



Transport Impact Assessment

ECU MT LAWLEY REDEVELOPMENT – PRECINCT STRUCTURE PLAN



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## EXECUTIVE SUMMARY

This Transport Impact Assessment (TIA) has been prepared by Flyt in support of the Precinct Structure Plan (PSP) over the ECU Mt Lawley Redevelopment area as required by the WAPC Transport Impact Assessment Guidelines (Volume 2 – Planning Schemes, Precinct Structure Plans and Activity Centre Plans). The area is located in the City of Stirling (CoS) and as indicated by the South West Aboriginal Land and Sea Council website, the site sits within the Whadjuk Region. There is a Parking Management Plan (PMP) accompanying this TIA.

DevelopmentWA (DevWA) has been tasked by the State Government to establish a vision for ECU Mt Lawley to facilitate redevelopment of the area given that the existing ECU campus will relocate at the end of 2026 to its new campus in Central Perth, with some facilities and programs at the university relocating to other campuses. The development of the PSP has been subject to an extensive engagement and design process over a number of years, with the transport elements of that process and responses relating to the design set out in this TIA.

This TIA is subsequent to a prior assessment that informed a Scheme Amendment process for the project and a Master Plan that was developed which included a substantial amount of community engagement. The TIA for the PSP covers the requirements of the WAPC Guidelines and has set out information relating to:

- Existing transport network situation and context
- Proposed changes to the network
- Trip generation and traffic volumes
- Modelling assessment
- Assessment of Active Transport
- Assessment of Public Transport.

The TIA for the Scheme Amendment concluded that the network was fit for purpose in terms of access to the movement network, whereas this assessment has looked at all elements of the transport network with more detail. In addition, stakeholder engagement with key agencies and authorities has informed this assessment.

The PSP will introduce a new network of streets in the area. They have been designed to accommodate the proposed development of the area as well as create whole new networks for pedestrians, active transport and opportunities for public transport access improvements. The mix of proposed land uses within the area has resulted in the configuration of a street network that allows for access whilst not catering for encouraging through vehicle movements.

Existing access points for vehicle movements have largely been retained, with one new intersection proposed on Stancliffe Street. The configuration of access points into the PSP area from Central Avenue have been retained, with existing turning pockets examined based on Austroads guidelines. One turning pocket into the site would be considered to be below the guidelines recommended distance however in the context of this plan, the existing pocket has been retained.

The PSP proposes relocation of existing school bus stops from Stancliffe Street to a new School Green area to the south of the Primary School site which is adjacent to the Mount Lawley Senior High School (MLSHS). Students using the existing bus services for MLSHS will be provided with a safer, more spacious and proximate location from which to travel

to and from the school by bus. An area catering for three buses, which replicates the existing school bus stops on Stancliffe Street, has been provided.

Parking management has been examined for the PSP, with recommendations on both on and off-street parking provided within a PMP for the area that accompanies this TIA. The implementation of recommendations for the on-street parking management will require ownership by the CoS as well as suitable design outcomes for all land uses in the PSP.

The street network has been examined in the context of a Movement and Place framework and details on the Landscape Master Plan have been included which sets out the design outcomes which will support active transport modes. Width of street reserves within the PSP are all generally less than 20m, with the key north-south connector in front of the Primary School site having a 20m wide reserve to cater for embayment parking, footpaths and landscaping elements. A shared space area is proposed within a Mixed-Use core of the PSP to create an urban space rather than focusing on a standard carriageway approach for vehicle movements.

It is proposed that the area be managed through a blanket 40km/h posted speed limit given the place outcomes being sought and the nature of the network being focussed on local movements rather than catering for higher volume through movements. This is considered an appropriate outcomes within Main Roads WA guidelines.

The traffic assessment completed for the ECU Mt Lawley PSP helped inform the overall design process. The modelling exercise has been considered within a defined network as a standalone VISSIM micro-simulation model and provides a basis from which forecast year impacts can be examined and tested. For the purpose of this PSP TIA, the modelling outputs reported provide clarity on impacts and issues to be considered within the approvals process.

The assessment used a range of empirical data and inputs and examined peak traffic periods within three years - a 2025 base, a 2028 opening year and a 2038 scenario which was done on the basis of the site being fully developed, even though that may be an unrealistic development timeframe for all sites to be operational or occupied.

In terms of the existing performance of the network, there are no issues evident in traffic engineering metrics for peak hour movements with the exception being the intersection of Alexander Drive and Bradford Street.

For the 2028 opening year scenario, existing volumes associated with ECU Mt Lawley were removed, with background traffic increased. The PSP area itself does not generate traffic demands outside of the WAAPA reuse development site and retention of residential land uses on Stancliffe Street. As expected, with removal of those traffic volumes, the network performs well.

For the 2038 forecast year model, one scenario was tested as a full build and occupancy of all development sites to understand a scenario that would have the greatest potential impact on the network – as noted this would be unrealistic given potential development timeframes. The actual staging of development and timing of development would be subject to a range of factors.

For the 2038 AM peak, the following outcomes for the full build scenario were evident:

- Alexander Drive and Bradford Street intersection degrades to a Level of Service (LoS) E under the Full Build Out scenario which is directly attributed to the poorer operation along Bradford Street

- Alexander Drive and Central Avenue intersection LoS deteriorates from C to D as a result of additional vehicle demands along Alexander Drive
- Model outputs of the access intersections along Central Avenue suggest that their operation is efficient and there would not be any implications for the turning pockets in situ.

For the 2038 PM school peak, the following issues were evident for the full build scenario:

- No significant change in the modelled intersections and their performance outputs. Localised, limited congestion would be a feature of the local street network around the school site as is the case with every Primary School within an Inner City context.

For the 2038 PM peak, the following issues for the full build scenario were evident:

- Individual delay, queue and LoS outputs at the Alexander Drive signalised intersections show some deterioration, although the overall weighted average is consistent with the base year modelled outputs
- Bradford Street experiences similar issues as the AM peak where the approach to the Alexander Drive signals queues and blocks the PSP area access. This would likely result in a redistribution of movements from drivers or mode shift for regular visitors to the area.

The general operation of the PSP area, internal modelled network under the Full Build out scenario appears to show sufficient capacity. The modelled operation also includes lower operating speeds, drop off and pick up areas along the Boulevard and Learoyd Street with timed “holds” to reflect the drop off, and the interaction of inbound/outbound land use trips at each internal intersection.

The operation of the existing external modelling network area is relatively consistent with the base year operation where southbound AM peak and northbound PM peak hour trips along Alexander Drive continue to experience slower speeds, delays and blocking between the two signalised intersection at times during the modelled periods.

The greatest impact to the existing network is shown along Bradford Street between Alexander Drive and Learoyd Street. The combination of drop off and parking demands at Learoyd Street (existing and new development trips) and the PSP area trip generation that could use the access onto Bradford Street results in large queues that are inefficient to clear the traffic signal controlled intersection at Bradford Street and Alexander Drive.

Based on the initial outcomes for the full build modelling exercise, signal optimisation was examined to understand if adjustment of 2025 signal timings could assist in general network operations. That test proved to have a very positive outcome for the general metrics of the intersection of Alexander Drive and Bradford Street as well as the site access intersection with Bradford Street.

On that basis, it is recommended that Main Roads WA and CoS monitor and adjust signal timings as required throughout the evolution of the PSP development. This would not be required immediately, but as part of ongoing operational management of the regional road network through Main Roads WA. This process would require formal Traffic Signal Approvals Policy (TSAP) approvals which would last two years. Undertaking that process now or at the opening year of the development would not be within a timeframe that would see benefit to network operations.

The broader modelling assessment for the PSP should inform the analysis and assessment of subdivisions and individual development sites, including the proposed Primary School. Assumptions around the school site in particular will require greater definition and a commitment through design to minimise impacts on the surrounding network.

## 1. INTRODUCTION

### 1.1 Precinct Structure Plan Introduction

This Transport Impact Assessment (TIA) has been prepared by Flyt in support of the Precinct Structure Plan (PSP) over the ECU Mt Lawley Redevelopment area. The area is located in the City of Stirling (CoS) and as indicated by the South West Aboriginal Land and Sea Council website, the site sits within the Whadjuk Region. The location and boundary of the PSP site is shown in Figure 1..

DevelopmentWA (DevWA) has been tasked by the State Government to establish a vision for ECU Mt Lawley to facilitate redevelopment of the area given that the existing ECU campus will relocate at the end of 2026 to its new campus in Central Perth, with some facilities and programs at the university relocating to other campuses. The development of the PSP has been subject to an extensive engagement and design process, with the transport elements of that process and responses relating to the design set out in this TIA.



Figure 1 ECU Mt Lawley PSP - Precinct boundary (source: Metromap)

### 1.2 Transport Impact Assessment

This TIA has been prepared in keeping with the WA Planning Commission’s (WAPC) Transport Impact Assessment Guidelines (Volume 2 – Planning schemes, structure plans and activity centre plans). The Guidelines promote a layered approach to transport

assessment for broad areas or scheme amendments as shown in Figure 2. Overall, this TIA has been prepared to confirm the capability of the site for the redevelopment proposal considered through the PSP from a transport and movement perspective.

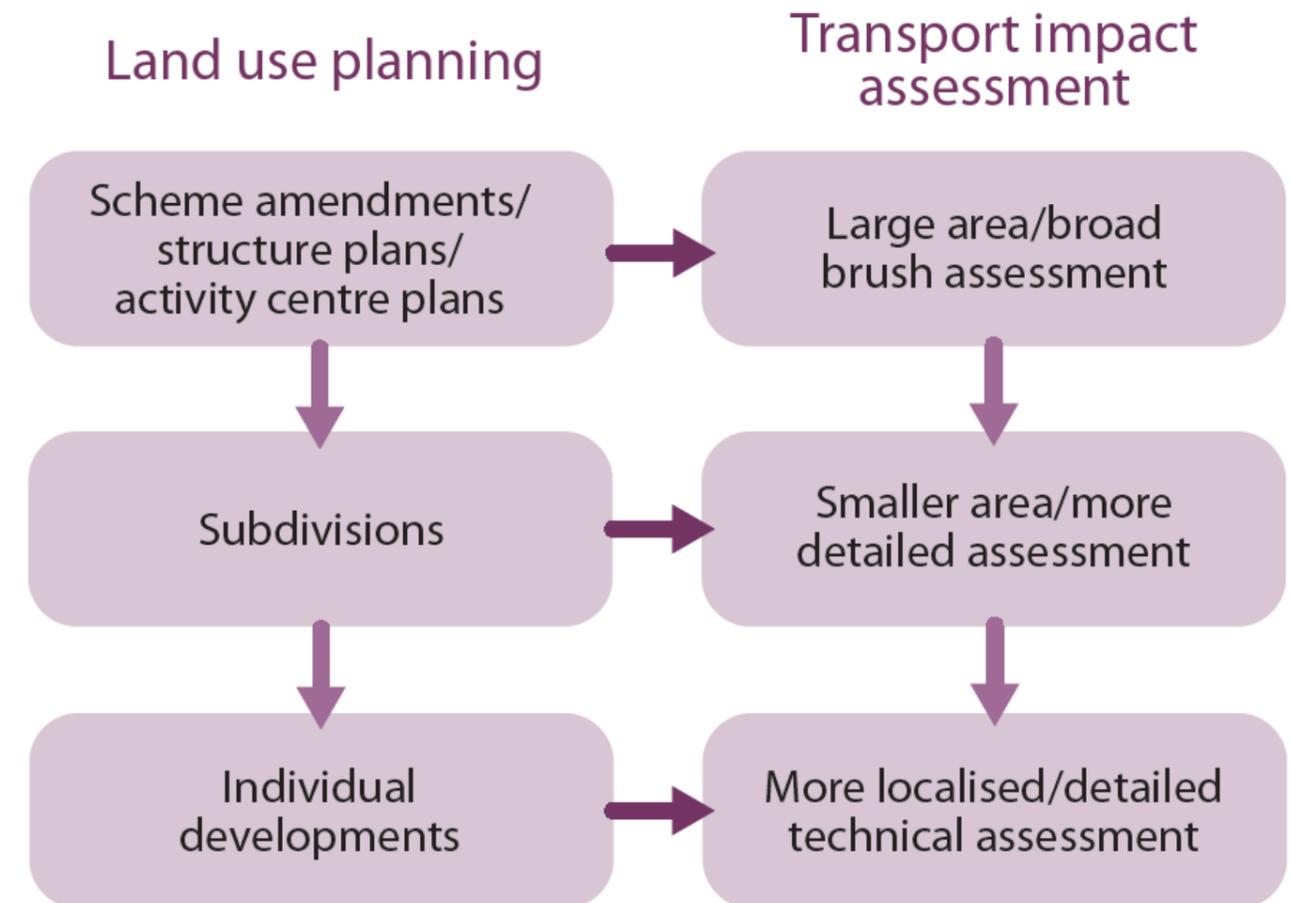


Figure 2 Land use / transport planning process (source: WAPC Transport Impact Assessment Guidelines, 2016)

As set out within the WAPC Transport Impact Assessment Guidelines (Volume 2 – Planning Schemes, Precinct Structure Plans and Activity Centre Plans), the following establishes the level of assessment that would be required for this proposed amendment:

*“Structure planning forms a critical stage of the land use planning process. It involves planning at a strategic level, often over large areas, and provides the basis of zoning and subdivision of land. Structure plans can be prepared at a district and local level, and for activity centres. The district structure plan generally addresses the “fatal flaws” for a potential development area and provides for the major structural elements such as major roads, open space, commercial and industrial areas and environmental conditions. A district structure plan may apply to several suburbs or all or part of a town-site, for example the local structure plan would deal with residential density, subdivisions and the coordination of infrastructure at a neighbourhood level of smaller scale.*”

*It is therefore important that the transport aspects and in particular the land use/ transport integration, are also adequately assessed at this stage in the land use planning process. The assessment should then be used to provide direction on the later, more localised and detailed, planning stages of subdivisions and individual developments.”*

This TIA is set out to address these key issues to establish the appropriateness of the site to cater for the proposed level of redevelopment and complete a review and assessment of the transport network that will inform the WAPC, CoS, statutory stakeholders and the wider community as to the appropriateness of the transport network elements.

This report is one part of a suite of documents that support the PSP and also sits alongside a Parking Management Plan (PMP) that is attached to this TIA within Appendix B.

### 1.3 Report Structure

The report is structured as per the items set out in the previous section taken from the WA Planning Commission's (WAPC) Transport Impact Assessment Guidelines (Volume 2 – Planning schemes, structure plans and activity centre plans), with the following sections included in the TIA:

- Structure plan outline (Section 2)
- Existing transport network situation (Section 3)
- Proposed changes to the network (Section 4)
- Vehicle Network and Impacts (Section 5)
- Other Issues – Engagement (Section 6)
- Summary (Section 7).

## 2. STRUCTURE PLAN OUTLINE

### 2.1 Introduction

This TIA has been prepared to support the PSP for the site. The PSP builds upon the vision and strategies established in the ECU Mt Lawley Redevelopment Master Plan (Master Plan), which was developed through a comprehensive process involving site analysis, technical studies, and extensive community engagement. Stakeholder input was a key driver in shaping the Master Plan outcomes.

Alongside the preparation of this Master Plan, a Metropolitan Region Scheme (MRS) Amendment was submitted to rezone the site from 'Public Purposes – University' to 'Urban', enabling its transition to a mixed-use urban precinct. The MRS Amendment is currently progressing through the statutory approval process.

The PSP provides the statutory planning framework for future subdivision, development, and land use, incorporating technical inputs, community feedback, and planning requirements. This TIA has been prepared to assess the potential transport impacts associated with the proposed redevelopment. The outcomes of the PSP, which has a timeframe of ten years, are shown in Figure 3.



Figure 3 ECU Mt Lawley PSP (source: Urbis)

The actual staging of development across the site will be subject to market demand, business cases for the adaptive reuse of existing buildings, and planning for the new Primary School. To provide a conservative and flexible assessment, this TIA assumes that all

development will be completed within a 10-year timeframe, although the final staging may vary to accommodate future needs and opportunities.

This TIA has been developed through engagement with the Department of Transport and Major Infrastructure (DTMI), Public Transport Authority (PTA), CoS, Main Roads WA, and the Department of Education (DoE) as detailed in section 6.1. Input from these stakeholders has informed the development of the PSP and the transport strategies outlined in this report.

The key outcomes for the transport network in the PSP:

- Provision of a movement network that is reflective of community feedback which provides for the relevant internal connections whilst reducing the attractiveness of vehicle movements using the area as a cut through
- An east-west Access Street intersecting Alexander Drive at the location of an existing left-out egress point
- A new north-south Access Street that would intersect with Central Avenue and link through the subject site to a proposed new Primary School area and the WAAPA site
- A formalisation of an existing Access Street off Bradford Street that would link through the site to the north-south Access Street and the new Primary School site and be created in the form of a shared space design
- Learoyd Street flanking the site to the south-east would be formalised as a public carriageway and provide a connection for the Primary School site to the south. This would then link through to the north-south street and form a route around the proposed Primary School site
- Creation of an internal street network in the northern portion of the site to cater for medium to lower density residential development lots
- Connection point for the internal street network in the northern portion of the site to Stancliffe Street
- Creation of a high quality east-west pedestrian and active transport connection through the site that is designed to provide access through to key land uses, remove the need for pedestrians and active transport users to cross streets except for one point, reinforce the landscaping elements of the site through the retention and enhancement of mature trees and vegetation
- Provision of infrastructure to support bus movements associated with the site development and Mount Lawley Senior High School (MLSHS)
- Maximising the usage of existing intersection and access points into the redevelopment site so as to minimise implications for external movements
- Creation of internal landscaped Access Way corridors for pedestrians and active transport users to provide permeability throughout
- Ability to provide connection to regional cycling routes being considered as part of the Long Term Cycle Network
- Management of all on-street parking within the area to provide the CoS with the ability to ensure the supply of parking in the area caters for the demands present and does not result in amenity impacts for future residents and visitors to the area.

### 2.2 Land Use Yields

Yields taken from the Urbis Retail and Commercial Market Need and Demand Assessment for this TIA are based on the higher volume residential option that has been developed for the project which reflects 1,100 dwellings at full build out. The layout of the yields is shown in Figure 4. For the non-residential yields, the following inputs have been utilised within this assessment to align with the Economics Assessment for the PSP:

- Primary School site with maximum volume of 540 students at capacity
- Supermarket - 1,200 m<sup>2</sup>
- Other Retail - 1,200 m<sup>2</sup>
- Childcare Centre - 100 places
- Gym/Fitness Club - 500 m<sup>2</sup>
- Medical Centre - 400-600 m<sup>2</sup>
- Adaptive reuse of existing buildings on site – 20,000m<sup>2</sup> +.

The residential yields for the full build out high scenario is split between the character areas within the PSP as illustrated in Figure 4. Dwellings are spread around the PSP area, with 435 proposed for the Creative Campus character area, 360 for the Gateway character area and a mix of 305 Townhouses and Multiple Dwellings within the Garden Living character area.



Figure 4 Yield plan by character area - ECU Mt Lawley PSP (source: Urbis)

### 3. EXISTING SITUATION

#### 3.1 Existing Site Use

The ECU Mt Lawley campus area was established as a university in 1991 after being the Mt Lawley Teachers College since 1970. The University is having a new Central Perth campus being constructed which will result in the bulk of the existing teaching and administration at the current campus moving at the end of 2026. Other campuses of the University will also cater for some movement of teaching facilities.

As such, the existing site usage of a University will cease by the end of 2026 as proposed for the overall ECU Mt Lawley redevelopment project. As part of the redevelopment, a number of buildings have been identified for retention and adaptive re-use, including the WAAPA facilities, ECU Library and Administration, and a portion of the Student Housing Village.

The existing mapping context for the PSP is shown in Figure 5, with the meshblock land uses in the surrounding area shown in Figure 6. As can be seen, the campus sits within the context of being surrounded by low density residential land uses, existing recreational facilities such as the Mt Lawley Golf Course and Inglewood Oval / Hamer Park and other educational facilities including MLSHS which is directly adjacent to the south-eastern boundary of the ECU Mt Lawley PSP area.

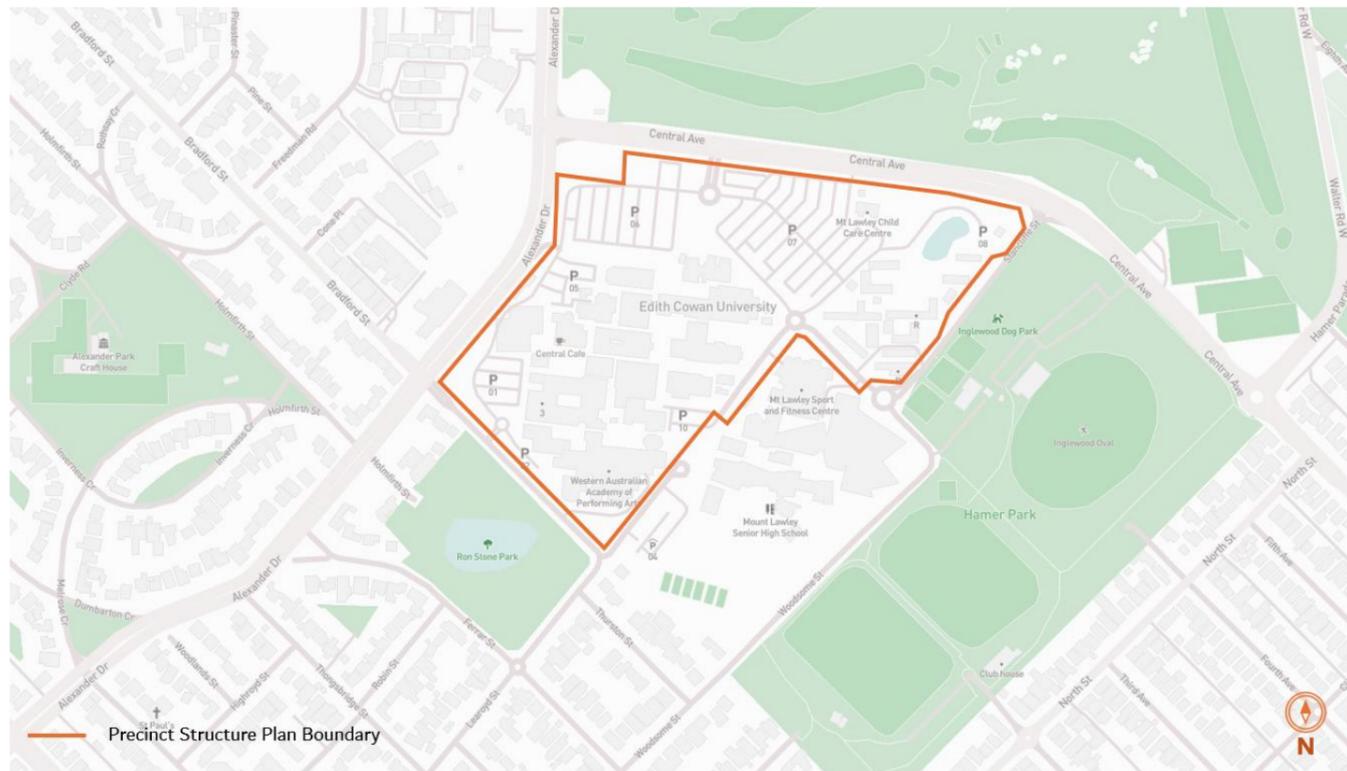


Figure 5 Existing mapping context – ECU Mt Lawley PSP (source: Planwisely)

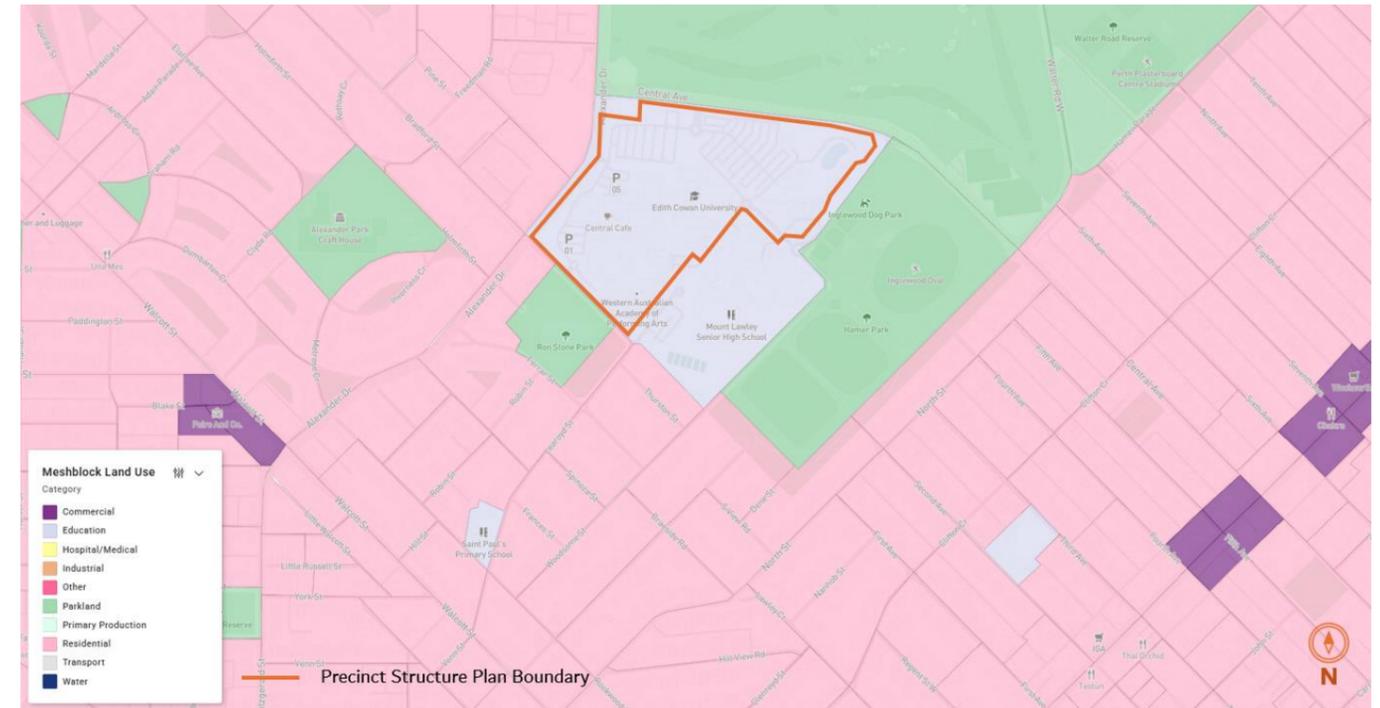


Figure 6 Meshblock land uses in area – ECU Mt Lawley PSP (source: Planwisely)

#### 3.2 Surrounding Road Network

The subject site sits within a well defined local street and transport network given its location within an inner suburban context. The Main Roads WA defined road hierarchy surrounding the subject site is shown in Figure 7 and posted speed limits are shown in Figure 8. The site has existing direct vehicle access to Alexander Drive, Bradford Street, Learoyd Street, Stancliffe Street and Central Avenue. These are provided by:

- An existing left-out egress point onto Alexander Drive. There is no southbound access from this point
- An all movements intersection on Bradford Street on the southern boundary of the site which is approximately 80m south-east of the signalised intersection of Alexander Drive and Bradford Street
- An existing crossover into a car park area on the southern boundary of the site
- Access into car parking areas off the Learoyd Street link to the east of the site. That section of carriageway is not a public road and does not connect through to Bradford Street from Stancliffe Street
- Access into car parking areas off the intersection of Stancliffe and Learoyd Streets. From that access point, it is also possible to circulate through car parking to exit on to Central Avenue or Alexander Drive
- Access into ECU Village off Stancliffe Street in a one-way configuration
- Two crossovers from Central Avenue providing all movements access into the main on-site car parking area. Those access points are around 200m and 370m east of the signalised intersection of Alexander Drive and Central Avenue.

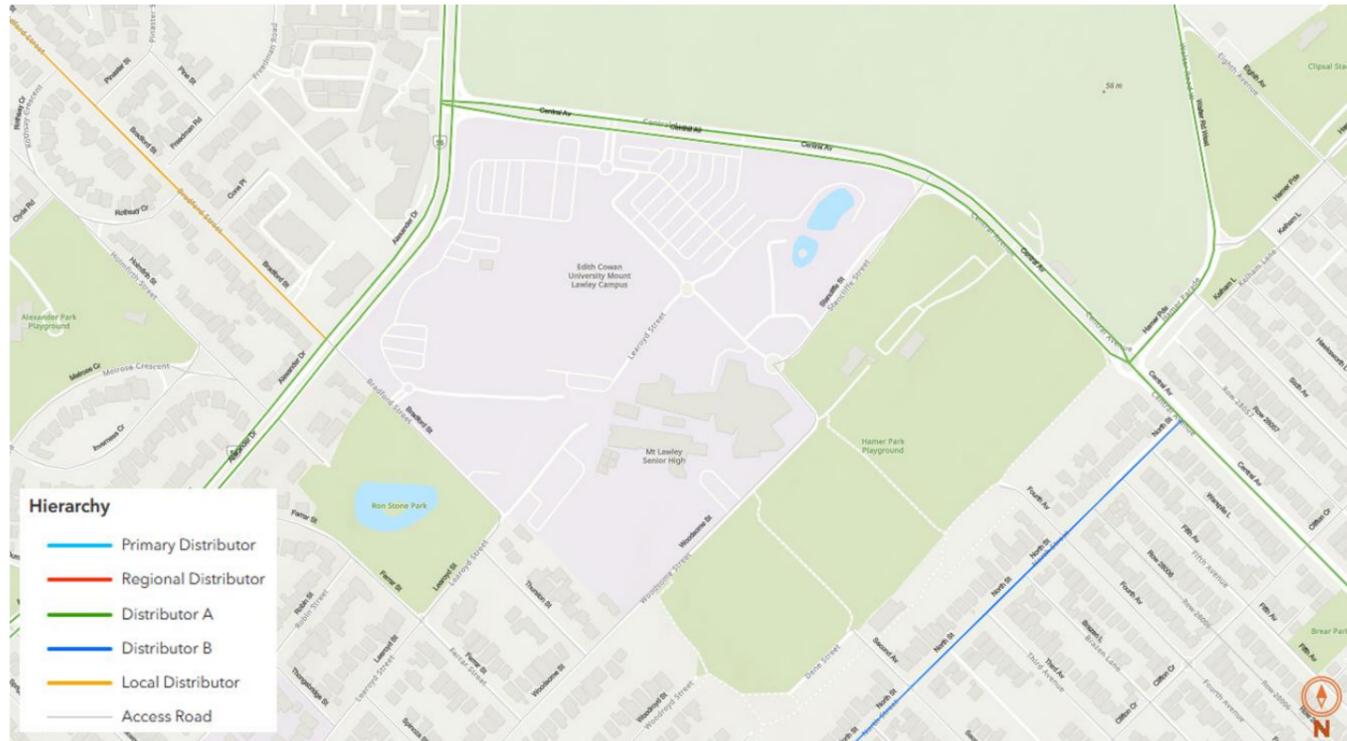


Figure 7 Road hierarchy surrounding the site (source: Main Roads WA)



Figure 8 Speed zoning surrounding the site (source: Main Roads WA)

Information was extracted from an Advice Note to DevelopmentWA for each street or road configuration, which is replicated in the following sub-sections.

### 3.2.1 Central Avenue

Central Avenue runs east-west along the northern boundary of the site, is classified as a District Distributor A and has a posted speed limit of 60km/h. It is dual carriageway, kerbed with 2 x 3.7m line marked lanes in each direction with a 6m landscaped raised median. The road widens on its westbound approach to the Alexander Drive traffic signals with the lane configuration being two right turn lanes with two auxiliary left turn lanes.

Two midblock accesses into the site exist and are evenly spaced between Alexander Drive and Stancliffe Street. Both accesses allow for full traffic movements and have left and right turn pockets. At the western access the right turn pocket measures approximately 70m (inclusive of taper to the centre line of the access) with the left turn lane at 60m (inclusive of taper to the tangent point). At the eastern access the right turn pocket measures approximately 60m with the left turn lane at 40m.

Views of the Central Avenue cross section near existing access points into ECU Mt Lawley are shown in Figure 9 and Figure 10. There is no direct development frontage along the section of Central Avenue adjacent to the site, with only one formed crossover on the northern side of the reserve between Alexander Drive and Hamer Street being in place which provides access to a car park for a Tennis Club.



Figure 9 Cross section of Central Avenue near ECU entry point looking west (source: Google)



Figure 10 Cross section of Central Avenue near eastern ECU entry point looking east (source: Google)

### 3.2.2 Alexander Drive

Alexander Drive runs north-south along the western boundary of the site, is also classified as a District Distributor A and has a posted speed limit of 60km/h. It is dual carriageway, kerbed with 2 x 3.7m line marked lanes in each direction with a 9m landscaped raised median. The road widens on its southbound approach to the Bradford Street traffic signals to provide an 80m right turn pocket. An access way exists on Alexander Drive but is restricted to exit only.

A view of Alexander Drive near the access way looking south is shown in Figure 11. There is no direct development frontage on Alexander Drive for the existing ECU Mt Lawley campus, with access ways and car parking areas providing internal frontage.



Figure 11 Cross section of Alexander Drive near ECU left out egress looking south (source: Google)

### 3.2.3 Bradford Street

Bradford Street abuts the south west boundary of the site, is classified as an Access Road and operates under the default built up speed limit of 50km/h. Note that north of Alexander Drive, it is classified as a Local Distributor. The length of Bradford Street abutting the site has 2 x 3.6m line marked lanes, is single carriageway and kerbed. On street parallel parking exists on Bradford Street along the length of Ron Stone Park. The road widens at the Alexander Drive to provide two approach lanes and to accommodate a bus embayment on the exit leg. Two accesses exist to the site on Bradford Street.

Cross section views of the Bradford Street corridor adjacent to the site are shown in Figure 12 and Figure 13. The existing bus stop on the northern side of Bradford Street is evident, as is on-street parking on the southern side of the carriageway. There are no priority crossing points for pedestrians along Bradford Street except for the signal phase at the intersection with Alexander Drive.

As the alignment of Bradford Street meets Learoyd Street at the eastern end of the corridor, there has been a 90 degree bend created which includes a raised platform as a traffic and speed management device as well as a narrow central median. There is no pedestrian path crossing at that location.



Figure 12 Cross section of Bradford Street near ECU entrance looking west (source: Google)



Figure 13 Cross section of Bradford Street near ECU entrance looking east (source: Google)

### 3.2.4 Stancliffe Street

Stancliffe Street is kerbed, single carriageway with a traffic lane in each direction. It is classified as an Access Road and has various speed limits depending on the location. It runs southwest from its intersection with Central Avenue, along the site's boundary, to the roundabout at Woodsome Street.

Along this section, it has the default built up speed limit of 50km/h, with a 40km/h schools speed zone to 60m northeast of Woodsome Street. Here it has 2 x 3.65m line marked lanes. On the northwest side is a 6m wide bus zone, mid length of this section of Stancliffe Street, separated from the main traffic lane by a 4m wide landscaped island. The bus zone serves students to the Mount Lawley SHS. There is a zebra crossing some 65m northeast of the Woodsome Street roundabout, just south of the start of the bus zone as seen in Figure 14.



Figure 14 Cross section of Stancliffe Street near pedestrian crossing looking south (source: Google)

Stancliffe Street continues northwest to the Learoyd Street roundabout, with the site located to the east and Mount Lawley SHS to the west. The speed limit along this section is 25km/h. Here the carriageway width is around 9.7m, comprising indented 2.7m parallel parking on the west side and 2 x 3.5m line marked traffic lanes. The parking bays are reserved and signposted for ECU 'Student Car Share Rental Cars' and conveniently located near the ECU Village for student accommodation.

From the Learoyd Street roundabout, the road progresses in a northwest alignment to within the site and the ECU campus car park as shown in Figure 15. The road width here is around 11.8m comprising indented 5.2m 90° parking bays and 6.6m width for traffic. There are speed humps on the Stancliffe Street legs at the Learoyd Street roundabout to reinforce the 10km/h speed zone on Stancliffe Street.



Figure 15 Cross section of Stancliffe Street near roundabout looking west (source: Google)



Figure 16 Cross section of Learoyd Street near MLSHS drop off looking north (source: Google)

### 3.2.5 Learoyd Street

Learoyd Street is a private carriageway which abuts both the ECU Mt Lawley campus and Mount Lawley SHS. It runs from Bradford Street to Stancliffe Street – although the vehicular link is not complete, with the length from Bradford Street terminating with a turnaround and the length from Stancliffe Street leading to one of the ECU Mt Lawley campus car parks.

Learoyd Street at the Bradford Street end has an 11m carriageway width, comprising 2.5m indented parallel parking bays on both sides of the road and 6m width for traffic as seen in Figure 16. The length is in red asphalt, highlighting the slower speed environment of 25km/h. Learoyd Street from Stancliffe Street is around 5m in width and allows for two-way traffic. The road has speed humps spaced at about 35m intervals to reinforce the 25km/h speed limit. These are evident in Figure 17. There is a narrow paved pedestrian path that is back of kerb on the western side of the carriageway.



Figure 17 Cross section of Learoyd Street near Stancliffe Street roundabout looking south (source: Google)

### 3.3 Existing Traffic Volumes

Traffic data was extracted for the surrounding network from Main Roads WA TrafficMap (Figure 18) and CoS information, as collected for DevelopmentWA in 2023 for the site. Updated volumes between 2023 and 2024 are also reflected in Table 1.

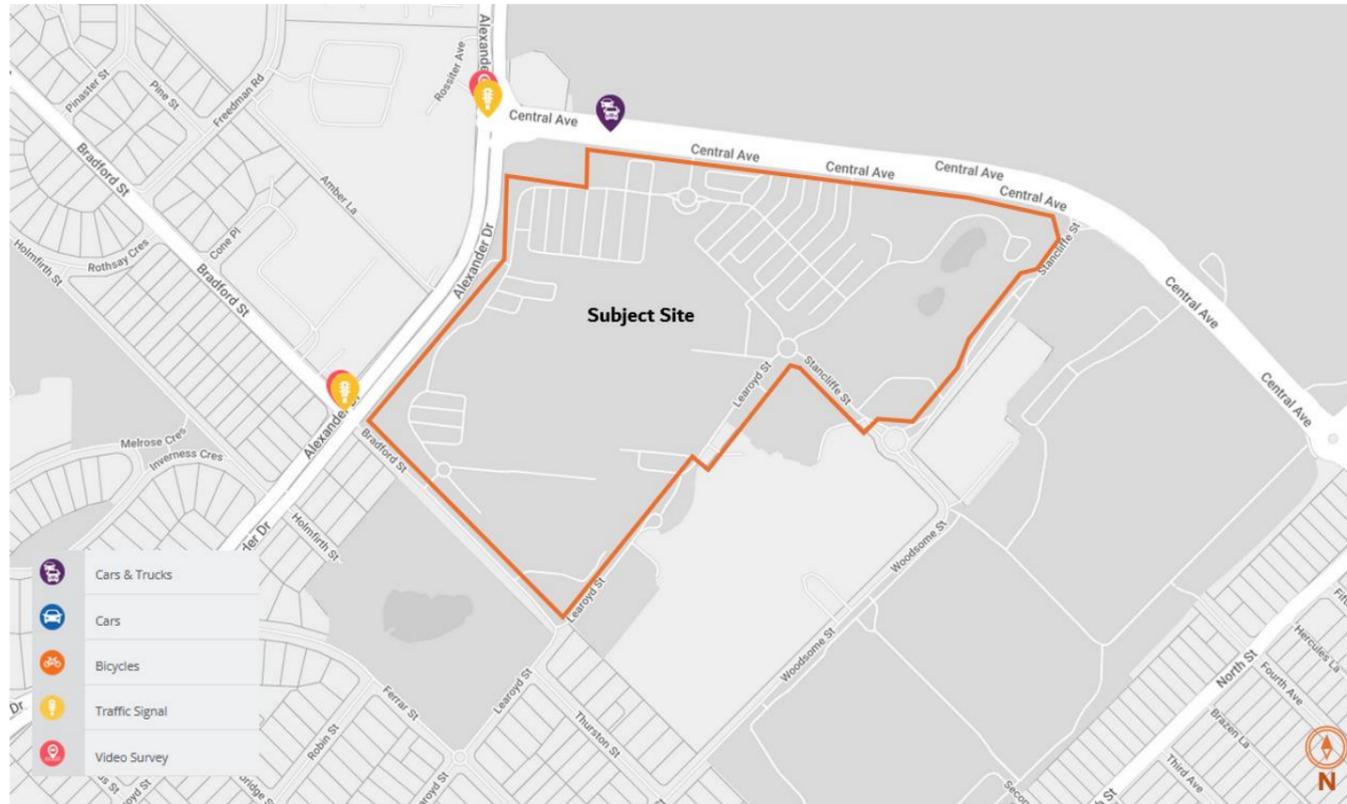


Figure 18 TrafficMap data collection locations (source: Main Roads WA)

Table 1 Traffic data on surrounding network (source: Main Roads WA, DevWA)

Road	Location	Year of Data	Daily (vpd)	AM Peak (vph)	PM Peak (vph)
Alexander Drive	North of Central Ave	2023	29,647	2,688	2,760
Alexander Drive	South of Central Ave	2023	29,740	2,709	2,710
Central Avenue	East of Alexander Drive	2023	16,624	1,455	1,434
Bradford Street	East of Alexander Drive	2019	3,884	620	620
Learoyn Street	North of Thurston Street	2019	2,190	365	365
Stancliffe Street	South of Central Avenue	2019	2,267	520	520
Woodsome Street	North of Thurston Street	2019	1,486	413	413

To supplement external traffic volume information, traffic and movement surveys were initially completed for the ECU area in 2023 to inform future planning. Data collected was summarised as:

“Video data was collected at 10 locations. These sites were surveyed for 16 hours on 3 days (Monday, Tuesday and Wednesday) from the 28th to the 30th of August 2023, resulting in 480 hours of observations. Main Roads WA provided SCATS (Traffic Signal) traffic count data on the corresponding days for two intersections on Alexander Drive namely with Central Avenue and Bradford Street. The PTA has provided passenger boarding and alighting data at seven nearby bus stops”.

