result in the need for upgrades with the extent required dependent on the ultimate yield realised. The Scenario 1 yields result in a relatively low requirement for interventions on the existing road network. Whereas Scenario 2 would require a relatively high number and extent of upgrades to safely and efficiently accommodate the additional volumes.

Future demand for walking and cycling infrastructure through the Affected Area and surrounding road network will increase as development intensifies. It is recommended that connections to destinations within and surrounding the Affected Area (such as Munno Para Shopping City and the Broadmeadows and Smithfield Railway Stations) be developed within future developments in the Affected Area. This will strengthen pedestrian and cycling connections for recreational, commuter and customer use.

The Affected Area is relatively well serviced by existing public transport services with both nearby rail and bus services. However, it is recommended that the proposed road network (and associated connections to the existing network) include allowance for the potential provision of a north-south bus route through the Affected Area.

2. BACKGROUND

2.1 AFFECTED AREA

The Affected Area comprises approximate 163.1 ha of land bounded by the western side of a rail corridor (associated with the Gawler line) to the west, Anderson Walk to the north, Main North Road to the east, and Woodford Road, Whiteparish Road and Tisbury Street to the south. The Affected Area includes a 33.5 ha Renewal SA site (largely vacant with the exception of an Army Cadets facility), existing low density residential development (within the northern and southern portions) and the Munno Para Shopping precinct.

Figure 1 illustrates the location and extent of the Affected Area with respect to the adjacent road network.



Figure 1 – Location of the Affected Area with respect to the adjacent road network

The Planning and Design Code identifies that there are four different zones within the Affected Area, namely:

- General Neighbourhood Zone;
- Urban Activity Centre Zone;
- Recreation Zone;
- Open Space Zone.

In respect to traffic and transport matters, the following relevant Overlays are applicable

- Future Road Widening Overlay (along portions of the Gawler line rail corridor and land located between George McCullum Road, Main North Road, Anderson Walk and Smith Creek);
- Major Urban Transport Route Overlay (for allotments/sites with frontage to Main North Road);
- Traffic Generating Development Overlay (for land within approximately 250 m from Main North Road); and
- Urban Transport Routes Overlay (for a portion of the Gawler line rail corridor).

2.2 SUBJECT AND SURROUNDING ROAD NETWORK

The Affected Area contains existing road networks, particularly within the areas currently developed for residential uses as well as surrounding the Munno Para Shopping precinct. The vast majority of the existing roads are low volume, local roads under the care and control of the City of Playford. However, the following higher volume/order roads are provided within the Affected Area:

- **Collector Roads**
 - Morialta Drive (extending between the northern end of the Renewal SA site and Anderson Walk);
 - Warooka Drive (extending between Konanda Road and Morialta Drive/Station Road);
 - George McCullum Road (extending between Main North Road and Warooka Drive, albeit the western portion is within private land and not designated road reserve);
 - Konanda Road (extending between Warooka Drive and Broadmeadows Road, albeit the section north of 46 Konanda Road is within private land associated with Munno Para Shopping city and not designated road reserve);
 - Broadmeadows Road (extending between Konanda Road and Whiteparish Road); and

- **Sub-Arterial Roads**

- Woodford Road (extending between Main North Road/Midway Road signalised intersection and the southern boundary of the Affected Area and beyond); and
- Anderson Walk (extending between Main North Road and the north-western boundary of the Affected Area and beyond).

In respect to the arterial road network, the only arterial road in immediate proximity to the Affected Area is Main North Road (to the east of the Affected Area). The closest arterial road to the south is Womma Road (located approximately 900 m south of the Affected Area and provides connection to an interchange with the Northern Expressway to the west). There are no (east-west oriented) arterial roads for over 6 km from the Affected Area. However, Curtis Road (a sub-arterial road) is located approximately 600 m north of the Affected Area and provides a key connection to/from the Northern Expressway. The Northern Expressway is the closest State managed road to the west (approximately 3 km from the Affected Area).

Available traffic volume data for the above road network has been provided by the City of Playford and the Department for Infrastructure and Transport (DIT). In addition, Austraffic has undertaken intersection counts at select locations (on behalf of CIRQA) to further inform the transport investigations. Figure 2 summaries the existing daily traffic volumes on the subject road network (where available).