The count locations utilised in the August 2023 surveys is shown in Figure 19.

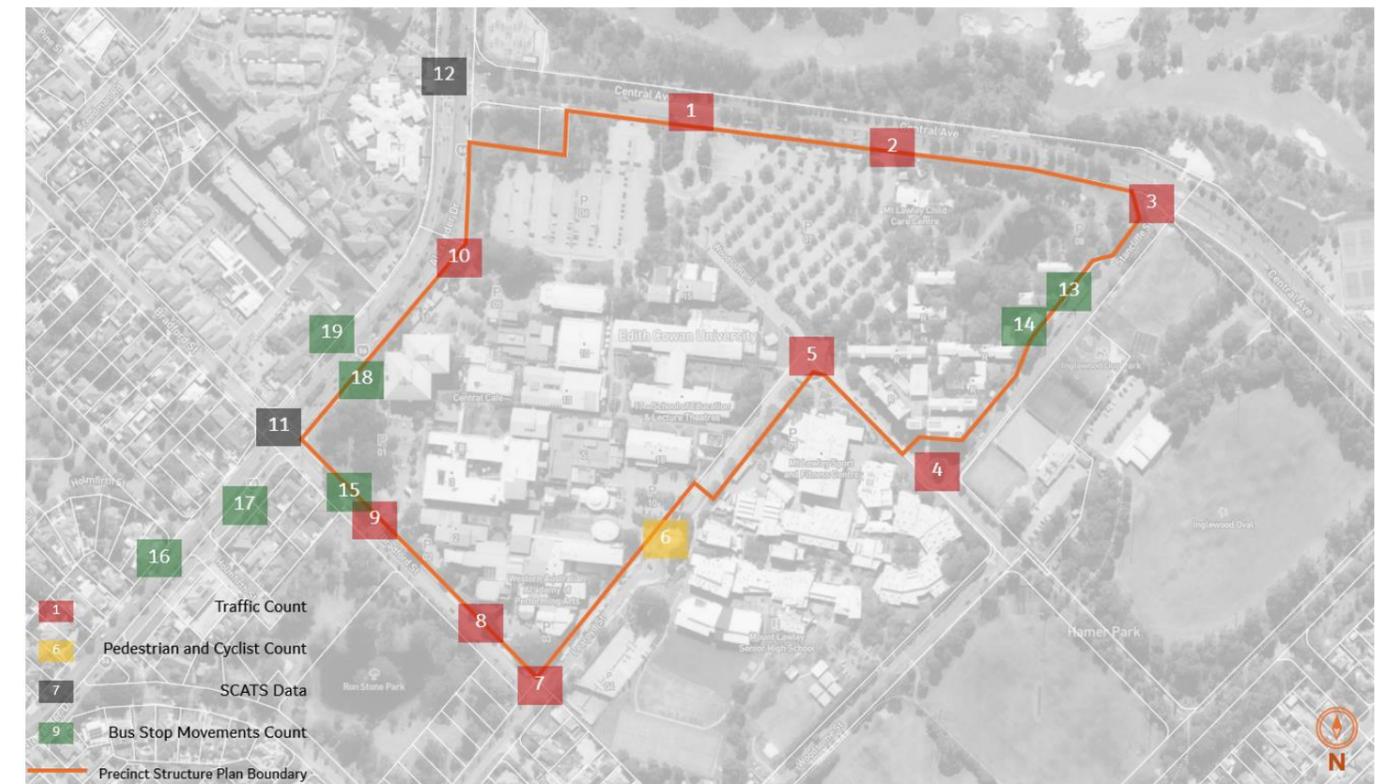


Figure 19 Location of count and surveys - August 2023 (source: DevWA)

The summary of the 2023 survey task as reported was:

“Almost 75,000 vehicle movements were observed across the nine vehicle count sites. (Note that Site 6 recorded only pedestrian counts.) The busiest sites were along Central Avenue and Alexander Drive (Sites 1, 2, 3 & 10) which accounted for 83% of all movements. The busiest site surveyed was Site 3 - Central Avenue & Stancliffe Street which saw approximately 16,230 movements per 16-hour survey day with 2,000 movements in the AM and 1,500 movements in the PM peak hours.

The SCATS data from MRWA revealed that Alexander Drive carried an average of 30,000 vehicle trips over the 16-hour survey period on each corresponding day. Some 6,000 pedestrian and cyclist movements were recorded in total across the ten sites over the three survey days with the vast majority (95%) being pedestrians. Site 5 was the busiest site overall due to the school pick up/drop off, whilst Site 6 was the busiest site during the AM and PM peak hours.

PTA provided data for all seven bus stops in the area from May to August 2023. The data was analysed for both monthly counts as well as for the corresponding three-day period of the site surveys. The analysis showed the busiest alighting bus stop was Bus Stop 12829 on Alexander Drive after Bradford Street (northbound) and the busiest boarding stop was Bus Stop 12808 on Alexander Drive before Bradford Street (southbound)".

To inform the PSP, updated surveys were completed in 2025 at the same locations as the 2023 surveys. This allowed for an understanding of patterns during that period of time and also factor in any season issues associated with the data. The focus was on traffic vehicle movements, so counts completed by video survey were at the locations shown in Figure 20. In addition to traffic counts, a pedestrian behavioural survey was conducted for the bus stop areas on Alexander Drive.



Figure 20 Location of count and surveys – September 2025

To supplement these counts at the interface of the PSP boundary, additional surveys were undertaken on the external network to inform the modelling of the network for the PSP, as well as provide information to inform an examination of issues put forward by the local community relating to the usage of the local street network during engagement on the Master Plan. At the same time that the wider area counts were completed in September 2025, traffic loop counts were completed for seven separate locations shown in Figure 21 as well as an intersection turning count survey at the intersection of Woodsome Street and Ferrar Street.

Data was collected for a week with the exception of one location on Braeside Road where a counter was removed. Enough data was extracted from that location to inform this assessment. Parking occupancy surveys were also completed for the area to the south of the PSP at locations shown in Figure 22.



Figure 21 Location of traffic loop or intersection counts - September 2025



Figure 22 Parking survey locations (source: SurveyTech)

For the traffic count information, the intersection volumes recorded for the surveys in 2023 and 2025 are set out by location in Table 2 with the summary totals for peak and 16 hour periods shown in Table 3. The data shows a high level of consistency across the two years, with volumes only slightly lower in 2025 than recorded in 2023.

Table 2 Intersection traffic counts - 2023 and 2025

Site	Year	Period	2023				2025				
			Light Vehicles	Heavy Vehicles	Total	HV (%)	Light Vehicles	Heavy Vehicles	Total	HV (%)	
Site 1: Central Ave & ECU Entrance 1	2023	AM Peak	1,588	30	1,618	2%	2025	1,488	30	1,518	2%
	2023	PM Peak	1,419	15	1,433	1%	2025	1,492	30	1,522	2%
	2023	16 hrs	15,602	272	15,874	2%	2025	15,134	309	15,443	2%
Site 2: Central Ave & ECU Entrance 2	2023	AM Peak	1,483	30	1,513	2%	2025	1,422	29	1,451	2%
	2023	PM Peak	1,821	14	1,376	1%	2025	1,413	14	1,427	1%
	2023	16 hrs	14,731	230	14,961	2%	2025	14,417	294	1,4711	2%
Site 3: Central Ave & Stancliffe St	2023	AM Peak	1,876	34	1,909	2%	2025	1,763	36	1,799	2%
	2023	PM Peak	1,475	24	1,499	2%	2025	1,591	32	1,623	2%
	2023	16 hrs	15,979	250	16,230	2%	2025	15,714	321	16,035	2%
Site 4: Stancliffe St & Stancliffe St	2023	AM Peak	683	5	688	1%	2025	660	7	667	1%
	2023	PM Peak	327	6	333	2%	2025	401	4	405	1%
	2023	16 hrs	2,454	29	2,483	1%	2025	2,459	25	2,484	1%
Site 5: Learoyd St & Stancliffe St	2023	AM Peak	155	4	159	2%	2025	167	1	168	1%
	2023	PM Peak	99	0	99	0%	2025	150	0	150	0%
	2023	16 hrs	987	12	998	1%	2025	966	7	973	1%
Site 7: Learoyd St & Bradford St	2023	AM Peak	603	2	604	0%	2025	585	1	586	0.25%
	2023	PM Peak	374	2	375	0%	2025	408	1	409	0.25%
	2023	16 hrs	2,894	23	2,917	1%	2025	2,905	7	2,912	0.25%
Site 8: Bradford St & Carpark Entrance	2023	AM Peak	523	1	524	0%	2025	519	0	519	0.00%
	2023	PM Peak	343	1	345	0%	2025	362	0	362	0.00%
	2023	16 hrs	2,633	19	2,652	1%	2025	2,697	14	2,711	0.50%
Site 9: Bradford St & ECU Entrance	2023	AM Peak	641	20	628	3%	2025	559	29	588	5%
	2023	PM Peak	420	11	432	3%	2025	435	18	453	4%
	2023	16 hrs	3,686	136	3,822	4%	2025	3,632	151	3,783	4%
Site 10: Alexander Dr (SB) & ECU Exit	2023	AM Peak	1,794	56	1,849	3%	2025	1,701	53	1,754	3%
	2023	PM Peak	944	26	970	3%	2025	918	19	937	2%
	2023	16 hrs	14,527	487	15,014	3%	2025	14,724	455	15,179	3%

Table 3 Summary totals - intersection counts 2023 and 2025

Period	Light Vehicles Recorded	Heavy Vehicles Recorded	Totals
AM Peak Totals - 2023	9,346	182	9,492
PM Peak Totals - 2023	7,222	99	6,862
16 Hour Totals - 2023	73,493	1,458	74,951
AM Peak Totals - 2025	8,863	187	9,050
PM Peak Totals - 2025	7,169	119	7,288
16 Hour Totals - 2025	72,648	1,583	74,231

Traffic loops placed on the local street network to the south of the PSP area produced hourly, daily and weekly results as summarised on Figure 23. All weekday peak hours coincided with the timing of MLSHS drop off and pick up, with Woodsome Street near the MLSHS recording over 1,500 per weekday with a peak two-way movement of 424 vehicles per hour. That hourly volume was the highest recorded hourly two way volume in the area surveyed. Peak one-way movement was 221 vehicles in the AM peak.



Figure 23 Local traffic loop counter results – September 2025

To provide an indication of the level of vehicle movements through the area, a calculation was completed for the current mid-block capacity used on local streets. Given the majority of sites experienced tidal flows, the hourly peaks were halved, with a one-directional proportion calculation shown in Table 4.

The calculation uses a value of 600 vehicles per hour in each direction on a local street with parking. As can be seen, none of the existing vehicle flows along the local street network are close to reaching a level of traffic volume that would indicate mid-block capacity issues, with the site on Woodsome Street near the Mt Lawley SHS having the highest recorded value in a peak hour, with 35.3% of nominal vehicle capacity reached.

Table 4 Local street network - observed values and indicative mid block capacity calculation

Location	Site	Weekday Average (vehicles per day)	AM Peak Hour (volume)	% of Mid Block Capacity	PM Peak Hour (volume)	% of Mid Block Capacity
Ferrar Street	Near Alexander Drive	341	77	6.4%	70	5.8%
Thongsbridge Street	Near Alexander Drive	205	41	3.4%	30	2.5%
Rookwood Street	Near Alexander Drive	446	55	4.6%	54	4.5%
Learoyd Street	Near Walcott Street	1,536	210	17.5%	175	14.6%
Rookwood Street	Near Woodsome Street	1,409	280	23.3%	211	17.6%
Braeside Street	Near Woodsome Street	677	319	26.6%	237	19.8%
Woodsome Street	Near Thurston Street	1,543	424	35.3%	318	26.5%

### 3.4 Traffic Flow Conditions

Information from Google Maps can be used to understand general traffic flow conditions through any given area of a road network. The mapping information provides an indication of typical conditions using a simplistic traffic signal type measurement ranging from “fast” to “slow”.

An extract showing typical Wednesday conditions within the vicinity of the precinct (in the morning peak at around 8.20am, the afternoon at 5.20pm and school pick up at 3.00pm), indicates that the area generally has low levels of congestion in the AM and PM peak hour when vehicle volumes are highest on the overall network. Surrounding the ECU Mt Lawley precinct, small reductions in travel speeds occur in the peak periods on the approaches to the intersections along Alexander Drive and in the mornings along the North Street / Longroyd Street corridor.

The typical AM peak period conditions are reflected in Figure 24 and the PM peak period conditions in Figure 25 with school pick up peak period shown in Figure 26. These general condition metrics provide an indicator of any potential issues although it does not necessarily reflect traffic conditions, nor do the maps go into fine grained details or local street networks.

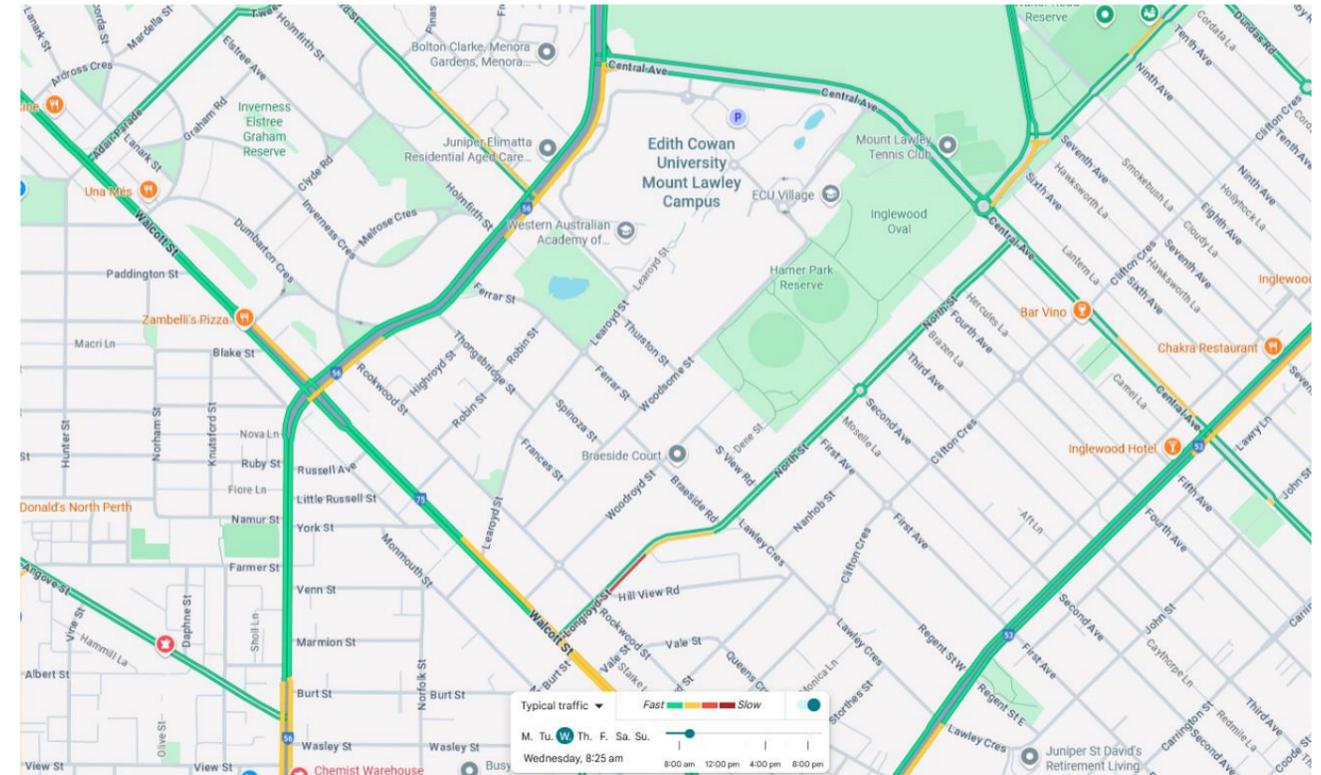


Figure 24 Typical traffic flow conditions Wednesday 8.25am (source: Google)

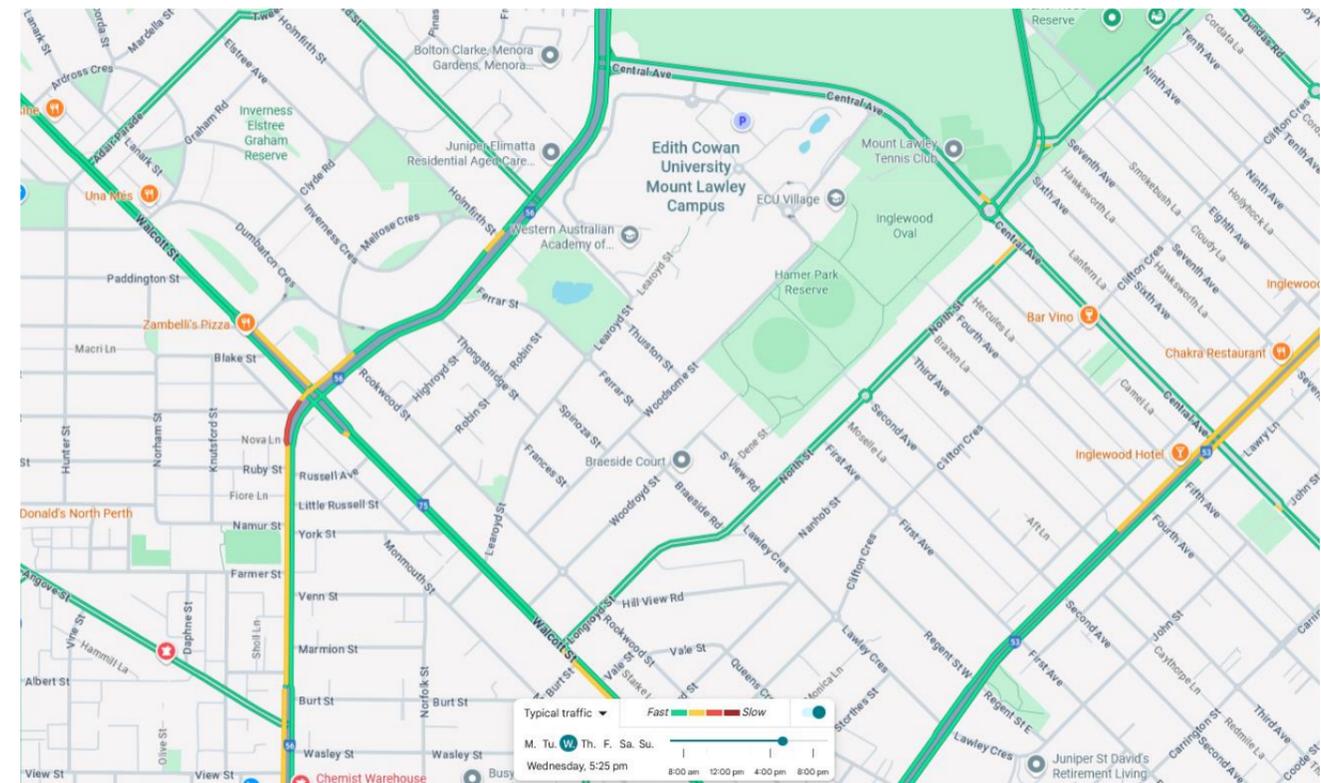


Figure 25 Typical traffic flow conditions Wednesday 5.25pm (source: Google)

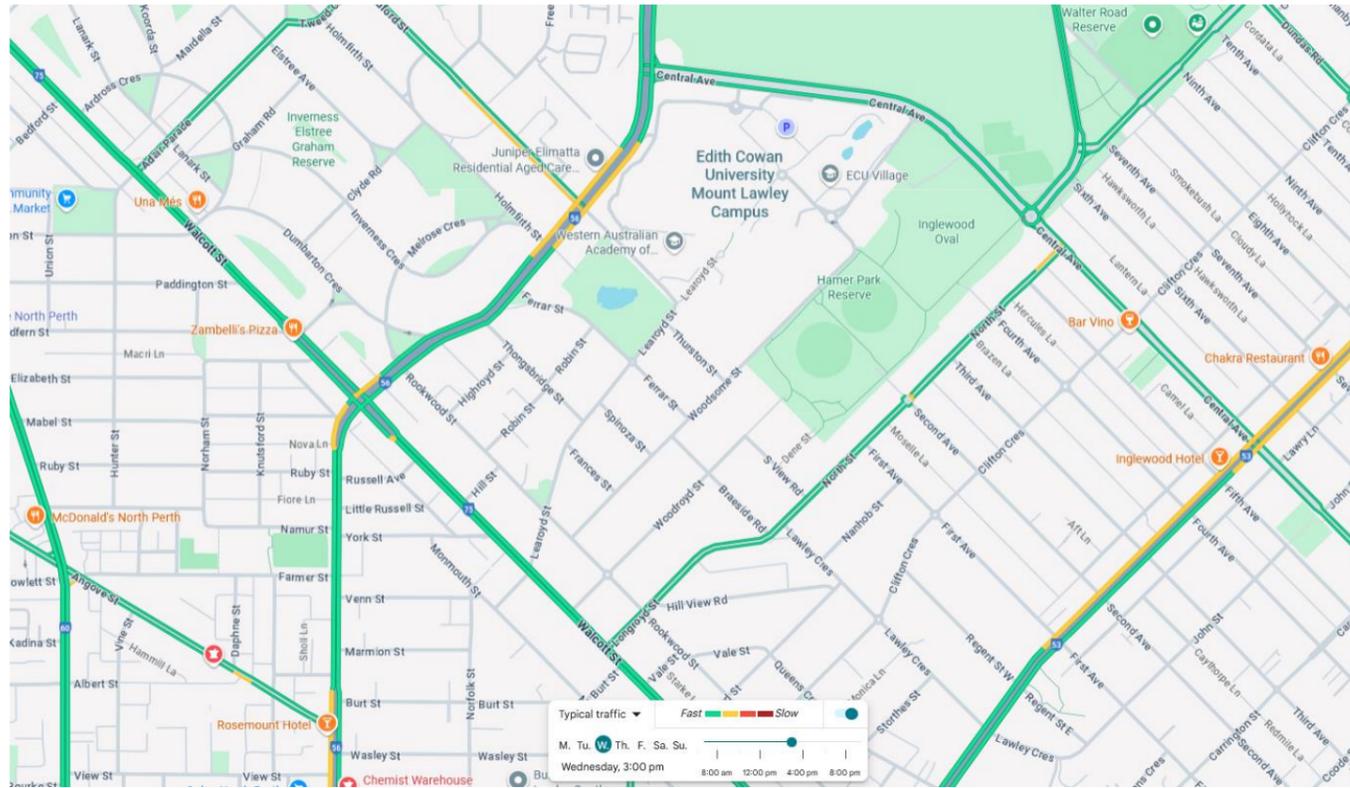


Figure 26 Typical traffic flow conditions Wednesday 3.00pm (source: Google)

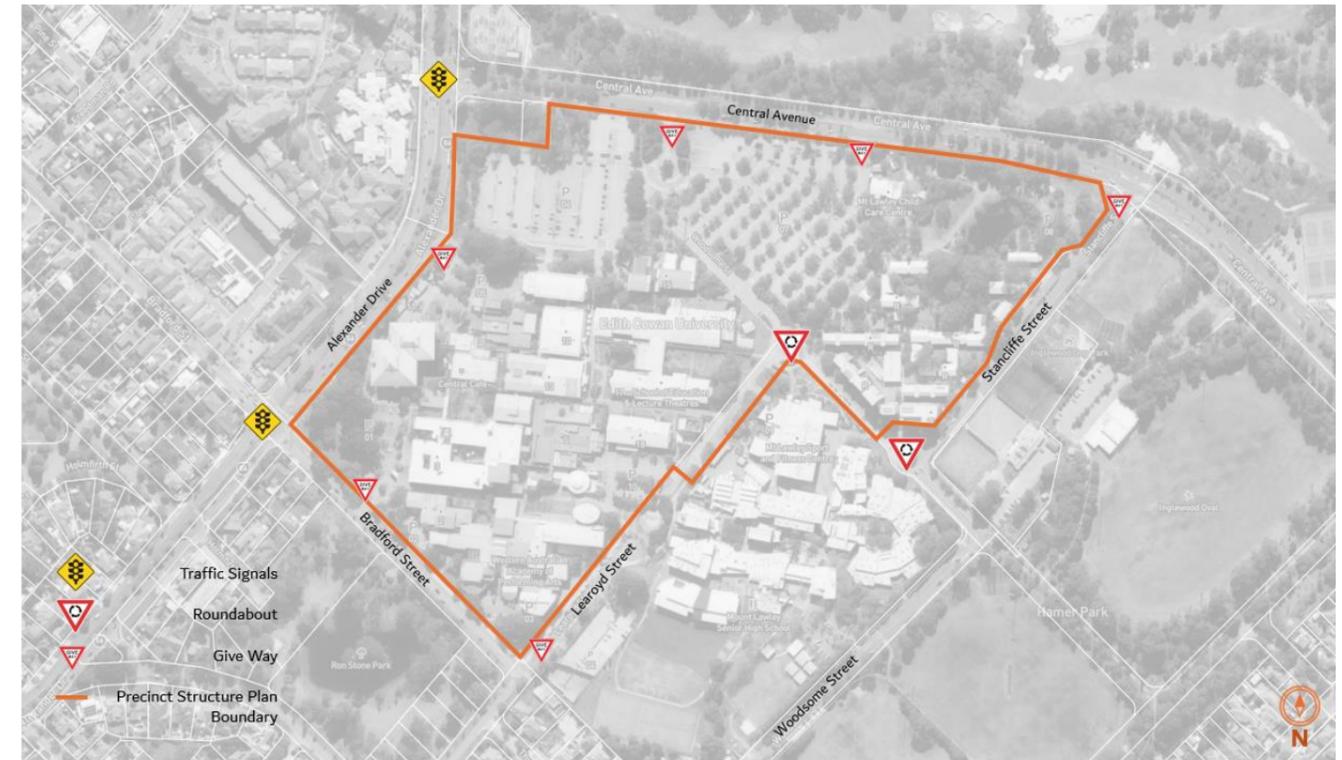


Figure 27 ECU Mt Lawley PSP area - existing road intersections with the surrounding road network (source: Metromap)

### 3.5 Existing Intersections

There are ten intersections adjacent to the ECU Mt Lawley PSP area. These are set out in Figure 27 and described below.

1. Alexander Drive and Bradford Street – signalised intersection (Figure 28)
2. Alexander Drive and ECU egress connection – Give Way exit only (Figure 29)
3. Alexander Drive and Central Avenue – signalised Intersection (Figure 30)
4. Central Avenue and ECU access (west) – Give Way leg into / out of ECU with turning pockets from both approaches on Central Avenue (Figure 31)
5. Central Avenue and ECU access (east)– Give Way leg into / out of ECU with turning pockets from both approaches on Central Avenue (Figure 32)
6. Stancliffe Street and Central Avenue - Give Way leg into /out of Stancliffe Street with turning pockets from both approaches on Central Avenue. High angle left turn on to Central Avenue (Figure 33)
7. Stancliffe Street and Woodsome Street – single lane roundabout with 20m internal diameter (Figure 34)
8. Stancliffe Street and Learoyd Street - single lane roundabout with 13m internal diameter (Figure 35)
9. Learoyd Street and Bradford Street – modified T-intersection with Bradford Street into Learoyd Street (south) being continuous with the northern leg of Learoyd Street (private street) being Give-Way (Figure 36)
10. Bradford Street and ECU main access (south) – T-intersection immediately leading into roundabout within ECU (Figure 37).



Figure 28 Intersection configuration - Alexander Drive and Bradford Street (source: Metromap)

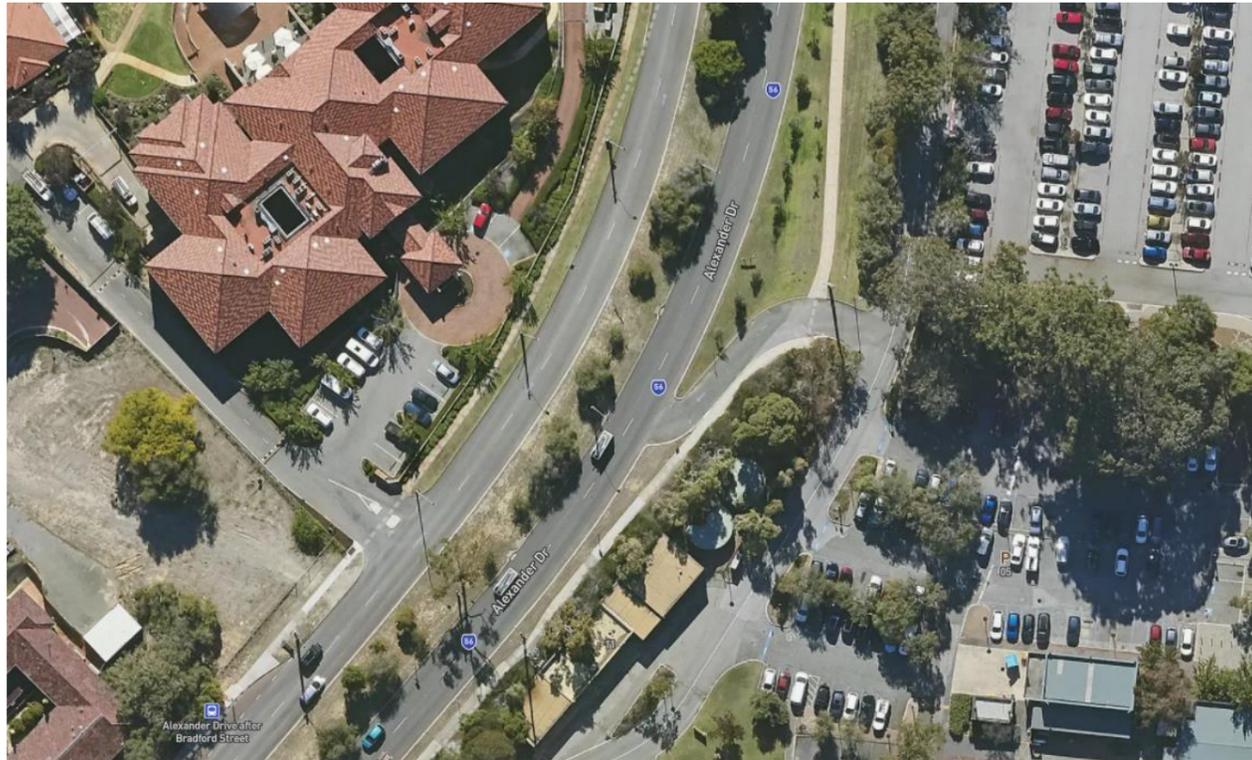


Figure 29 Intersection configuration - Alexander Drive and ECU egress (source: Metromap)



Figure 31 Intersection configuration – Central Avenue and western ECU access point (source: Metromap)



Figure 30 Intersection configuration - Alexander Drive and Central Avenue (source: Metromap)

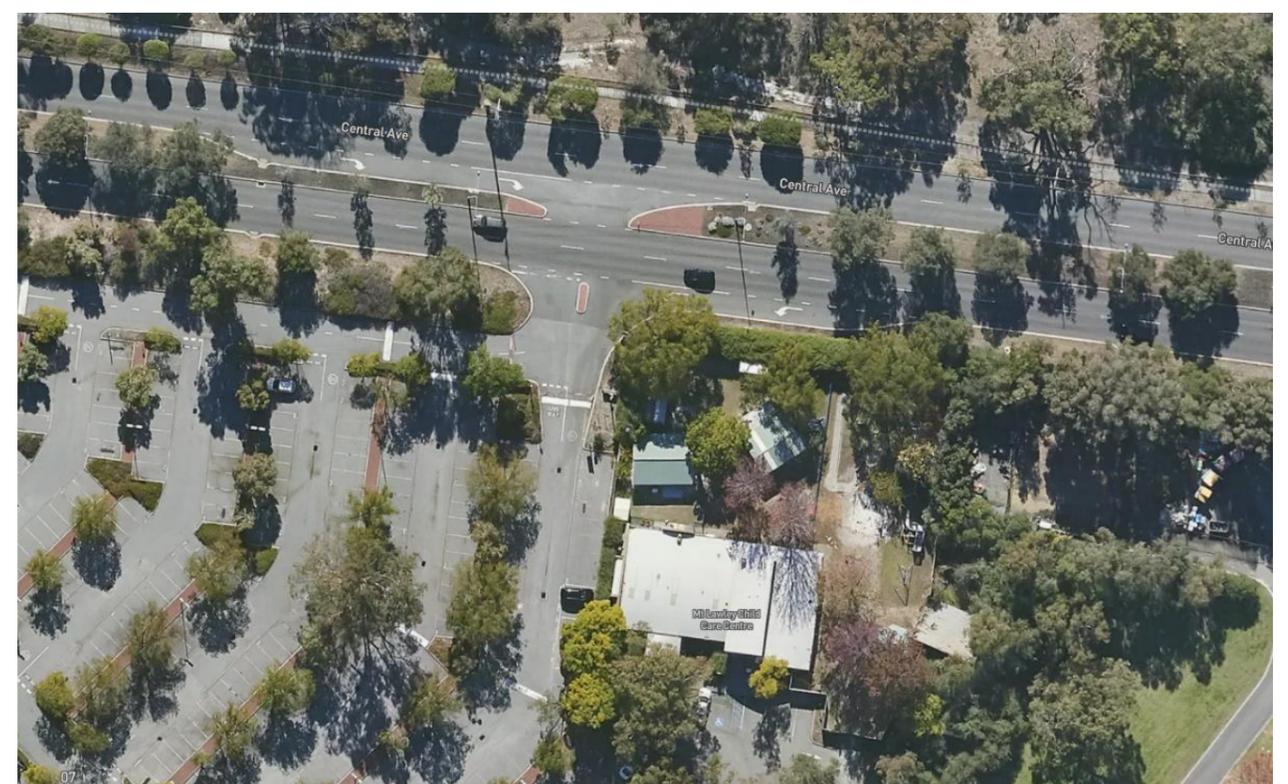


Figure 32 Intersection configuration – Central Avenue and western ECU access point (source: Metromap)



Figure 33 Intersection configuration – Central Avenue and Stancliffe Street (source: Metromap)

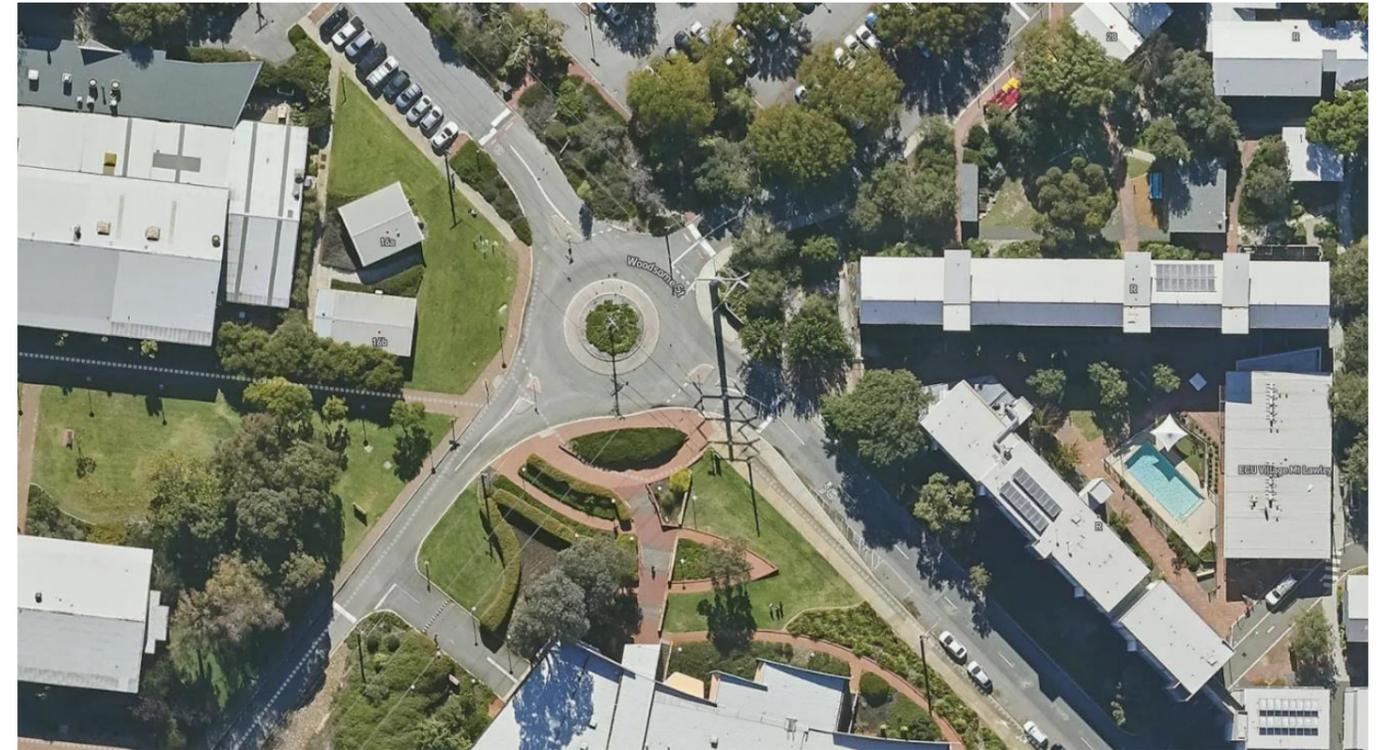


Figure 35 Intersection configuration – Stancliffe Street and Learoyd Street roundabout (source: Metromap)



Figure 34 Intersection configuration – Stancliffe Street roundabout (source: Metromap)



Figure 36 Intersection configuration – Bradford Street and Learoyd Street (source: Metromap)



Figure 37 Intersection configuration – Bradford Street and ECU southern access (source: Metromap)

### 3.6 Existing Parking Provision and Usage

Existing levels of parking on site were audited to inform the planning process. Car parking numbers were obtained through on-site checking of the values marked by ECU Mt Lawley in each area, validation through use of Google Street View and then manual counting of areas not clearly marked through aerial images extracted from Metromap.

The total volume of parking on-site was calculated as an estimated 1,755 bays, as set out on Figure 38. There are additional student bays on Learoyd Street which are on-street, taking the total to at least 1,785. There is an additional off-site parking structure off Learoyd Street that is estimated to accommodate around 195 vehicles meaning that the total available level of parking is around 1,950 bays.

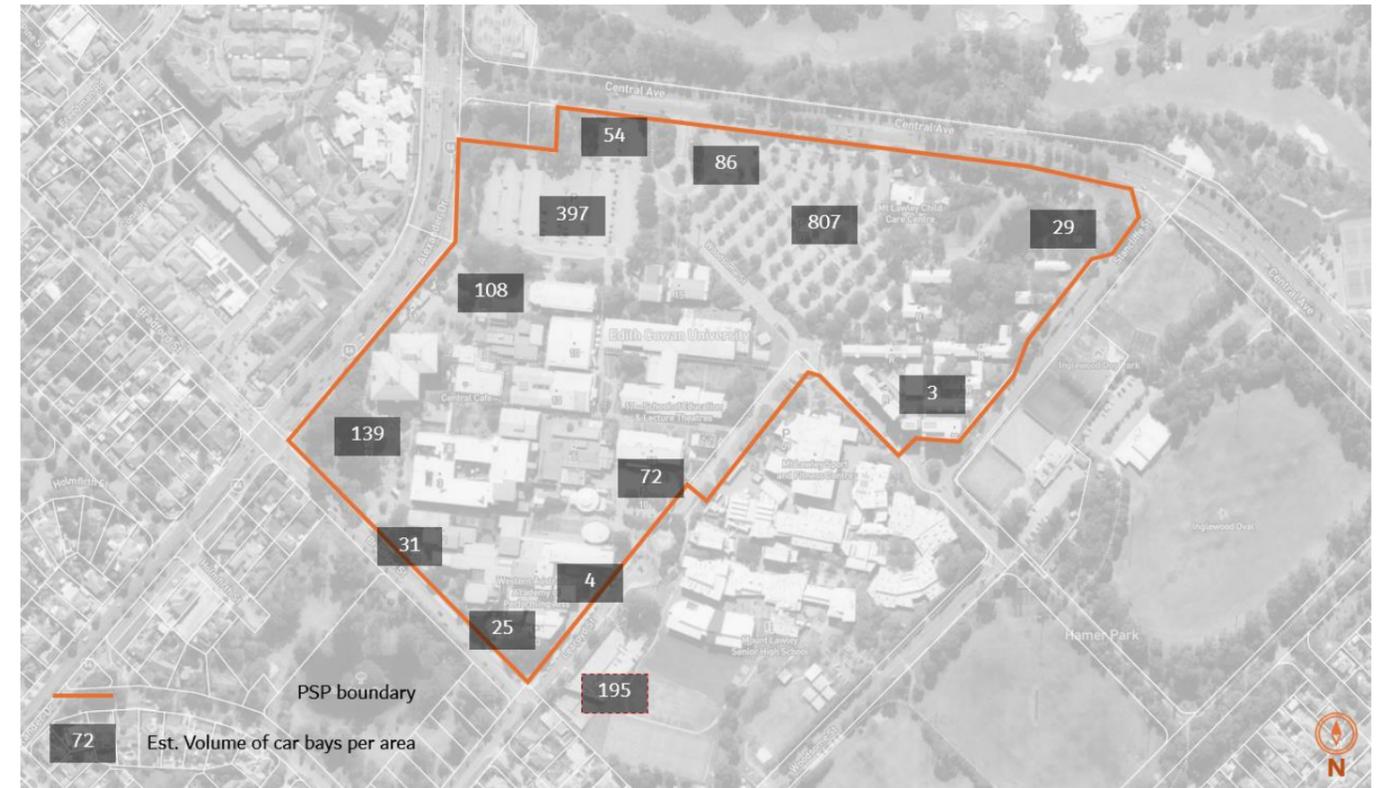


Figure 38 Car parking distribution on ECU Mt Lawley site (source: Metromap)

The vast majority of vehicle parking provided on campus is located along the northern edge of the site, with direct access to Central Avenue. This is primarily student parking, with some staff parking and an area associated with ECU village. The parking calculation does not include on-street bays that are located along Bradford Street, which may be used for short-stay trips associated with ECU Mt Lawley.

As noted, parking surveys were undertaken for the network around the site in September 2025. The locations of the surveys are shown in Figure 22 with the volume of bays in the individual areas and the types of restrictions set out in Table 5. Results of the occupancy surveys for the peak morning and after school periods are shown in Table 5.

The highlighted cells show an over 85% occupancy of the bays – typically referred to as practical capacity for parking. After school periods, where vehicles were dwelling for longer periods were typically the busiest around the MLSHS with other areas and local streets having no notable issues.

Table 5 Parking survey locations and configurations (source: SurveyTech)

ZONE	Street	Between	SIDE	TYPE	BAYS
1	Ferrar St	Alexander Dr & Learoyd St	North/Left	NO Parking Road & verge; 8AM - 6PM MON - FRI; FEB - NOV (Estimated Cars to park)	29
1	Ferrar St	Learoyd St and Woodsome St	North/Left	1P 8AM - 6PM MON-FRI; 1st FEB - NOV 30th (Estimated Cars to park)	12
1	Ferrar St	Alexander Dr & Robin St	South / Right	NO Parking Road & verge; 8AM - 6PM; FEB - NOV (Estimated Cars to park)	10
1	Ferrar St	Woodsome St & Learoyd St	South / Right	1P 8AM - 6PM MON-FRI; 1st FEB - NOV 30th (Estimated Cars to park)	11
1	Ferrar St	Learoyd St & Robin St	South / Right	NO Parking Road & verge; 8AM - 6PM; FEB - NOV (Estimated Cars to park)	9
1	Ferrar St	Robin St & Alexander Dr	South / Right	NO Parking Road & verge; 8AM - 6PM; FEB - NOV (Estimated Cars to park)	10
2	Woodsome St	Ferrar St & Thurston St	West / Left	1P 8AM - 6PM MON-FRI; 1st FEB - NOV 30th (Estimated Cars to park)	7
2	Woodsome St	Thurston St & Mt Lawley	West / Left	Bays; 1/4P 7:30AM - 9AM & 2:30PM to 4:15PM School Days; 1P All Other Times; includes 7 spaces for staff parking	50
2	Woodsome St	High School	D	Disabled	2
2	Woodsome St	Mt Lawley High School & Stancliffe St	West / Left	P2min 7:30AM - 9AM & 2:30PM to 4:15PM School Days; 1P All Other Times	8
2	Woodsome St	Stancliffe St & Thurston St	East / Right	Bays; 1P	21
3	Bradford St	Learoyd St & Alexander Dr	South / Right	Bays; P Ticket; 8am - 6pm Mon - Fri	25
4	Learoyd St	Multi-Deck Carpark	Upper	MLSHS Permit Holders Only	80
4	Learoyd St	Multi-Deck Carpark	D	Disabled	1
4	Learoyd St	Multi-Deck Carpark	Lower	MLSHS Permit Holders Only	117
4	Learoyd St	Multi-Deck Carpark	D	Disabled	1

Table 6 Parking survey locations and peak occupancy periods (source: SurveyTech)

ZONE	Street	Between	BAYS	0700	0730	0830	0830	1400	1430	1500	1530
1	Ferrar St	Alexander Dr & Learoyd St	29	-	-	1	-	-	-	-	-
1	Ferrar St	Learoyd St and Woodsome St	12	1	1	-	-	-	-	-	-
1	Ferrar St	Alexander Dr & Robin St	10	-	-	-	-	1	1	1	1
1	Ferrar St	Woodsome St & Learoyd St	11	-	-	-	-	-	-	-	-
1	Ferrar St	Learoyd St & Robin St	9	-	-	-	-	-	-	-	-
1	Ferrar St	Robin St & Alexander Dr	10	-	-	-	-	-	-	-	-
2	Woodsome St	Ferrar St & Thurston St	7	-	-	-	-	-	-	1	-
2	Woodsome St	Thurston St & Mt Lawley	50	2	5	22	32	27	32	37	21
2	Woodsome St	High School	2	-	-	-	1	-	-	1	-
2	Woodsome St	Mt Lawley High School & Stancliffe St	8	-	3	5	3	2	11	8	-
2	Woodsome St	Stancliffe St & Thurston St	21	1	5	6	11	6	16	14	3
3	Bradford St	Learoyd St & Alexander Dr	25	2	2	5	14	23	22	21	23
4	Learoyd St	Multi-Deck Carpark	80	1	13	32	72	68	60	27	15
4	Learoyd St	Multi-Deck Carpark	1	-	-	-	-	-	-	-	-
4	Learoyd St	Multi-Deck Carpark	117	1	4	8	27	116	108	115	111
4	Learoyd St	Multi-Deck Carpark	1	-	-	-	-	-	-	-	-
			Over 85% Occupancy								

### 3.7 Existing Public Transport

The site is well serviced by Transperth bus routes, with route numbers and corridors being:

- Route 19 (Perth to Yokine via Alexander Dr) - Weekday and weekend services
- Route 20 (Morley Bus Station to ECU Mt Lawley via Alexander Dr) - Weekday and Saturday services only
- Route 406 (Glendalough Station to ECU Mt Lawley via Walcott St)
- Route 360 (Perth to Alexander Heights via Marangaroo Dr and Alexander Dr) - Weekday services only (limited stops service)
- Route 361 (Perth to Alexander Heights via Alexander Dr and the Avenue) Weekday and weekend services (limited stops service)
- Route 362 (Perth to Ballajura via Alexander Dr and Cassowary Dr) Weekday and weekend services (limited stops service)
- Route 960 (Mirrabooka Bus Station to Curtin University Bus Station via ECU Mt Lawley and Perth) Weekday and weekend high frequency services connecting site with Central Perth and Curtin University
- Route 980 is a school service for Mt Lawley Senior High School which operates once daily both directions
- Route 725 school bus service from Maylands Station to Mt Lawley Senior High School.

The site is not proximate to an urban rail passenger station, with the nearest station by distance being Mt Lawley (around 2km to south-east which has a connection for school bus services only) but the most accessible being Perth Station (around 3.3km to the south) courtesy of connections with the high frequency 960 service. The overall route maps for the site are set out in Figure 39 and nearest stops per service are shown in Figure 40.

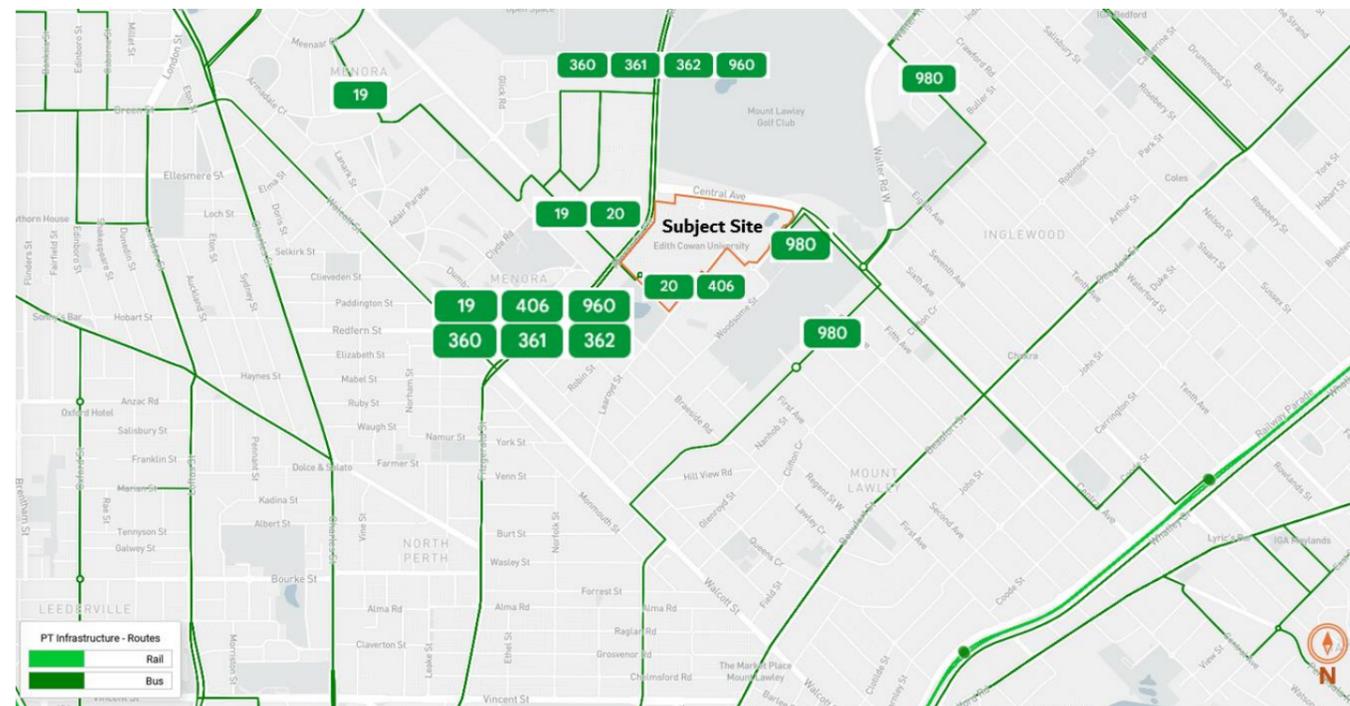


Figure 39 Public transport routes adjacent to subject site (source: Planwisely)

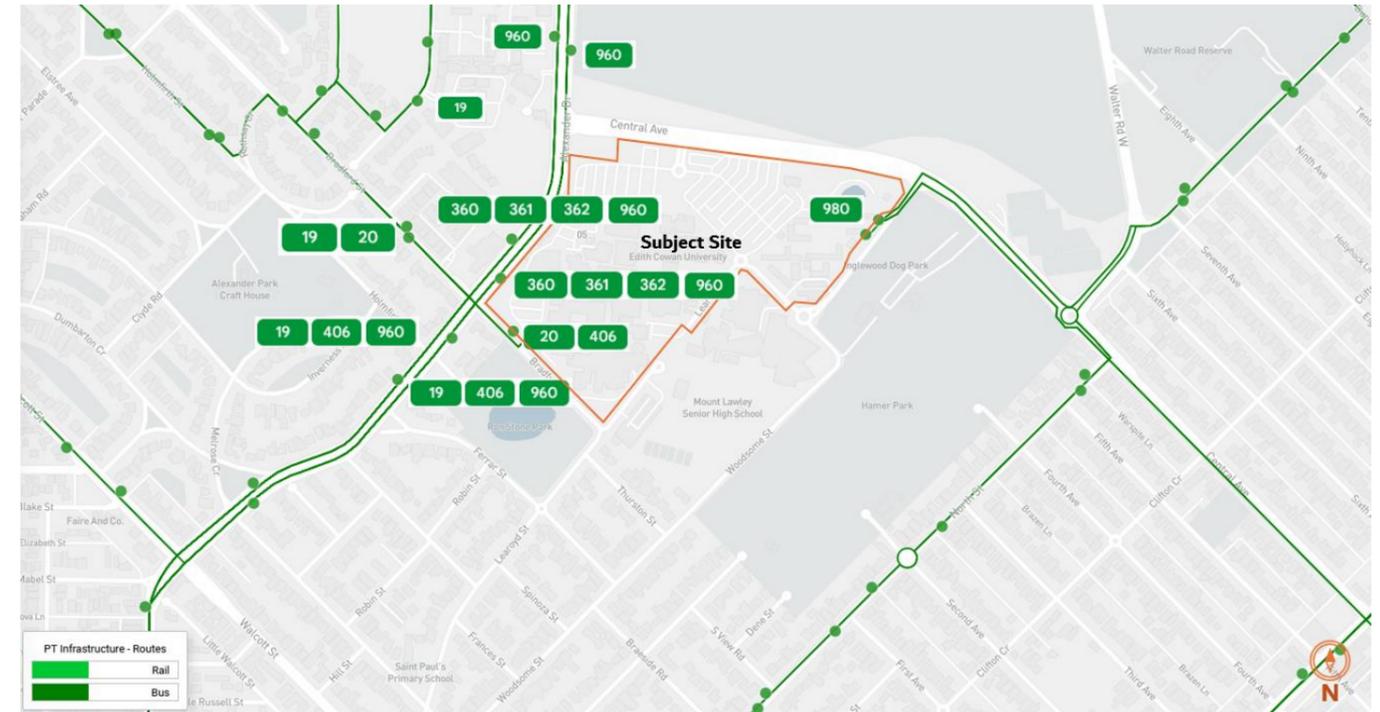


Figure 40 Public transport stop locations adjacent to site (source: Planwisely)

Average weekday boarding and alighting information provided by the PTA in 2023 is set out for the stops directly adjacent to ECU Mt Lawley in Table 7. For all bus stops adjacent to ECU Mt Lawley, this indicates an average weekday boarding volume of 859 trips and alighting volume of 827 trips.

Again, not all these trips could be associated with activity at ECU Mt Lawley and the survey month would also be expected to be on the lower end of a weekday average with peak volumes higher in March / April / May.

In addition, the use of the school bus stops on Stancliffe Street would be significantly underrepresented given the incidence where students do not tag on or off school bus services. The 725 service that connects between Maylands Station and MLSHS has been observed to be at seating and partial standing capacity for two buses departing the Station in the morning meaning that the 40 total trips recorded in this data provided is low.

Table 7 Average weekday boarding and alighting for bus stops near ECU Mt Lawley 2023 (source: PTA)

Site No.	Bus Stop ID	Boarding	Alighting
Alexander Dr After Bradford St (Northbound)	12829	142	450
Alexander Dr Before Bradford St (Southbound)	12808	478	144
Alexander Dr After Bradford St (Southbound)	12809	33	38
Alexander Dr Before Holmfirth St	12828	2	41
Edith Cowan University Mount Lawley (Bradford St)	27254	164	154
Stancliffe St (North Stop)	21186	7	0
Stancliffe St (South Stop)	28487	33	0
	Total	859	827

### 3.8 Existing Pedestrian and Bicyclist Use

Within the 2023 surveys, pedestrian and bicyclist movements were recorded at intersections around the subject site. These were recorded in 15 minute segments, with direction and type of movement also recorded. For the cul-de-sac area at the end of Learoyd Street which serves MLSHS, the presence of school children was also segmented to understand their patterns.

The recorded average weekday peak volumes (this reflects the highest recorded volumes for movements into or out of the site during the morning or afternoon periods rather than just recordings across one uniform hour) for the AM period are shown in Figure 41 and the PM period in Figure 42.

These figures show:

- The distinct lack of movements between the external network and the subject site – there are limited to low levels of movements from the surrounding path network into or out of the site
- An illustration of the lack of links from the north where there are no movements recorded
- The dominance of movements associated with MLSHS, with significant volumes recorded at the end of Learoyd Street heading into or out of ECU Mt Lawley
- The route between ECU and the ECU student village along Stancliffe Street was very well used.

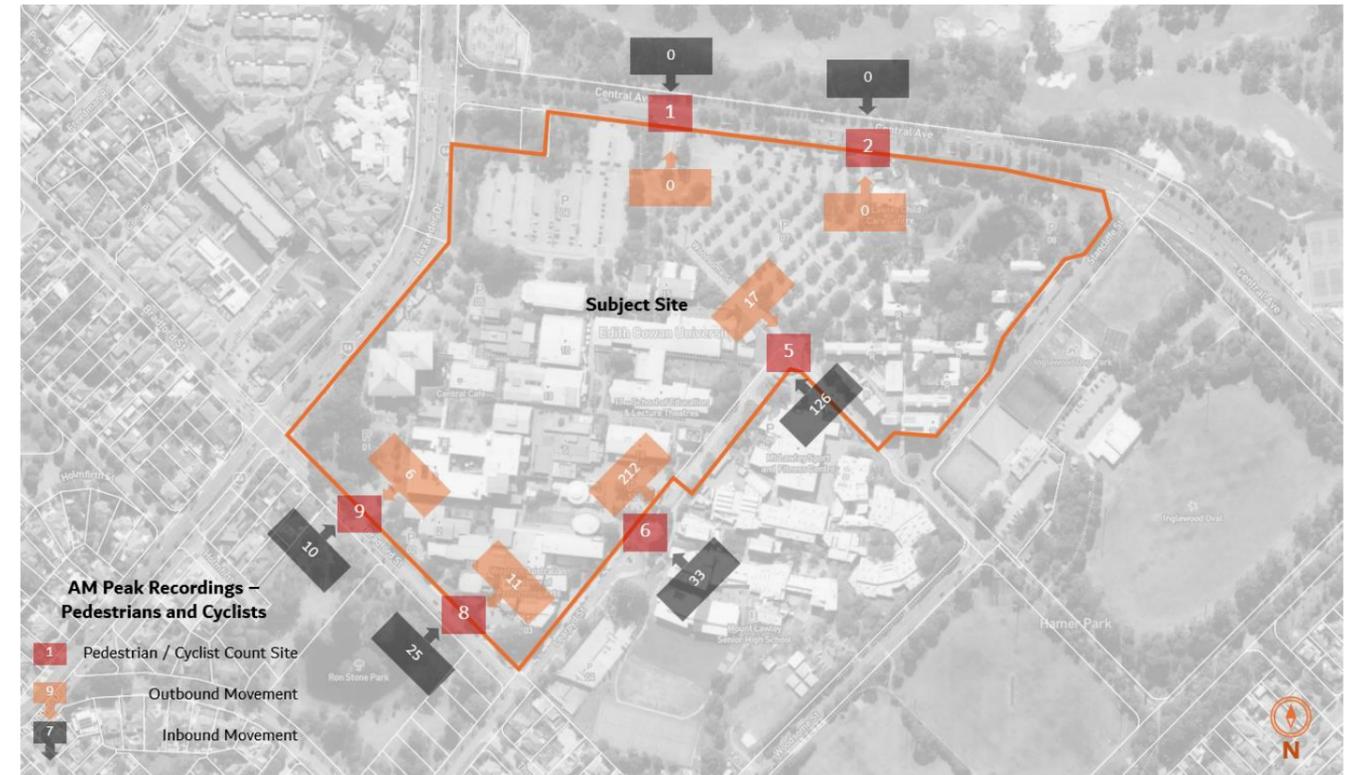


Figure 41 AM weekday peak recorded pedestrian and bicyclist movements- 2023

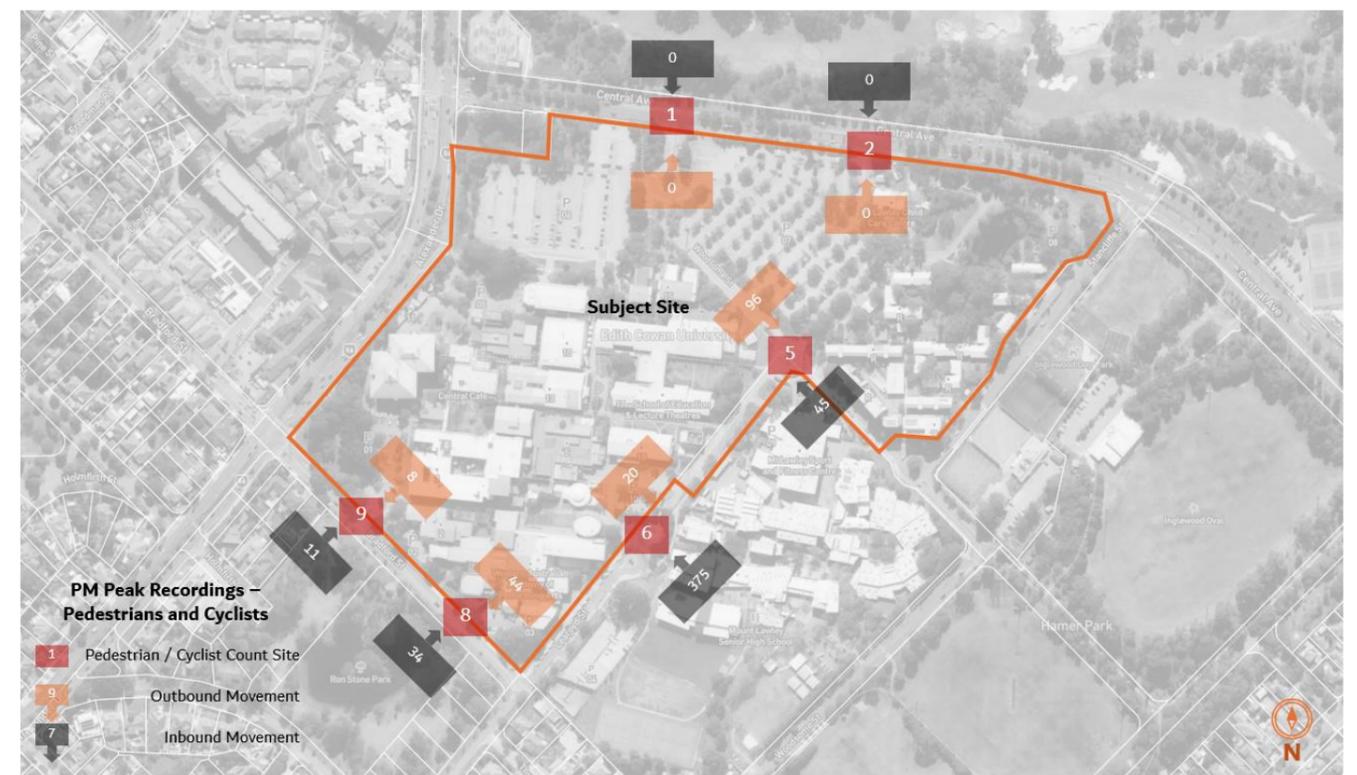


Figure 42 PM weekday peak recorded pedestrian and bicyclist movements - 2023

In addition to the pedestrian counts which informed both the Master Plan and PSP processes, there were individual counts undertaken for the existing bus stops on Alexander Drive during September 2025 to understand usage patterns and also any issues associated with safety at the intersection of Alexander Drive and Bradford Street. The video survey recoded a total of 419 pedestrian movements across Alexander Drive for a weekday all of which were undertaken mid-block and not at the existing signalised pedestrian phase. These movements were associated with the existing bus stop 12829 for northbound bus services.

The 419 movements were split into:

- 109 movements westbound (from ECU side to the bus stop)
- 316 movements eastbound (from bus stop to ECU)
- 4 westbound movements during the AM peak period
- 84 eastbound movements during the AM peak period
- 68 westbound movements during the PM peak period
- 14 eastbound movements during the PM peak period.

Separately in February 2025, video surveys were undertaken at the intersection of Alexander Drive and Bradford Street which included pedestrian surveys. These surveys showed:

- 323 total movements on the Alexander Drive arm of the intersection for pedestrians crossing Bradford Street
- 186 movements westbound (from ECU side to the bus stop)
- 137 movements eastbound (from bus stop to ECU)
- 3 westbound movements during the AM peak period
- 83 eastbound movements during the AM peak period
- 137 westbound movements during the PM peak period
- 5 eastbound movements during the PM peak period.

Combining these values:

- 295 movements westbound (from ECU side to the bus stop)
- 453 movements eastbound (from bus stop to ECU)
- 7 westbound movements during the AM peak period
- 167 eastbound movements during the AM peak period
- 205 westbound movements during the PM peak period
- 19 eastbound movements during the PM peak period.

This shows a very tidal flow of the 742 recorded trips but also the impact of students crossing Alexander Drive from the bus stop in the AM but not having to cross Alexander Drive in the afternoon to access the southbound bus stop. It is clear that there are pedestrian demands driven by the bus stop on Alexander Drive associated with the High School, but that the majority of students crossing Alexander Drive (nearly 60%) do so away from the traffic signals.

### 3.9 Existing Safety Considerations

The Main Roads WA Crash Reporting tool was examined to understand the context of road traffic crashes in the immediate area over the past five years and if there were any specific issues that would require consideration in the PSP stage of the project. The area around the site was examined, with the query summary shown in Figure 43 and the geographical spread of crashes shown in Figure 44.

#### Query Summary

Severity	No.	%	Light	No.	%
Fatal	0	0	Dark - Street Lights Not Provided	0	0
Hospital	2	2.99	Dark - Street Lights Off	0	0
Medical	8	11.94	Dark - Street Lights On	8	11.94
PDO Major	41	61.19	Dawn Or Dusk	2	2.99
PDO Minor	16	23.88	Daylight	53	79.10
			Not Known	0	0
			Other / Unknown	4	5.97
Year	No.	%	Conditions	No.	%
2019	20	29.85	Dry	50	74.63
2020	16	23.88	Not Known	0	0
2021	14	20.90	Other / Unknown	4	5.97
2022	11	16.42	Wet	13	19.40
2023	6	8.96			
Nature	No.	%	Alignment	No.	%
Head On	1	1.49	Curve	14	20.90
Hit Animal	0	0	Not Known	0	0
Hit Object	2	2.99	Other / Unknown	10	14.93
Hit Pedestrian	0	0	Straight	43	64.18
Non Collision	0	0			
Not Known	0	0	<b>Total</b>	<b>67</b>	
Other / Unknown	1	1.49			
Rear End	32	47.76			
Right Angle	10	14.93			
Right Turn Thru	8	11.94			
Sideswipe Opposite Dirn	0	0			

Figure 43 Crash Reporting tool - query summary (source: Main Roads WA)

As expected, the majority of reported crashes were along Alexander Drive, specifically at the signalised intersections of Bradford Street and Central Avenue. No crashes were reported on campus. The majority of crashes were daylight conditions and in dry weather. Interestingly, there has been a clear decline in the volume and severity of accidents over the past five years in the area – with annual crash volumes declining from 20 in 2019 down to only six in 2023.



Figure 44 Distribution and types of crashes (source: Planwisely / Main Roads WA)

### 3.10 Existing Accessibility

To understand existing transport accessibility of the site and illustrate the potential catchment area for future development on the site, existing accessibility measurements were completed using origin points as the four corners of the subject site. The accessibility measurements completed for illustrative purposes were:

- Ten minute walking catchment (Figure 45)
- 20 minute cycling catchment (Figure 46)
- 20 minute public transport catchment (taken for a base time of 8.00am on an average weekday) (Figure 47)
- 15 minute driving catchment (Figure 48).

The ten minute walking catchment highlights the barrier nature of the Mount Lawley Golf Course to the north as well as the irregular street network through Menora. The ten minute walking catchment does not extend to any activity centres or passenger rail stations and is largely confined to existing open space and residential land uses. The cycling catchment around the site is regular in shape and takes into account use of the existing street network, as well as paths or safer cycling routes.

The cycling catchment extends through to Central Perth as well as connections to the Yanchep Line PSP, Midland Line PSP, Armadale Line PSP and Fremantle Line PSP. The catchment also covers Perth Stadium, the Mayland Peninsula, Lake Monger and north-east to Morley and Bayswater. The catchment illustrates that the site is potentially within an easy cycling distance for a substantial area of the inner-northern and eastern suburbs.

The 20 minute weekday public transport catchment illustrates the linear nature of accessibility to the site and also the lack of proximate connectivity to the urban passenger rail network. The extent of the catchment, taken for a trip at 8.00am on an average weekday, runs from Central Perth in the south along Alexander Drive in the north to reach Mirrabooka.

Transfer to other routes along Wanneroo Road is also evident, as is potential transfer to routes along Scarborough Beach Road – likely at Glendalough. The catchment area to the south-east of the site is the measurement of the walk leg of a trip, with no actual accessibility by public transport being evident.

The 15 minute driving catchment covers the majority of the inner-northern suburbs from Innaloo and Wembley in the west to Bassendean and Bennett Springs in the east. The catchment extends along the Kwinana Freeway corridor to the south and extends into parts of South Perth and Como. To the north, the catchment is regular in shape which reflect the accessibility for drivers along corridors including Wanneroo Road, Alexander Drive and Mirrabooka Avenue.

Overall, the site has good accessibility by all modes however the public transport accessibility area is linear along Alexander Drive and has no wider area connectivity to the east. Longer public transport trips would be required to connect to existing urban passenger rail stations or require a transfer via Central Perth.

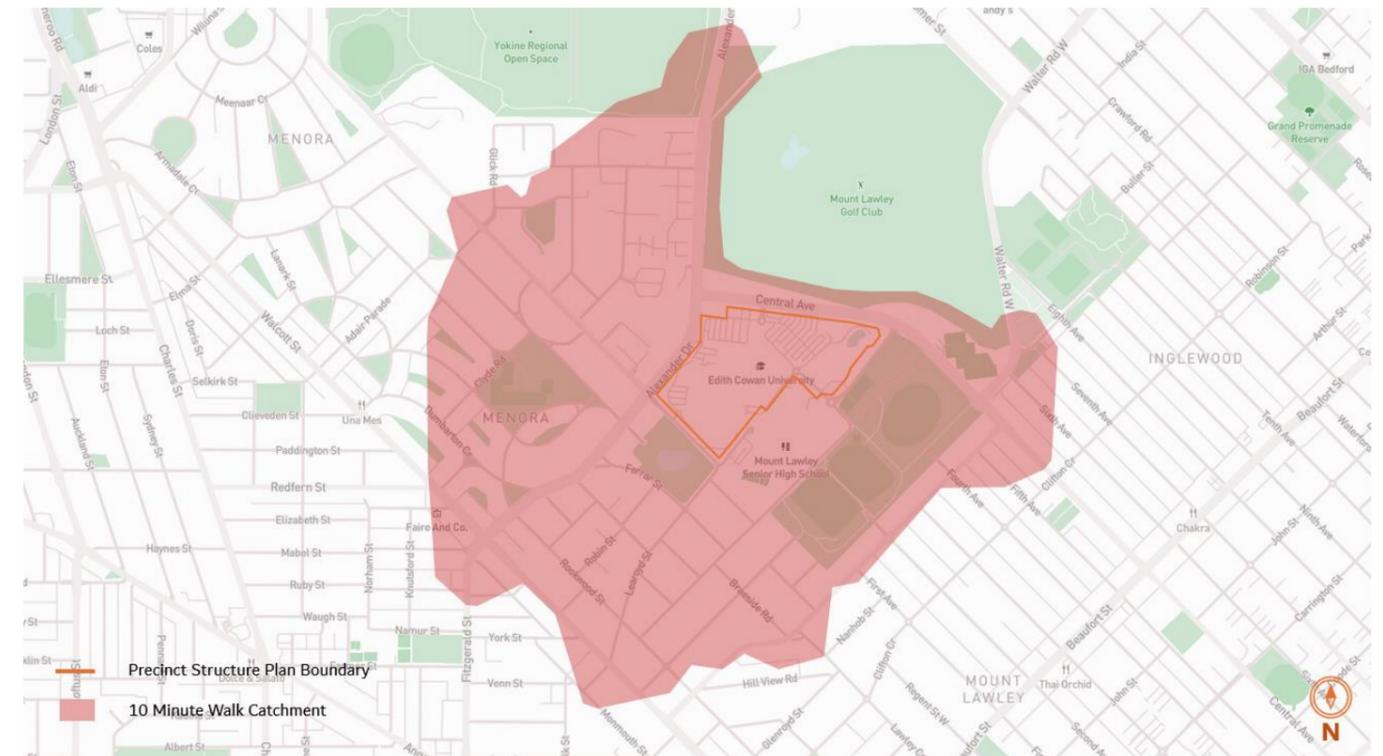


Figure 45 10 minute walk catchment from PSP boundaries (source: Planwisely)

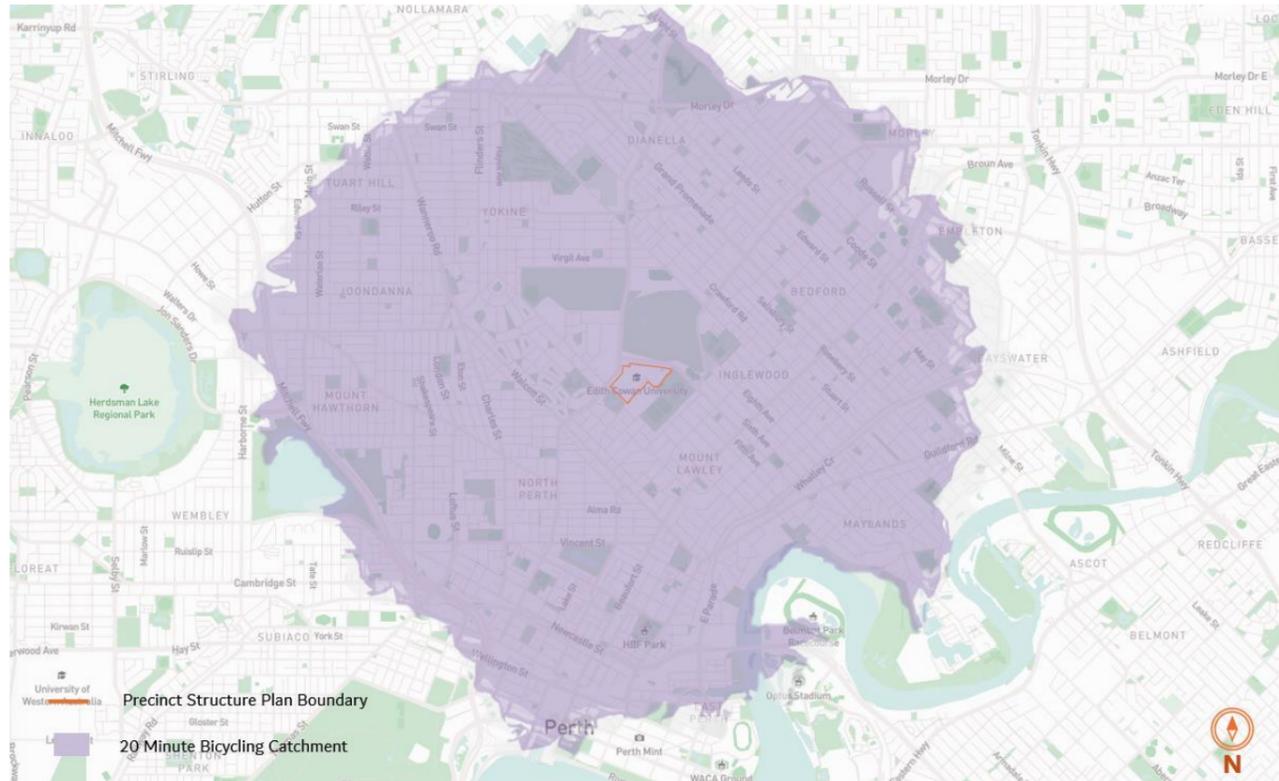


Figure 46 20 minute cycling catchment from scheme amendment boundaries (source: Planwisely)

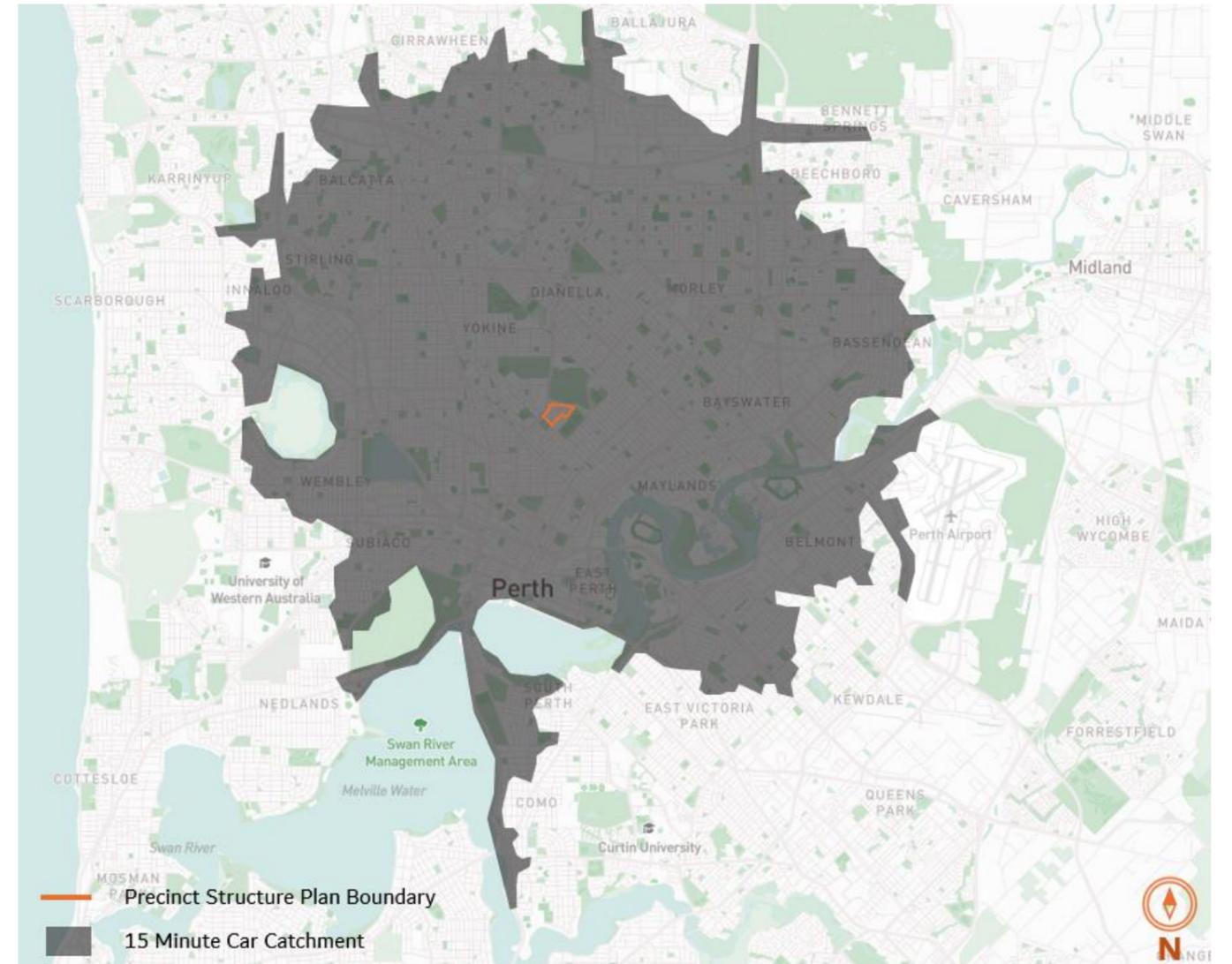


Figure 48 15 minute car catchment from scheme amendment boundaries (source: Planwisely)

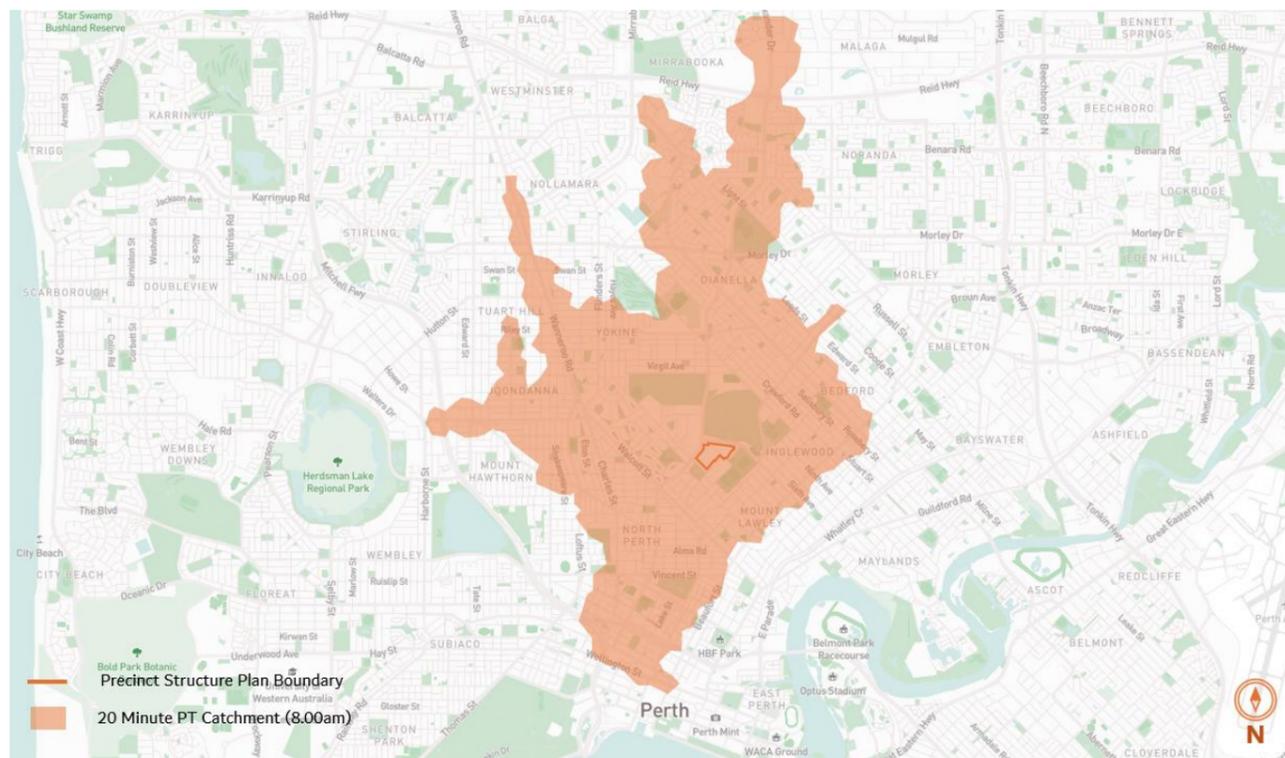


Figure 47 20 minute public transport catchment from scheme amendment boundaries (8.00am weekday) (source: Planwisely)

## 4. PROPOSED CHANGES TO NETWORK

### 4.1 Structure Plan Changes

The ECU Mt Lawley PSP is reproduced in Figure 49. It proposes to use existing external road connections as well as one new local Access Street connection on to Stancliffe Street. The site presently has no internal street network given it is a single use site for a University. This has allowed for the PSP to develop a new street network which has been formed through design elements and engagement with both the community and a range of key stakeholders. The following sections set out the proposed network and responses to design elements.