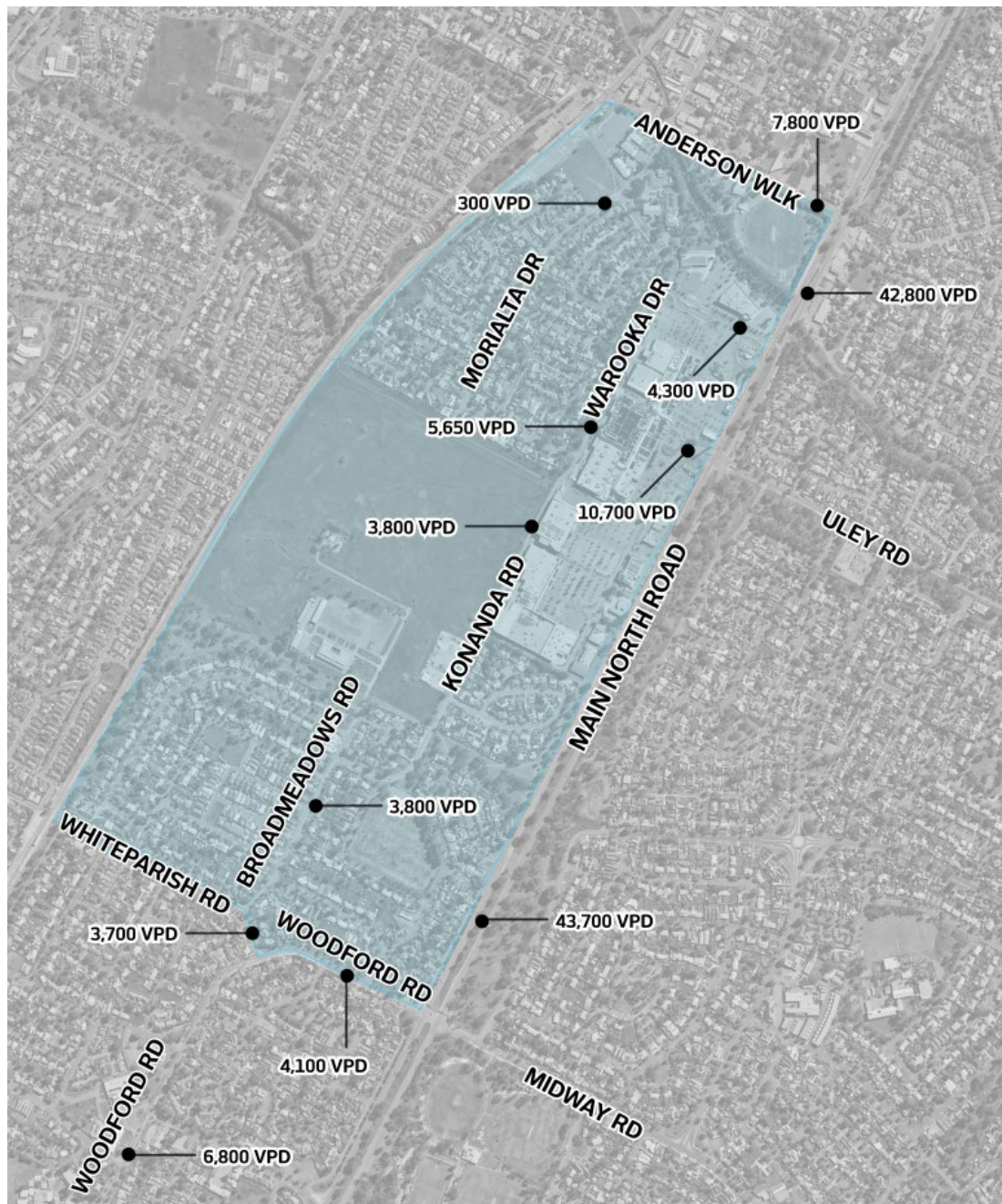


Figure 2 – Existing daily traffic volume data for the Affected Area

2.3 WALKING AND CYCLING

Sealed footpaths, servicing both pedestrians and cyclists, are provided on both sides of the road in the adjacent road network, with the exception of Main North Road in which a sealed path (approximately 1.8 m) is provided on the north-western side of the road between St Barbara Rd and the Munno Para Shopping Centre. Cyclists are also able to ride on-street sharing the road with motorists.

The Gawler Greenway (a strategic walking and cycling route following the Gawler railway line) is located to the west of the Affected Area, although no formalised path infrastructure is currently provided in this section of the Greenway. Greenway routes typically connect quiet local streets with off-street paths and main road crossings, creating direct cycling routes and better access to public transport stations.

A portion of the Smith Creek Trail is located within the north-eastern portion of the Affected Area providing a network of off-road shared-use walking and cycling paths along a linear open space reserve. Within the Affected Area, the Smith Creek Trail provides connection to the Smithfield Railway Station.

2.4 PUBLIC TRANSPORT

Public bus services operate regularly in the vicinity of the Affected Area. Bus stops are located within and immediately adjacent the Affected Area on both sides of Woodford Road and Warooka Crescent, as well as bus interchanges on George McCullum Road (Munno Para Centre Interchange) and Station Road (Smithfield Interchange). These stops are serviced by the following bus routes:

- 228/228F/ T228/228X - Smithfield Interchange to City;
- 440 - Munno Para Station to Elizabeth Interchange;
- 441/442 - Smithfield Interchange to Elizabeth Interchange;
- 443 - Elizabeth Interchange to Munno Para Loop Service;
- 451/452/461 - Munno Para Centre Interchange to Elizabeth Interchange;
- 462/462C - Munno Para Centre Interchange to Angle Vale;
- 472 - Smithfield Interchange to Roma Mitchell Secondary College; and
- 489 - Munno Para Centre Interchange to Riverbanks College;

The Smithfield Railway Station is located at the north-eastern extent of the Affected Area, and the Broadmeadows Station is located immediately south-east of the Affected Area, however, limited pedestrian facilities are currently provided to connect the Affected Area to the stations as discussed in Section 2.3 above. Both stations are serviced by trains operating on the Gawler Railway Line, with the Smithfield Railway Station being serviced at a high frequency.

The above services/routes are illustrated in Figure 2.

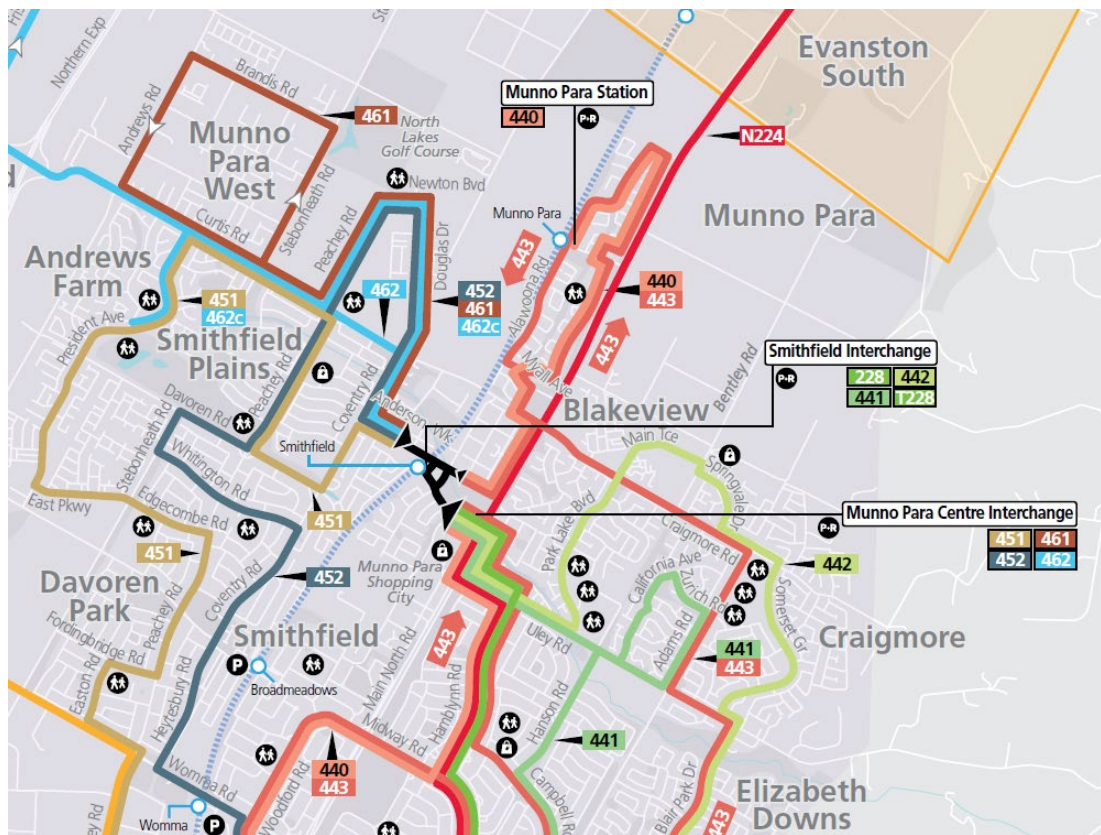


*Figure 3 - Public transport services and routes in the vicinity of the Affected Area
(after Adelaide Metro, 2024)*

2.5 DESTINATIONS AND ATTRACTIONS

Within the Affected Area and its broader area, there are a variety of destinations and attractions that would likely influence the distribution of traffic movements to/from future development within the Affected Area (including pedestrian and cyclist movements). These include:

- the Broadmeadows and Smithfield Train Stations associated with the Gawler rail line;
- the Munno Para Centre (bus) Interchange;
- Munno Para Shopping City and additional adjacent retail/commercial developments (such as Harvey Norman, ALDI and Spotlight);
- various public reserves (incorporating sports, recreation and/or community facilities) including Argana Park, Broadmeadows Reserve and Smithfield Sports and Social Club;
- retail and commercial developments along Curtis Road (to the north) and within Elizabeth City Centre (to the south); and
- various schools and educational facilities including Elizabeth North Primary School, Edmund Rice School, John Hartley School, Craigmore High School, Blakeview Primary School and Mark Oliphant College.