Figure 49 ECU Mt Lawley PSP (source: Urbis)

The general form of the street movement network within the ECU Mt Lawley PSP Report is shown in Figure 50 with the pedestrian network shown in Figure 51. This network highlights the importance of pedestrian connectivity through the site and the east-west connection to the north of the Primary School is highlighted as being a key link through the area. Links to the surrounding network would also be retained through intersections on external roads and one new connection on Stancliffe Street. Within SPP 7.2, there are a range of Design Elements that require consideration – the response to changes proposed by the PSP are set out in Table 8.

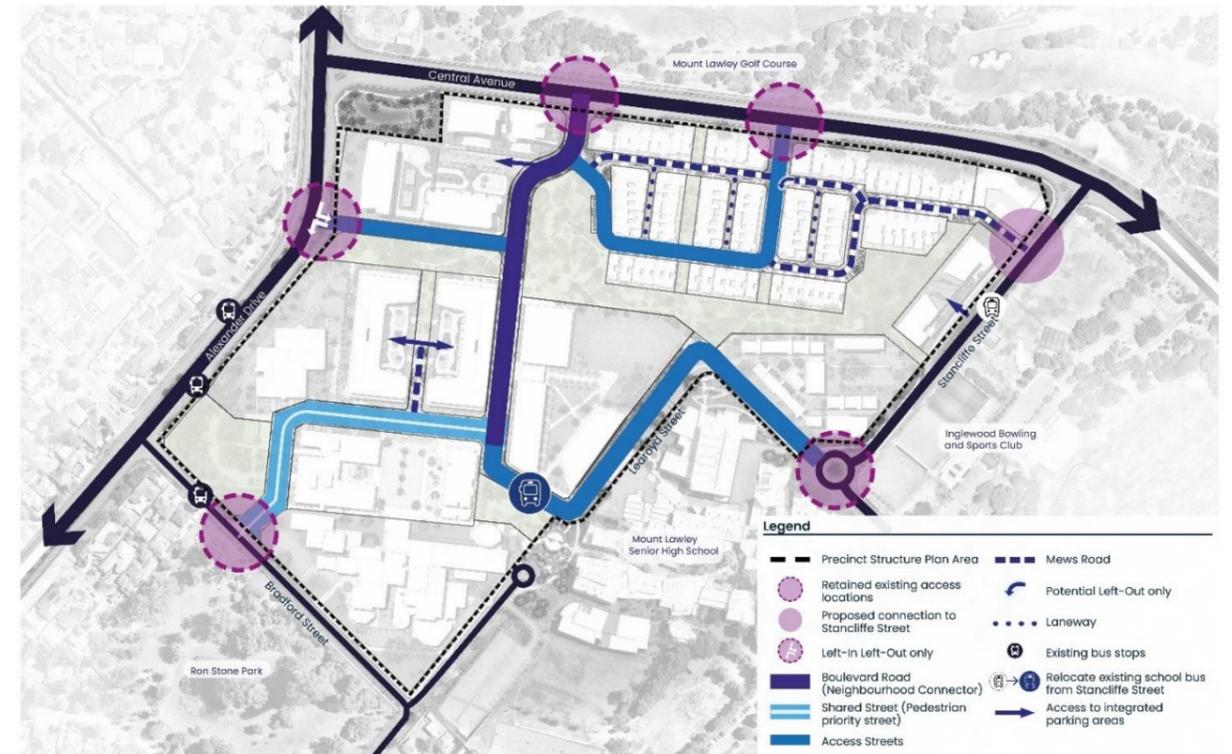


Figure 50 Street movement network - ECU Mt Lawley PSP (source: Urbis)

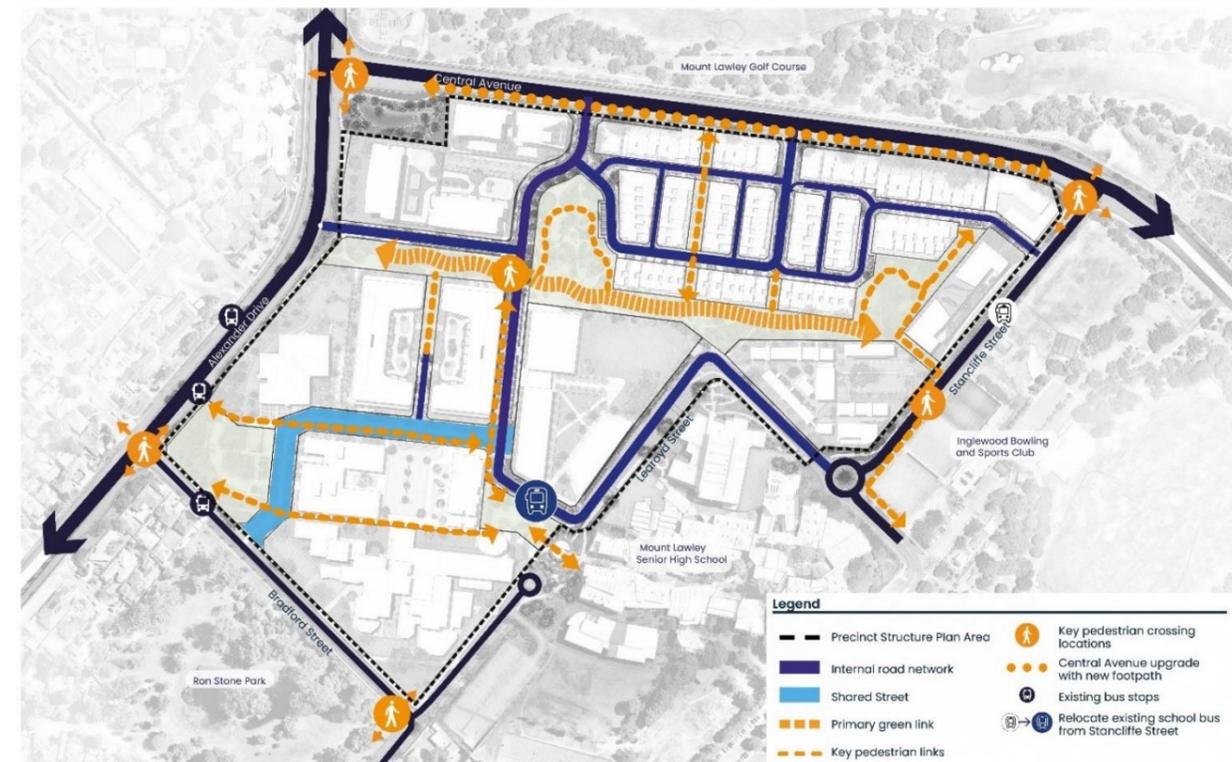


Figure 51 Pedestrian movement network - ECU Mt Lawley PSP (source: Urbis)

Table 8 SPP 7.2 Design Element Objectives and Design Responses (source: Urbis)

No.	Design Element	Design Element Response
04.1	To ensure the movement network supports the function and ongoing development of the precinct. distinct, legible precinct character	<ul style="list-style-type: none"> <li>The PSP retains existing site access points and enables through-site vehicle movement to all surrounding roads at a local scale which can support the precinct while prioritising pedestrian movement.</li> <li>The PSP proposed the upgrade of Central Avenue to improve walkability and access, through provision of a new footpath.</li> </ul>
04.2	To ensure a resilient movement network that prioritises affordable, efficient, sustainable and healthy modes of transport.	<ul style="list-style-type: none"> <li>The PSP delivers central shared streets that support low-speed environments where pedestrians, cyclists and vehicles can safely coexist.</li> <li>Streetscapes are designed to ensure accessibility for all people and mobilities, including cohesive tree planting strategies within the road reserve and shaded pathways to ensure safe and efficient movement.</li> <li>Shaded paths are provided through the site, providing car-free connections between key destinations, enhancing safety.</li> </ul>
04.3	To enable a range of transport choices that meet the needs of residents, workers and visitors.	<ul style="list-style-type: none"> <li>The PSP proposed to relocate the existing school bus stop from Stancliffe Street to a more central forecourt node immediately south of the proposed primary school, just north of MLSHS, enhancing accessibility and safety.</li> <li>It establishes clear pathways to connect bus stops on Alexander Drive with key streets and destinations across the precinct.</li> </ul>
04.4	To ensure the quantity, location, management and design of parking supports the vision of the precinct.	<ul style="list-style-type: none"> <li>The PSP integrates parking areas within built form, either within basements structures (where possible) or podiums, located behind active frontages, as well as streetscapes to ensure they are not visually or physically intrusive to the public realm.</li> </ul>

## 4.2 Proposed New External Roads and Intersections

The ECU Mt Lawley PSP retains the existing external road network in the immediate area with the only changes proposed to be:

- The extension and reconfiguration of Learoyd Street south of Stancliffe Street from its existing terminus point to connect through to a new Access Street within the site, and designation of that corridor as a public street
- The removal of the existing roundabout at the intersection of Learoyd Street and Stancliffe Street which provides access to the existing parking at ECU Mt Lawley and is on the north-western corner of MLSHS.

The proposed network changes and intersection locations are shown in Figure 52.

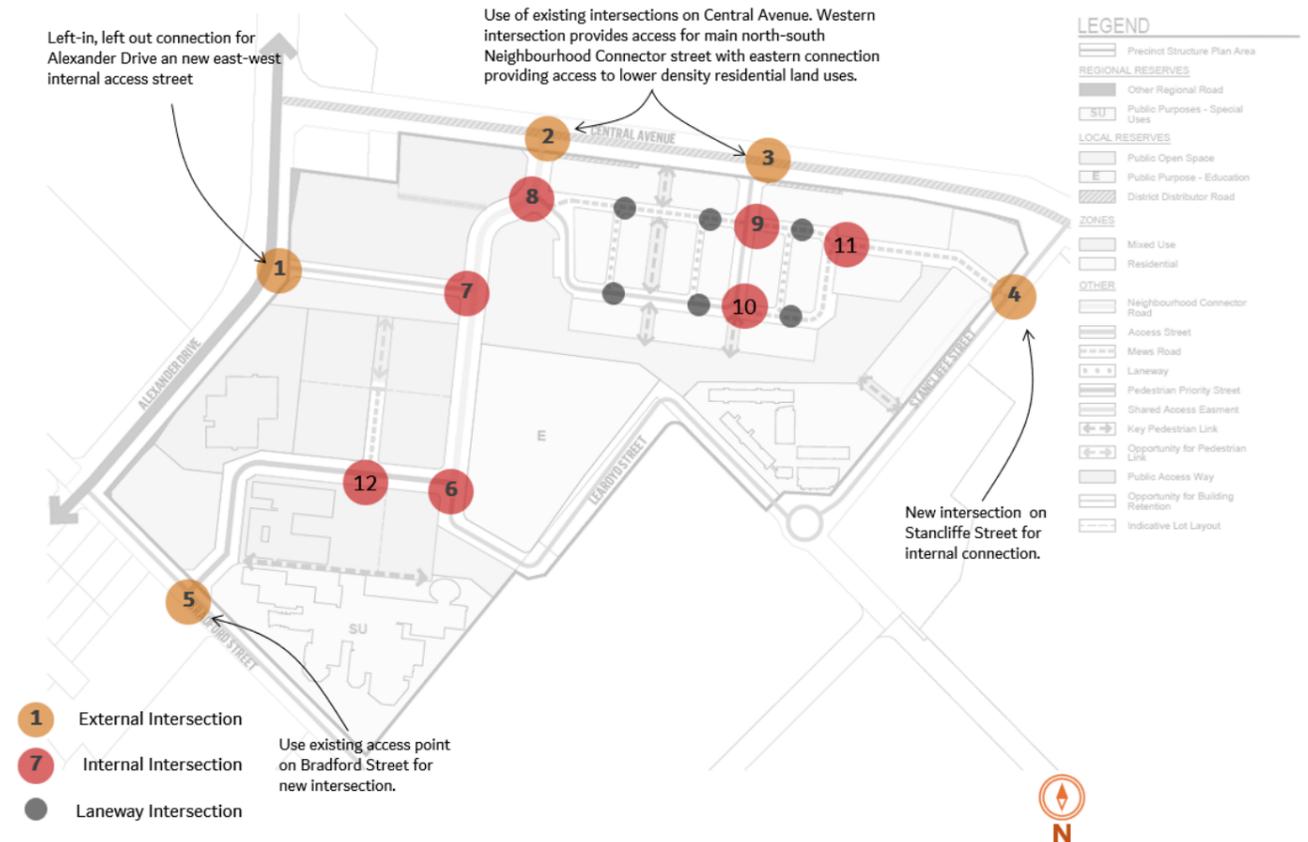


Figure 52 Street network and intersection changes considered within PSP (source: Urbis)

As noted on Figure 52, the intent of each intersection design is (with plan reference number):

- Intersection 6 on north-south connector – Give Way on western approach
- Intersection 7 in Gateway area - Give Way on western approach
- Intersection 8 on north-south connector – Give Way on minor approach
- Intersection 9 within Garden Living area – T-intersection with no connection on eastern side (potential for a left out only movement to cater for service vehicles)
- Intersection 10 within Garden Living area – T-intersection
- Intersection 11 within Garden Living area – Y-Intersection
- Intersection 12 within Creative Campus area – T-intersection.

As set out, the existing intersections around the site and their configuration will be used to reduce impacts on the existing network and reduce the need to undertake significant works within the road reserves. Two external intersections are proposed to be altered or introduced, being:

- The existing left-out only intersection from the ECU Mt Lawley car park into Alexander Drive southbound lanes will be altered to be a left-in, left-out intersection, with a new turning pocket being introduced on Alexander Drive
- A new give-way controlled intersection will be introduced on Stancliffe Street to the south of Central Avenue.

The location of these two intersections, with the context of the ECU Mt Lawley PSP provided, are shown in Figure 53 and Figure 54. For the revised intersection configuration at Alexander Drive, this retains the left out movement with a straightened alignment to provide for the street reserve and allow for retention of mature trees within a reserve area to the south of the new access street reserve. The length of the turning pocket off Alexander Drive into the site would be subject to detailed design and consideration of civil infrastructure impacts, however there is sufficient space within the existing reserve to accommodate a turning pocket.

Similarly with the proposed Stancliffe Street intersection, focus has been on retaining exiting vegetation on site, using alignments of the existing bitumen car park and being at a distance from Central Avenue that accommodates required sight lines as well as removing impacts associated with queuing vehicles. This intersection will be for localised movements only and will allow for all turning movements.

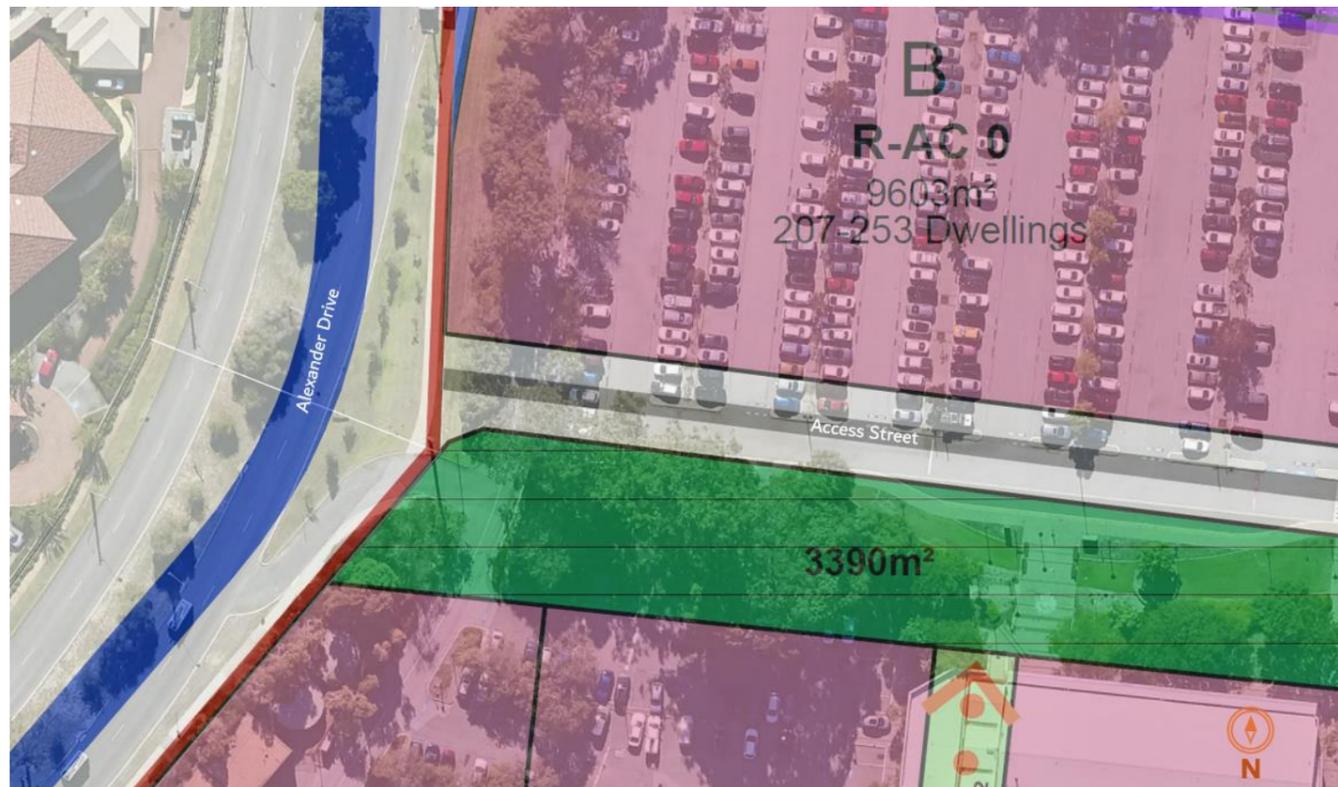


Figure 53 Location of revised intersection on Alexander Drive (source: Metromap / Urbis)



Figure 54 Location of new intersection on Stancliffe Street (source: Metromap / Urbis)

For minimum sight distance requirements, the external speed of the street network will determine the final distance however for 40km/hr streets the distance is 55m and for 50km/hr streets, the distance is 69m. The sightline measurement is shown in Figure 55.

From the approximate location of the proposed new intersection, the view looking north to the intersection of Central Avenue is shown in Figure 56 with the view to the south looking towards MLSHS is shown in Figure 57. Neither of these views have any permanent obstructions within them and provide a clear line of sight through the area.

Lower level vegetation would likely be removed with development of the residential lots however the existing maturing fig tree to the north of the proposed new intersection has branches cleared at lower levels meaning that sight lines are unobstructed. Any development within the adjoining lots would be required to ensure that sightlines are retained or not obstructed.



Figure 55 Sightline assessment for new connection on Stancliffe Street (source: Metromap)



Figure 57 Street view looking south from new intersection connection on Stancliffe Street (source: Metromap)



Figure 56 Street view looking north from new intersection connection on Stancliffe Street (source: Metromap)

For the external intersections, the issue of the existing turning pockets from Central Avenue into the site was raised within prior assessment of Master Plan options. The analysis stated:

*“The deceleration lengths of the auxiliary lanes, particularly at the east access (on Central Avenue) should be upgraded to current requirements of Austroads Guide to Road Design Part 4A, and in particular Table 5.2 Deceleration distances for cars on level grade”.*

The relevant Table is shown in Figure 58.

The approach design speed, being 10km/h above the posted speed limit, with an internal design speed of 40km/h would indicate turning pockets of 50m in length. Three of the four turning pockets appear to be compliant when considering the overall stop distance, with the left turn pocket into the eastern access leg only being approximately 38m in length.

Looking at historical aerial images, the turning pockets for the western entrance were installed on Central Avenue in 1995 (Figure 59) and the western access was installed in 2008 (Figure 60). This would indicate that the turning pockets developed were considered with modern design standards alongside a range of other considerations.

Table 5.2: Deceleration distances required for cars on a level grade

Design speed of approach road (km/h)	Length of deceleration D – including diverge taper T (m)										Diverge length L <sub>d</sub> <sup>(3)</sup> for lane widths (m)	
	Stop condition <sup>(1)</sup> (m)		Design speed of exit curve (km/h) <sup>(2)</sup>									
	0	0	20	30	40	50	60	70	80	90	3.5 m <sup>(4)</sup>	3.0 m <sup>(4)</sup>
	Comfortable 2.5 m/s <sup>2</sup>	Maximum 3.5 m/s <sup>2</sup>	Comfortable average rate of deceleration 2.5 m/s <sup>2</sup>									
50	40	30	30	25	15						33	27
60	55	40	50	40	30	15					40	33
70	75	55	70	60	50	40	20				47	40
80	100	70	95	85	75	60	45	25			54	44
90	125	90	120	110	100	85	70	50	25		60	50
100	155	110	150	140	130	115	100	80	55	30	67	57
110	185	135	180	175	160	150	130	110	90	60	74	62

- 1 Rates of deceleration are: 2.5 m/s<sup>2</sup> for comfortable deceleration; 3.5 m/s<sup>2</sup> is the maximum for design purposes.
- 2 Speed of exit curve depends on radius and crossfall (Figure 5.2).
- 3 Distance L<sub>d</sub> assumes a lateral rate of movement of 1.5 m/s.
- 4 Example lane widths – use actual lateral shift distance of vehicle.

Notes:

The pink shading indicates that the deceleration lengths given are greater than the diverge length. The length of the deceleration lane should be based on these values.

The green shading indicates that the diverge length is greater than the deceleration length. In these cases, the length of the deceleration lane should be based on the diverge length (the values shown in yellow shading).

Figure 58 Table 5.2 of Austroads Part 4A (source: Austroads)

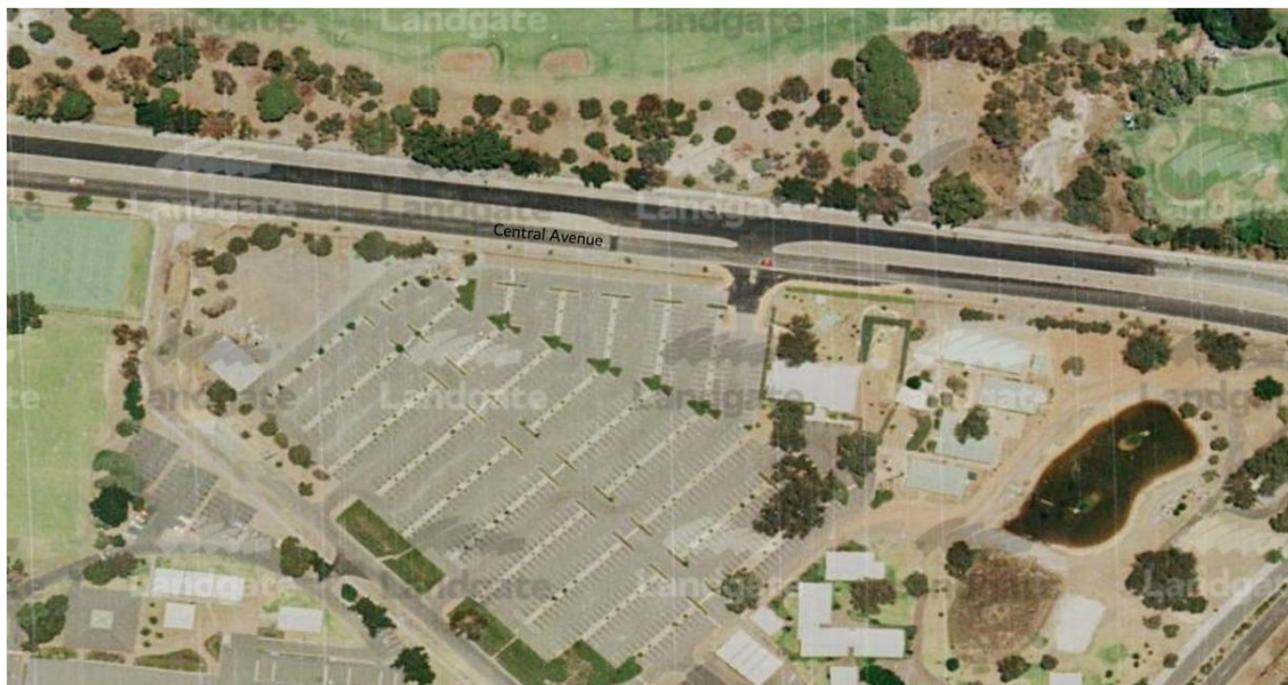


Figure 59 Historical aerial photograph of Central Avenue from 1995 (source: Landgate)



Figure 60 Historical aerial photograph of Central Avenue from 2008 (source: Landgate)

In relation to the turning pocket distance, it is proposed to retain the existing turning pockets or auxiliary lanes as is, with the eastern access being the one turning pocket that does not appear to reach the distance required within Austroads Guide to Road Design Part 4A. The retention of the pocket as is on the basis of:

- The median speeds along Central Avenue being consistently below the posted speed limit throughout the average weekday period near the site
- The 85<sup>th</sup> percentile speed being nearly 10km/h below the design speed set out in Austroads Guide to Road Design Part 4A
- The one turning pocket that does not appear to breach the requirements of the Austroads Guide is a left turn pocket which will only cater for demands associated with the medium density residential area. The turning pockets, or auxiliary lanes, for the intersection with the main north-south connection through the ECU Mt Lawley PSP area appear to comply with the Austroads Guide
- The location of the access point has had zero crashes recorded in the past five year period, with the same being the case for the western access point. Given the volumes of traffic are not expected to be significantly different in peak totals for the full build out of the PSP area, the volume of turning movements would not warrant expansion of the turning pockets within an inner city location.

### 4.3 Proposed New Internal Streets

The internal street network will see the development of five streets, four mews as a number of laneways to provide for rear servicing and loading of residential lots. This network, shown in Figure 49, whilst the street reserve widths contemplated in the PSP is shown in Figure 61.

This is broadly described as:

- A north-south Boulevard (Neighbourhood Connector) set within a 20m reserve that will extend from an intersection with Central Avenue through to wrapping around the Primary School site to link with the extension of Learoyd Street. This would form a continuous circuit around the Primary School site with the southern most section of this alignment being in a 16m wide reserve and bus embayment for three buses to dwell. There is an open space area to the south of the street reserve which would contain landscaping elements and a larger area for students from MLSHS to gather. The carriageway would be formed of two 3.2m wide lanes and a 2.6m median past the Primary School site with embayed parking. Where no median exists, the carriageway would be 6.4m wide
- An east-west Access Street within a 13m reserve that connects Alexander Drive with the north-south Boulevard (Neighbourhood Connector). The intersection of these two will be a give-way controlled T-intersection to the north of the Primary School Site. The street reserve is only 13m wide given that there is an open space reserve to the south of the street reserve that would cater for footpaths and landscaping elements rather than having to provide those within a widened street reserve. The carriageway will be 6m wide for its length
- A low speed pedestrian focussed street alignment (Shared Street) that connects from Bradford Street through to the north-south Boulevard within a 20m wide reserve. This street is specifically designed to create a shared space environment adjacent to the major development sites adjacent to the Primary School. The street design elements would focus on a lower speed environment with elements in the street reserve complimenting the landscaping proposals within the PSP
- A realignment and widening of the carriageway along Learoyd Street to 7m paving width with embayed parking on the western side of the reserve. The existing eastern kerb line of Learoyd Street would be retained as is. This allows Learoyd Street to be designated as a public street within a reserve area
- An Access Street connection to Central Avenue between the north-south Boulevard and Stancliffe Street intersections. This Access Street would provide for movements into and out of the lower density residential area of the Precinct. It would be set in a 19m reserve adjacent to Central Avenue, reducing in width to 15m. The carriageway would be typically 6m wide
- Two internal east-west Access Streets provide frontage for the lower density residential area of the Precinct and include the proposed new connection through to Stancliffe Street. These connections are set within reserves that vary from 10.5m to 14m. These streets will all be lower speed frontage streets that will include landscaping elements and embayed on-street parking. Carriageways would be between 5.5m and 6m wide, with narrow points adjacent to access way corridors to provide a more comfortable and attractive environment for pedestrians
- Three internal laneways for the lower density residential area that will link Access Street and are set in 6m wide reserves.

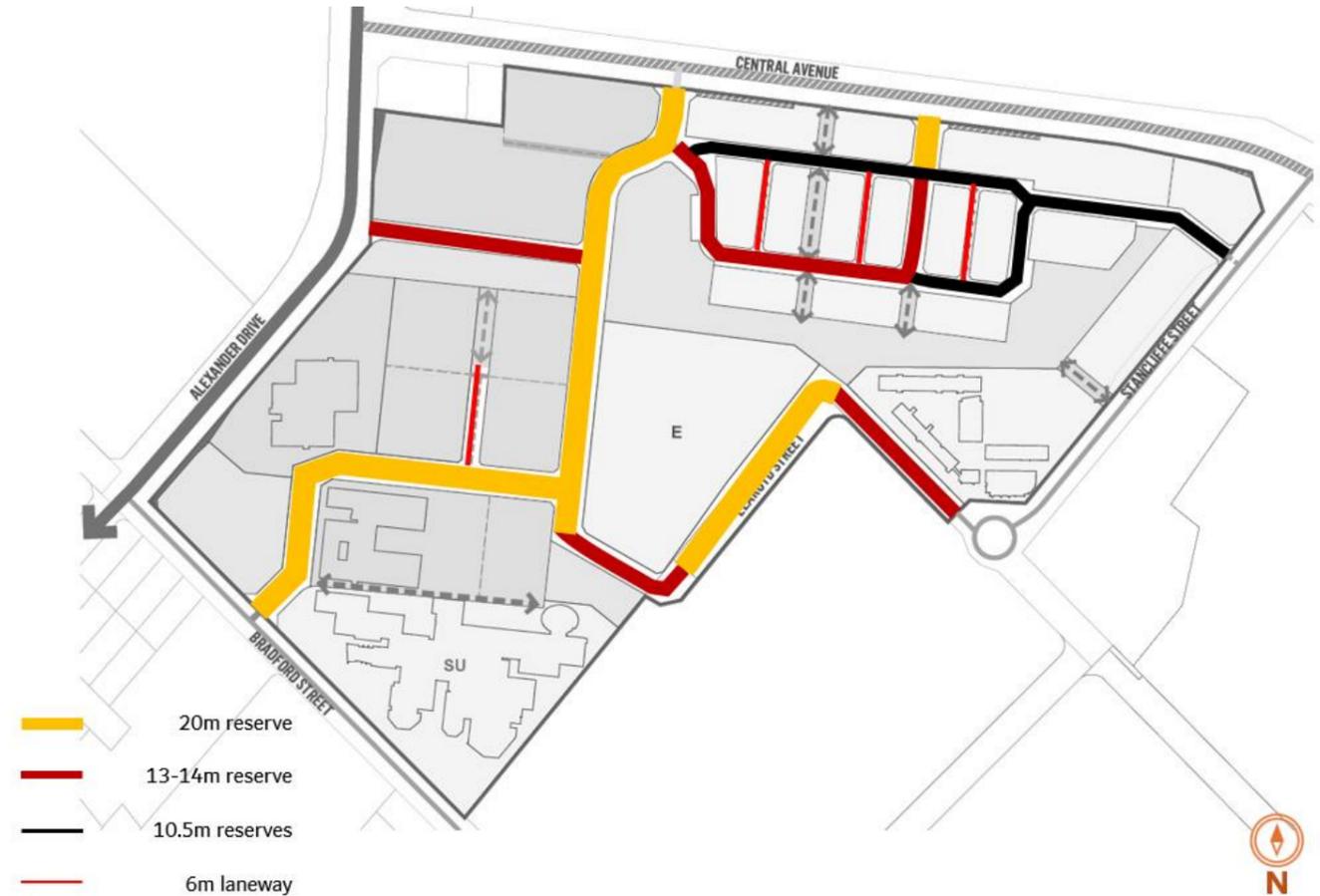


Figure 61 Internal street network widths considered within PSP (source: Urbis)

For the purposes of the PSP, a number of cross-sections are shown to provide some detail around the street treatments being examined. The cross sections set out in the PSP assessment are:

- 20m wide Boulevard (Neighbourhood Connector) (Figure 62)
- 20m wide Shared Street (Figure 63)
- 13-14m wide Access Street (Figure 64)
- 10.5m wide Mews Road (Figure 65)
- 6m wide Laneway (Figure 66).

The detailed design of the street network, including the finalised locations of embayments, bus stops and shared space area, would be refined through the detailed design process. The cross sections provided for the street network provide an indication of the design intent for the street network.

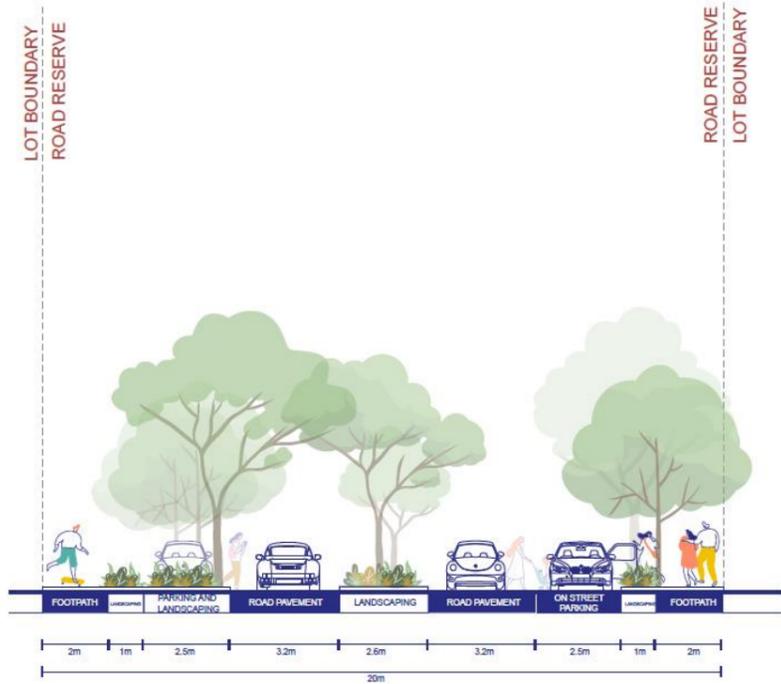


Figure 62 20m wide Boulevard (Neighbourhood Connector) (source: Urbis)

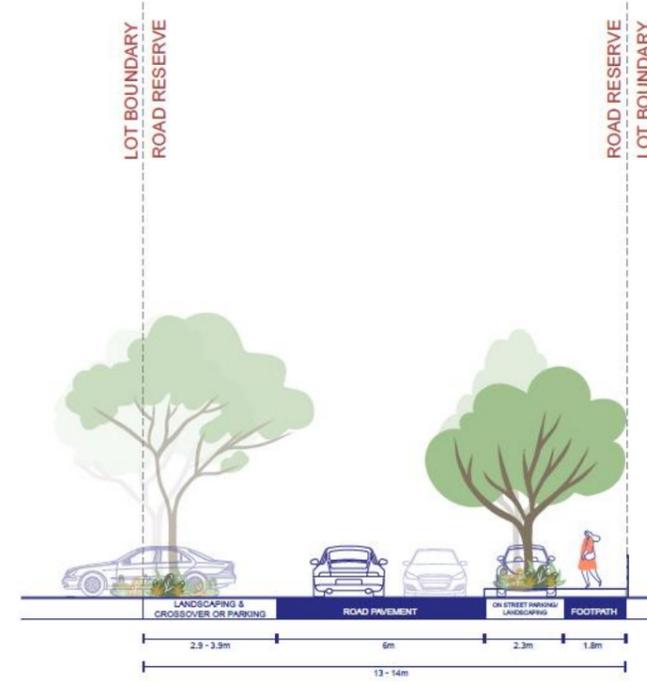


Figure 64 13m-14m wide Access Street (source: Urbis)

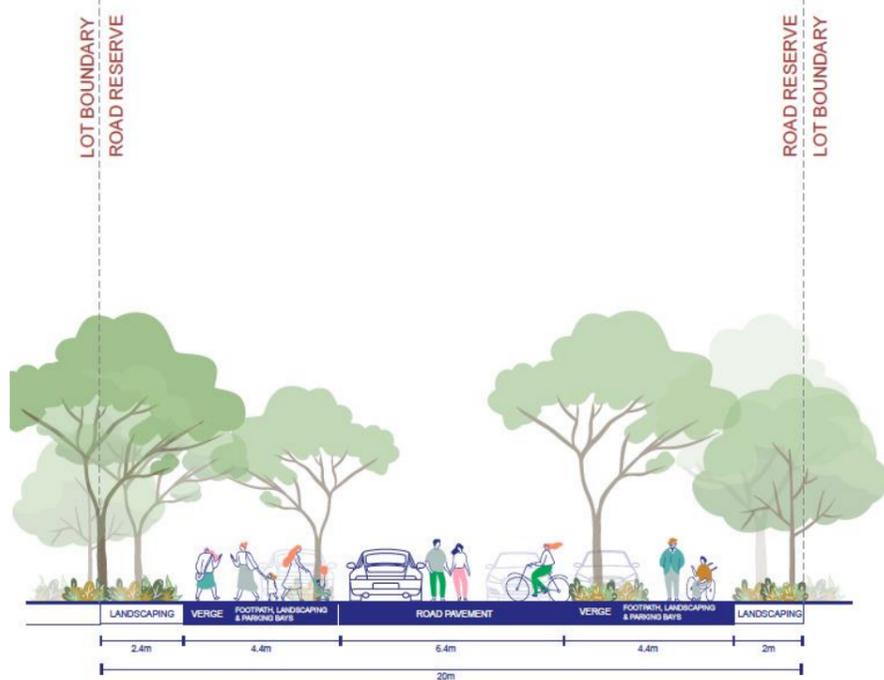


Figure 63 20m wide Shared Street (source: Urbis)

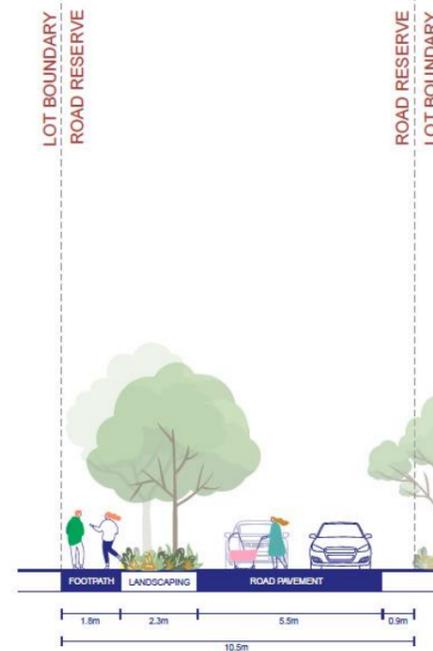


Figure 65 10.5m Mews Road (source: Urbis)



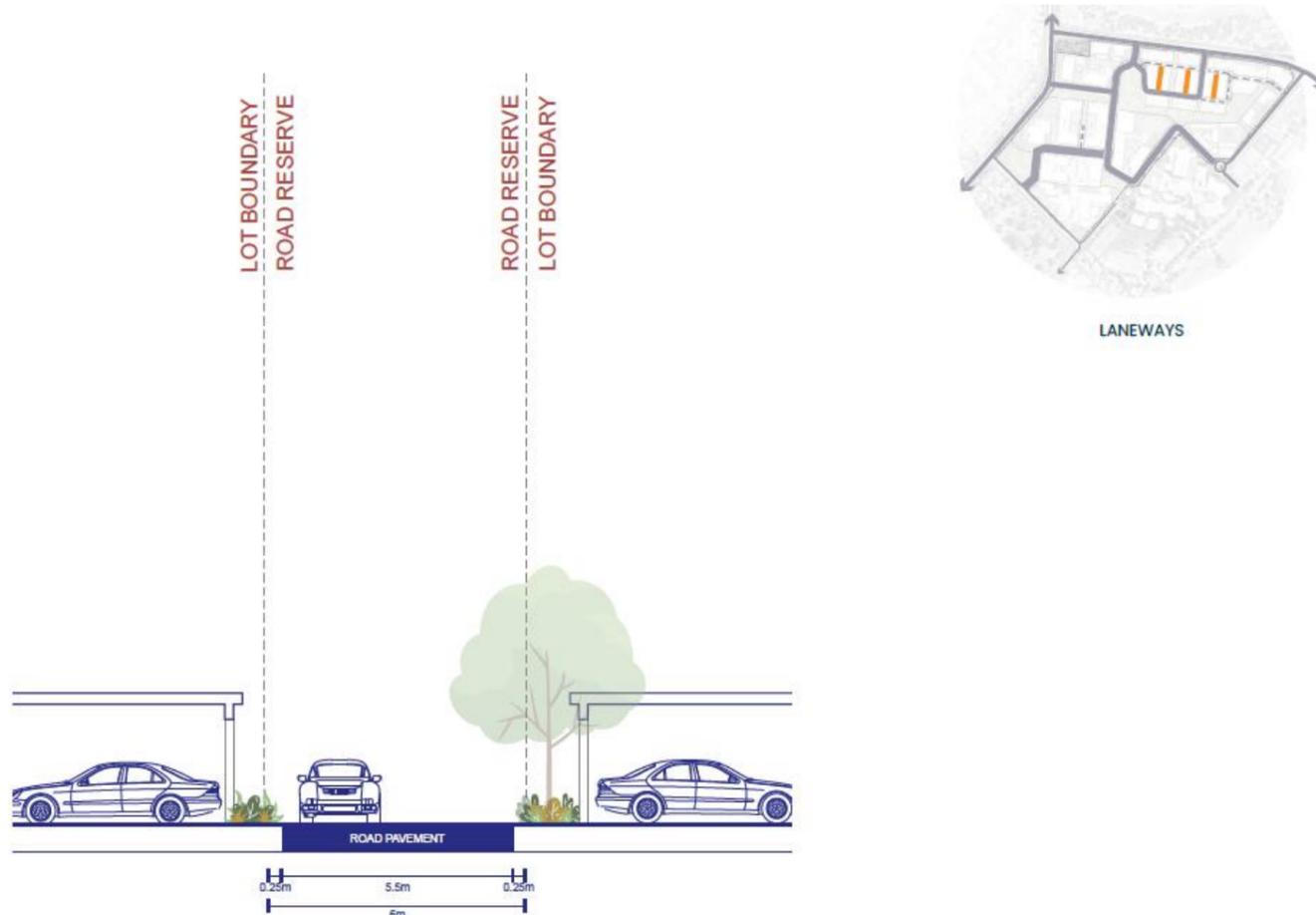


Figure 66 6m wide Laneway (source: Urbis)

As set out in Figure 52, there are seven internal intersections for the street network which would be designed for the ECU Mt Lawley PSP. There are also six intersections for internal laneways which would be an uncontrolled give-way intersection.

All of the internal intersections are proposed to be give-way sign posted intersections, with the priority falling to the north-south Boulevard (Neighbourhood Connector), the Access Street connecting through to Central Avenue and the southern east-west Access Street within the lower density residential precinct. This is illustrated in Figure 67.

For the northern most Access Street that crosses east-west, the eastern arm of the intersection is not connected allowing for filtered permeability for pedestrians and cyclists whilst removing a four-way intersection at this location. A left out configuration could be included from that arm of the intersection to cater for service movements.

The retention of trees within the ECU Mt Lawley PSP area will be a key feature of the streetscape as the area evolves. The Landscape Master Plan developed for the PSP establishes the types of streets that will be considered as well as the location of different tree species that will be utilised to provide shade cover. The overall approach to the Landscape Master Plan for the ECU Mt Lawley PSP area, which embeds the movement network proposed, is shown in Figure 68.



Figure 67 Intersection control configuration proposed for street network (source: Urbis)



Figure 68 ECU Mt Lawley PSP - Landscape Master Plan (source: HASSELL)

### 4.3.1 Movement and Place

Discussions with DTMI throughout the engagement process for the ECU Mt Lawley PSP indicated that there is a Movement and Place framework being developed for Western Australia. Given that framework is still in evolution, the proposed internal network has been informed through examination of other similar guidance that exists.

The general concept of a Movement and Place framework is consistent in that it allows there to be definition of the interrelationship between the transport elements of a street or road alongside the urban form and place values. This type of framework seeks to capture a more holistic definition of a street or road rather than being limited to traffic engineering typologies.

The Auckland Transport (AT) “Roads and Streets Framework” released in 2020 was highlighted as an appropriate framework to understand potential outcomes for the street and road network at ECU Mt Lawley PSP. Those guidelines define place and movement functions as:

- *“Place function: Represents the extent to which a road or street (and its adjacent land use) is a destination in its own right, i.e. what catchment does the area serve, does it attract many people and are people prepared to travel to reach it?”*
- *“Movement function: Represents a road or street’s level of strategic importance within the transport network for any mode in terms of moving people, goods and/or services efficiently between locations and accessing key destinations”.*

Within the Framework, each road or street is assigned a measurement for Place and Movement based on a series of criteria for each. The broad definitions of the functions for each category are shown in Figure 69.

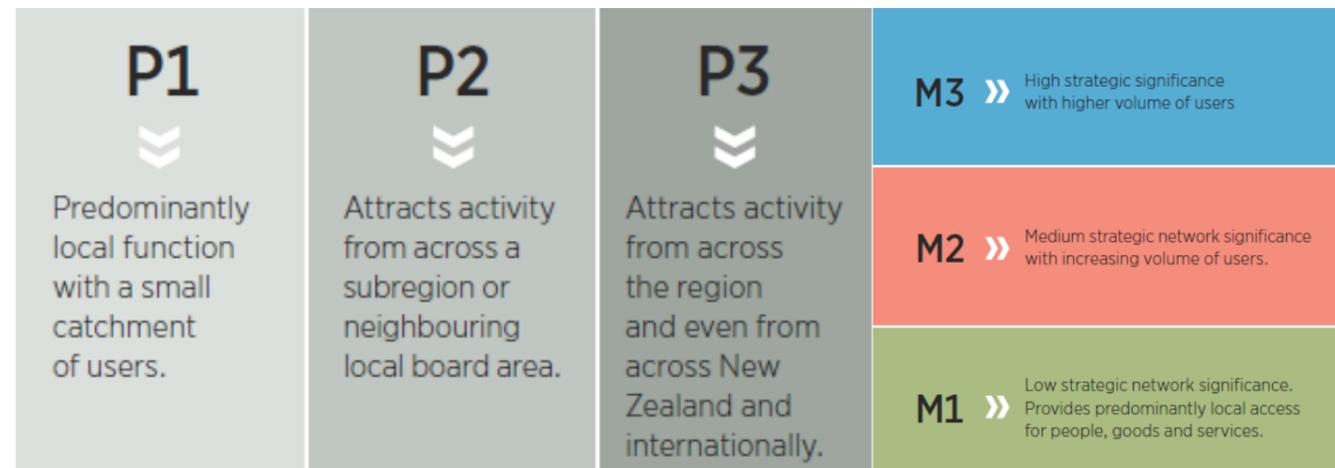


Figure 69 Definitions - Place and Movement from “Roads and Streets Framework” (source: AT)

Examples of Place definition provided are:

*“A street with high end retail, bars and restaurants along it may attract people from a wider catchment (i.e. across the city) and thus have a higher strategic significance for Place. However, a residential street with no other uses will attract people from a much smaller catchment and so will have a lower strategic significance for Place.*

*A new residential development with expensive paving materials and bespoke street furniture may look as though it should have a high Place significance due to the materials used, however the catchment is local and so it has a local (P1) Place significance. A town*

*square surrounded by public buildings without any public seating and with inadequate street lighting still has a high Place significance even though its environment may not reflect this”.*

An example of Movement definition provided is:

*“A road or street which is part of the Frequent Transit Network for public transport will have a higher Movement significance than a road or street with a local or less frequent public transport service as it has a role to move more people than a road or street with a local or less frequent public transport service”.*

The respective classifications are then combined, with the values given one of nine typologies, as shown in Figure 70.

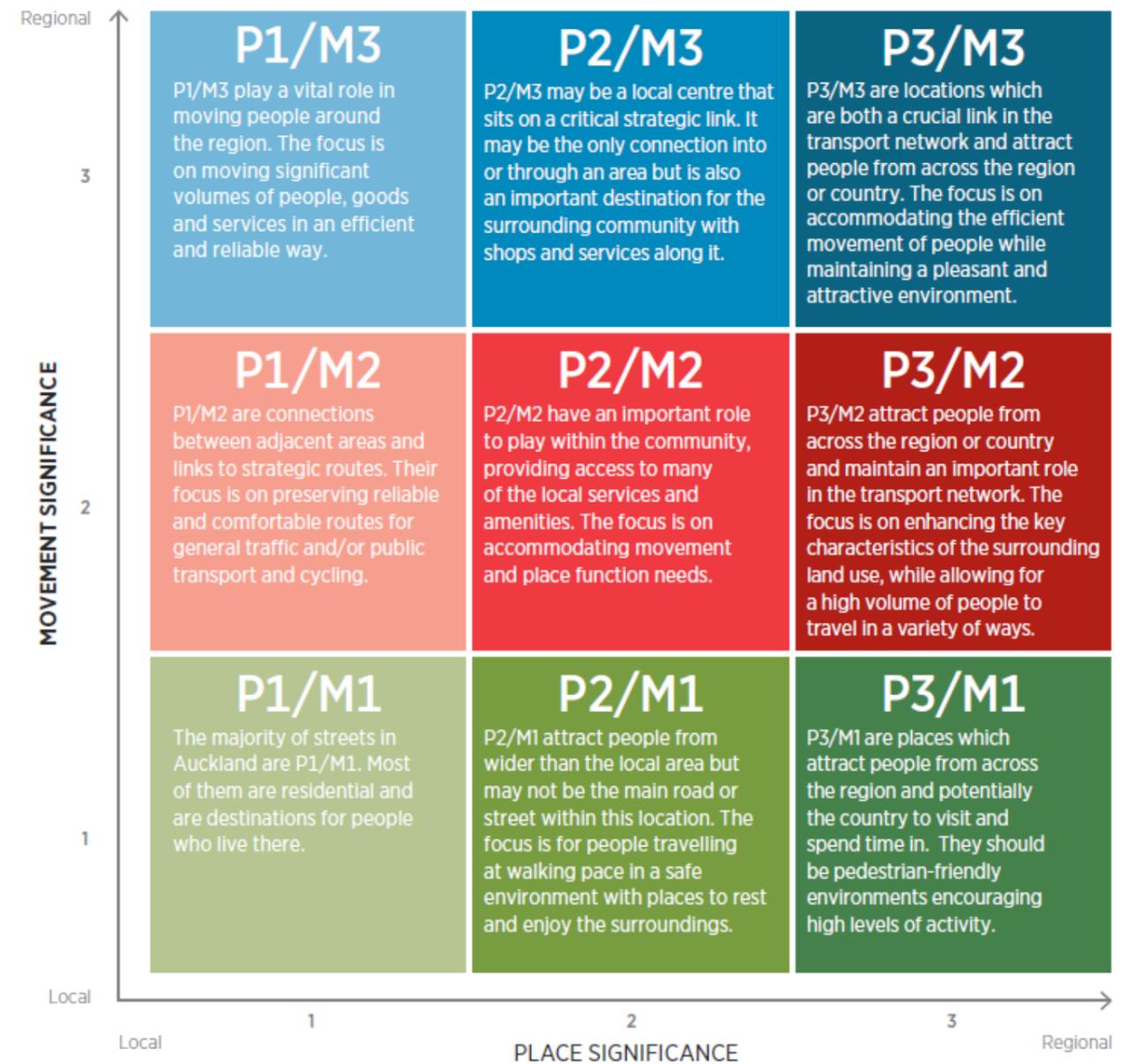


Figure 70 Auckland Roads and Streets Framework typology matrix (source: AT)

To understand the place and movement function, the Auckland framework examines a significant range of inputs – many of which would be consistent with available information in Western Australia, albeit with different descriptions or level of importance. The type of inputs typically examined within that framework are shown in Figure 71.

PLACE information*	MOVEMENT information*
<ul style="list-style-type: none"> <li>• How far people travel to visit the place (how big is the catchment)</li> <li>• Existing land use</li> <li>• Density / scale of land use</li> <li>• The variety of different activities occurring</li> <li>• Frontage – active / passive</li> <li>• Access requirements</li> <li>• Kerbside uses (e.g. parking, loading, taxis, cycle parking, pick up &amp; drop off)</li> <li>• Trip generators</li> <li>• Unitary Plan Zoning</li> <li>• Town Centre Plans</li> <li>• Local Area Plans</li> <li>• Local Board Plans</li> <li>• Other Local Board publications</li> <li>• Auckland Plan</li> <li>• Auckland Unitary Plan</li> <li>• Panuku Development Neighbourhoods</li> <li>• Structure / Subdivision Plans</li> <li>• Planned developments</li> <li>• Regional Land Transport Plan projects</li> <li>• Population numbers and diversity</li> <li>• Places of significance to Mana Whenua and Māori i.e. Cultural Heritage sites, Marae, Māori learning institutes</li> <li>• New Zealand Transport Agency ‘Mega Maps’</li> </ul>	<ul style="list-style-type: none"> <li>• Existing and future strategic public transport network</li> <li>• Existing and future strategic general traffic network</li> <li>• Existing and future strategic freight network</li> <li>• Existing and future strategic walking network</li> <li>• Existing and future strategic cycle network</li> <li>• HGV counts</li> <li>• Truck volumes/Heavy %</li> <li>• Motorcycle counts</li> <li>• Cycle counts</li> <li>• Scooter counts</li> <li>• Traffic counts, including vehicle occupancy</li> <li>• Existing infrastructure (cycle lanes, bus lanes, transit lanes)</li> <li>• Pedestrian network and connections</li> <li>• Kiwi-RAP, Crash Analysis System, Safe and appropriate speeds, and other safety data</li> <li>• Future Strategic Public Transport Network</li> <li>• Forecasts on future travel patterns (all modes)</li> <li>• Regional Land Transport Plan projects</li> </ul>

Figure 71 Typical place and movement information for the Auckland Roads and Street Framework (source: AT)

Using similar typology outcomes, the internal street network within the ECU Mt Lawley PSP area was examined to understand potential application of a Movement and Place Framework such as the one applied in Auckland for its future use.

For most internal streets, the catchment area would be defined as a local catchment, except for the north-south street within the development that will have frontage for the Primary School and also attract trips from further away than a local catchment to the mixed use developments and adaptive re-use of the WAAPA buildings.

The strategic importance of the network would still only be of a low strategic network significance as none of the streets or roads in the area as part of the ECU Mt Lawley PSP have been designed to accommodate significant through movements for vehicle traffic and the routing for bus routes, although not defined, are not high frequency routes. There are no strategic cycling connections through the site and all pedestrian or active transport connections are designed to accommodate local movements.

Given the proposed outcomes in the ECU Mt Lawley PSP area – the majority of the local connections would be classified as a P1 / M1 under the Auckland framework, with the north-south connection potentially listed as a P2 / M1. Once the typology is determined, modal priority can then be applied to each street or road which sets out how design response should be applied to each mode. Examples of this are shown in Figure 72.



Figure 72 Examples of how modal priority is assigned to each road or street (source: AT)

Application of a Movement and Place Framework provides an alternative form of definition approach compared to existing engineering based classifications and hierarchies. It has evolved given that places and streets are more complex than a numeric framework and also recognises that communities place values on the function and form of places. Should the Western Australian framework progress, this information could inform any future analysis.

#### 4.4 Proposed Speed Zone

The PSP is introducing a new street network within an urban setting that will incorporate a range of design elements to ensure that there is a low speed network which will improve safety for vulnerable street users and also be cognisant of the urban form and land uses which will make up the place. Accordingly, it is proposed that the entire street network be subject to 40km/h posted speed limit throughout.

The target speed for local streets is established within the Movement and Place framework from the Main Roads WA Speed Zoning: Policy and Application Guidelines 2022, with the matrix for Movement and Place recommendations for target speeds shown in Figure 73. The PSP will have a network of lower order streets, with the Boulevard (Neighbourhood Connector) being adjacent to a school site (which would subject to a 40km/h school speed zone in any instance) and a Shared Space area being incorporated.

Those treatments would see a large portion of the network being designed to be 40km/h or less, with a school speed zone also likely extending along Learoyd Street between the Primary School and MLSHS, as well as connecting in to the existing school speed zone on Stancliffe Street that is shown in Figure 8.

On this basis, and to reinforce the Movement and Place framework considerations, a posted speed limit throughout the area of 40km/h is recommended.

**Table 2: Typical Target Speeds Range for Road Types**

Movement Function	Place Value	Typical Road Application	Key Features	Indicative Target Speed
<b>Access and Local Distributor Roadways</b>				
Access	Highest	Pedestrian mall, extremely narrow urban thoroughfares, Shared Zones	Confined area where movement of pedestrians and cyclists has priority over motor vehicles. Generally the volume of traffic is very low.	10
Access	Highest (within destination)	Shared Spaces/ Pedestrian Priority Areas	Areas where pedestrians and cyclists intermingle with motor vehicles.	20
Access	Highest to High	Recreational Precincts, Safe Active Streets	Confined areas where pedestrians and cyclists intermingle with motor vehicles.	30
Access and Local Distributors	Highest	Town Centre / Commercial streets or areas	Areas with high pedestrian activity or very strong existing place functions including extensive on-street activity. Must have traffic calming infrastructure to reinforce a low speed environment. Pedestrians and vehicles separated.	30-50
Access and Local Distributors	High	Neighbourhood Streets	Narrow streets with significant residential development, on street parking, adjacent neighbourhood parks and playgrounds, etc.	40-50

Figure 73 Main Roads WA - Typical Speed Range (source Main Roads WA)

#### 4.5 Proposed Pedestrian / Cyclist Connections

The creation of an internal street network, and focus on landscaped open space corridors, has provided for the provision of an extensive path network. This network will be a high quality landscaped environment that will cater for internal trips as well as retain and enhance connections external to the site and through the site.

The high level network is set out in Figure 74, with more detailed plans and information provided within the Landscape Master Plan that accompanies the ECU Mt Lawley PSP. Streets in the PSP area have generally been designed to include footpaths on both sides or have open space corridors running alongside the street network that then allows for the integration of the path network and landscaping elements. This is particularly prevalent through the east-west corridor that runs from Alexander Drive through to Stancliffe Street.

As noted in the previous section, the redevelopment will include a shared space through the south-western corner of the site adjacent to the old WAAPA buildings and Library. This area will be designed to induce slow speeds for vehicles moving through the area and accommodate a plaza adjacent to the corner of Alexander Drive and Bradford Street that will enhance the existing treatments and mature trees.

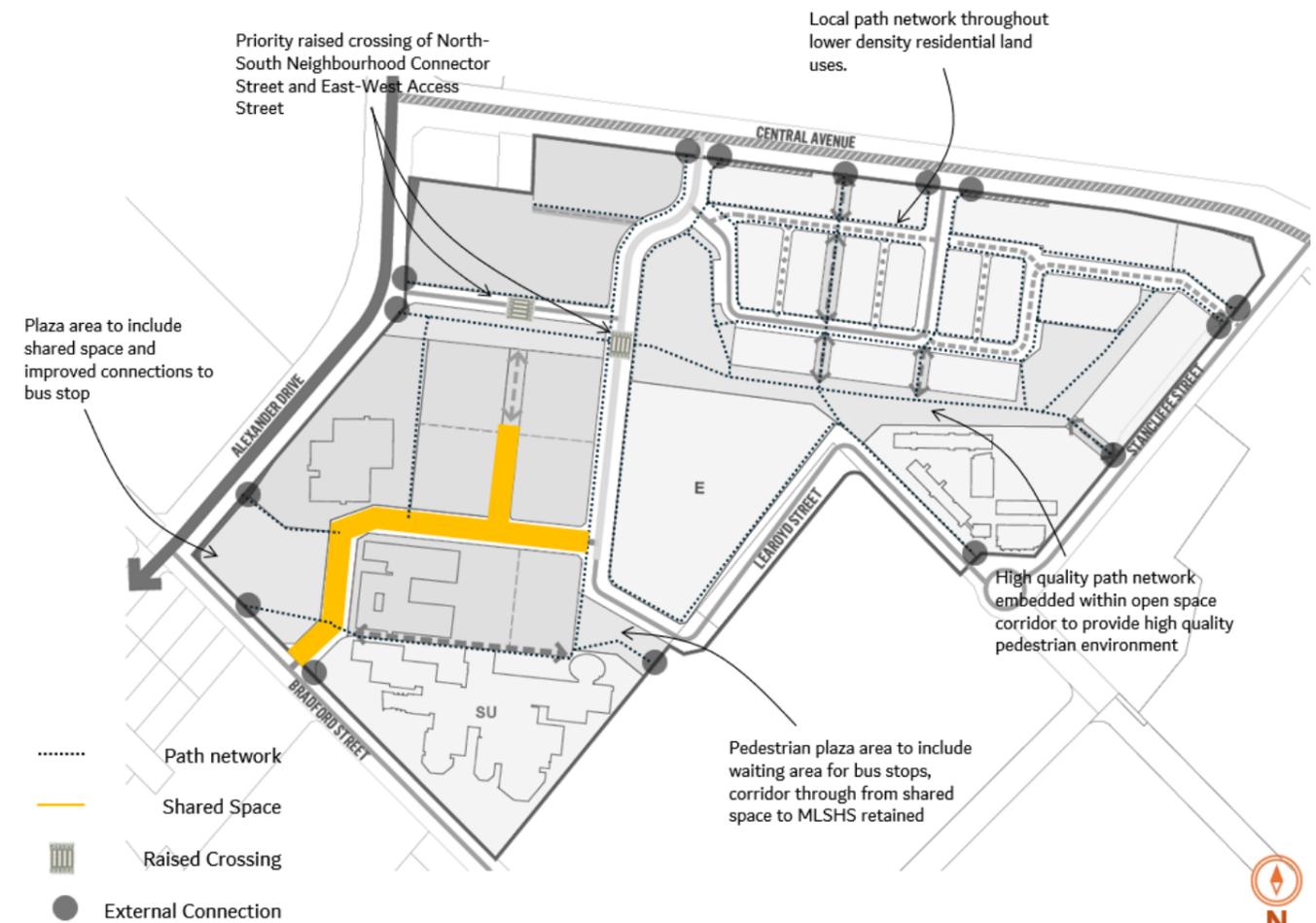


Figure 74 Proposed pedestrian network considered between PSP and external network (source: Urbis)

The features of the path network proposed for the PSP will be:

- Where practical, paths on both sides of the street network, with ultimate configuration and width depending on the location of the paths – for instance, paths adjacent to the Primary School site on the north-south Boulevard (Neighbourhood

Connector) will be kerb to lot boundary with some landscaping elements to ensure there is enough space to cater for movement of students and carers into and out of the Primary School

- Extensive east-west path connection linking Alexander Drive with Stancliffe Street
- 15 external path network connection points around the site providing excellent permeability
- Provision of a raised pedestrian priority crossing (Wombat Crossing) of the north-south Boulevard (Neighbourhood Connector) meaning that there will be a pedestrian priority link through the site and adjacent to the Primary School. An example of an existing crossing of this nature in front of a Primary School is shown in Figure 75 at Maylands Peninsula Primary School
- Provision of a Wombat Crossing on the east-west Access Street linking Alexander Drive and the north-south Boulevard to provide priority for crossing into the open space area and mews to the south / Primary School site
- Use of the internal path network by active transport modes as well as pedestrians
- Shared space area in the south-western corner of the site as well as an internal mews area between two development sites
- Retention of a through link between WAAPA buildings and new development site that will link the MLSHS and plaza area with Bradford Street and provide a through connection for students who use the existing bus stops on Alexander Drive
- Creation of a plaza to the south of the Primary School (School Green) that will expand the area for pick up and drop off waiting for MLSHS as well as create a space for waiting for the adjacent bus stops. This configuration is set out in Figure 76 with the features in the area shown in cross section format in Figure 77
- Construction of a footpath along the southern kerb line of Central Avenue.



Figure 76 School Green south of Primary School site (source: HASSELL)



Figure 75 Example of Wombat crossing at Primary School - Maylands Peninsula PS (source: Flyt)

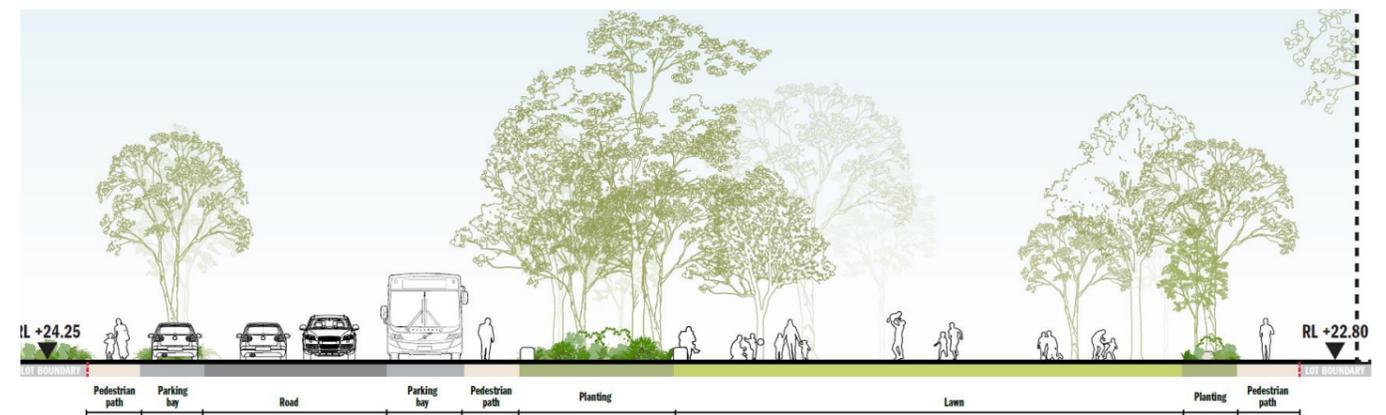


Figure 77 School Green feature cross section (source: HASSELL)

Specific to cycling connectivity, there are linkages with the proposed Long Term Cycle Network (LTCN) around the site. The site itself is connected on four sides to strategic routes of differing levels within the LTCN, as shown in Figure 78. These connections are:

- To the west, there are direct connections into the Primary Route along Alexander Drive through internal east-west linkages via both Bradford Street (crossing at traffic signals) and from the new east-west route that links through the site to Stancliffe Street
- To the north and the Local Route along Central Avenue via connections into existing crossover points along Central Avenue, including pram ramps at Stancliffe Street. There is no path network connection of Central Avenue between Alexander Drive and Stancliffe Street at present however this would be provided as part of the project
- To the east via Stancliffe Street and local links in Hamer Park that provide access to the Secondary Route that runs along Woodsome Street to North Street
- To the south via the link described above or via Learoyd Street to the Primary or Secondary Routes that meet at the intersection of Ferrar Street and Learoyd Street.

During engagement with the DTMI as part of the planning process for the ECU Mt Lawley PSP project, it was noted that they were undertaking a review of the alignment of the east-west Primary Route alignment through the area with the CoS. The design of the local path network within the PSP, and existence of localised connections external to the site, would ensure that the routes to the south could be accessed even if DTMI and CoS were to change the route. Notwithstanding this, the provision of Primary Routes that could serve the ECU Mt Lawley PSP area would be highly encouraged to support active transport modes and connections.

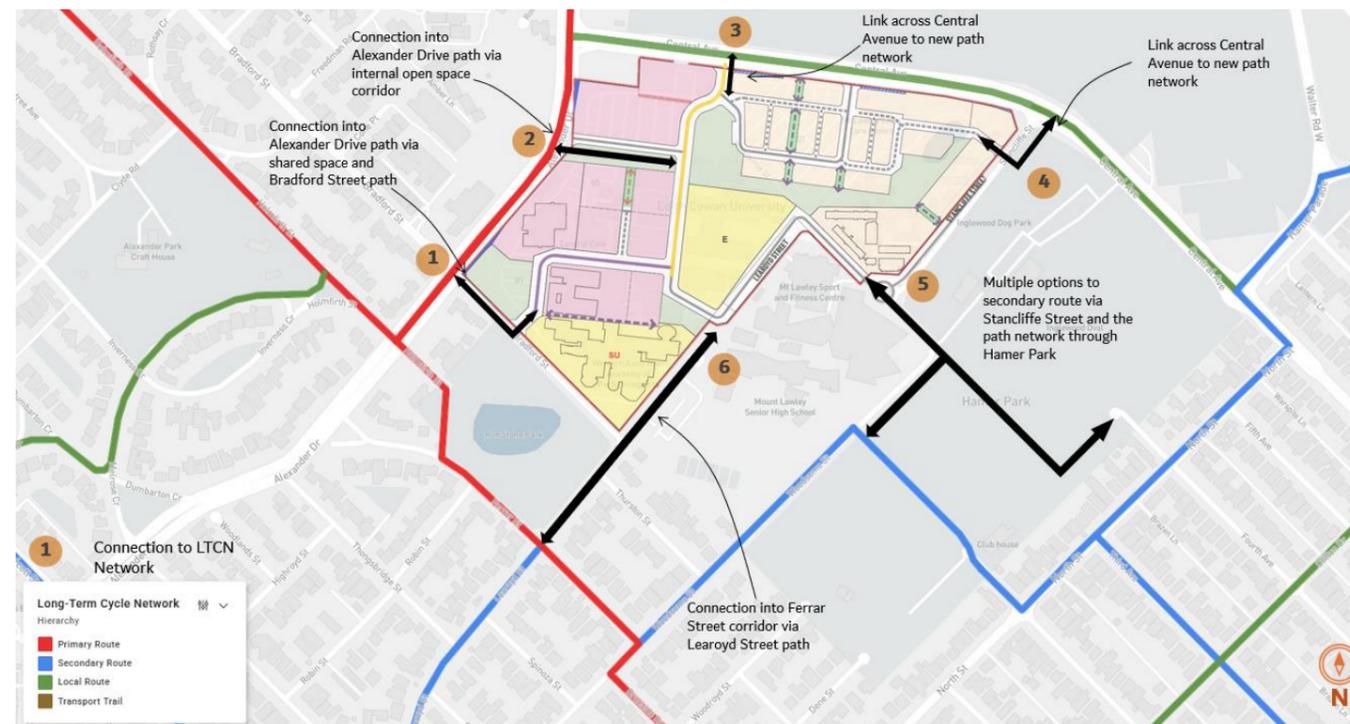


Figure 78 Proposed cyclist network connections considered within PSP (source: Planwisely / Urbis)

In addition, it is noted that connections over Central Avenue are basic and would not be the form of infrastructure that would encourage or support growth of active transport trips. This is exceptionally important for the development of the proposed Primary School site. Current crossing points at the Hamer Street intersection are inappropriate for use by Primary School aged students given the observed traffic flows and speeds through the intersection at peak periods.

The standard crossing point near Stancliffe Street requires a staged crossing and requires gaps in traffic movements when crossing. This is not an appropriate location for crossing movements by vulnerable network users – specifically children of Primary School age. When planning for the Primary School progresses, formalised priority crossing of this section of Central Avenue should be provided as part of that development given the demands that would be created through that site.

To the west of the site across Alexander Drive, there is no permeability through the existing land uses there (aged persons housing and associated facilities) and limited opportunity to provide any form of mid-block crossing that would be utilised by either the residents and visitors to the PSP area or by existing users of the network. There are existing pedestrian phases at the intersections along Alexander Drive between Central Avenue and Bradford Street – these intersections are 340m apart.

As set out in this analysis, there are existing issues with pedestrian crossing movements related to the bus stops on Alexander Drive. The signalised intersection is 100m from the bus stop, so pedestrians making this crossing are not breaking any rules – rather it is a perceived safety issue. Examination of the crash stats (shown in Figure 43) show that there have not been recorded crashes between the intersections involving a pedestrian and drivers of vehicles over the past five years although there was a reported incident late in 2024 involving a student of MLSHS.

Given the Alexander Drive corridor is external to the ECU Mt Lawley PSP area, there are existing safe crossing points at the two signalised intersections and the behaviours evident could be managed / have not resulted in any underlying pattern of crash history, the PSP outcomes have focused on improving connectivity and making routes through the site attractive.

#### 4.6 Proposed Public Transport

The development of the ECU Mt Lawley PSP has included significant engagement with Transperth and the Public Transport Authority on a range of design issues and options. That engagement was a continuation of discussions held in developing the Master Plan and on responses to the engagement process for the project over the 18 months prior to the PSP being submitted.

Engagement was completed with the Transperth teams associated with both regular / school bus service provision and the team associated with examination of higher capacity services along the Alexander Drive corridor.

The priority for the PSP design response was to allow Transperth to either improve the existing provision of school services (safer and more attractive location for bus stands and retain the existing stand capacity) and also provide the ability for a local service to connect through the site and provide direct and attractive connections for patrons. For the purpose of the PSP development, existing services on Alexander Drive would remain as is, including bus stop locations and frequencies.

Within the site, the impacts associated with student numbers at MLSHS was raised during the engagement process. As a design response to provide a more attractive location, the ECU Mt Lawley PSP has incorporated a new bus stand area to the south of the Primary School that will provide for three buses and an increased area for passengers. This area, which is located on the southern side of the carriageway, is an embayed bus stand area that would also be used for excursion buses associated with the Primary School site and replace the existing bus bay area on Stancliffe Street.

At present, school buses enter the area via Central Avenue into Stancliffe Street, turn around at the roundabout near the MLSHS and then exit again on to Central Avenue and head east. For the internal street network design, this same movement is provided for

in the PSP through the ability for school buses to enter the area at the same location at present then circulate to the bus stands and exit via the intersection of the north-south Boulevard (Neighbourhood Connector) on to Central Avenue.

This is shown in Figure 79. In addition to catering for school services, there was a significant level of support during community engagement on the ECU Mt Lawley Master Plan for new local bus services that could connect the area with the Midland / High Wycombe and Ellenbrook passenger rail lines at Maylands Station. At present a bus service does connect the area with Maylands Station – the 725 school bus service. To cater for this, the street network has been designed to accommodate bus movements as shown in Figure 79.

The indicative local through service would extend the existing 406 service from its Bradford Street terminus point through the PSP network and connect with Central Avenue at Stancliffe Street. Provision for bus stops has been shown indicatively within the PSP plan to be located near the Primary School in the shared space area and also on Stancliffe Street near the access way connection for pedestrians / adjacent to the higher density housing on the eastern side of the PSP area.

To accommodate regular running services, Transperth would examine a range of factors, however it is noted that the PSP street network would remove the existing internal turnaround for the 406 service off Bradford Street requiring some form of adjustment to that route no matter the outcome of the PSP.

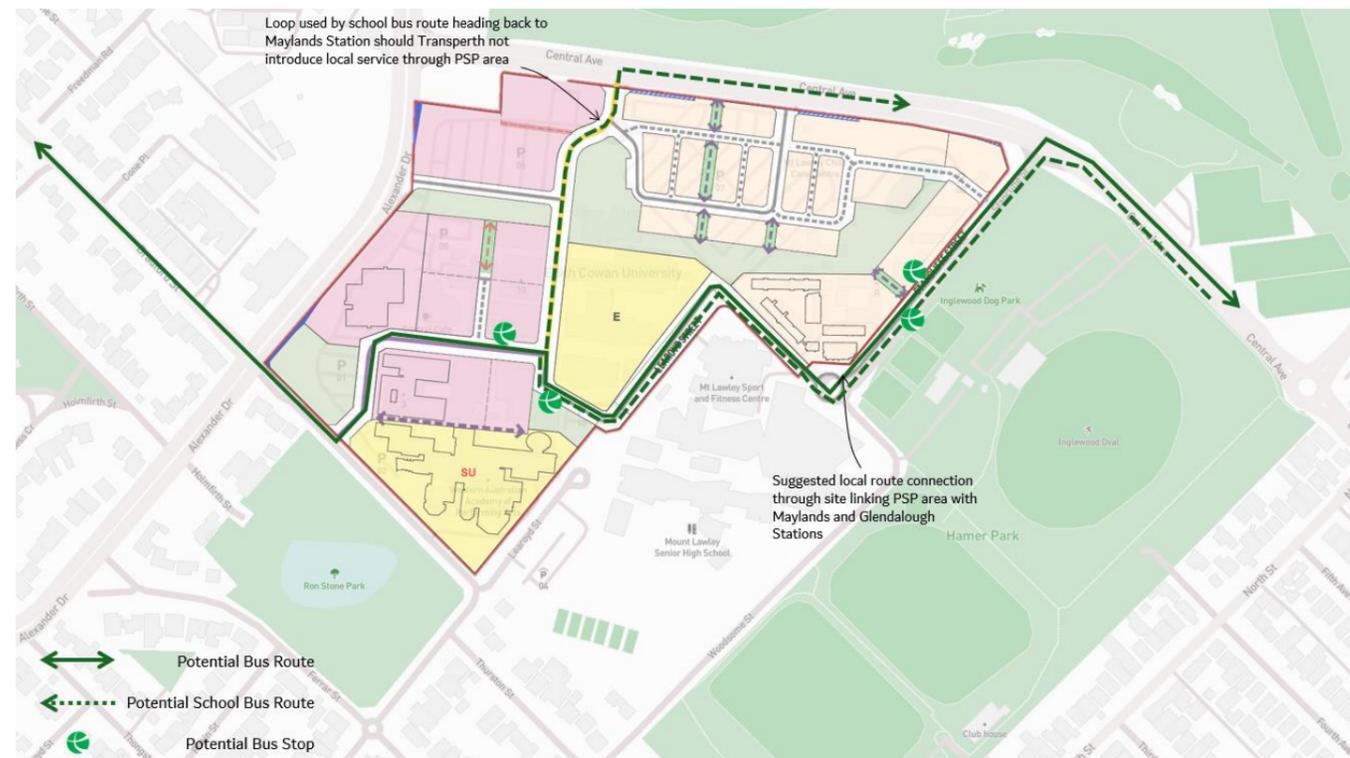


Figure 79 Public transport – recommended alignment in PSP (source: Planwisely / Urbis)

Transperth also noted that having regular timetabled services running on the route proposed within the PSP would see buses having to undertake a right hand turn from Stancliffe Street that would be across two lanes of traffic in both directions more consistently. Given the configuration of the intersection, that turn would have to be undertaken in one move which is a difficult proposition for a

bus – in particular an articulated bus. For school bus services, this presents less of an issue given the adherence to timetables may be less critical for operational purposes. It should be noted that this turn is completed at present.

For regular timetable services, should the 406 service be extended to Maylands Station, an alternative intersection configuration may have to be considered by the CoS in the future to provide for the ability for buses to make this turning movement safely. Whilst final service planning and route definition is ultimately progressed by Transperth, the development of the ECU Mt Lawley PSP provides an opportunity to ensure that bus services within the local street network can provide an attractive and equitable transport option for users of the system and ensure that buses can be a contributor to mode shift for trips into, out of and through the area.

For the existing school services, with the development of new stop locations and potential for additional local services, it is recommended that Transperth update the “Travelling to Mount Lawley Senior High School” guide (Figure 80) when practical.

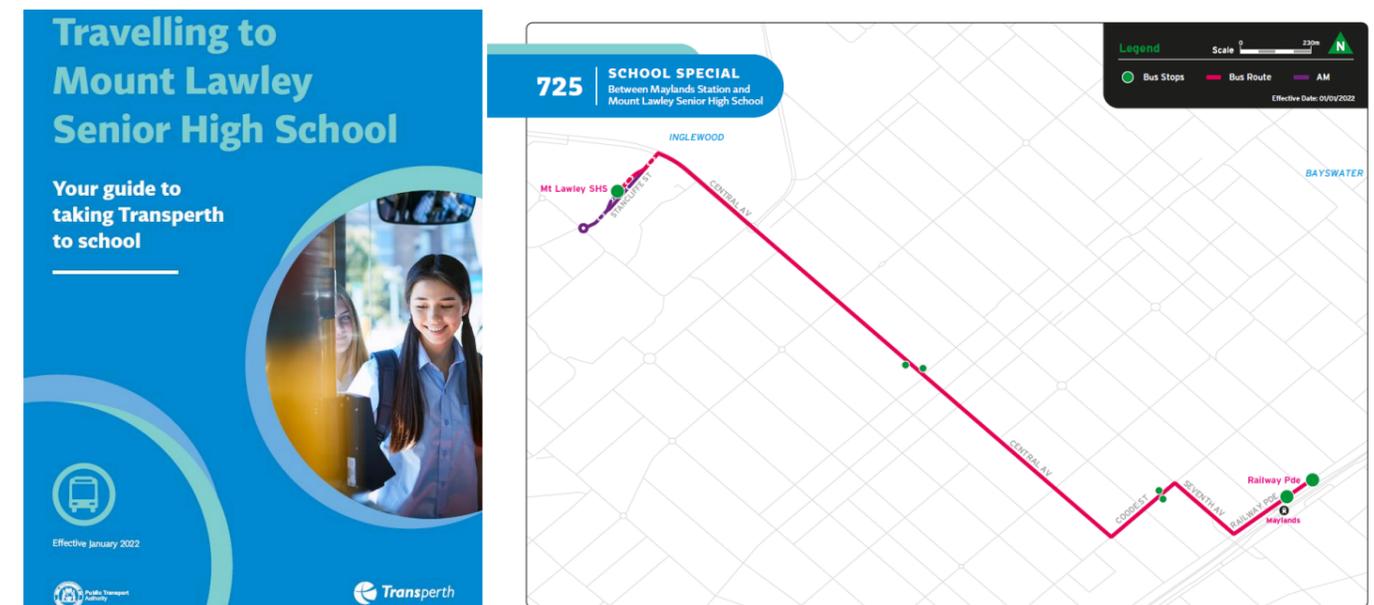


Figure 80 Existing MLSHS Transperth guide (source: Transperth)

#### 4.7 Proposed On-Street Parking

The level of on-street parking, and how that could be managed, was examined within the reporting for the ECU Mt Lawley Redevelopment Scheme Amendment. That initial analysis was:

*“For on-street parking, there will be limitations on the level of on-street parking simply through the areas available for provision of bays. There would also be limitations on where bays can and cannot be provided (e.g. design parameters set out within AS2890.1, AS2890.5 and AS2890.6) and the City of Stirling (CoS) would also have existing policies relating to the management of on-street bays that would require consideration.*

*For on-street parking provision, the recommended approach for more detailed design stages of the project would be:*

- *Design of areas of on-street parking be cognisant of relevant design parameters (Australian Standards and CoS)*

- No long term parking bays be provided in the area, with all on-street bays in the southern area (Streets A, B, C and Learoyd Street) being fee payable to reflect the existing conditions along Bradford Street. Maximum stay being 2P / 3P to remove potential for use by commuters as long term parking reduces supply for short term visits / use
- The provision of on-street bays set out a hierarchy of priority for users, most generally being ACROD bays, service / loading bays, bus stops and then short term fee payable parking (2P or 3P maximum)
- Area along the northern side of Bradford Street be considered for embayed on-street parking
- Relevant controls around the Primary School site be established to ensure management from the first day of operation of the school site. There should be an area set aside adjacent to the school site for drop off and pick up activity
- Existing parking area for students along Learoyd Street be converted to short-term bays.