The following assessment of traffic and transport aspects of the proposed rezoning have considered the above (particularly in respect to traffic distribution assumptions).

3. POTENTIAL REZONING

3.1 LAND USE AND YIELD

The Code Amendment seeks to rezone the Affected Area to allow medium to high density residential development and mixed-use outcomes. A variety of Zones will be applied to the Affected Area including Housing Diversity Neighbourhood, Urban Neighbourhood, Urban Activity Centre, Recreation and Open Space Zones. The extents of each Zone are illustrated on the Zone Map provided in Appendix A.

The specific zoning is to be confirmed. However, for the purposes of the transport investigations, two yield scenarios have been considered, namely:

- **Yield Scenario 1** – 2,130 additional dwellings within the Affected Area; and
- **Yield Scenario 2** – 4,130 additional dwellings within the Affected Area.

These scenarios would be in addition to the existing 970 dwellings already present within the Affected Area (as well as the existing retail/commercial uses). It is envisaged that the additional dwellings would comprise higher densities than the existing residential development (including additional infill within the existing residential areas) such as townhouses and residential flat buildings, as well social housing and aged care.

3.2 ACCESS AND ROAD INFRASTRUCTURE

Structure planning for the rezoning and potential redevelopment of the Affected Area has been prepared by Forum Studio and Planning Studio with inputs from CIRQA. This has also included liaison with key stakeholders such as City of Playford and DIT.

It is anticipated that the Affected Area would be serviced by the existing road network as well as new public roads (primarily located) within the Renewal SA site. The Structure Plan identifies a primary north-south collector road extending between Broadmeadows Road and Morialta Drive. Konanda Road will continue to provide an additional north-south connection (albeit noting its private nature, the new collector road should form the primary spine of the new road network. The remaining new roads within the Affected Area would primarily be anticipated to function as low volume, local roads.

The internal road network should be designed to ensure the anticipated traffic volumes and vehicle types (including commercial and emergency services vehicles) are safely and appropriately accommodated. The internal road network shall also include consideration of facilities for pedestrian and cyclists.

In addition to the above, consideration has also been given to the potential provision of a new access connection to Main North Road. This could be achieved via either:

- the public reserve strip located north of St Barbara Road (providing a connection between Konanda Road and Main North Road); or
- conversion of the Munno Para Shopping precinct's southern-most circulation road to a public road (providing a connection between Konanda Road and Main North Road).

It is anticipated that any new connection via Main North Road would only be achievable with a left-in and/or left-out arrangement. The accommodation of right-turn movements would require signalisation which would have limited spacing provision to other adjacent signalised intersections and broader network performance implications. During initial discussions with DIT, it was confirmed that right turn movements/signalisation at a new intersection was unlikely to be supported.

As part of the structure planning processes, consideration has also been given to the potential for an additional connection to/from the west (for instance, via Davoren Road/Strathaird Boulevard). This would either require a new level crossing (which would not be supported by DIT given safety implications) or a grade separated treatment (under/overpass). A grade separated treatment would be highly costly (for comparison, the Curtis Road Overpass is noted as a \$250 million project) and unlikely to be feasible within short to medium term. For the purposes of these investigations, it has been assumed that a western connection will not be achieved. However, it would be desirable that the future road network within the Renewal SA site does not preclude such a connection being achieved in the future.

4. POLICY FRAMEWORK

A review of the policy framework of the Planning and Design Code has been undertaken in respect to traffic and transport aspects which may affect future development within the Affected Area as a result of the proposed rezoning as detailed below.

4.1 GENERAL DEVELOPMENT POLICIES

The General Development Policies 'Transport, Access and Parking' are generally considered appropriate in relation to potential future development within the Affected Area.

In respect to the parking provision requirements identified in the General Development Policies 'Transport, Access and Parking', it is anticipated that the car parking rates outlined in '*Table 1 – General Off-Street Car Parking*' will be applicable to (and appropriate for) future development within the Affected Area. *Table 3 – Off-Street Bicycle Parking Requirements* of the Planning and Design Code would be unlikely to strictly apply (given the Affected Area would not be classed as a 'Designated Area'). Nevertheless, it would be desirable that bicycle parking provisions are considered as part of future land use proposals.

4.2 OVERLAYS

A number of Overlays related to traffic and transport considerations currently apply to the Affected Area. The existing Overlays and their extents within the Affected Area are generally considered appropriate. However, noting potential intersection upgrades detailed in Section 5.3, consideration could be given to the implementation of the Future Local Road Widening Overlay within the vicinity of recommended upgrades to ensure adequate allowance for the treatments as and when required.

In addition to the above Overlays, consideration could be given to implementation of the Affordable Housing Overlay to the Affected Area. While this is more relevant to planning considerations, it is noted that this Overlay includes different parking provision requirements (for affordable housing) than the General Development Policies. Such provisions would desirably apply to the Affected Area should affordable housing outcomes be sought.

5. TRAFFIC ASSESSMENT

5.1 TRAFFIC GENERATION

In order to determine the potential traffic impact of the proposed rezoning on the adjacent road network, traffic volumes associated with the potential future land uses have been forecast for the Affected Area, based on the yields specified above. The assessment has been based on the daily traffic volumes as well as am and pm peak hour trip generation. Daily traffic generation rates of 7.5 to 8.0 trips per dwelling are typically adopted within metropolitan Adelaide for traditional, detached dwellings. However, noting anticipated development will be medium to high density as well as a portion of aged care and social housing such rates are considered excessive for application to the subject proposal. Additionally, noting the relatively high level of public transport accessibility, adoption of lesser rates are further justified. Accordingly, a daily traffic generation of 6.5 trips per dwelling with 10% of trips occurring during the am and pm peak hours has been adopted for assessment of the proposal.

Based on the above, it is forecast that future residential development within the Affected Area would generate the following additional traffic movements:

- **Yield Scenario 1** – 13,845 daily trips with 1,385 trips during the am and pm peak hours; and
- **Yield Scenario 2** – 26,845 daily trips with 2,685 trips during the am and pm peak hours.

5.2 TRAFFIC DISTRIBUTION

Based on the layout of the broader road network and various destinations associated with the trips generated by future residential dwellings, a distribution of the trips has been forecast. The following assumptions have been made in order to distribute the anticipated traffic generated by the future development:

- during the am peak hour, 30% of trips will be ingress while 70% will be egress trips and vice versa in the pm peak hour;
- 12% of trips will be distributed to/from the north-east;
- 13% of trips will be distributed to/from the north-west;
- 25% of trips will be distributed to/from the south-east;
- 42% of trips will be distributed to/from the south-west; and
- 8% of trips will be distributed to/from the Munno Para Shopping precinct.

The distribution of movements has then been further separated between the northern existing residential area (including infill), the southern existing residential area (including infill) and the remaining Renewal SA/undeveloped land.