The indicative provision of on-street bays along the internal network could range from a minimum provision of around 60-80 bays to a maximum of around 120-140 bays depending on the ultimate design approach and treatment of landscaping elements. Along Learoyd Street and Stancliffe Street there are nearly 30 existing on-street bays and some additional short stay spaces could be created on the northern section of Learoyd Street meaning there could be a further 10 bays in that area. Some of those existing bays should be converted to provide additional landscaping along that corridor which is presently sparse.

This would see indicative on-street parking provision within the amendment area being between 100 to 180 spaces. This would be subject to more detailed design and configuration of all street spaces within the area and on the surrounding network”.

Based on the layout of the PSP, the existing indicative volume of on-street bays that could be provided, which are a combination of embayments, street spaces and 90 degree bays, is approximately 150-160. This exact volume would be subject to detailed design and consideration of a range of inputs that would be refined. This includes location of access points into development site, landscaping considerations, civil design inputs and other factors such as drainage location and proximity to intersections.

The proposed approach to managing bays within the ECU Mt Lawley PSP area remains consistent with the position put forward in the scheme amendment reporting – all on-street bays in the area should be managed from the opening of the site so that there are no amenity impacts from user behaviours and no expectation that parking in the area would be unconstrained. Given the nature of the land uses present and those planned in the PSP, management of parking will be key to ensuring that residents and visitors to the site have access to parking when required and those bays are not taken up by long term parking.

The CoS has a Residential Parking Policy, however that only applies to dwellings which have fewer than two parking spaces or if occupants have more vehicles than parking spaces. Given the typology of the residential dwellings being considered in the PSP, many sites may not be eligible for on-street permit parking. The overall eligibility conditions for permits are:

- “You are a resident of the City of Stirling.
- You reside in an area determined by the City to be a high demand parking area where permits are required.
- The vehicle for which you intend to use the permit is not a commercial vehicle (with a tare weight greater than 2,500 kilograms), a trailer, truck, caravan, bus, bicycle or tractor.
- You have fewer than two parking spaces on the premises you occupy.
- You have more vehicles than parking spaces”.

The general layout of bays considered within PSP are set out in Figure 81. Bays are generally embayed on-street parking set along street frontages that do not have individual lot access. Three areas of 90 degree on-street parking are proposed, all within the medium density residential area in the north-eastern corner of the PSP area.



Figure 81 Planned on-street parking locations in PSP (source: Urbis)

It is proposed that bays within the PSP area would be 2P or 3P between 8.00am – 5.00pm on weekdays. This would retain amenity for residents with on-street bays available for visitor use out of general hours and on weekends.

Adjacent to the Primary School site, there are on-street parking management mechanisms available which allow for bays to be made available for use during key times. An example of this is seen adjacent to Trinity College in East Perth where bays are typically 3P between 9.00am and 2.00pm and then P5 between 8.00am and 9.00am and 2.00pm and 6.00pm. A similar approach is used in front of many schools in the CoS, with an example being Servite College where P10 restrictions are in place between 7.30am and 9.00am and 2.30pm and 4.00pm for bays in front of the school on Cape Street on school days.

Given management of all on-street bays is the objective in this PSP and there will be limited on-site parking for the Primary School, the approach used within the City of Perth where specific management conditions apply over all hours of a weekday is preferred and should be applied by the CoS on opening of the development. It is recommended that bays adjacent to direct frontage of the Primary School site be 2P and then P15 between 8.00am and 9.00am and 2.00pm and 4.00pm Monday – Friday.

Adjacent to the mixed use and commercial areas of the PSP, bays could be a mix of different time restrictions depending on location and land uses in the area. These could vary depending on type of bay as well. Short term bays could be installed where there are likely requirements for servicing and delivery, with areas further away from the Primary School site being 2P or 3P.

All marked bus bays and bus stops within the area would be subject to the controls set out under the Road Traffic Code.

The refinement of exact parking controls should be undertaken at the subdivision stage of the project with specific plans submitted to the CoS alongside a revision of the PMP.

## 4.8 Operational Policy 2.4

Operational Policy 2.4 (OP 2.4) is the WAPC requirements relating to the siting of new schools. As set out within OP2.4:

*“This policy identifies when to consider the provision of sites for new schools, sets criteria for the selection of sites, includes requirements for the design and location of school sites and outlines the development contribution methodology for government primary schools.*

*This policy should be used during the preparation of structure plans (district, local and precinct) and subdivisions where residential development is proposed, and development applications in close proximity to school sites”.*

Within OP2.4, there are specific elements related to the movement network. The response of the ECU Mt Lawley PSP to these elements are:

- *All new school sites must be designed with at least three road frontages. For a primary school, at least one frontage shall be a neighbourhood connector and one frontage shall be a lesser order road (minimum Access Road B):* The site is bounded on three sides by street frontage with the western side being a Boulevard (Neighbourhood Collector) in the PSP
- Streets *“must be designed with a view to balancing movement of people and vehicles; this will require provision of roads with appropriate carriageway width and traffic management devices”:* The network around the site has been specifically designed to cater for a balance of movement, with the street network catering for pick up and drop off movements, bus services associated with the adjacent MLSHS, a shared street designed for pedestrian priority, footpaths on both sides of street fronting the school site, development of a “School Green” to the south of the site and easy connection to the pedestrian path network through open space to the north of the school that also connects over the Boulevard with a raised pedestrian crossing
- *“The surrounding subdivision should be designed so that intersections and crossovers along the streets fronting the school sites are limited and coordinated to accommodate safe and convenient embayment parking within road reserves (preferably school side):* Intersections adjacent to the site have been minimised, with none on the eastern and southern sides. Embayed parking has been included in the cross section for the Boulevard which would be the main drop off and pick up area for vehicle movements associated with the school. Crossovers into development sites near the school are provided for at the rear of the sites to reduce vehicle and pedestrian conflicts
- *“on-street parking embayments should also be provided within the road reserve around the school site. Ideally student pick up and drop off areas will be on a separate street frontage to bus pick up/set down areas”:* as above, embayments have been provided for on the western and eastern sides of the street frontage. Bus Stops associated with the High School are to the south of the school site adjacent to the MLSHS

- *“School sites should prioritise pedestrian and bike movement networks, and where appropriate, pedestrian paths are to be provided on both sides of the roads that are in close proximity to school sites. These networks should lead as directly, conveniently and safely as possible to the school”:* The pedestrian network in the PSP area will be a key focus, with the development of an east-west linkage through open space that will provide direct access to the school site. This will link with the broader pedestrian and cycle network in Mt Lawley. Pedestrian paths are proposed on both sides of the Boulevard frontage of the school and there is a landscaped feature to the south of the school site which is a plaza area. A shared street to the west of the school site will be a high quality space that will accommodate pedestrian movements. Internally, there will be path network connections along streets that will allow easy access for local residents to get to and from the school through walking or active transport.

Based on the proposed layout of the PSP and the form of transport networks included, the site conforms to the requirements set out in OP2.4, with further refinements possible for the subdivision stages of the development.

## 5. VEHICLE NETWORK AND IMPACTS

### 5.1 Assessment

The ECU Mt Lawley PSP area is a standalone redevelopment precinct and therefore has not been subject to a wider area strategic transport modelling assessment within an Activity Centre. Given this, the approach to the modelling exercise has been to focus in on the more immediate internal street network configuration and the external road network implications to understand if the network proposed is fit for purpose when considering forecast year scenarios. The typical timeframe for consideration of a structure plan of this nature is ten years.

The format and approach to the PSP traffic modelling exercise is set out in the following section.

### 5.2 PSP Modelling Approach

The approach to understanding the base and forecast year implications for the internal street network and external road network connections was as follows:

- Collect relevant baseline information for the existing network using project details, resources including counts and signal timings from Main Roads WA, traffic counts of the area from 2023 and traffic counts and observations of the area in September 2025
- Undertake traffic generation exercise for land uses that are included in PSP to understand the forecast year inputs
- Develop intersection and network models within VISSIM microsimulation model for the PSP area for the base year (2025) and ten year timeframe using a full build scenario to report on conservative or “worst case” outcomes
- Reporting on the modelling outcomes.

The following sections cover these elements.

### 5.3 Model Inputs

Inputs to the modelling process for the ECU Mt Lawley PSP included elements such as:

- Geometry of existing network and intersection configuration based on Metromap measurements
- TrafficMap data from Main Roads WA for locations on the network on Alexander Drive, Central Avenue and Bradford Street, including survey information on turning movement counts at Bradford Street from 2025
- Traffic count data collected for the project area and external road network from September 2025 (set out in section ), including travel time surveys for validation and localised intersection turning movement counts
- Trip Generation survey information undertaken for a range of land uses in September 2025
- Street network design configuration from the ECU Mt Lawley Master Plan.

For traffic distribution patterns, the existing distribution patterns associated with the MLSHS were retained as is, with the distribution patterns for residential trips to employment being derived from Census patterns. Given residential dwelling locations is a key determinant in the distribution of work based vehicle trips, the information from the 2021 Census (shown in Figure 82) was

extracted and then applied to the internal to external trips for peak hours. Similarly, generalised routes for inbound trips for employment purposes within the zone were applied from patterns seen within the Mt Lawley SA1 areas as seen in Figure 83.

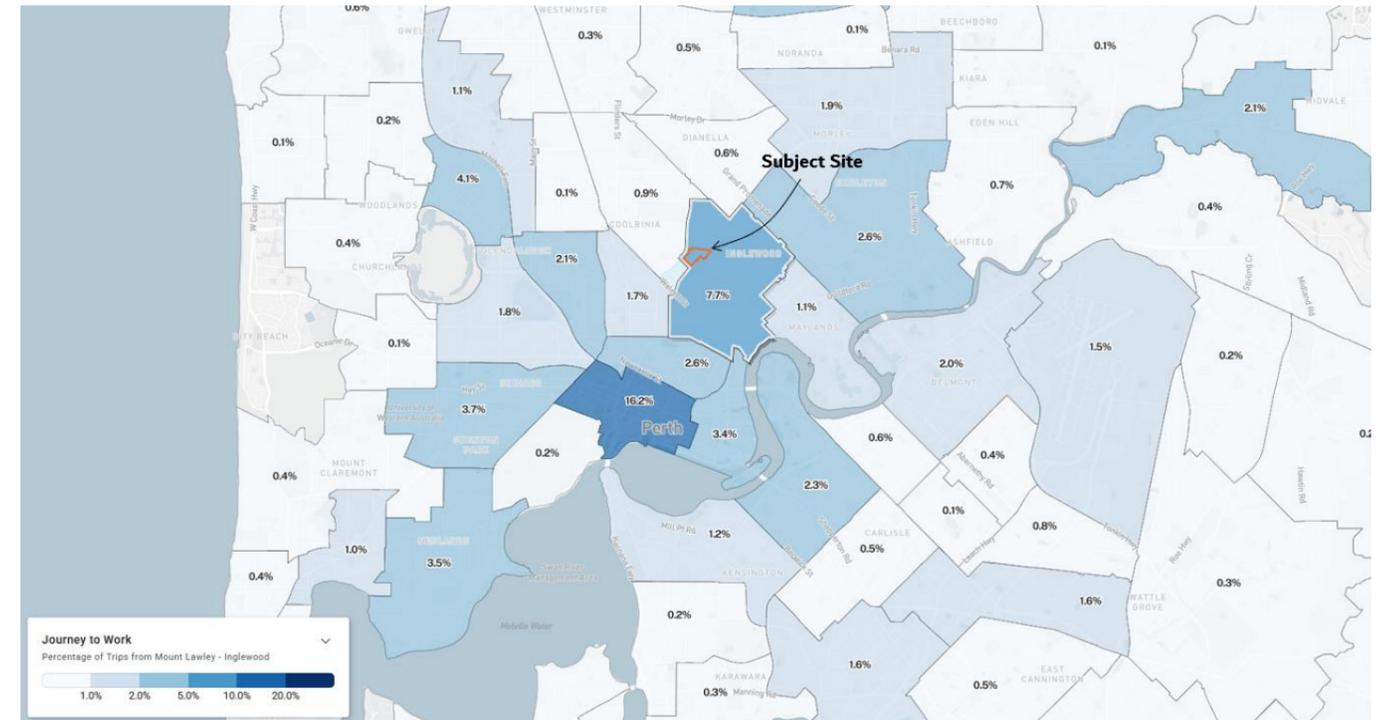


Figure 82 Journey to Work Census distribution patterns for Mt Lawley 2021 (source: Planwisely / ABS)

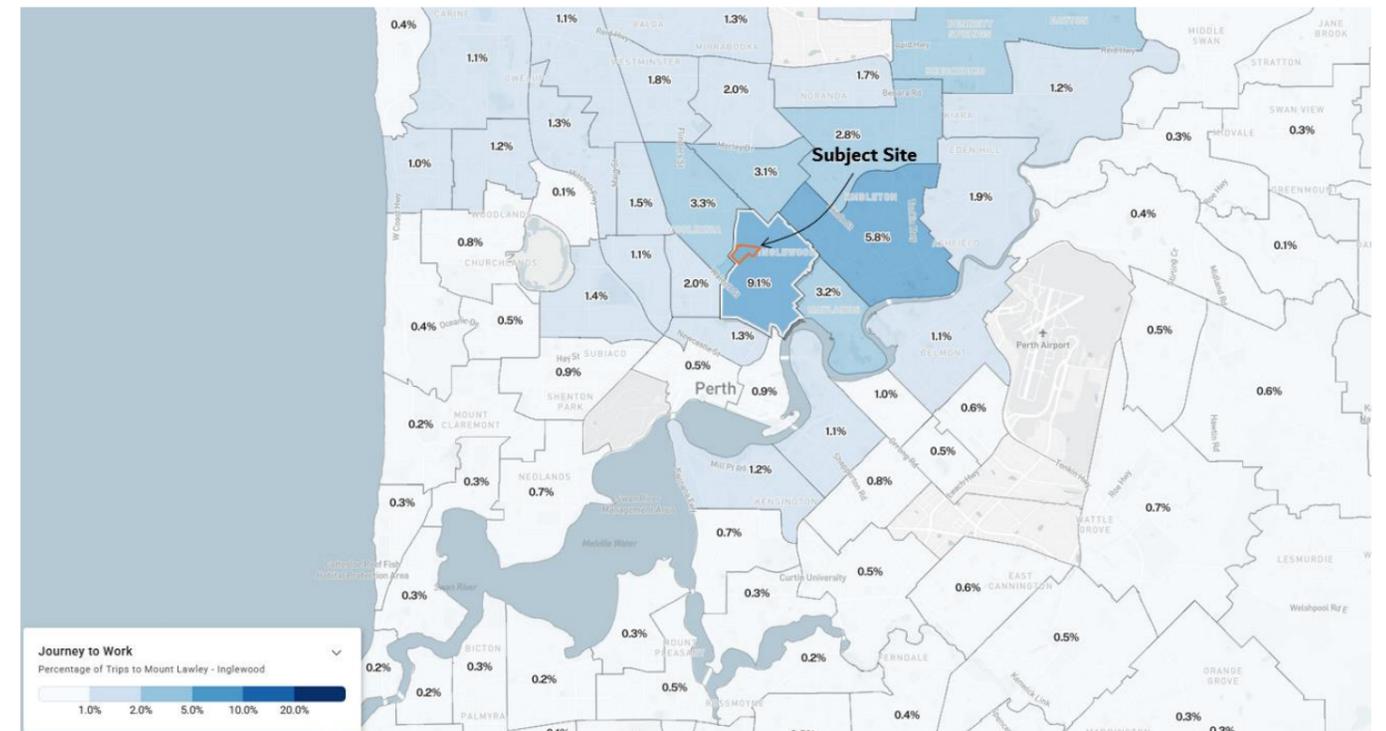


Figure 83 Journey to Work Census distribution patterns for inbound trips to Mt Lawley 2021 (source: Planwisely / ABS)

## 5.4 Model Periods and Scenarios

Given the nature of the land uses in the area and adjacent to the PSP boundary, base and forecast year scenarios were modelled using the following peaks:

- Typical AM peak hour (covering commuting peak as well as peak associated with drop off activity at MLSHS and the future Primary School) – 7.45am to 8.45am
- School PM peak hour (for pick up activity) – 2.45pm to 3.45pm
- Standard PM peak hour (for commuting based trips) – 4.45pm and 5.45pm.

For the base network, data from traffic counts and observations were utilised for the peak hours, with the forecast peak hours covering existing volumes (removing the traffic associated with ECU Mt Lawley) combined with background growth and traffic generation of the land uses on site.

For the forecast year scenario, the PSP will likely evolve over a period of years however the TIA establishes an assessment that covers a ten year period.

The scenarios modelled to provide an understanding of the accumulated impacts of development are:

- An opening year scenario in 2028 where the street network is opened, but there are no development sites generating traffic in the area. For the purposes of this assessment, this has also included traffic generation assumptions of the student accommodation on the Stancliffe Street and activation of the WAAPA facilities by MLSHS. This includes the use of the WAAPA buildings by MLSHS, where the student intake numbers (and therefore traffic generation) would not vary significantly from 2025. Traffic associated with the car parking areas at WAAPA were retained, as were demands related to the decked parking structure off Learoyd Street. The location of land uses in situ for the opening year scenario modelled is shown in Figure 84.
- An indicative full build scenario for 2038 where the site is completely developed (this is likely unrealistic to see full build out of the area within a compressed timeframe given existing typical delivery outcomes in redevelopment areas in Perth) has been modelled to provide a conservative indication as to “maximum” impacts. Within this exercise, traffic generation rates that are applicable to the proposed development have been used without attributing impacts of local trips within the PSP when at full build. For instance, it would be likely that a large number of local trips to the Primary School or retail / commercial areas would be done on foot or by active transport – these trips have not been discounted.



Figure 84 Opening year scenario for traffic modelling purposes

## 5.5 Traffic Generation

For the purposes of the trip generation calculations during the MRS Amendment stage of assessment, a range of assumptions were made to develop the broad volume of vehicle trips at full build. Within that assessment, general information was used to understand the implications for the progression of a scheme amendment.

The assessment completed for the ECU Mt Lawley PSP has focussed on applying empirical data relating to key elements of the PSP land use alongside accepted information from Main Roads WA and other Activity Centre plans / PSP projects. The key inputs to traffic generation rates used within the modelling exercise for the forecast year scenarios are:

- For the residential land uses in the northern portion of the PSP area, the medium density rates of 0.5 trips per dwelling as per Main Roads WA Supplement to the Transport Impact Assessment Guidelines May 2023 (Document No: D23#392383) were applied. The existing WAPC in and out ratios in peak hours was retained, being 0.25 / 0.75 in the AM peak and 0.625 / 0.375 in the PM peak
- For the higher density residential development, surveys were undertaken at a site within the Montario Quarter redevelopment project to inform trip rates for those units within the Mixed Use zone or fronting Stancliffe Street. Those surveys showed a per unit rate of 0.22 movements in the AM peak and 0.26 movements in the PM peak hour. A comparison was undertaken of AM peak surveys completed for projects between 2019 and 2023 (Table 9) which showed higher AM traffic generation ratios. Accordingly, for the purpose of this assessment a higher ratio for the AM period of 0.34 trips per unit were applied for the higher density units and 0.41 per unit in the PM peak hour

- The WAAPA adaptive reuse was applied a ratio of trips associated with parking bays in the immediate area. For the purpose of this exercise, and to reflect potential variations in final use, a Commercial land use ratio was applied but discounted to 25% of those values. Given the end use is difficult to be defined, using this ratio allows for some attribution of trips and the trips already seen at the car parking area was retained in the forecast year models – thus there is likely over calculation
- For the proposed Primary School site, trip generation rates were developed from surveys at two local Primary Schools completed in and out of school term to understand the volume of traffic associated with those sites. This is discussed in section 5.5.1
- The supermarket trip generation rates were informed by surveys undertaken in September 2025 at the Woolworths development on the corner of Stirling Street and Bulwer Street in North Perth. This site has an off-street parking area and the complex also contains a range of small retail or commercial outlets as well as a child care centre on the top level. Surveys were completed for the decked parking structure – it is acknowledged that the additional land uses may inflate the traffic generation ratio used for the ECU Mt Lawley site, however this conservative approach would cover any additional traffic generated by ancillary retail adjacent to a supermarket site in the ECU Mt Lawley project area. Separately, the surveys did not cover adjacent on-street bays which are used for drive-past trips therefore the ratio is likely to balance out some of those trips. This is discussed in section 5.5.2. These rates were also applied to other retail land uses.

Table 9 Residential unit traffic generation outcomes for inner suburban developments (source: Flyt)

Address	Council	Units	AM Peak Hour Per Unit In	AM Peak Hour Per Unit Out	AM Peak Hour Per Unit
76 Newcastle Street	Vincent	53	0.09	0.23	0.32
65 Brewer Street	Vincent	35	0.06	0.26	0.31
7 Davies Road	Claremont	71	0.14	0.25	0.39
15 Roydhouse	Subiaco	91	0.09	0.19	0.27
103 Harold St	Vincent	93	0.14	0.23	0.37
280 Lord Street	Vincent	81	0.11	0.25	0.36
110 Cambridge St	Cambridge	86	0.10	0.22	0.33
			<b>0.11</b>	<b>0.23</b>	<b>0.34</b>

### 5.5.1 Primary School surveys – traffic generation

During the analysis of the Master Plan and Scheme Amendment for the ECU Mt Lawley redevelopment project, the CoS raised queries relating to the application of vehicle trip rates for the proposed Primary School site. The discussion and basis for the application of a reduced vehicle trip rate for the Primary School was set out in the TIA for the Amendment:

*“The assessment for the Primary School site is specific to that development so would not necessarily impact on the surrounding network during a typical “peak” afternoon period. WAPC rates for a school is 0.5 trips per child to and from school for each peak period. For a 700 student maximum population, this rate would see 350 trips in and out of the area each day for each peak.*

*In reality, for an inner city footprint school of this nature, the application of a rate that is more applicable to outer suburban locations with large intake areas and car dominated development is not appropriate. Other factors for the school site include linked trips with*

*students at Mount Lawley Senior High School, through trips for existing commuting movements, spread of trips given use of adjoining open space area and greater accessibility by public transport and active transport modes.*

*Based on observations undertaken by Flyt through the preparation of numerous School Transport Access and Management Plans (STAMP) for the Department of Finance for a range of more inner suburban locations (such as Tuart Hill Primary School, Maylands Peninsula Primary School, Lathlain Primary School and East Victoria Park Primary School), a reduced vehicle trip rate is being applied to the proposed Primary School site of 0.35 trips in and 0.35 trips out in each peak movement period’.*

Given best practice in assessments is to relate proposed developments to empirical data, two proximate public Primary School sites were surveyed for traffic generation during Term 3, 2025 and during the school holiday period between Term 3 and 4. The schools were:

- North Perth Primary School
- Mt Lawley Primary School.

The locations of the counters, forming a cordon around the sites, are shown in Figure 85 and Figure 86.



Figure 85 Count locations - North Perth Primary School (source: Metromap)

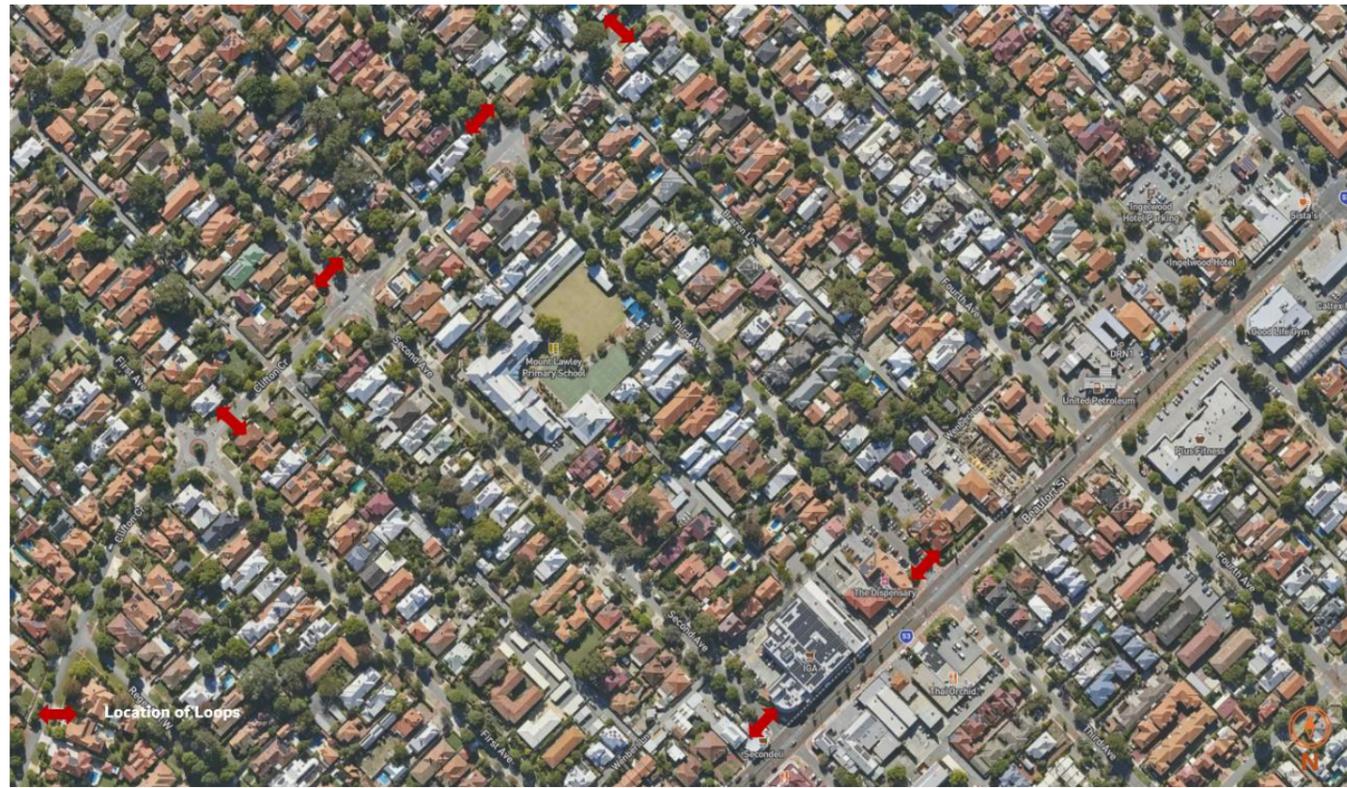


Figure 86 Count locations – Mt Lawley Primary School (source: Metromap)

The survey period allowed for three count days during term and a Tuesday during the holiday period (Monday was a public holiday). The overall volumes recorded at the loop sites is shown in Figure 87 for North Perth Primary School and Figure 88 for Mt Lawley Primary School. The Mt Lawley site has a significantly higher overall volume given the location adjacent to Beaufort Street and the count sites which included vehicles associated with commercial and retail outlets. Separate on-site observations were undertaken to validate count volumes.

The fluctuations between the AM peak and PM peaks, as well as the overall patterns in the areas surveyed, are evident for both sites. At North Perth Primary School, vehicle access to the school boundaries is limited which meant that the volumes recorded can be considered to have captured the bulk of vehicle movements associated with school trips. Some vehicle trips associated with the school would have originated from outside the cordon, but this volume would be considered low based on on-site observations.

For Mt Lawley, the cordon area is wider and traffic loops were installed on Second and Third Avenues near Beaufort Street meaning that they captured volumes not associated with school trips.

The other pattern evident in this area was the number of through trips and trips associated with other schools in the area. Although volumetric counts do not pick up these patterns, on-site observations did indicate that those trips attributed to the background volumes during school term.

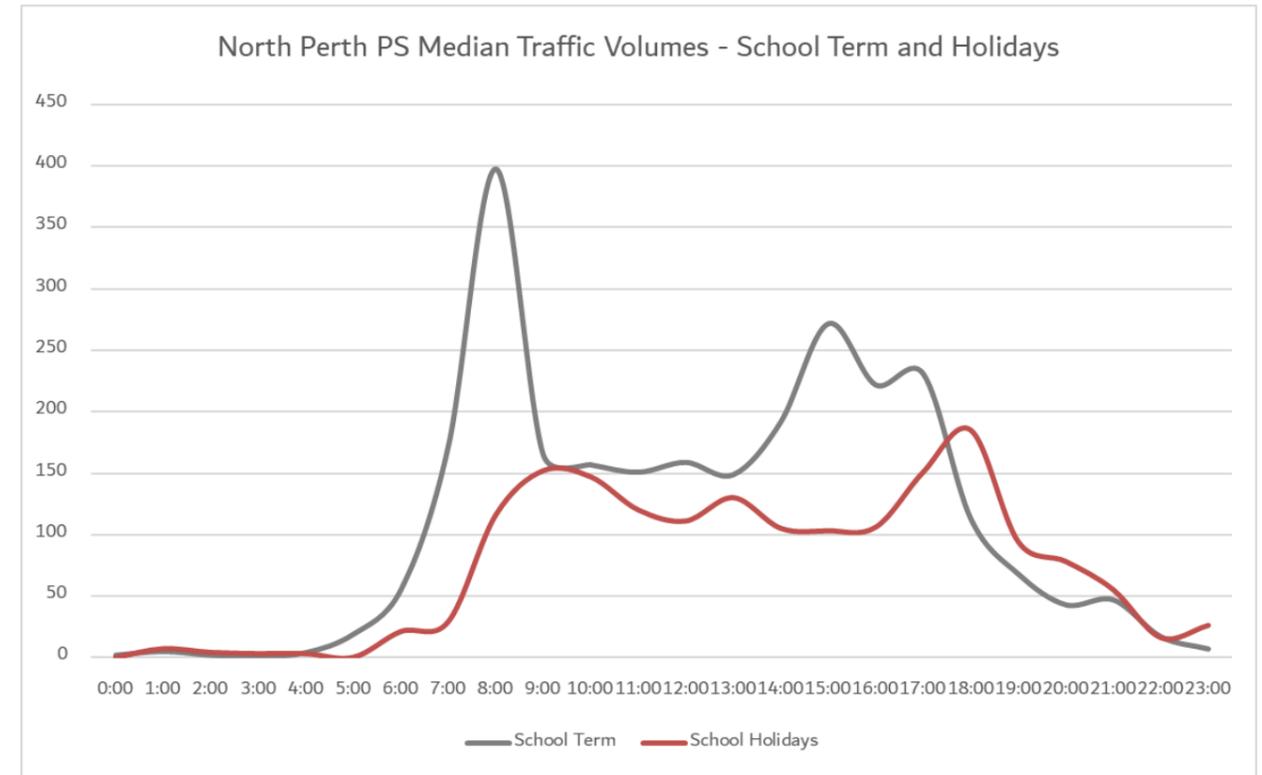


Figure 87 Median traffic volumes recorded around North Perth PS – 2025 term and holiday days (source: SurveyTech)

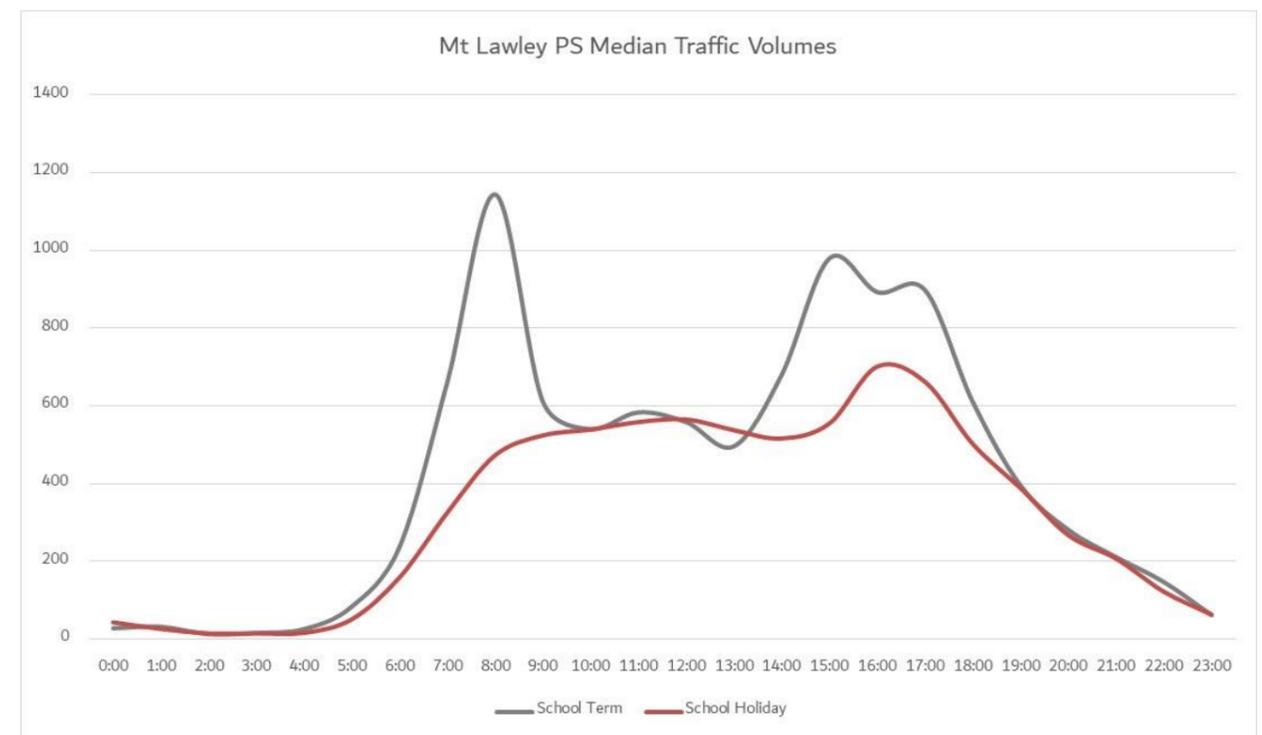


Figure 88 Median traffic volumes recorded around Mt Lawley PS – 2025 term and holiday days (source: SurveyTech)

To understand the volume of vehicle traffic associated with school trips, the differences in vehicle movements in the AM peak hour (08.00 to 09.00) and afternoon school peak periods (14.00 to 16.00) between school term and school holidays was calculated. This used highest recorded values during school term given there are fluctuations on days of the week – typically the Friday (and being last day of term) the volumes on that day would be lower. The ratios of trips per students (as of Semester 2, 2025) for both sites are shown in Table 10. The average between the sites was 0.59 trips in the morning and 0.47 in the afternoon peak – both of which are lower than suburban pattern school recommended trip rates.

As noted, Mt Lawley PS numbers are considered high given the influence of other trip attractors and generators around the site. Given the previous responses of the CoS, the ratios from surveys at Mt Lawley were utilised as they represent higher traffic volumes, even though surveys at North Perth PS point to a lower general ratio of movements per student possible at the proposed Primary School within the ECU Mt Lawley PSP.

Table 10 School peak vehicle trips

Period	School Time Trips	Per Student	Period	School Time Trips	Per Student
AM Mt Lawley	662	0.66	AM North Perth	457	0.53
PM Mt Lawley	603	0.60	PM North Perth	293	0.34

### 5.5.2 Supermarket surveys – traffic generation

Surveys were completed for the Highgate Woolworths site for two weekdays in September 2025 (access shown in Figure 89) to capture the in and out movements from the off-street car parking area for the development. As noted this car park services a number of establishments however the supermarket component is the largest generator of traffic and the survey results would be a conservative outcome. Plans submitted with the application provided floorspace to allow for a calculation based on per/100m<sup>2</sup> GFA.

Results from the survey peaks hours were then calculated on a per/100m<sup>2</sup> GFA with the highest ratios then used for the ECU Mt Lawley PSP assessment, as shown in Table 11. These traffic generation values were also applied to “general” retail land uses as they are relatively high and the form of retail land use is unknown. This also helps account for on-street parking trips for retail uses.

Table 11 Supermarket peak vehicle trips

Period	In / 100m <sup>2</sup> GFA	Out / 100m <sup>2</sup> GFA	Total
AM	2.26	1.82	4.09
PM	4.68	5.00	9.68

The estimated full build out traffic generation values for the AM peak are set out in Table 12, with the PM peak shown in Table 13. These calculations indicate:

- 955 vehicle trips in AM peak hour (718 observed in base)
- 820 vehicle trips in the PM peak hour (644 observed in base).



Figure 89 Location of car park entrance - Woolworths Highgate (source: Google)

Table 12 Estimated traffic generation at full build - AM peak hour

Use	Rate	In Rate	Out Rate	Value	In	Out
<b>Supermarket / Retail</b>	4.09 per 100m <sup>2</sup> GFA	2.26	1.82	2,400m <sup>2</sup>	54	44
<b>Child Care</b>	0.5 per Place	0.25	0.25	100 places	25	25
<b>Medical Centre</b>	17 trips per 100m <sup>2</sup>	65%	35%	600m <sup>2</sup>	23	12
<b>Gym</b>	1.51 trips per 100m <sup>2</sup>	0.76	0.75	500m <sup>2</sup>	4	4
<b>High Density Residential</b>	0.34 trips per unit	0.11	0.23	796	88	183
<b>Lower Density Residential</b>	0.5 trips per unit	0.1	0.4	128	13	51
<b>Primary School</b>	Per Student	0.33	0.33	540	178	178
<b>Adaptive Reuse</b>	0.35 per 100m <sup>2</sup> GFA	0.29	0.05	20,800m <sup>2</sup>	62	11
					447	508

Table 13 Estimated traffic generation at full build - PM peak hour

Use	Rate	In Rate	Out Rate	Value	In	Out
<b>Supermarket / Retail</b>	9.68 per 100m <sup>2</sup> GFA	4.68	5.00	2,400m <sup>2</sup>	112	120
<b>Child Care</b>	0.5 per Place	0.3	0.3	100 places	30	30
<b>Medical Centre</b>	16 trips per 100m <sup>2</sup>	45%	55%	600m <sup>2</sup>	17	21
<b>Gym</b>	3.43 trips per 100m <sup>2</sup>	2.40	1.03	500m <sup>2</sup>	12	5
<b>High Density Residential</b>	0.41 trips per unit	0.26	0.15	796	207	119
<b>Lower Density Residential</b>	0.5 trips per unit	0.3	0.2	128	38	26
<b>Adaptive Reuse</b>	0.35 per 100m <sup>2</sup> GFA	0.07	0.28	20,800m <sup>2</sup>	15	58
					436	384

For the school PM peak, the key element is the traffic generated by the Primary School being accounted for. This traffic generation has been established, with the traffic generated by other uses being formed by the following:

- For residential development, the ratio of trips was based on survey information from sites discussed within the TIA. This is set at around 50% of the PM peak hour volumes, even though the volumes fluctuated from site to site. For a conservative value, 50% of the PM peak was applied
- For Child care, it was nominated as 30% of the peak hour on the basis that many trips associated with PM peak hour pick up movements could be attributed to a linked trip in the school peak hour and therefore would already be accounted for
- For all other land uses, the background traffic volumes on Central Avenue and Bradford Street were examined for general profile / ratio of school peak trips vs “regular” PM peak trips. The ratio of 70% of PM peak hour trips was attributed to those land uses for the purpose of this assessment.

The traffic generation levels used within the modelling for the school PM peak period are set out in Table 14.

Table 14 Estimated traffic generation at full build – school PM peak hour

Use	Rate	In Rate	Out Rate	Value	In	Out
<b>Supermarket / Retail</b>	9.68 per 100m <sup>2</sup> GFA	4.68	5.00	2,400m <sup>2</sup>	79	84
<b>Child Care</b>	0.5 per Place	0.3	0.3	100 places	9	9
<b>Medical Centre</b>	16 trips per 100m <sup>2</sup>	45%	55%	600m <sup>2</sup>	12	14
<b>Gym</b>	3.43 trips per 100m <sup>2</sup>	2.40	1.03	500m <sup>2</sup>	8	4
<b>High Density Residential</b>	0.41 trips per unit	0.26	0.15	796	103	60
<b>Lower Density Residential</b>	0.5 trips per unit	0.3	0.2	128	27	18
<b>Adaptive Reuse</b>	0.35 per 100m <sup>2</sup> GFA	0.07	0.28	20,800m <sup>2</sup>	10	41
<b>Primary School</b>	Per Student	0.30	0.30	540	162	162
					410	391

The total indicative forecast yield traffic vehicle generation volumes set against the existing peak demands for the site are set out in Table 15. The AM peak demands for the forecast scenario includes the traffic generated by the Primary School site at full occupancy however the afternoon peak does not as that volume is prior to the defined peak PM period on the network and when other land uses in the scheme amendment area would generate their peak vehicle trips. 320 vehicle trips associated with the Primary School are estimated for the afternoon school peak.

The assessment shows that at full build of the proposed land uses in the PSP there would be a higher level of traffic associated with the site than the present peak demands indicate. This is particularly the case for the AM peak period where movements associated with the Primary School drop off period are the predominant factor.

That differential for outbound trips within the AM period underlines the importance of planning and design for the Primary School site and incorporation of infrastructure to support trips by active modes.

Table 15 Indicative totals - existing and future peak demands

	In	Out	In	Out	
<b>Indicative Existing AM</b>	489	229	<b>Indicative Full Build AM</b>	447	508
<b>Indicative Existing PM</b>	257	387	<b>Indicative Full Build PM</b>	436	384
			<b>Indicative School PM</b>	410	391

## 5.6 Traffic Distribution

As acknowledged in the assessment of the ECU Mt Lawley Master Plan and Scheme Amendment reporting, the definition of distribution is informed by a range of factors, some of which are yet to be fully defined at the PSP stage of the project. This is specifically the case for the proposed Primary School.

On the basis of using information available, the inbound and outbound trips to the site related to non-residential land uses and commuting trips have been based on the 2021 Census Journey to Work data as discussed in section 5.3. The proportions of trips using each external network connection were derived from likely routes to the SA2 cells as taken from a point to point vehicle movement in Google Maps.

The generalised proportion of trip distribution for vehicle movements used for the forecast year scenario is shown in Table 16. For the trips that are retained in the base year model, the existing distribution patterns have been retained. Within the opening year model, the trips associated with car parking off Bradford Street into the WAAPA building has been retained, with traffic attributed to the existing car parks removed from the network and those volumes removed from adjacent intersections using existing proportions through SCATS or as observed.

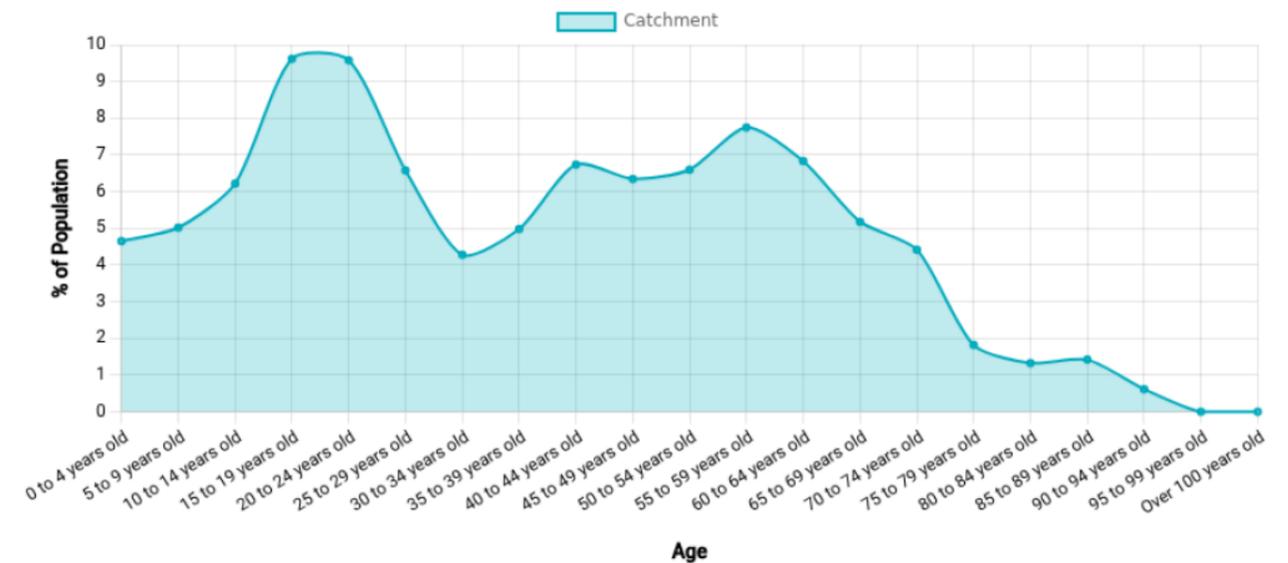
Table 16 General distribution patterns for traffic generation

Route	AM In	AM Out
<b>Internal - Distribute with existing SCATS proportions</b>	9%	8%
<b>North via Alexander Drive</b>	34%	10%
<b>West via Bradford Street</b>	15%	8%
<b>South via Alexander Drive</b>	20%	45%
<b>South via Bradford Street and Learoyd Street</b>	5%	8%
<b>East via Central Avenue - split at Hamer Avenue uses existing splits</b>	18%	22%

For the Primary School site, a general distribution pattern was utilised in the Scheme Amendment reporting and similarly for the PSP stage, the intake boundary has not been defined therefore the final traffic distribution would be determined at the DA stage of that project.

For the purposes of the PSP, the traffic generated by the site has been split based on potential intake areas and the population profile of existing residents aged 0-9 within the area. An example of this information is shown in Figure 90. Although this population segment would have mostly grown out of Primary School cohort aged by opening of a school, it provides an indicator on population.

## Age Breakdown (2021)



	Catchment	
0 to 4 years old	70	4.65%
5 to 9 years old	76	5.02%

Figure 90 Example of population profile for area south of ECU Mt Lawley PSP (source: Planwisely)

Using this population profile analysis, it indicated that, using 2021 Census information, 43% of the student intake would be from south of the ECU Mt Lawley PSP area with the other 57% coming from areas to the north. Within the trip generation rates used, the mode share attributed to localised walking and active transport trips would already be factored in – these would be those students who would be living within the PSP area at full build and would be more likely to walk to and from the school.

Drop off and pick up points around the school site were then determined on direction of travel and proximity of the available points to the access routes.

## 5.7 Modelled Networks

There were three separate networks modelled for the assessment:

- 2025 base networks for AM and PM peaks, shown in Figure 91. This includes the existing network with external connections as is. The network covers Woodsome Street and Learoyd Street towards Rookwood Street, Central Avenue in the north,

Alexander Drive and Bradford Street to the west and covers the intersection of Central Avenue and Stancliffe Street to the east

- Opening year network as shown in Figure 92. This includes the reconfiguration of the intersections on Central Avenue to take into account the approach legs from within the PSP and the new connection at Stancliffe Street from the PSP area. All internal streets are included although there are no demands associated with development in the site except for the retention of demands from the WAAPA site
- Forecast Year scenario where there is a full build out and the full network from the opening year is operating. Connections in to development sites have demands attributed to them.



Figure 91 Base network modelled for ECU Mt Lawley PSP (source: VISSIM)

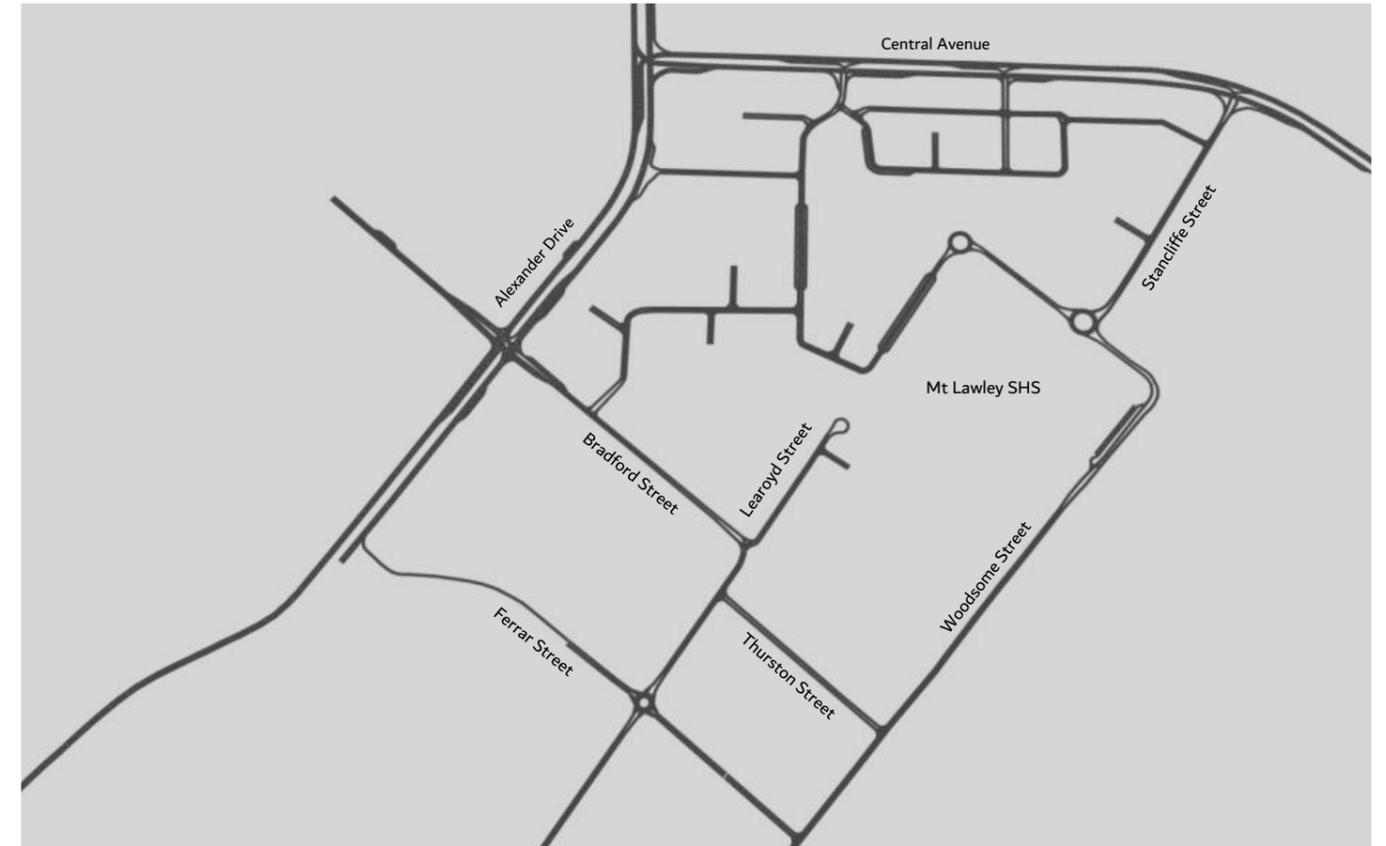


Figure 92 Opening and Forecast year networks for PSP (source: VISSIM)

### 5.8 2025 Base Year

Overall modelling outputs for the project, including the movement summaries for each intersection modelled are included within Appendix A. The results within the modelling exercise apply a range of traffic engineering parameters, with the broadest being Level of Service (LOS). The measurements applied for delay in seconds for each band of LOS is shown in Figure 93. The headline results for the intersection performance for each of the base year peak hours is shown in Figure 94.

In terms of the existing performance of the network, there are no issues evident in traffic engineering metrics for peak hour movements with the exception being the intersection of Alexander Drive and Bradford Street which has a LOS of D in the AM peak. This is due to heavy southbound vehicle commuting towards Perth.

LOS HCM 2010 SIGNALISED JUNCTIONS

A	0	10
B	10	20
C	20	35
D	35	55
E	55	80
F	80	Infinity

LOS HCM 2010 GIVE WAY/STOP SIGN/ROUNDBOUT

A	0	10
B	10	15
C	15	25
D	25	35
E	35	50
F	50	Infinity

Figure 93 Level of Service measurements applied for modelling outputs

Site	2025 BASE		
	AM Peak	School	PM Peak
Alexander Drive and Bradford Street	D	C	C
Alexander Drive and Central Avenue	C	B	B
Central Avenue and Parking Access West	A	A	A
Central Avenue and Parking Access East	A	A	A
Central Avenue and Stancliffe Street	A	A	A
Stancliffe Street and Woodsome Street	A	A	A

Figure 94 2025 base year LOS per intersection

The individual approaches at that intersection, set out in Figure 95 show the impact of heavier southbound movements in key peak periods, as well as the delays experienced by right turning movements at signalised intersections. The northbound right hand turn from Alexander Drive into Bradford Street shows a delay that is over 85 seconds and has an individual LoS of F due to heavy southbound flows and bus movements having priority.

Similarly, the amount of time afforded to side streets such as Bradford Street during peak hours (because the majority of the time given for a cycle at a set of signals will favour the heavier north-south flows along Alexander Drive which is also a key bus corridor) means that the delays experienced for vehicles will be higher. Queue lengths at the intersection reflected observations, with the southbound queue along Alexander Drive high however it does not interact with any side streets and therefore is not considered to be an issue when looking at overall network performance.

2025 BASE			AM Peak				School Peak				PM Peak					
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length		
Alexander Drive and Bradford Street	NB	LT	20	26	C	162	22	29	C	239	24	27	C	255		
		TH	753	30	C	162	1287	31	C	239	1689	28	C	255		
		RT	152	86	F	162	66	63	E	239	55	72	E	255		
	EB	LT	43	47	D	85	53	26	C	40	42	35	D	36		
		TH	150	58	E	86	60	42	D	40	35	54	D	36		
		RT	84	54	D	86	44	38	D	40	32	51	D	36		
	SB	LT	47	51	D	351	36	25	C	108	8	14	B	110		
		TH	1436	52	D	351	772	24	C	108	847	17	B	110		
		RT	34	74	E	351	80	61	E	108	55	61	E	110		
	WB	LT	72	41	D	70	76	35	D	63	30	39	D	50		
		TH	70	72	E	71	76	52	D	63	29	51	D	50		
		RT	48	73	E	71	52	52	D	63	49	54	D	50		
Weighted Overall			48.13	D		Weighted Overall			31.03	C		Weighted Overall			26.81	C

Figure 95 Alexander Drive base year individual approach LOS outputs

The overall metrics for the base year modelling show that the model is fit for purpose and can be used to model the opening and forecast year scenarios. Summary outputs for the modelled peaks are set out in Figure 96 with the calibration plots for the AM peak shown in Figure 97, school PM peak in Figure 98 and PM peak in Figure 99. All outputs establish that the model is reflecting base year functionality.

AM Peak Hour (07:45 - 08:45)						
	No. Counts	Obs TTL Veh	Mod TTL Veh	% Difference	Flow	GEH
<b>Total</b>	<b>45</b>	<b>11360</b>	<b>11511</b>	<b>1%</b>	<b>100%</b>	<b>100%</b>
School Peak Hour (14:45 - 15:45)						
	No. Counts	Obs TTL Veh	Mod TTL Veh	% Difference	Flow	GEH
<b>Total</b>	<b>45</b>	<b>10688</b>	<b>10427</b>	<b>-2%</b>	<b>100%</b>	<b>100%</b>
PM Peak Hour (16:45 - 17:45)						
	No. Counts	Obs TTL Veh	Mod TTL Veh	% Difference	Flow	GEH
<b>Total</b>	<b>45</b>	<b>10285</b>	<b>10139</b>	<b>-1%</b>	<b>100%</b>	<b>100%</b>

Figure 96 Summary model performance in 2025 base year

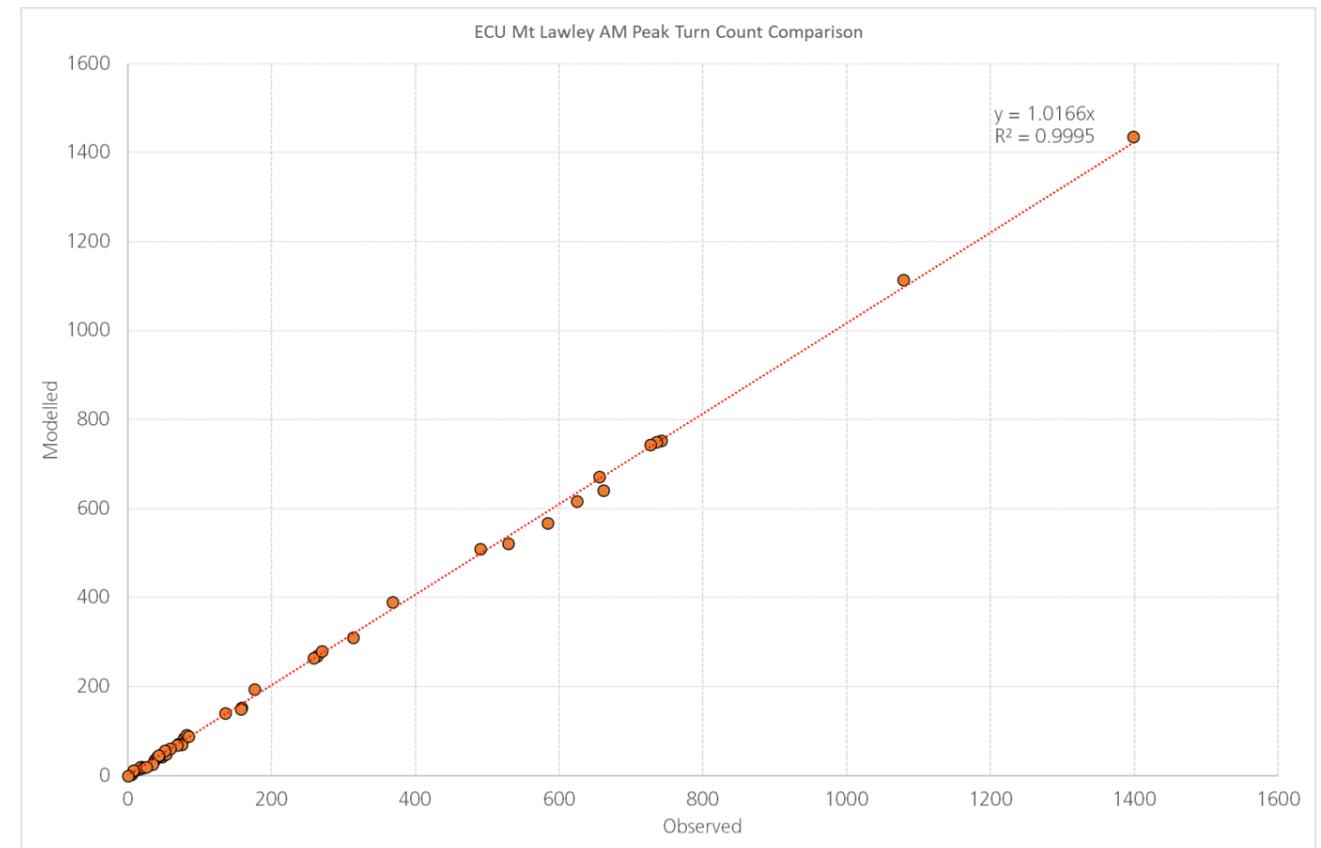


Figure 97 AM 2025 peak hour turning count comparison calibration plot (source: VISSIM)

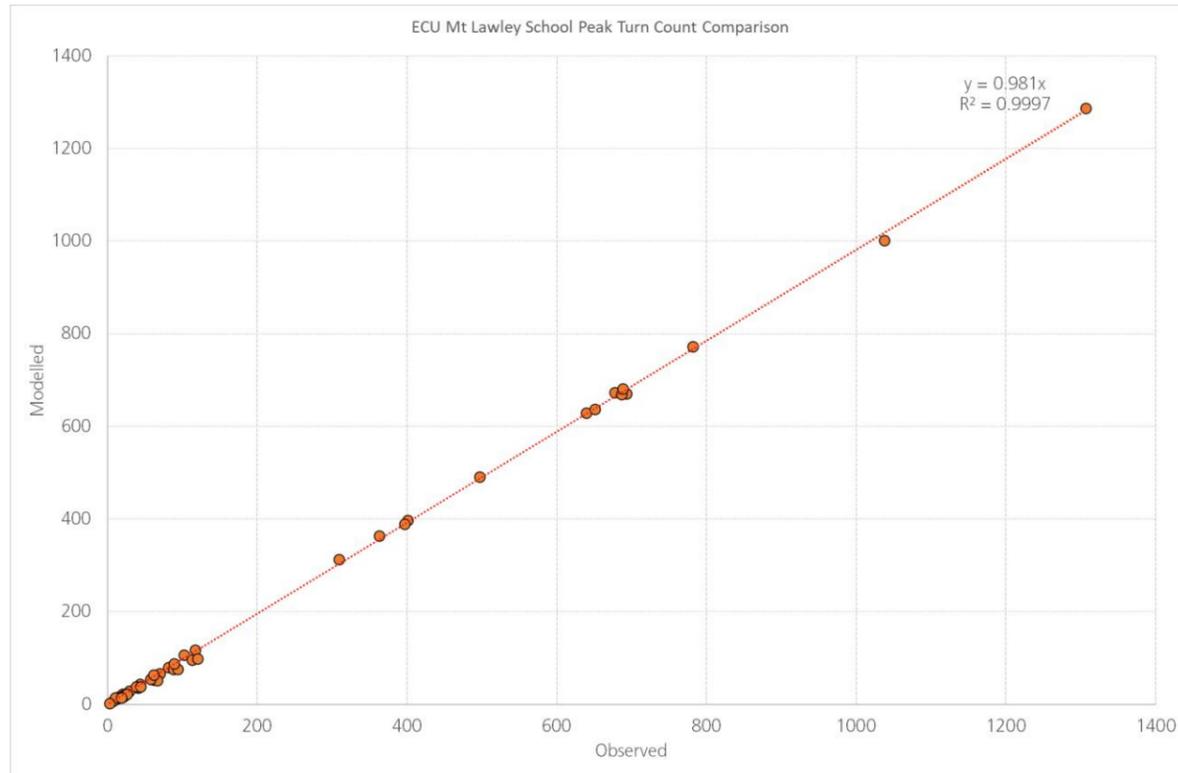


Figure 98 School PM 2025 peak hour turning count comparison calibration plot (source: VISSIM)

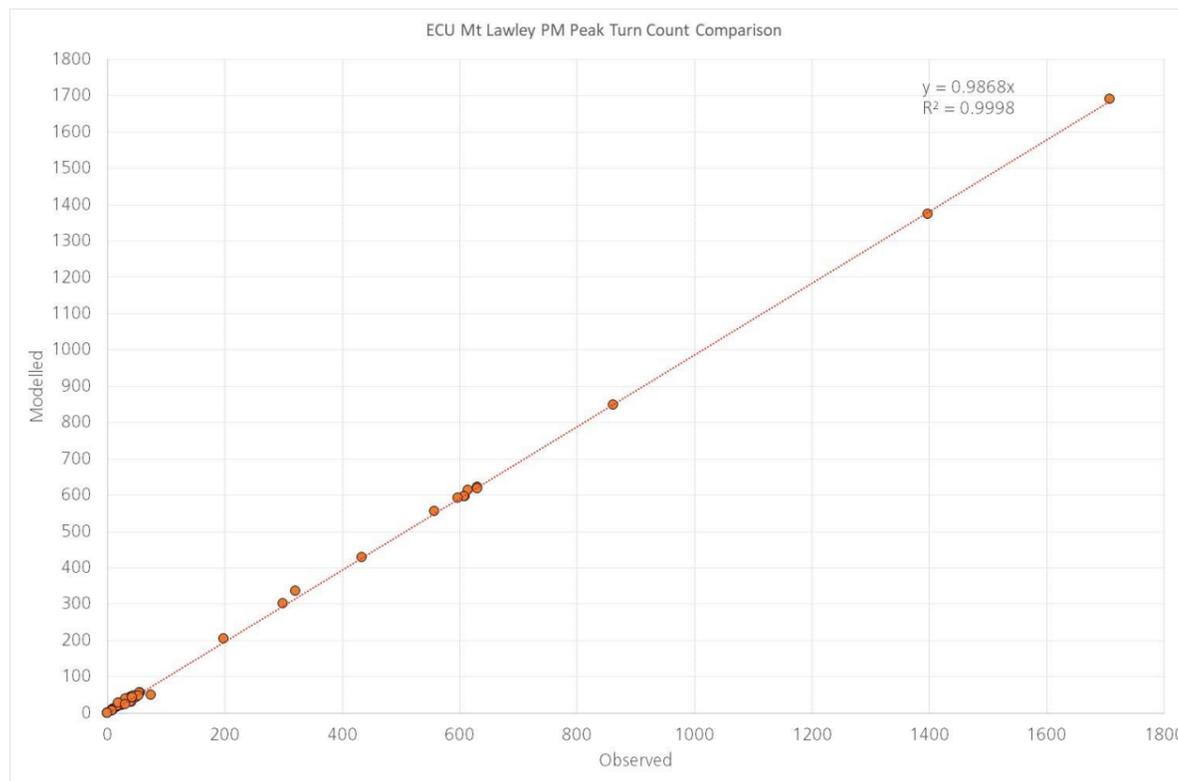


Figure 99 PM 2025 peak hour turning count comparison calibration plot (source: VISSIM)

### 5.9 Opening Year Outputs – 2028

Overall modelling outputs for the project, including the movement summaries for each intersection modelled are included within Appendix A. The results within the modelling exercise apply a range of traffic engineering parameters, with the broadest being Level of Service (LOS). The measurements applied for delay in seconds for each band of LOS is shown in Figure 93. The headline results for the intersection performance for each of the opening year peak hours is shown in Figure 100.

Site	Opening 2028		
	AM Peak	School	PM Peak
Alexander Drive and Bradford Street	D	C	C
Alexander Drive and Central Avenue	C	B	B
Central Avenue and Development Access West	A	A	A
Central Avenue and Development Access East	A	A	A
Central Avenue and Stancliffe Street	A	A	A
Stancliffe Street and Woodsome Street	A	A	A
Bradford St and Development Access	A	A	A

Figure 100 2028 opening year LOS per intersection

The individual approaches for the key Alexander Drive and Bradford Street intersection are set out in Figure 101. Here, the overall weighted average for the intersection during the morning peak results in a comparable LoS D as noted in the base year outputs.

The volumes travelling through the modelled intersections have changed slightly, based on the background traffic growth from 2025 to 2028 and also from the removal of the ECU related vehicle trips that would no longer exist while the site is under construction. Given the nature of movements along Alexander Drive, the volumes would not be expected to vary significantly during the AM peak with the dominant flow heading southbound away from the PSP area.

Opening 2028			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Alexander Drive and Bradford Street	NB	LT	21	23	C	110	24	27	C	238	19	21	C	204
		TH	744	26	C	110	1310	30	C	238	1349	21	C	204
		RT	134	59	E	110	48	53	D	238	17	56	E	204
	EB	LT	44	42	D	85	56	21	C	38	69	34	C	43
		TH	129	58	E	85	44	37	D	38	28	51	D	44
		RT	84	56	E	86	45	34	C	39	51	54	D	44
	SB	LT	41	58	E	201	26	21	C	97	3	13	B	116
		TH	1455	55	E	201	724	23	C	97	897	17	B	116
		RT	35	75	E	202	84	65	E	98	61	70	E	116
	WB	LT	61	40	D	54	90	37	D	63	66	44	D	80
		TH	59	61	E	54	91	49	D	63	54	60	E	80
		RT	39	63	E	54	62	49	D	63	104	63	E	80
Weighted Overall			47.30	D	Weighted Overall			29.57	C	Weighted Overall			23.12	C

Figure 101 Alexander Drive opening year individual approach LOS outputs

The demands associated with the current operations of ECU Mt Lawley have been removed for this assessment year however some remnant demands or movements would still be expected through the network. Those volumes, however, would not be significant compared to the full build out but would comprise of:

- Traffic associated with construction activities on sites throughout the development
- Traffic associated with any adaptive reuse of buildings within the PSP area that may operate through the construction stage of the project
- Demands associated with the MLSHS which would be more evident during the school term periods – there are existing demands within the base year that were observed using the current car parking access points as a means of drop off and pick up for the MLSHS and these would be expected to remain
- Traffic associated with the existing residential land uses on site
- Traffic that is using the street network to access the streets to the south / north
- Weekend based traffic associated with any activation of space or spill over from activities in surrounding areas.

### 5.10 Forecast Year Outputs – Full Build

Overall modelling outputs for the project, including the movement summaries for each intersection modelled are included within Appendix A. The measurements applied for delay in seconds for each LOS band is shown in Figure 93. The headline results for the intersection performance at the key intersections on the external street and road network for each of the forecast year peak hours is shown in Figure 102.

Site	Full Build Out		
	AM Peak	School	PM Peak
Alexander Drive and Bradford Street	E	C	C
Alexander Drive and Central Avenue	D	B	B
Central Avenue and Development Access West	A	A	A
Central Avenue and Development Access East	A	A	A
Central Avenue and Stancliffe Street	A	A	A
Stancliffe Street and Woodsome Street	A	A	A
Bradford St and Development Access	F	A	E

Figure 102 2038 forecast year LOS per intersection

The morning peak hour shows a change in LoS at the intersection of Alexander Drive and Bradford Street, from a D to an E; a slight degradation of overall intersection LoS at the Alexander Drive and Central Avenue intersection, from a C to a D. There is a marked change in LoS from A to F at the Bradford Street and Development Access intersection as a result of the increase in vehicle movements and lack of storage capacity at this intersection as well as the knock on impact from the Alexander Drive traffic signals. The individual approaches at the Alexander Drive and Bradford Street intersection (Figure 103) provide more detail for the approaches that are starting to experience longer queues and delays during the Full Build Out scenario.

Full Build Out			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Alexander Drive and Bradford Street	NB	LT	21	24	C	176	24	28	C	232	19	22	C	215
		TH	744	26	C	176	1306	30	C	232	1348	21	C	215
		RT	201	90	F	176	106	73	E	232	102	102	F	215
	EB	LT	44	50	D	87	56	27	C	42	68	49	D	63
		TH	166	64	E	87	72	42	D	42	81	66	E	63
		RT	84	59	E	87	44	42	D	42	51	63	E	64
	SB	LT	65	63	E	202	32	24	C	96	9	20	B	116
		TH	1464	59	E	202	755	23	C	96	932	18	B	116
		RT	45	87	F	202	87	64	E	96	70	70	E	116
	WB	LT	192	91	F	108	153	55	D	105	154	79	E	107
		TH	97	145	F	109	118	73	E	105	69	115	F	107
		RT	57	154	F	108	88	79	E	105	112	122	F	107
Weighted Overall			55.44	E	Weighted Overall			32.67	C	Weighted Overall			29.95	C

Figure 103 Alexander Drive full build out individual approach LOS outputs

During the Full Build Out scenario, the signal timings have not been adjusted from the base year model, despite the vehicle demand volumes increasing for specific movements associated with travel to or from the PSP area. This is based on Main Roads WA advice during the PSP engagement that signal timings may not be approved without completion of a full signals assessment process.

Bradford Road north-westbound approach to Alexander Drive shows an increase in vehicle demands (190 base year to 346 Full Build Out) that results in blocking back to the access into the PSP area that is located approximately 95m further along Bradford Street towards Learoyd Street. This also prompts a slightly longer set of delays and, in turn, a LoS increase from E to F.

This has a knock-on effect to the Bradford Street & Access intersection where exiting vehicles are delayed from joining Bradford Street. Figure 104 shows the operation of Alexander Drive and Bradford Street during the morning peak hour. The queuing along Bradford Street is shown queuing back past the PSP area access and is a result of the additional demands on this approach. The queuing can build back to the Learoyd St drop off access. The signal timings have not been adjusted in attempt to accommodate these demand changes, although Bradford Street should be flagged for attention in the future planning stages of the site.



Figure 104 Alexander Drive and Bradford Street intersection operation – VISSIM screenshot

Following the initial testing of the Full Build out 2038 scenario, it was apparent that the intersection performance at some locations was inefficient and experienced queues and delays. This was also identified for some turning movements that then had the potential to impact on neighbouring intersections.

The two signalised intersections, Alexander Drive and Bradford Street, and Alexander Drive and Central Avenue were shown to operate with a poorer LoS during the morning peak and also had an impact on the operation of the Bradford Street and PSP area access intersection in both morning and afternoon peaks. The existing signal green times that would be afforded to Bradford Street (southeast) are based on the current vehicle demand volumes; when these are forecast to increase due to the proposed land use intensification additional green time would be required, or additional storage capacity for the approach.

In lieu of a formal optimisation process that would be undertaken for a Traffic Signals Approval Policy (TSAP), minor adjustments to the signal timings have been made to understand whether an improvement in performance is possible based on these adjustments.

Through this high-level process, the focus has been to improve the operation of the Bradford Street and PSP area access without impacting on the overall operation of the Alexander Drive signalised intersections. These intersections carry a significant vehicle demand southbound during the morning and northbound during the afternoon; it is possible that small changes could affect these movements without considering the operation of neighbouring intersections.

The headline results for the intersection performance of each of the full build out with a signal optimisation test peak hours is shown in Figure 105.

Site	Full Build Out + signal test		
	AM Peak	School	PM Peak
Alexander Drive and Bradford Street	D	C	C
Alexander Drive and Central Avenue	C	B	B
Central Avenue and Development Access West	A	A	A
Central Avenue and Development Access East	A	A	A
Central Avenue and Stancliffe Street	A	A	A
Stancliffe Street and Woodsome Street	A	A	A
Bradford St and Development Access	C	A	A

Figure 105 2038 forecast year LOS per intersection with signal optimisation

These outputs show the Alexander Drive and Bradford Street intersection improves to a LoS D, Alexander Drive and Central Avenue improved from a LoS D to LoS C and the Bradford Street and PSP area access is shown to improve significantly during the morning and afternoon peak hours.

The individual intersection movement summary for Alexander Drive and Bradford Street continues to show queues and delays that are similar to the original Full Build out scenario and would most likely require attention in the forecast year regardless of the development proposals. The Full Build out + signal test at this intersection is shown in Figure 106.

This shows the very small change in overall weighted delay (and the improvement to a LoS D overall), however, the impact of reallocating time to the Bradford Street westbound movement is evident through the reduced delays and slight LoS improvement.

Full Build Out + signal test			AM Peak				School Peak				PM Peak								
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length					
Alexander Drive and Bradford Street	NB	LT	21	23	C	229	24	28	C	237	19	22	C	215					
		TH	742	27	C	229	1306	30	C	237	1348	21	C	215					
		RT	198	157	F	229	106	74	E	237	102	102	F	215					
	EB	LT	44	50	D	84	56	26	C	42	68	129	F	107					
		TH	166	63	E	84	72	41	D	42	81	147	F	107					
		RT	84	60	E	84	44	42	D	42	51	119	F	108					
	SB	LT	67	56	E	199	32	16	B	68	9	5	A	76					
		TH	1489	52	D	199	750	18	B	68	935	15	B	76					
		RT	46	79	E	199	88	56	E	68	70	72	E	77					
	WB	LT	199	74	E	106	153	51	D	106	158	49	D	104					
		TH	102	114	F	106	118	70	E	106	71	73	E	105					
		RT	59	114	F	106	87	75	E	106	115	73	E	105					
Weighted Overall			54.95		D		Weighted Overall			30.73		C		Weighted Overall			32.58		C

Figure 106 Alexander Drive full build out with signal optimisation individual approach LOS outputs

The focus of the high level optimisation has been to understand possible improvement to the Bradford Street and PSP Area access intersection in the forecast year. Providing some additional green time to the Alexander Drive and Bradford Street signalised approach has sought to improve the blocking back to the PSP area access intersection and in turn, reduce delays and queues along Bradford Street and into the PSP area itself. The results for the Bradford Street intersection during the peak hours is shown in Figure 107.

Full Build Out + signal test			AM Peak				School Peak				PM Peak								
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length					
Bradford St and Development Access	WB	TH	237	34	D	129	289	7	A	54	247	2	A	25					
		RT	48	29	D	129	38	6	A	54	19	3	A	25					
	SB	LT	37	28	D	91	38	6	A	27	16	1	A	20					
		RT	132	40	E	91	67	12	B	28	98	4	A	21					
	EB	LT	132	0	A	1	97	0	A	0	145	0	A	0					
		TH	300	0	A	1	113	0	A	0	47	0	A	0					
Weighted Overall			17.86		C		Weighted Overall			5.42		A		Weighted Overall			1.84		A

Figure 107 Bradford Street and PSP access LOS outputs with signal optimisation test for Alexander Drive

This captures the improvement of the intersection without any specific mitigation to the Bradford Street and PSP area access intersection itself, although queues are still present for the westbound movement towards Alexander Drive. Given the outcome of this test, when full build out volumes are applied, it is noted that the existing network and intersections can function with the additional volumes and that intersection performance should be monitored through Main Roads WA operations to adjust signal timings as necessary.

Traffic volumes around the modelled internal road network volumes resulting from the Full Build out + Signals scenario are shown in Table 17, with the location of the combined direction volumes shown in Figure 108.

Table 17 PSP area internal network volumes (development volumes only)

Link	Full Build 2038 + Signals		
	AM	School	PM
Site 1: Central Ave & ECU Entrance 1	285	201	254
Site 2: Central Ave & ECU Entrance 2	32	24	24
Site 3: Central Ave & Stancliffe St	697	348	204
Site 4: Eastern School Access	115	46	17
Site 5: Learoyd St ECU Access	117	95	57
Site 6: Bradford St & ECU Entrance	349	240	278
Site 7: Western School Access	321	263	299
Site 8: Alexander Dr & ECU Access	61	46	38



Figure 108 PSP area internal network link volumes

The model has been interrogated further to capture the inbound/outbound peak hour volumes access the PSP area. These volumes are shown in Table 18 below and also show only the development trip volumes. Given these volumes, the internal street network would function appropriately within mid-block capacity measurements as well as the modelled outcomes in this section of the TIA.

Table 18 Full Build + signals inbound/outbound modelled volumes (development volumes only)

	AM Peak		School Peak		PM Peak	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
Central & Western Access	144	139	119	78	200	55
Central & Eastern Access	21	11	21	3	18	6
Stancliffe Access (north)	0	66	3	45	5	40
Stancliffe Roundabout	98	54	73	22	3	17
Alexander Dr LILO	10	51	11	35	0	38
Bradford St Access	178	166	129	103	161	112
Bradford St & Learoyd Access	61	56	47	48	28	29
<b>TOTAL</b>	<b>512</b>	<b>543</b>	<b>403</b>	<b>334</b>	<b>415</b>	<b>297</b>

### 5.11 Local Network

As set out in section 3.3 and 3.4, information for the local network was collected and analysed against mid block capacity metrics applied through Austroads. That assessment, of data collected specifically for this TIA, indicated that none of the local street network connections were displaying any issues specific to congested conditions and none were displaying any data, or through observed conditions, that were not reflective of “typical” street networks around school sites in the Perth Metropolitan Region during the busiest peak drop off and pick up periods.

The outcomes of the traffic network assessment have examined the key intersections around the site and the internal function of that network. The existing volumes seen on the local street network in 2025 would be expected to be retained and increased on an average weekday with the operation of the MLSHS and new Primary School within the ECU Mt Lawley PSP area. Those vehicle trips would include those that are generated from existing local residential dwellings using the local street network.

The distribution of traffic on the network and the traffic generation of the land uses in the sites would undoubtedly see some additional traffic generated on the local street network but the magnitude of that traffic, or the attractiveness of routes through the local street network, would not be so great as to see substantial deterioration of traffic engineering metrics within the wider area around the PSP.

As an indication of the scale of traffic movements required to have the local streets reach a practical mid-block capacity, in the instance if all inbound or outbound vehicles trips from the PSP area at full build were to route down any one of the streets set out within Table 4, only Woodsome Street would likely reach a situation where the practical capacity based on Austroads would be reached. This is unlikely to ever eventuate however a range of recommendations should be adopted to understand and manage any implications on the local street network in the future:

- The Primary School development be subject to completion of a School Transport Access and Management Plan (STAMP) that undertakes a detailed analysis of movements associated with the school and establishes recommendations to be implemented by the DoE / DoHW prior to opening. This would include a block by block analysis of pedestrian and cycling / active transport routes

- As with the Primary School, the Mt Lawley SHS be required to undertake a STAMP to manage any increase in numbers of students or impacts associated with the potential adaptive reuse of any existing spaces within the ECU Mt Lawley PSP area
- CoS utilise the information collected for this TIA as a baseline for monitoring of traffic movements in the area. The CoS look at completing a local area Traffic Management Plan that sets benchmarks and thresholds for introduction of additional management measures in the area
- Any future planning for traffic management in the area include community engagement and detailed analysis of outcomes
- The parking management plans within this TIA be implemented to manage demands associated with the area
- The CoS undertake an audit of local footpath and pedestrian / cycling connections in the area to make those modes more attractive to get to and from the PSP area as well as the Mt Lawley SHS.

## 5.12 Traffic Assessment Outcomes

The traffic assessment completed for the ECU Mt Lawley PSP helped inform the overall design process. The modelling exercise has been considered within a defined network as a standalone micro-simulation model and provides a basis from which forecast year impacts can be examined and tested. For the purpose of this PSP TIA, the modelling outputs reported provide clarity on impacts and issues to be considered within the approvals process.

The approach to understanding the base and forecast year implications for the internal street network and external road network connections was as follows:

- Collect relevant baseline information for the existing network using project details, resources including counts and signal timings from Main Roads WA, traffic counts of the area from 2023 and traffic counts and observations of the area in September 2025
- Undertake traffic generation exercise for land uses that are included in PSP to understand the forecast year inputs
- Develop intersection and network models within VISSIM microsimulation model for the PSP area for the base year (2025) and ten year timeframe using a full build scenario to report on conservative or “worst case” outcomes
- Reporting on the modelling outcomes.

Inputs to the modelling process for the ECU Mt Lawley PSP included elements such as:

- Geometry of existing network and intersection configuration based on Metromap measurements
- TrafficMap data from Main Roads WA for locations on the network on Alexander Drive, Central Avenue and Bradford Street, including survey information on turning movement counts at Bradford Street from 2025
- Traffic count data collected for the project area and external road network from September 2025 (set out in section 3), including travel time surveys for validation and localised intersection turning movement counts
- Trip Generation survey information undertaken for a range of land uses in September 2025
- Street network design configuration from the ECU Mt Lawley Master Plan.

Empirical data has been utilised to understand traffic generation for the land uses proposed within the PSP. Yields associated with land uses in the PSP area have been defined through planning and economics analysis.

Given the nature of the land uses in the area and adjacent to the PSP boundary, base and forecast year scenarios were modelled using the following peaks:

- Typical AM peak hour (covering commuting peak as well as peak associated with drop off activity at MLSHS and the future Primary School) – 7.45am to 8.45am
- School PM peak hour (for pick up activity) – 2.45pm to 3.45pm
- Standard PM peak hour (for commuting based trips) – 4.45pm and 5.45pm.

For the base network, data from traffic counts and observations were utilised for the peak hours, with the forecast peak hours covering existing volumes (removing the traffic associated with ECU Mt Lawley) combined with background growth and traffic generation of the land uses on site.

For the forecast year scenario, the PSP will likely evolve over a period of years and therefore the model results reflect a compressed timeframe. The PSP establishes an assessment that covers a ten year period and assumptions have been made in this assessment over what the development outcomes could be.

In terms of the existing performance of the network, there are no issues evident in traffic engineering metrics for peak hour movements with the exception being the intersection of Alexander Drive and Bradford Street which has an LOS of D in the AM peak with the eastbound approach on Bradford Street sitting at an LOS E. This is due to heavy southbound vehicle commuting towards Perth and traffic associated with MLSHS.