The distribution for each area has taken into account general travel distances and travel times to access the broader road network as well as any relevant access/turn restrictions (such as no right-out movements – with the exception of buses – and no right-in movements at the intersection of Main North Road/George McCullum Road).

In addition, it is acknowledged that the north-south collector road connection between Broadmeadows Road and Morialta Drive could result in a redistribution some existing movements (from Konanda Road). For conservatism, no redistribution has been undertaken in the following analysis (as it would only improve conditions at the existing intersections analysed).

In addition to the low and high yield scenarios, scenario testing has also been undertaken in respect to the impacts/benefits of the provision of an additional access connection to/from Main North Road (in a left-in/left-out arrangement). The outcomes associated with conditions either with or without such a connection is discussed in the traffic impact section below.

On the basis of the above assumptions and for the various scenarios, Appendix B identify the forecast future movements at the key intersections within and adjacent to the Affected Area.

5.3 TRAFFIC IMPACT

Consideration of the impacts of the rezoning/redevelopment scenarios on the existing and future road network have been assessed based on the forecast traffic volumes. For intersection assessments, this has included the use of SIDRA Intersection software to estimate anticipated traffic conditions and potential upgrade needs as a result of each scenario.

5.3.1 INTERSECTION IMPACTS

It is important to note that the SIDRA modelling undertaken as part of this assessment is intended for high-level strategic purposes. The primary purpose of the modelling has been to establish the quantum of traffic impacts and to identify potential upgrade treatments. The models do not represent a refined or final design solution, rather than provide a reasonable indication of the extent of transport network intervention required. This is particularly pertinent given the variance between the two development scenarios considered.

In addition, at the time of writing, phasing data for the signalised intersection requested from DIT was not available (which limits to ability to refine the associated models). However, it is also understood the surrounding arterial road network has recently been assessed by DIT as part of its broader Northern Adelaide Transport Study. While the final study and outcomes are not yet available, it is understood that consideration to impacts of growth areas

identified in the Greater Adelaide Regional Plan (GARP) have been included the associated modelling (including the Affected Area) along with potential upgrades within the vicinity of the Affected Area. Therefore, while the following section considers specific impacts of the Affected Area rezoning and redevelopment on the DIT intersection, the outcomes of the broader DIT study will provide more detailed direction in respect to these intersections. Nevertheless, further opportunities will be available to refine both the modelling and resulting design requirements as the works are further considered and DIT has provided further information and commentary in respect to the broader study.

Table 1 summarises the outcomes of the assessment undertaken for the key intersections within and adjacent the Affected Area for Scenario 1 (with no new Main North Road connection). For each intersection, it is noted whether the modelling indicates conditions would be within acceptable performance targets or exceed them (based on the standard DIT SIDRA performance outcomes). Where an upgrade is considered warranted, the recommended option(s) are noted.

Table 1 – Scenario 1 (low yield) assessment outcomes for key intersections

Intersection	AM	PM	Upgrade Option
City of Playford Managed Intersections			
Anderson Walk/Morialta Drive/Charlotte Street	Acceptable	Exceeds Target	Separate left turn lane on eastern approach
Morialta Drive/Station Road/Warooka Drive	Acceptable	Acceptable	None required
Warooka Drive/George McCullum Road	Acceptable	Acceptable	Consider roundabout or realigned T-intersection ⁽¹⁾
Konanda Road/Broadmeadows Road	Acceptable	Acceptable	Roundabout recommended for traffic/speed control
Whiteparish Road/Woodford Road	Acceptable	Exceeds Target	Separated turn lanes or roundabout
DIT Managed Intersections			
Main North Road/Anderson Walk	Exceeds Target ⁽²⁾	Exceeds Target ⁽²⁾	None warranted
Main North Road/George McCullum Road	Acceptable	Acceptable	None required
Main North Road/Uley Road/Shopping Centre Access	Exceeds Target ⁽²⁾	Exceeds Target ⁽²⁾	None warranted
Main North Road/Woodford Road/Midway Road	Acceptable	Exceeds Target	Additional and/or extended lanes
Womma Road/Woodford Road	Acceptable	Acceptable	None required

⁽¹⁾ High existing crash rate (safety should be addressed regardless of capacity analysis)

⁽²⁾ Existing capacity issues at intersection - additional trips are low and/or relate to non-critical movements with negligible impact compared to existing conditions

Similarly, Table 2 summarises the key outcomes for the Scenario 2 assessment (with no new Main North Road connection).

Table 2 – Scenario 2 (high yield) assessment outcomes for key intersections

Intersection	AM	PM	Upgrade Option
City of Playford Managed Intersections			
Anderson Walk/Morialta Drive/Charlotte Street	Exceeds Target	Exceeds Target	Dual lane roundabout or signalisation
Morialta Drive/Station Road/Warooka Drive	Acceptable	Acceptable ⁽¹⁾	Improve Station Road geometry
Warooka Drive/George McCullum Road	Acceptable	Acceptable	Consider roundabout or realigned T-intersection ⁽²⁾
Konanda Road/Broadmeadows Road	Acceptable	Exceeds Target	Roundabout
Whiteparish Road/Woodford Road	Exceeds Target	Exceeds Target	Dual lane roundabout or signalisation
DIT Managed Intersections			
Main North Road/Anderson Walk	Exceeds Target	Exceeds Target	Additional and/or extended lanes
Main North Road/George McCullum Road	Acceptable	Acceptable	None required (albeit consideration could be given to allowing right turn movements to address capacity constraints elsewhere)
Main North Road/Uley Road/Shopping Centre Access	Exceeds Target ⁽³⁾	Exceeds Target ⁽³⁾	None warranted
Main North Road/Woodford Road/Midway Road	Exceeds Target	Exceeds Target	Additional and/or extended lanes
Womma Road/Woodford Road	Exceeds Target	Acceptable	Dual lane roundabout or signalisation

⁽¹⁾ Level of Service 'E' for Station Road due to geometry

⁽²⁾ High existing crash rate (safety should be addressed regardless of capacity analysis)

⁽³⁾ Existing capacity issues at intersection - additional trips are low and/or relate to non-critical movements with negligible impact compared to existing conditions

The above key outcomes identify that the Scenario 2 (High Yield) volumes would result in a higher order of interventions to the surrounding intersections to accommodate the additional movements. Whereas Scenario 1 volumes require a relatively low level of intervention at surrounding intersections.

As noted above, scenario modelling has also considered the potential implications associated with a new left-in and/or left-out intersection on Main North Road (either at the southern end of the shopping centre precinct or through the public reserve further south). From a design perspective, either option is considered viable (albeit, the location adjacent the shopping centre may require alteration to the next left turn lane for the southern-most shopping centre access).

Regardless of location, the modelling indicates that the provision of an additional access connection does not avoid or reduce any of the identified upgrades/interventions noted above. It is therefore not necessary to support the development of the Affected Area nor does it reduce or avoid other upgrade requirements. Therefore, from a pure capacity perspective, the additional connection is not necessary. However, the additional connection would provide a high level of accessibility and improved general distribution of movements (including a reduced level of additional movements distributed via the roads with existing adjacent residential properties). It is recommended that the potential for such a connection remain within the Concept Plan associated with the rezoning proposal.

5.3.2 MID-BLOCK IMPACTS

5.3.2.1 North-South Collector Road

Based on the traffic distribution, it is anticipated that, for Scenario 1, the future north-south connection will accommodate traffic volumes in the order of 5,000 vpd towards the northern end and 6,700 vpd towards the southern end. Such volumes will align with its intended classification as a collector road. The associated road cross section should align with such a classification. The City of Playford's typical 'collector road' cross section (including shared path) is illustrated in Figure 3 (albeit this should be confirmed with City of Playford as and when development progresses). Such a treatment would be able to be accommodated within the existing sections of Broadmeadows Road/Whiteparish Road (southern section) and Morialta Drive (which have road reserve widths in the order of 20 m).

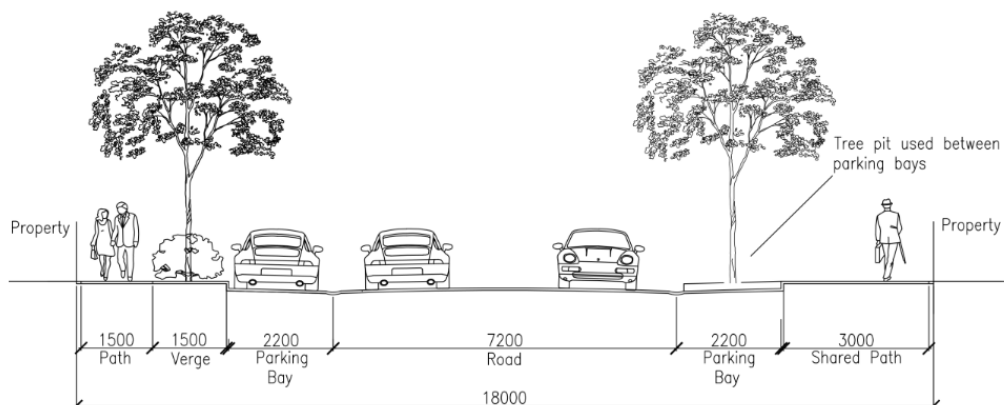


Figure 4 - Typical collector road cross section

Scenario 2 would result in volumes in the order of 8,800 vpd towards the northern end and 12,625 vpd towards the southern end. Such volumes align more with a 'distributor road' classification. For such volumes, residential allotments fronting the north-south road should be rear-loaded (via laneways) with limited direct

property access. It would also be desirable to include a central median (particularly within the existing sections of Morialta Drive and Broadmeadows Road where existing dwellings currently have direct access to/from these roads). This may require compromise on the overall cross section (slightly reduced verges or restricted parking) to achieve within the existing road reserves (unless land acquisition is undertaken).

5.3.2.2 Konanda Road

The traffic impact associated with the proposal on Konanda Road will be highly dependent on the ultimate layout of the road network achieved within the Renewal SA site. Given its partial private ownership, these investigations have assumed that the new road network and residential development within the Renewal SA site will primarily seek to direct trips to/from the new north-south connection rather than rely on Konanda Road. As a result, Konanda Road will continue to function in a similar manner to the current situation in that it will accommodate a proportion of through-bound north-south movements as well as movements to/from the shopping precinct. While there will be an increase in movements between the new residential development and the shopping centre, as noted above, there will also be a portion of through-bound drivers who will divert to the new north-south collector road.

Nevertheless, given the importance to the shopping precinct, it is considered that Konanda Road will continue to also function as a collector road (albeit with lower volumes than the new north-south road). Noting existing constraints in respect to limited carriageway and sight distance limitations at the access points for the shopping centre. It is recommended that the redevelopment of the adjacent Renewal SA site allow for additional 'road reserve' width to be provided to Konanda Road and with a collector road upgrade to improve safety (particularly at the shopping centre access points and loading docks). Noting the private ownership, this will also be reliant on further discussions with the land owner.

5.3.2.3 Woodford Road

Woodford Road currently accommodates volumes in the order of 3,100 to 5,200 vpd in the sections immediately east and west of Whiteparish Road, respectively. The primary distribution of movements associated with the development of the Affected Area will be to/from the south-west and south-east via these sections of Woodford Road. Based on the above assumptions, it is forecast that volumes generated for the two yield scenarios would be as follows:

- Yield Scenario 1 – 6,655 vpd and 10,915 vpd for the sections of Woodford Road east and west of Whiteparish Road, respectively; and
- Yield Scenario 2 – 10,035 vpd and 16,135 vpd for the sections of Woodford Road east and west of Whiteparish Road, respectively.

These increases for both scenarios are relatively high. However, Woodford Road is currently classed as a sub-arterial road and such volumes would still remain within this classification. The road cross section of Woodford Road varies with raised central medians in some sections and others with only a painted centreline. While wholesale reconstruction and widening is not considered warranted (given there is no change in classification), the higher volumes will result in increased queues and delays at side street intersections where not currently treated (i.e. with a roundabout). It is therefore recommended that consideration be given to the implementation of channelised right turn lanes (localised widening) at key intersections along Woodford Road to safely and efficiently accommodate the increased movements. Specifically, these include:

- Rockbourne Street/Woodford Road;
- Bedchester Road/Woodford Road;
- Whitsbury Road/Woodford Road; and
- Homington Road/Woodford Road.

5.3.2.4 Other Local Roads

Other than the north-south link, the structure plan does not envisage additional local road connections between the Renewal SA site and existing adjacent residential development.

While the structure plan envisages additional movements associated with the infill development of the existing residential areas, the level of additional movements will be relatively low and distributed via various access routes.

It is not anticipated that there would be any change to the nature or function of the local roads within or adjacent the Affected Area. While there will be increased movements on the existing local roads, future volumes will be within the capacity and amenity levels associated with such roads. Additionally, the primary capacity constraints associated with the road network occur at intersections as assessed above.

5.4 ROAD NETWORK INTERVENTIONS

Based on the above assessments, a high-level concept plan has been prepared for each yield scenario to illustrate the recommended interventions to address the additional traffic volumes. These are illustrated in Figure 4 for Scenario 1 and Figure 5 for Scenario 2.

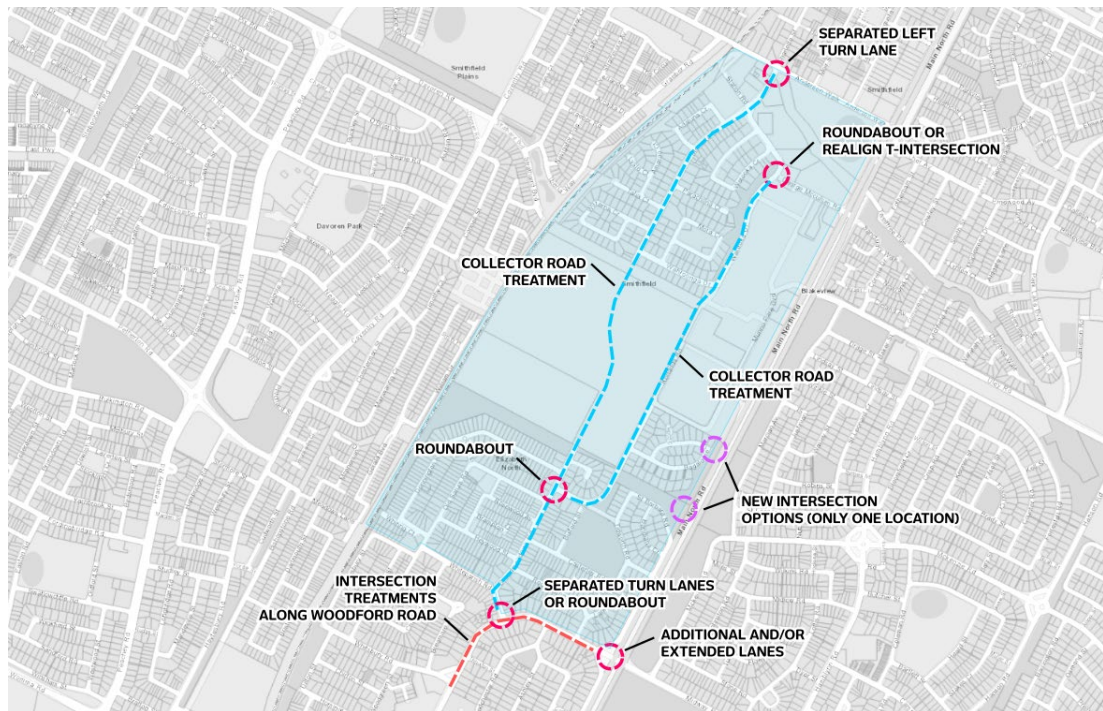


Figure 5 - Scenario 1 (low yield) road network interventions

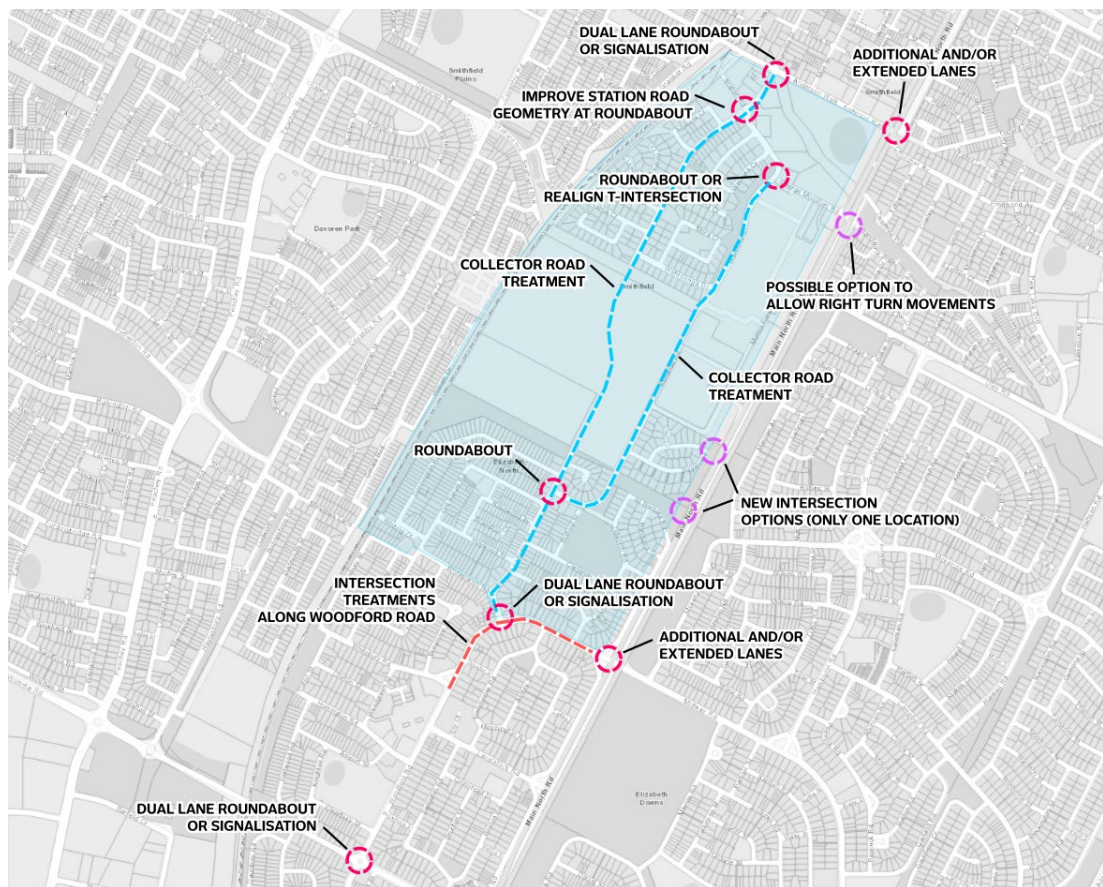


Figure 6 - Scenario 2 (high yield) road network interventions

6. PUBLIC AND ACTIVE TRANSPORT OPPORTUNITIES

The design of new roads within the Affected Area should include consideration of pedestrian and cyclist connectivity and safety. Given the relatively low volumes forecast, it is considered appropriate that cyclists share the carriageway with vehicles. However, footpaths should be provided and, desirably, a low speed, 'people' focussed street design should be sought within the Affected Area.

The existing public transport services available within the vicinity of the Affected Area are considered sufficient to service the anticipated future development, however, additional pedestrian and cyclist facilities would be needed to connect future development to these services. It is recommended that the proposed road network (and associated connections to the existing network) include allowance for the potential provision of a north-south bus route through the Affected Area, should demand for public transport increase in future.

In addition, a shared use path network would provide strategic pedestrian and cycling connections to the adjacent railway stations, Munno Para Shopping Centre, and the Smith Creek Trail (within the north-east of the Affected Area). Shared use paths should be provided on one side of all collector roads within the Affected Area (existing and proposed), as well as within the proposed linear reserve running east-west through the Affected Area and adjacent the Gawler Railway Line (forming part of the Gawler Greenway). The above shared-use path network has been illustrated in Figure 6 below.

In addition, depending on DIT's future intent for Main North Road there may also be opportunities for a cycling facility (i.e. shared path) along its corridor and/or within the adjacent reserves. This could be linked the Affected Area's walking and cycling network via various the signalised intersections along Main North Road in the vicinity of the Affected Area.

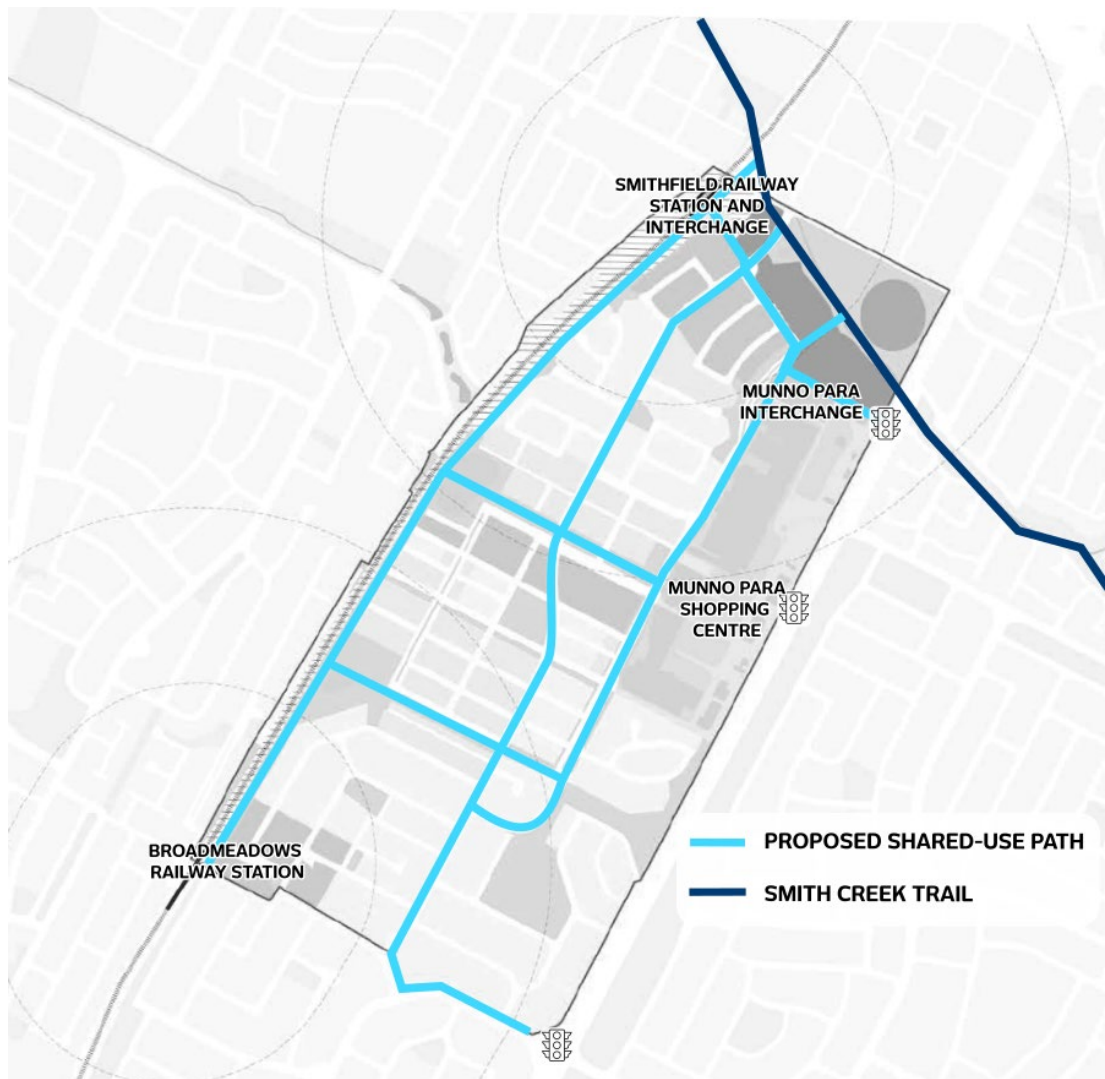


Figure 7 – Proposed shared-use path network

APPENDIX A

ZONE MAP



APPENDIX B

FORECAST TRAFFIC DISTRIBUTION

Smithfield Code Amendment - Forecast Additional Peak Hour Traffic Volumes

AM Peak Hour

AM Peak hour								
Morialta/Station /Warooka								
	Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Morialta (N)	1	2	L	11	11	21	21
			3	T	261	261	504	504
			4	R	0	0	0	0
			1	U	0	0	0	0
	Warooka (E)	2	3	L	47	43	88	81
			4	T	0	0	0	0
			1	R	0	0	0	0
			2	U	0	0	0	0
	Morialta (S)	3	4	L	3	3	6	6
			1	T	106	99	203	187
			2	R	20	19	40	36
			3	U	0	0	0	0
Station (W)	4	1	L	0	0	0	0	
		2	T	44	44	85	85	
		3	R	0	0	0	0	
		4	U	0	0	0	0	

Anderson/Charlotte/Morialta								
	Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Charlotte (N)	1	2	L	0	0	0	0
			3	T	59	59	113	113
			4	R	0	0	0	0
			1	U	0	0	0	0
	Anderson (E)	2	3	L	95	95	185	185
			4	T	0	0	0	0
			1	R	0	0	0	0
			2	U	0	0	0	0
	Morialta (S)	3	4	L	38	38	73	73
			1	T	25	25	49	49
			2	R	46	38	87	72
			3	U	0	0	0	0
	Anderson (W)	4	1	L	0	0	0	0
			2	T	0	0	0	0
			3	R	89	89	170	170
			4	U	0	0	0	0

Anderson/Main North								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Main North (N)	1	2	T	0	0	0	0
			3	R	95	95	185	185
	Main North (S)	2	1	T	0	14	0	27
			3	L	0	0	0	0
	Anderson (W)	3	1	L	46	38	87	72
3			R	0	0	0	0	

Warooka/George McCullum								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Warooka (N)	1	2	L	9	8	18	15
			3	T	0	0	0	0
	George McCullum €	2	1	L	0	0	0	0
			1	R	22	17	39	31
	Warooka (S)	3	1	T	0	0	0	0
			2	R	0	0	0	0

George McCullum/Main North								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Main North (N)	1	2	T	0	0	0	0
			3	R	0	0	0	0
	Main North (S)	2	1	T	0	14	0	27
			3	L	22	17	39	31
	George McCullum (W)	3	1	L	9	8	18	15
			3	R	0	0	0	0

New Main North Road Connection								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Main North (N)	1	2	T	0	0	0	0
			3	R	0	0	0	0
	Main North (S)	2	1	T	0	0	0	0
			3	L	0	149	0	296
	New Road (W)	3	1	L	0	14	0	27
			3	R	0	0	0	0

Kondanda/Broadmeadows								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
Broadmeadows (N)	1	2	L		0	0	0	0
		3	T	187	184	365	359	
Konanda (E)	2	2	L		85	83	165	162
		1	R	0	0	0	0	
Broadmeadows (S)	3	1	T		187	184	365	359
		2	R	85	83	165	162	

Whiteparish/Woodford								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Whiteparish (N)	1	2	L	107	102	208	199
			3	R	165	165	322	322
	Woodford (E)	2	1	R	249	104	486	198
			3	T	0	0	0	0
	Woodford (W)	3	1	L	385	385	750	750
			2	T	0	0	0	0

PM Peak Hour

Peak hour								
Morialta/Station /Warooka								
	Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Morialta (N)	1	2	L	26	26	50	50
			3	T	112	112	216	216
			4	R	0	0	0	0
			1	U	0	0	0	0
	Warooka (E)	2	3	L	20	18	38	35
			4	T	0	0	0	0
			1	R	0	0	0	0
			2	U	0	0	0	0
	Morialta (S)	3	4	L	7	7	14	14
			1	T	248	230	473	437
			2	R	47	43	92	84
			3	U	0	0	0	0
Station (W)	4	1	L	0	0	0	0	
		2	T	40	40	77	77	
		3	R	0	0	0	0	
		4	U	0	0	0	0	

Anderson/Charlotte/Morialta								
Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B	
Charlotte (N)	1	2	L	0	0	0	0	
		3	T	25	25	49	49	
		4	R	0	0	0	0	
		1	U	0	0	0	0	
Anderson (E)	2	3	L	41	41	79	79	
		4	T	0	0	0	0	
		1	R	0	0	0	0	
		2	U	0	0	0	0	
Morialta (S)	3	4	L	89	89	170	170	
		1	T	59	59	113	113	
		2	R	108	90	204	168	
		3	U	0	0	0	0	
Anderson (W)	4	1	L	0	0	0	0	
		2	T	0	0	0	0	
		3	R	38	38	73	73	
		4	U	0	0	0	0	

Anderson/Main North								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Main North (N)	1	2	T	0	0	0	0
			3	R	41	41	79	79
	Main North (S)	2	1	T	0	33	0	63
			3	L	0	0	0	0
	Anderson (W)	3	1	L	108	90	204	168
			3	R	0	0	0	0

Warooka/George McCullum								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Warooka (N)	1	2	L	22	18	43	34
			3	T	0	0	0	0
	George McCullum €	2	2	L	0	0	0	0
			1	R	9	7	17	13
	Warooka (S)	3	1	T	0	0	0	0
			2	R	0	0	0	0

George McCullum/Main North								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Main North (N)	1	2	T	0	0	0	0
			3	R	0	0	0	0
	Main North (S)	2	1	T	0	33	0	63
			3	L	9	7	17	13
	George McCullum (W)	3	1	L	22	18	43	34
			3	R	0	0	0	0

New Main North Road Connection								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Main North (N)	1	2	T	0	0	0	0
	Main North (S)	2	1	T	0	0	0	0
			3	L	0	64	0	127
	New Road (W)	3	1	L	0	33	0	63
			3	R	0	0	0	0

Kondanda/Broadmeadows								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Broadmeadows (N)	1	2	L	0	0	0	0
			3	T	437	428	852	837
	Konanda (E)	2	1	L	198	194	384	377
			1	R	0	0	0	0
	Broadmeadows (S)	3	1	T	437	428	852	837
			2	R	198	194	384	377

Whiteparish/Woodford								
					Sc 1A	Sc 1B	Sc 2A	Sc 2B
	Whiteparish (N)	1	2	L	249	237	486	464
			3	R	385	385	750	750
	Woodford (E)	2	1	R	107	45	208	85
			3	T	0	0	0	0
	Woodford (W)	3	1	L	165	165	322	322
			2	T	0	0	0	0

Main North/Woodford/Midway								
Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B	
	Main North (N)	1	2 L	0	0	0	0	0
			3 T	0	0	0	0	0
			4 R	0	0	0	0	0
			1 U	0	0	0	0	0
	Midway (E)	2	3 L	0	0	0	0	0
			4 T	12	5	24	10	
			1 R	0	0	0	0	0
			2 U	0	0	0	0	0
	Main North (S)	3	4 L	237	99	462	188	
			1 T	0	149	0	296	
			2 R	0	0	0	0	0
			3 U	0	0	0	0	0
	Woodford (W)	4	1 L	0	0	0	0	0
			2 T	5	5	10	10	
			3 R	102	97	198	189	
			4 U	0	0	0	0	0

Main North/Woodford/Midway								
Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B	
	Main North (N)	1	2 L	0	0	0	0	0
			3 T	0	0	0	0	0
			4 R	0	0	0	0	0
			1 U	0	0	0	0	0
	Midway (E)	2	3 L	0	0	0	0	0
			4 T	5	2	10	4	
			1 R	0	0	0	0	0
			2 U	0	0	0	0	0
	Main North (S)	3	4 L	102	42	198	80	
			1 T	0	64	0	127	
			2 R	0	0	0	0	0
			3 U	0	0	0	0	0
	Woodford (W)	4	1 L	0	0	0	0	0
			2 T	12	12	24	23	
			3 R	237	225	462	441	
			4 U	0	0	0	0	0

Womma/Woodford								
Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B	
	Woodford (N)	1	2 L	0	0	0	0	0
			3 T	17	17	32	32	
			4 R	149	149	289	289	
			1 U	0	0	0	0	0
	Womma (E)	2	3 L	0	0	0	0	0
			4 T	0	0	0	0	0
			1 R	0	0	0	0	0
			2 U	0	0	0	0	0
	Woodford (S)	3	4 L	0	0	0	0	0
			1 T	39	39	75	75	
			2 R	0	0	0	0	0
			3 U	0	0	0	0	0
	Womma (W)	4	1 L	347	347	675	675	
			2 T	0	0	0	0	0
			3 R	0	0	0	0	0
			4 U	0	0	0	0	0

Womma/Woodford								
Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B	
	Woodford (N)	1	2 L	0	0	0	0	0
			3 T	39	39	75	75	
			4 R	347	347	675	675	
			1 U	0	0	0	0	0
	Womma (E)	2	3 L	0	0	0	0	0
			4 T	0	0	0	0	0
			1 R	0	0	0	0	0
			2 U	0	0	0	0	0
	Woodford (S)	3	4 L	0	0	0	0	0
			1 T	17	17	32	32	
			2 R	0	0	0	0	0
			3 U	0	0	0	0	0
	Womma (W)	4	1 L	149	149	289	289	
			2 T	0	0	0	0	0
			3 R	0	0	0	0	0
			4 U	0	0	0	0	0

Main North/SC Access/Uley								
Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B	
	Main North (N)	1	2 L	0	0	0	0	0
			3 T	0	0	0	0	0
			4 R	12	12	23	23	
			1 U	0	0	0	0	0
	Uley (E)	2	3 L	0	0	0	0	0
			4 T	4	4	8	8	
			1 R	0	0	0	0	0
			2 U	0	0	0	0	0
	Main North (S)	3	4 L	12	12	23	23	
			1 T	0	0	0	0	0
			2 R	0	0	0	0	0
			3 U	0	0	0	0	0
	SC Access (W)	4	1 L	5	5	10	10	
			2 T	2	2	3	3	
			3 R	10	10	19	19	
			4 U	0	0	0	0	0

Main North/SC Access/Uley								
Arm	Arm	Exit Arm	Movement	Sc 1A	Sc 1B	Sc 2A	Sc 2B	
	Main North (N)	1	2 L	0	0	0	0	0
			3 T	0	0	0	0	0
			4 R	5	5	10	10	
			1 U	0	0	0	0	0
	Uley (E)	2	3 L	0	0	0	0	0
			4 T	2	2	3	3	
			1 R	0	0	0	0	0
			2 U	0	0	0	0	0
	Main North (S)	3	4 L	5	5	10	10	
			1 T	0	0	0	0	0
			2 R	0	0	0	0	0
			3 U	0	0	0	0	0
	SC Access (W)	4	1 L	12	12	23	23	
			2 T	4	4	8	8	
			3 R	23	23	45	45	
			4 U	0	0	0	0	0