For the opening year scenario, existing volumes associated with ECU Mt Lawley were removed, with background traffic increased. The PSP area itself does not generate traffic demands outside of the WAAPA reuse development site and retention of residential land uses on Stancliffe Street. As expected, with removal of those traffic volumes, the network performs well. It should be noted that within this stage, there would be expectation of traffic associated with construction projects being in place however the impact of those movements would not be considered as significant during the peak as demands from ECU Mt Lawley.

For the forecast year model, one scenario was tested as a full build and occupancy of all development sites to understand a scenario that would have the greatest potential impact on the network – as noted this may be unrealistic given potential development timeframes. The actual staging of development and timing of development would be subject to a range of factors and issues.

For the AM peak, the following outcomes for the full build scenario were evident:

- Alexander Drive and Bradford Street intersection degrades to a LoS E under the Full Build Out scenario which is directly attributed to the poorer operation along Bradford Street
- Alexander Drive and Central Avenue intersection LoS deteriorates from C to D as a result of additional vehicle demands along Alexander Drive
- Model outputs of the access intersections along Central Avenue suggest that their operation is efficient and there would not be any implications for the turning pockets in situ

For the PM school peak, the following issues were evident for the full build scenario:

- No significant change in the modelled intersections and their performance outputs. Localised, limited congestion would be a feature of the local street network around the school site as is the case with every Primary School within an Inner City context

For the PM peak, the following issues for the full build scenario were evident:

- Individual delay, queue and LoS outputs at the Alexander Drive signalised intersections show some deterioration, although the overall weighted average is consistent with the base year modelled outputs
- Bradford Street experiences similar issues as the AM peak where the approach to the Alexander Drive signals queues and blocks the PSP area access. This would likely result in a redistribution of movements from drivers or mode shift for regular visitors to the area.

The general operation of the PSP area, internal modelled network under the Full Build out scenario appears to show sufficient capacity. The modelled operation also includes lower operating speeds, drop off and pick up areas along the Boulevard and Learoyd Street with timed “holds” to reflect the drop off, and the interaction of inbound/outbound land use trips at each internal intersection.

The operation of the existing external modelling network area is relatively consistent with the base year operation where southbound AM peak and northbound PM peak hour trips along Alexander Drive continue to experience slower speeds, delays and blocking between the two signalised intersection at times during the modelled periods.

The greatest impact to the existing network is shown along Bradford Street between Alexander Drive and Learoyd Street. The combination of drop off and parking demands at Learoyd Street (existing and new development trips) and the PSP area trip generation that could use the access onto Bradford Street results in large queues that are inefficient to clear the traffic signal controlled intersection at Bradford Street and Alexander Drive.

Based on the initial outcomes for the full build modelling exercise, signal optimisation was examined to understand if adjustment of 2025 signal timings could assist in general network operations. That test proved to have a very positive outcome for the general metrics of the intersection of Alexander Drive and Bradford Street as well as the site access intersection with Bradford Street. On that basis, it is recommended that Main Roads WA monitor and adjust signal timings as required throughout the evolution of the PSP development.

A final comparison of modelled volumes (combined movements) for each of the modelled scenarios and peak hours is provided in Table 19 with the locations of the external access points shown in Figure 109.

The opening year 2028 tends to show a slight reduction across the modelled network due to the removal of the existing ECU related trips (although some background growth is also accounted for between 2025 and 2028); the Opening 2028 volumes are then further increased to the Full Build 2038 scenario that adds on the PSP area development trips.

Recommendations relating to the local network are set out in section 7.2 of this TIA.

Table 19 Modelled volume comparison

Link	Base 2025			Opening 2028			Full Build 2038 + Signals		
	AM	School	PM	AM	School	PM	AM	School	PM
<b>Site 1: Alexander Dr &amp; Central Ave</b>	3,114	2,957	3,198	3,064	2,916	3,059	3,299	3,074	3,299
<b>Site 2: Central Ave &amp; ECU Entrance 1</b>	1,527	1,493	1,301	1,387	1,372	1,276	1,703	1,585	1,559
<b>Site 3: Central Ave &amp; ECU Entrance 2</b>	1,445	1,402	1,262	1,387	1,372	1,272	1,565	1,483	1,362
<b>Site 4: Central Ave &amp; Stancliffe St</b>	1,822	1,587	1,340	1,757	1,534	1,380	2,067	1,717	1,505
<b>Site 5: Eastern School Access</b>	694	364	143	596	271	142	767	384	166
<b>Site 6: Learoyd St ECU Access</b>	563	378	213	511	405	340	749	584	425
<b>Site 7: Bradford St &amp; ECU Entrance</b>	551	377	219	466	363	274	886	642	572
<b>Site 8: Alexander Dr &amp; Bradford St</b>	2,909	2,624	2,895	2,846	2,604	2,718	3,217	2,836	3,027
<b>Site 9: Alexander Dr &amp; ECU Access</b>	2,349	2,279	2,712	2,345	2,258	2,495	2,575	2,318	2,484

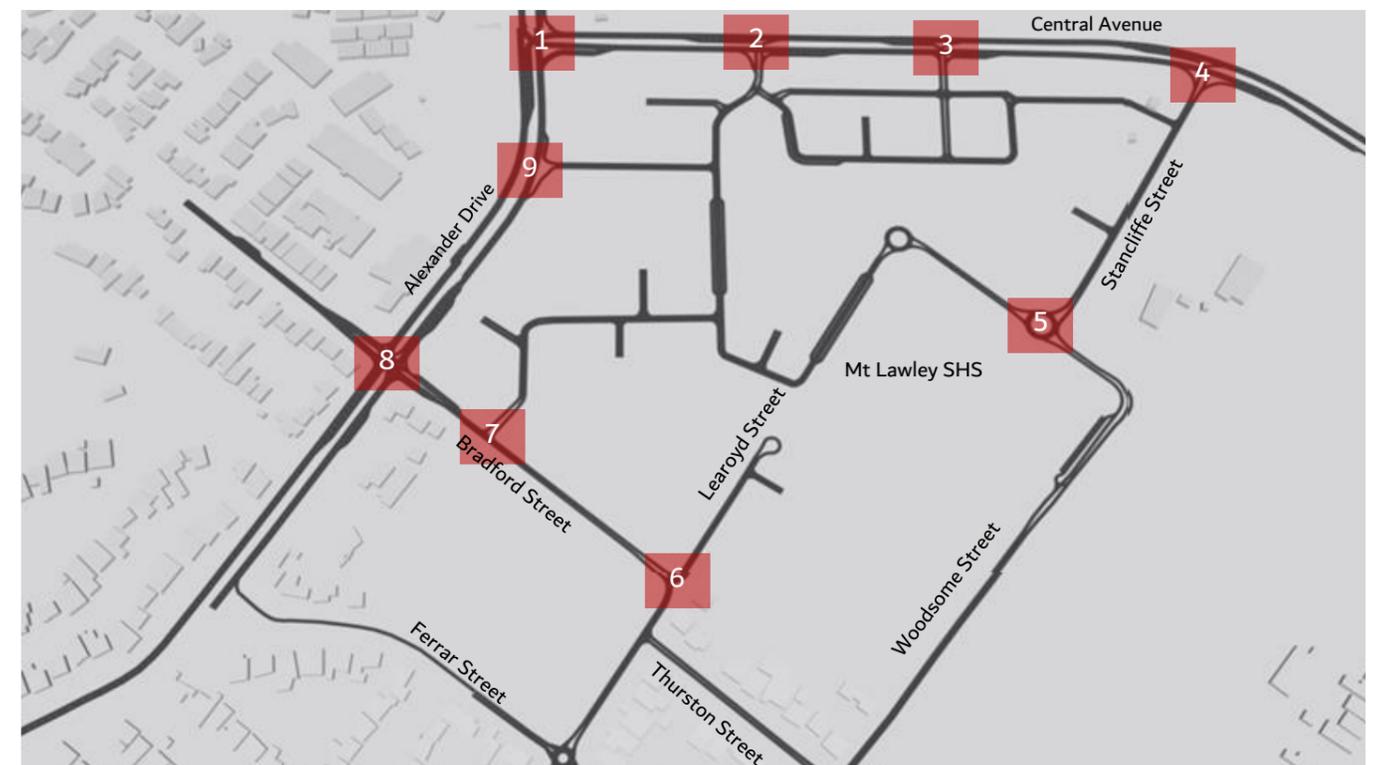


Figure 109 External access intersection locations

## 6. OTHER ISSUES

### 6.1 Stakeholder Engagement

Throughout the course of the project, development of the outcomes has been informed and defined by engagement – predominantly with the community but also with relevant stakeholders. The broader community engagement process has been considered within the planning and design response within the PSP.

For the stakeholder engagement, meetings to discuss the evolution of transport components and reporting from the PSP from the Master Plan stage of the project were held with:

- DTMI – Behaviour Change team, Transport Planning team and Active Transport team
- DTMI – Movement and Place project team
- PTA – Network and Systems Planning Team – specific to Alexander Drive and high frequency routes
- PTA – Network Development and School Services Team
- City of Stirling – Transport Planning, Traffic Engineering and Statutory Planning Team.

The broad outcomes of the engagement are set out in the following sub-sections.

#### 6.1.1 PTA engagement

- PTA advised on role and future of Route 406 (E-W). ECU does not provide a strong enough anchor to support the route. Was originally designed to connect to Maylands Station but may be reconsidered if Maylands Station is upgraded to include a dedicated bus station.
- PTA indicated that a future route for 406 via Alexander Drive and Central Avenue may offer better transfer opportunities for strategic routes, although they are not opposed to routing through the precinct. Routes through the precinct will be considered closer to the time of road network development.
- Until a Maylands Station connection is viable, the PTA are willing to consider options for the 406 route to terminate within the precinct.
- PTA expressed support for relocating the Stancliffe Street Bus Stop closer to the high school to improve safety and supervision. Noted it is unlikely primary school children will use the buses.
- For the relocation to occur, DWA must provide a suitable exit route from the precinct, as a right turn from Stancliffe Street onto Central Avenue is not appropriate for a regular bus route. PTA requested review of the intersection for this option to become viable.
- DWA must also consider the interface with parent drop-off and pick-up areas and ensure adequate kerb space and embayments are included in the proposed design. Any relocation of the Stancliffe Street Bus Stop must include a like-for-like replacement
- Community concern regarding safe pedestrian crossing at Alexander Drive noted and discussion based on surveys completed for the project.
- Northern bus stop on Alexander Drive may not be feasible due to the lack of opportunity for an opposing stop.
- PTA will be formally engaged through the PSP referral process.

On the broader network planning and routes along Alexander Drive, the PTA provided the following updates

- PTA provided an update on the Mid-Tier Transport Program (MTTP).
- Clarity on upgrades to Alexander Drive are currently complicated by potential future planning for East Wanneroo corridor.
- PTA's current priorities include:
  - > Increasing off-peak frequency to support buses every 10-15min for key routes
  - > Simplification of routes
  - > Multi-modal program
  - > Electrification of fleets
  - > Flat-rate fares
  - > Upgrade to SmartRider cards including ability to tag-on with your mobile phone
- Alexander Drive should always remain a high frequency transit service corridor.
- While the closure of ECU will impact the patronage of the adjacent 960 stop, North Perth has very high patronage so it is unlikely to have an impact. Project noted a large portion of the ECU 960 stop patronage is supported by MLSHS students which is unlikely to change.
- Safe pedestrian crossing at Alexander Drive was raised during Master Plan consultation. However, as this area lies outside the project site and traffic lights are already provided, DevelopmentWA does not have control over this matter.
- Moving the bus stops closer to the traffic lights may help this issue, however, could cause other traffic impacts at the lights.
- There are challenges of moving the stop closer to Central Ave, as there is not opportunity for an opposing crossing.
- There is a stop south of Bradford Street, closer to the lights, which captures the 19 bus route.
- Radial route changes in and out of the City have been successful, however Feeder Routes need to improve. i.e. many bus stops are too far from train stations, therefore people are more likely to drive to train stations.
- PTA support efforts to improve the safety and amenity of pedestrian routes to and from the bus stops i.e.. through lighting, accessible paths and shaded walkways.
- The project site currently holds three bus terminus. One in three trips on the 960 route turn around using the Central Ave terminus – however future intention is to remove the need for this terminus. In the interim, routes will likely utilise the Bradford Street Terminus.
- DevelopmentWA confirm the Bradford Street and Central Ave terminus will not be accessible during works (from 2027 onwards), and are not included in the current design planning.
- The Stancliffe Stop is located within road reserve and therefore not affected.

#### 6.1.2 DTMI engagement

- DTMI referred to comments provided on MRS Amendment, requesting these are addressed through the PSP.
- DTMI requested to ensure bike parking supply is adequate, even over-supplied, to support active transport goals.
- DTMI noted the importance of setting an active transport culture within the Primary School from the beginning, through choices in design and built environment. They would like to ensure the site design makes it as easy as possible to walk, wheel or ride through the precinct.
- At design stage, DTMI would like to see a key focus on crossover and crossing point design.

- DTMI noted if the Primary School catchment extends to the north of Central Ave, the active transport links on this route will be a key concern. Central Ave is currently hostile environment for pedestrians with limited crossings. Requested this is a consideration when engaging with DoE on the primary school catchment boundary.
- Noted there is currently no endorsed Mid-Tier network plan. The immediate focus of the 960 bus route is from Curtin to Perth Station, but Alexander Drive may be considered in the long term. Current long-term vision is for the 960 to connect Perth to Joondalup via East Wanneroo along Alexander Drive.
- DTMI are currently working on a set of guidelines to support the SPP 7.2 Movement Place Principle. Should consider in PSP.
- DTMI advised in the PSP report they would like to see a clear and strong Active Transport connection, long and short sections of the street network. Noted the All Ages and Abilities Context Guidance document will be referred to in their assessment of the PSP.
- DTMI provided an update on the Long Term Cycle Network (LTCN) plan for the Stirling to Mount Lawley Primary Route including:
  - > Completed high-level feasibility and context study.
  - > Currently completing further stakeholder engagement including with local businesses to determine the best alignment for the LTCN.
  - > Most likely outcome will be the addition of supplementary routes, rather than the removal of already identified routes.
  - > Agreed DWA to show the LTCN as it currently exists in the TIA.
- DTMI noted CoS are commencing a review of the Local Bike Plan over the next 12-18 months. This will begin with getting feedback on the current network and determining priorities for the plan. Opportunities to highlight crossing opportunities across Alexander Drive.
- DTMI is currently developing a Movement and Place (M&P) framework for WA, in coordination with DPLH, Main Roads and Public Transport Authority. Movement and Place is a contemporary approach to street/road design, already rolled out in other states. Recognises dual roles of street/roads: movement (travel) and place (living, socialising, daily activity).
- Aim of the M&P Framework is to improve strategic alignment and clarity in planning, with links to State Planning Policy 7.2 – Precinct Design, Networks Operations Planning Framework, and Speed Zoning Policy. Guidelines to be bespoke to WA, adapted from other existing Auckland framework. Capable of classifying any road or street in WA.
- Best suited for major corridors or complex street/roads with multi-agency interest. Framework provides a streamlined process to assess and capture M&P needs of users. Supports early agreement on shared outcomes and common language among stakeholders. Movement and Place Assessment Report (MPAR) will inform future planning and decision-making.
- Encourages asking: “What is this road or street for, and for whom?”. Intention to highlight differing expectations without prescribing solutions.
- Project to consider principles from NSW and Auckland in preparation of PSP, including:
  - Emphasis on context-sensitive design, and the consideration of all street/road users.
  - Reinforces multimodal movement and the relationship between vehicle speed, user experience, and place creation.

### 6.1.3 City of Stirling engagement

- Development of a VISSIM model for the PSP to test base year and forecast scenarios across development stages.

- Use of traffic generation rates informed by empirical data and surveys from similar sites (2022 and 2025) along with parking occupancy and travel time surveys. CoS confirmed support for the proposed methodology and requested for the survey data to be shared. Survey data indicated low pedestrian use of the signalised crossing at Alexander Drive. Main Roads WA plans to re-sequence signals at Bradford Street and Alexander Drive, though this may not improve crossing usage rates from the bus stop.
- The Department of Education is leading planning for the primary school, which will follow an inner-city format with limited on-site parking. Intake boundaries are yet to be defined.
- CoS Safety Officers currently manage illegal parking and overspill on Woodsome Street due to nearby sports clubs. Adequate parking within the development is necessary to mitigate this.
- The current plan retains existing access points to the site to limit external impacts. No new interventions (e.g., signals or roundabouts) are planned at Stancliffe Street. PTA advised that if a bus route requires regular right turns onto Central Avenue, interventions would be necessary.
- CoS suggested exploring a low-speed precinct concept, noting potential trade-offs.
- Current modelling indicates peak traffic during morning, mid-afternoon, and afternoon periods, with no significant weekend peaks.
- CoS requested:
  - > Limiting shared street treatments lacking clear separation between vehicles and pedestrians.
  - > Reducing the number of paving treatments to simplify maintenance, favouring a standard material palette.
  - > Considering delivery and waste servicing needs for commercial and apartment developments.
- Project team noted a Parking Management Plan will be included in the PSP (included in Appendix B), recommending time-managed parking bays throughout the precinct.
- CoS noted they would not typically include parking restrictions within residential areas; however they may be necessary to prevent primary school staff from using public bays. Residential parking permits are used within the CoS, but to a limited extent. If this was to be considered, it would need to be implemented from Day 1.

### 6.1.4 Main Roads WA engagement

Main Roads WA provided written advice in relation to the development of the PSP which was:

- *“Assessment of traffic signals adjacent to the site, including any upgrades or changes to the signals, and the development’s impact on the surrounding road network will be undertaken by the relevant road authority during the planning application process. In this case, this will be the City of Stirling and potentially the Department of Planning, Lands and Heritage, as Alexander Drive is classified as an Other Regional Road.*
- *Any signal changes or upgrades to the signals following planning approval of the structure plan, subdivision, and/or development application must follow the formal approval process under the Main Roads Traffic Signal Assessment Policy (TSAP) and will be assessed by the Main Roads Network Operations (Traffic Management Services) team”.*

## 7. SUMMARY

### 7.1 Precinct Structure Plan Assessment

This Transport Impact Assessment (TIA) has been prepared by Flyt in support of the Precinct Structure Plan (PSP) over the ECU Mt Lawley Redevelopment area as required by the WAPC Transport Impact Assessment Guidelines (Volume 2 – Planning Schemes, Precinct Structure Plans and Activity Centre Plans). The area is located in the City of Stirling (CoS) and as indicated by the South West Aboriginal Land and Sea Council website, the site sits within the Whadjuk Region. There is a Parking Management Plan (PMP) accompanying this TIA within Appendix B.

DevelopmentWA (DevWA) has been tasked by the State Government to establish a vision for ECU Mt Lawley to facilitate redevelopment of the area given that the existing ECU campus will relocate at the end of 2026 to its new campus in Central Perth, with some facilities and programs at the university relocating to other campuses. The development of the PSP has been subject to an extensive engagement and design process over a number of years, with the transport elements of that process and responses relating to the design set out in this TIA.

The TIA has set out the existing situation, existing transport network characteristics and examined the current function of the network. The development outcomes have been described, with the PSP area proposing up to 1,100 dwellings, a new Primary School, mixed use development, retail and commercial components and adaptive reuse of existing buildings on the ECU Mt Lawley site.

The transport network proposed within the PSP area will allow for the development of an inner suburban mixed use area which will replace the existing University land uses. This will see the creation of a new street network, pedestrian focussed outcomes and the ability to provide for travel demands in the area through new public transport connections, linkages to active transport networks and provision of street designs that will cater for vehicle traffic.

The assessment has examined the performance of the PSP street network and external intersections through the use of an area wide microsimulation traffic model. That model has been used to assess a number of different scenarios, including the full delivery of land uses proposed within the PSP area. The modelling has been informed by empirical data and validation of the conditions seen in 2025 and it illustrates that the street and road network can cater for the level of development being considered within the PSP with movements into, around and through the site being able to be managed through a range of design interventions or management proposals set out in the following section.

## 7.2 Recommendations

Recommendations resulting from the assessment within the TIA have been set out on a section by section basis.

### 7.2.1 General

- The TIA for the subdivision stage of the PSP area include details on:
  - > Street network design elements
  - > On-street parking locations and proposed controls
  - > Access Strategy for development lots within the PSP area

- > Pedestrian network configuration and design of priority access points
- > Refinement of information relating to the Primary School site
- The PSP area street network be designated as a 40km/h posted speed limit, with the CoS supporting the development and submission of an application to Main Roads WA for this to be in place upon opening of the PSP area
- New intersection at Stancliffe Street proposed within the PSP be subject to relevant design standards and requirements of CoS and Main Roads WA
- DevelopmentWA consider the potential to have a left-out only connection for an Access Street within the Garden Living character area in place of having no arm to the intersection. This would cater for service vehicle movements
- Existing turning pockets / auxiliary lane configurations on Central Avenue be retained as is within the new intersection designs to accommodate the PSP street network
- Main Roads WA be engaged at the appropriate point by CoS on the operation of existing signals on Alexander Drive at Bradford Street and Central Avenue to allow for optimisation of performance during peak periods.

### 7.2.2 Parking Management

- Parking embayments and bays throughout the PSP area be subject to relevant design standards within AS2890.5 and other standards applicable
- On-street parking management proposals set out in the PMP be refined at subdivision stage of the project, with detailed plans on location and types of timed management be agreed and adopted by the CoS
- All on-street bays are time managed from the finalisation of construction when the new PSP street network is in place
- Off-street parking policies and management within the PMP be adopted within built form controls adopted within the PSP area.

### 7.2.3 Public Transport

- Transperth note the removal of internal circulation opportunities within the ECU Mt Lawley PSP area upon cessation of operations at ECU Mt Lawley and plan for relevant contingencies
- PTA and Transperth be engaged with on the design elements and requirements for local bus stop infrastructure within the PSP area to formalise relocation of school bus stops from Stancliffe Street to the new School Green area
- PTA and CoS examine intersection configuration options on Central Avenue to facilitate regular passenger services through the PSP area
- PTA and Transperth examine potential service movements through the area and potential to incorporate extension of existing local bus services, including stop infrastructure locations
- For the existing school services, with the development of new stop locations and potential for additional local services, it is recommended that Transperth update the “Travelling to Mount Lawley Senior High School” guide when practical.

### 7.2.4 Primary School

- DoE and DoHW engage with CoS on planning for the proposed Primary School with a view to incorporating early feedback into design concepts and understanding site planning elements, with DoHW being the approvals authority for the site
- Embayments on street be provided and managed as set out in the TIA to cater for movements around peak periods

- Crossover locations into the school from the PSP street network be limited to reduce and conflict points for vulnerable users of the street network
- Primary School incorporate high levels of active transport storage on site to support use of non-vehicle modes to and from school
- The Primary School development be subject to completion of a School Transport Access and Management Plan (STAMP) that undertakes a detailed analysis of movements associated with the school and establishes recommendations to be implemented by the DoE / DoHW prior to opening. This would include a block by block analysis of pedestrian and cycling / active transport routes in close proximity to the school
- DoE / DoHW engage with DTMI and the Your Move team within planning for the site.

#### 7.2.5 Surrounding Street Network

- Updated traffic counts on the street network around the local streets as reported in the TIA be updated by the CoS after the closure of ECU Mt Lawley to provide the basis from which any future movement patterns can be evaluated
- As with the Primary School, the Mt Lawley SHS be required to undertake a STAMP to manage any increase in numbers of students or impacts associated with the potential adaptive reuse of any existing spaces within the ECU Mt Lawley PSP area
- CoS utilise the information collected for this TIA as a baseline for monitoring of traffic movements in the area. The CoS look at completing a local area Traffic Management Plan that sets benchmarks and thresholds for introduction of additional management measures in the area
- Any future planning for traffic management in the area include community engagement and detailed analysis of outcomes
- The CoS undertake an audit of local footpath and pedestrian / cycling connections in the area to make those modes more attractive to get to and from the PSP area as well as the Mt Lawley SHS.

#### 7.2.6 Active Transport

- The street network design for the Boulevard (North-South Connector) include a raised pedestrian crossing (Wombat Crossing) at a location that provides direct east-west connectivity through the site
- DTMI and CoS utilise the proposals within the PSP for future planning associated with LTCN corridors through the area
- DoE / DoHW are required to analyse provision of pedestrian connections across Central Avenue once planning for intake boundaries associated with the Primary School have been established. Any formalised or prioritised crossing of Central Avenue should be provided as part of that development.

## APPENDIX A

### Modelling Outputs

# Base Year (2025) Intersection Movement Summary

2025 BASE			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Alexander Drive and Bradford Street	NB	LT	20	26	C	162	22	29	C	239	24	27	C	255
		TH	753	30	C	162	1287	31	C	239	1689	28	C	255
		RT	152	86	F	162	66	63	E	239	55	72	E	255
	EB	LT	43	47	D	85	53	26	C	40	42	35	D	36
		TH	150	58	E	86	60	42	D	40	35	54	D	36
		RT	84	54	D	86	44	38	D	40	32	51	D	36
	SB	LT	47	51	D	351	36	25	C	108	8	14	B	110
		TH	1436	52	D	351	772	24	C	108	847	17	B	110
		RT	34	74	E	351	80	61	E	108	55	61	E	110
	WB	LT	72	41	D	70	76	35	C	63	30	39	D	50
		TH	70	72	E	71	76	52	D	63	29	51	D	50
		RT	48	73	E	71	52	52	D	63	49	54	D	50
Weighted Overall			48.12	D	Weighted Overall			31.02	C	Weighted Overall			26.81	C

2025 BASE			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Alexander Drive and Central Avenue	SB	LT	509	10	A	169	313	1	A	0	204	1	A	4
		TH	1114	31	C	245	491	22	C	62	554	23	C	72
	WB	LT	390	38	D	120	364	12	B	52	336	13	B	47
		TH	269	55	D	130	398	30	C	82	302	38	D	59
	NB	TH	522	5	A	76	1002	10	B	138	1374	9	A	185
		RT	310	52	D	76	389	30	C	138	428	23	C	185
Weighted Overall			28.04	C	Weighted Overall			16.76	B	Weighted Overall			15.93	B

2025 BASE			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Central Avenue and Parking Access West	WB	LT	43	1	A	15	12	0	A	0	9	1	A	0
		TH	617	1	A	3	671	0	A	0	596	0	A	0
	NB	LT	46	4	A	12	88	3	A	15	43	2	A	10
		RT	3	2	A	5	20	3	A	6	21	3	A	10
	EB	TH	749	0	A	0	673	0	A	0	614	0	A	0
		RT	69	2	A	18	29	2	A	9	18	2	A	8
Weighted Overall			0.82	A	Weighted Overall			0.47	A	Weighted Overall			0.37	A

2025 BASE			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Central Avenue and Parking Access East	WB	LT	15	1	A	1	13	1	A	0	11	1	A	0
		TH	641	0	A	3	669	0	A	5	596	0	A	3
	NB	LT	20	1	A	6	15	1	A	8	10	1	A	5
		RT	18	1	A	3	16	1	A	3	16	2	A	5
	EB	TH	743	0	A	0	682	0	A	0	621	0	A	0
		RT	8	3	A	7	7	3	A	6	8	2	A	4
Weighted Overall			0.26	A	Weighted Overall			0.23	A	Weighted Overall			0.24	A

2025 BASE			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Central Avenue and Stancilffe Street	WB	LT	265	2	A	18	107	1	A	10	47	1	A	1
		TH	567	0	A	0	629	0	A	0	591	0	A	0
	NB	LT	91	1	A	8	54	1	A	9	18	1	A	7
		RT	140	4	A	24	96	5	A	23	47	2	A	7
	EB	TH	671	0	A	0	637	0	A	0	618	0	A	0
		RT	88	3	A	19	64	3	A	13	19	3	A	7
Weighted Overall			0.96	A	Weighted Overall			0.69	A	Weighted Overall			0.35	A

2025 BASE			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Stancilffe Street and Woodsome Street	SB	LT	279	2	A	24	117	1	A	10	39	0	A	4
		RT	61	2	A	24	38	1	A	9	27	1	A	2
		UT	12	4	A	24	14	2	A	9	0	0	A	2
	WB	LT	56	16	C	20	20	9	A	7	7	3	A	8
		RT	194	15	C	20	99	11	B	7	42	4	A	8
		UT	46	16	C	20	22	12	B	7	0	0	A	8
	EB	LT	26	2	A	10	38	1	A	8	23	1	A	7
		RT	20	2	A	10	14	1	A	8	5	0	A	7
		UT	0	0	A	10	2	1	A	8	0	0	A	7
Weighted Overall			7.61	A	Weighted Overall			4.82	A	Weighted Overall			1.60	A

Full Build Out			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Bradford St and Development Access	WB	TH	189	0	A	0	199	0	A	0	103	0	A	0
		RT	9	3	A	9	14	1	A	3	16	0	A	2
		LT	0	0	A	0	0	0	A	0	0	0	A	0
	SB	RT	3	7	A	11	3	6	A	11	2	2	A	0
		LT	57	0	A	0	53	0	A	0	44	0	A	0
	EB	TH	293	0	A	0	108	0	A	0	54	0	A	0
Weighted Overall			0.15	A	Weighted Overall			0.13	A	Weighted Overall			0.08	A

Full Build Out			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Bradford St and Leary St	EB	LT	162	1	A	0	44	0	A	0	10	0	A	0
		TH	132	1	A	0	64	0	A	0	43	0	A	0
	SB	LT	37	11	B	17	40	6	A	23	25	7	A	2
		RT	71	10	B	17	82	7	A	23	22	9	A	7
	NB	RT	127	1	A	0	131	1	A	0	98	1	A	0
		TH	34	2	A	10	17	3	A	9	15	1	A	10
Weighted Overall			2.90	A	Weighted Overall			2.82	A	Weighted Overall			2.29	A

# Opening Year (2028) Intersection Movement Summary

Opening 2028			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Alexander Drive and Bradford Street	NB	LT	21	23	C	110	24	27	C	238	19	21	C	204
		TH	744	26	C	110	1310	30	C	238	1349	21	C	204
		RT	134	59	E	110	48	53	D	238	17	56	E	204
	EB	LT	44	42	D	85	56	21	C	38	69	34	C	43
		TH	129	58	E	85	44	37	D	38	28	51	D	44
		RT	84	56	E	86	45	34	C	39	51	54	D	44
	SB	LT	41	58	E	201	26	21	C	97	3	13	B	116
		TH	1455	55	E	201	724	23	C	97	897	17	B	116
		RT	35	75	E	202	84	65	E	98	61	70	E	116
	WB	LT	61	40	D	54	90	37	D	63	66	44	D	80
		TH	59	61	E	54	91	49	D	63	54	60	E	80
		RT	39	63	E	54	62	49	D	63	104	63	E	80
Weighted Overall			47.30	D	Weighted Overall			29.57	C	Weighted Overall			23.12	C

Opening 2028			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Alexander Drive and Central Avenue	SB	LT	473	10	A	267	305	1	A	0	212	1	A	6
		TH	1153	35	C	342	500	22	C	61	601	25	C	82
	WB	LT	368	41	D	117	333	11	B	36	370	13	B	49
		TH	256	48	D	73	354	31	C	56	342	40	D	83
	NB	TH	531	4	A	82	1046	8	A	140	1183	6	A	150
		RT	283	49	D	82	378	27	C	140	351	20	C	150
Weighted Overall			28.90	C	Weighted Overall			15.21	B	Weighted Overall			15.61	B

Opening 2028			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Central Avenue and Development Access West	WB	LT	0	0	A	11	0	0	A	0	0	0	A	0
		TH	626	1	A	4	685	0	A	0	712	0	A	0
	NB	LT	0	0	A	0	0	0	A	0	0	0	A	0
		RT	5	12	B	14	4	10	A	14	0	0	A	0
	EB	TH	756	0	A	0	683	0	A	0	564	0	A	0
		RT	0	0	A	0	0	0	A	0	0	0	A	0
Weighted Overall			0.69	A	Weighted Overall			0.23	A	Weighted Overall			0.22	A

Opening 2028			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Central Avenue and Development Access East	WB	LT	0	0	A	0	0	0	A	0	0	0	A	0
		TH	628	0	A	0	686	0	A	0	711	0	A	0
	NB	LT	0	0	A	0	0	0	A	0	0	0	A	0
		RT	0	0	A	0	0	0	A	0	0	0	A	0
	EB	TH	759	0	A	0	686	0	A	0	561	0	A	0
		RT	0	0	A	0	0	0	A	0	0	0	A	0
Weighted Overall			0.24	A	Weighted Overall			0.20	A	Weighted Overall			0.21	A

Opening 2028			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Central Avenue and Stancilffe Street	WB	LT	245	2	A	18	88	1	A	7	40	1	A	1
		TH	542	0	A	0	643	0	A	0	689	0	A	0
	NB	LT	85	1	A	9	42	1	A	7	23	1	A	7
		RT	127	5	A	23	73	5	A	16	68	4	A	14
	EB	TH	677	0	A	0	633	0	A	0	547	0	A	0
		RT	81	5	A	18	55	4	A	16	13	3	A	9
Weighted Overall			1.06	A	Weighted Overall			0.68	A	Weighted Overall			0.45	A

Opening 2028			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Stancilffe Street and Woodsome Street	SB	LT	293	4	A	30	122	2	A	9	51	0	A	1
		RT	22	7	A	30	9	9	A	7	1	1	A	0
		UT	8	6	A	30	10	2	A	7	0	0	A	0
	WB	LT	12	9	A	19	2	10	B	8	0	0	A	3
		RT	189	13	B	19	99	9	A	8	89	6	A	3
		UT	43	13	B	19	21	9	A	8	0	0	A	3
	EB	LT	16	2	A	11	6	1	A	4	1	0	A	0
		RT	13	3	A	11	1	0	A	4	0	1	A	0
		UT	0	0	A	11	1	1	A	4	0	0	A	0
Weighted Overall			7.44	A	Weighted Overall			5.53	A	Weighted Overall			4.05	A

Opening 2028			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Bradford St and Development Access	WB	TH	158	0	A	0	242	0	A	0	224	0	A	3
		RT	0	0	A	0	0	0	A	0	0	0	A	3
		LT	0	0	A	0	0	0	A	0	0	0	A	0
	SB	RT	3	6	A	14	3	5	A	14	2	4	A	11
		LT	4	0	A	0	4	0	A	0	2	0	A	0
	EB	TH	301	0	A	0	114	0	A	0	46	0	A	0
Weighted Overall			0.09	A	Weighted Overall			0.10	A	Weighted Overall			0.17	A

Full Build Out			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Bradford St and Leroyd St	EB	LT	171	1	A	0	54	1	A	0	14	0	A	0
		TH	131	1	A	0	60	0	A	0	32	0	A	0
	SB	LT	0	0	A	0	21	1	A	11	37	1	A	14
		RT	0	0	A	0	44	3	A	14	31	3	A	17
	NB	RT	158	1	A	3	198	1	A	0	192	1	A	2
TH	51	3	A	19	28	3	A	14	34	2	A	7		
Weighted Overall			1.38	A	Weighted Overall			1.35	A	Weighted Overall			1.39	A

# Full Build Out + Signal Test (2038) Intersection Movement Summary

Full Build Out + signal test			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Alexander Drive and Bradford Street	NB	LT	21	23	C	229	24	28	C	237	19	22	C	215
		TH	742	27	C	229	1306	30	C	237	1348	21	C	215
		RT	198	157	F	229	106	74	E	237	102	102	F	215
	EB	LT	44	50	D	84	56	26	C	42	68	129	F	107
		TH	166	63	E	84	72	41	D	42	81	147	F	107
		RT	84	60	E	84	44	42	D	42	51	119	F	108
	SB	LT	67	56	E	199	32	16	B	68	9	5	A	76
		TH	1489	52	D	199	750	18	B	68	935	15	B	76
		RT	46	79	E	199	88	56	E	68	70	72	E	77
	WB	LT	199	74	E	106	153	51	D	106	158	49	D	104
		TH	102	114	F	106	118	70	E	106	71	73	E	105
		RT	59	114	F	106	87	75	E	106	115	73	E	105
Weighted Overall			54.95	D		30.73	C		32.58	C				

Full Build Out + signal test			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Alexander Drive and Central Avenue	SB	LT	571	14	B	343	401	1	A	0	372	1	A	19
		TH	1191	44	D	419	520	25	C	68	603	29	C	94
	WB	LT	375	30	C	97	330	13	B	56	380	17	B	63
		RT	325	56	E	121	379	35	D	76	397	52	D	131
	NB	TH	544	1	A	70	1065	11	B	82	1191	4	A	55
		RT	293	69	E	70	379	31	C	82	356	19	B	55
Weighted Overall			33.76	C		17.88	B		17.29	B				

Full Build Out + signal test			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Central Avenue and Development Access West	WB	LT	50	1	A	8	35	1	A	6	57	1	A	6
		TH	646	1	A	0	684	0	A	0	719	0	A	0
	NB	LT	61	3	A	13	25	2	A	9	52	3	A	8
		RT	82	7	A	23	57	7	A	17	3	4	A	4
	EB	TH	772	0	A	0	700	0	A	0	586	0	A	0
		RT	92	3	A	27	84	3	A	13	142	3	A	24
Weighted Overall			0.92	A		0.63	A		0.66	A				

Full Build Out + signal test			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Central Avenue and Development Access East	WB	LT	14	1	A	0	9	1	A	0	0	0	A	0
		TH	687	0	A	2	718	0	A	2	769	0	A	2
	NB	LT	11	1	A	3	3	1	A	0	6	1	A	5
		RT	0	0	A	0	0	0	A	0	0	0	A	0
	EB	TH	846	0	A	0	741	0	A	0	569	0	A	0
		RT	7	3	A	5	12	3	A	7	18	4	A	6
Weighted Overall			0.30	A		0.25	A		0.30	A				

Full Build Out + signal test			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Central Avenue and Standliffe Street	WB	LT	323	2	A	24	146	1	A	19	48	1	A	2
		TH	606	0	A	1	687	0	A	0	746	0	A	0
	NB	LT	95	2	A	10	41	2	A	7	23	2	A	7
		RT	197	8	A	34	107	6	A	22	120	6	A	21
	EB	TH	764	0	A	0	682	0	A	0	555	0	A	0
		RT	82	6	A	19	54	5	A	18	13	4	A	7
Weighted Overall			1.60	A		0.89	A		0.76	A				

Full Build Out + signal test			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Standliffe Street and Woodsome Street	SB	LT	312	5	A	82	142	2	A	28	56	0	A	3
		RT	100	6	A	82	66	3	A	27	4	1	A	0
		UT	8	8	A	82	9	4	A	27	0	0	A	0
	WB	LT	33	5	A	29	18	2	A	13	0	0	A	7
		RT	188	14	B	29	100	11	B	13	89	7	A	7
		UT	44	13	B	29	21	9	A	13	0	0	A	7
	EB	LT	49	2	A	12	13	1	A	6	17	1	A	5
		RT	33	3	A	12	15	2	A	6	0	0	A	5
		UT	0	0	A	12	0	1	A	6	0	0	A	5
Weighted Overall			7.74	A		5.06	A		3.74	A				

Full Build Out + signal test			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Bradford St and Development Access	WB	TH	237	34	D	129	289	7	A	54	247	2	A	25
		RT	48	29	D	129	38	6	A	54	19	3	A	25
	SB	LT	37	28	D	91	38	6	A	27	16	1	A	20
		RT	132	40	E	91	67	12	B	28	98	4	A	21
	EB	LT	132	0	A	1	97	0	A	0	145	0	A	0
		TH	300	0	A	1	113	0	A	0	47	0	A	0
Weighted Overall			17.86	C		5.42	A		1.84	A				

Full Build Out + signal test			AM Peak				School Peak				PM Peak			
Location	Approach	Direction	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length	Volume	Delay	LOS	Max Queue Length
Bradford St and Lenroyd St	EB	LT	171	1	A	0	53	1	A	0	14	0	A	0
		TH	166	1	A	0	98	0	A	0	49	0	A	0
	SB	LT	59	10	B	28	64	7	A	31	61	5	A	24
		RT	80	13	B	28	94	10	B	31	55	8	A	24
	NB	RT	206	2	A	14	234	2	A	11	211	2	A	0
		TH	67	5	A	42	41	4	A	33	35	3	A	16
Weighted Overall			3.52	A		3.55	A		2.82	A				

## APPENDIX B

### Framework Parking Management Plan



# ECU Mt Lawley Precinct Structure Plan

## PARKING MANAGEMENT PLAN



PROJECT	81113-862-FLYT-TIA-00017 Rev 2			
TITLE	ECU Mt Lawley Precinct Structure Plan – Parking Management Plan			
Revision	Description	Originator	Review	Date
0	Draft	CAS	CXS/Project	17/11/25
1	Reviewed	CAS	CXS	10/12/25
2	Issued	CAS	CXS	17/12/25

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## 1. INTRODUCTION

### 1.1 Site Information

Flyt has completed this framework Parking Management Plan (PMP) in support of developing the Precinct Structure Plan (PSP) for the ECU Mt Lawley Redevelopment. The site is within the City of Stirling (CoS) and as indicated by the South West Aboriginal Land and Sea Council website, the site sits within the Whadjuk Region.

This version of the PMP has been developed to support the PSP but would be subject to revisions, most immediately at the Subdivision stage of the project where there is greater definition street configuration and design. The location and boundary of the PSP is shown in Figure 1.



Figure 1 ECU Mt Lawley Precinct Structure Plan boundary (source: Metromap)

DevelopmentWA (DevWA) has been tasked by the State Government to establish a vision for ECU Mt Lawley to facilitate redevelopment of the area given that the existing ECU campus will relocate at the end of 2026 to its new campus in Central Perth, with some facilities and programs at the university relocating to other campuses.

The development of the PSP, shown in Figure 2, has been subject to an extensive engagement and design process, which has included development of a Master Plan and MRS Scheme Amendment, with the transport elements of that process and responses relating to the design set out in the Transport Impact Assessment (TIA) for the project, with this PMP forming an appendix to that broader assessment.

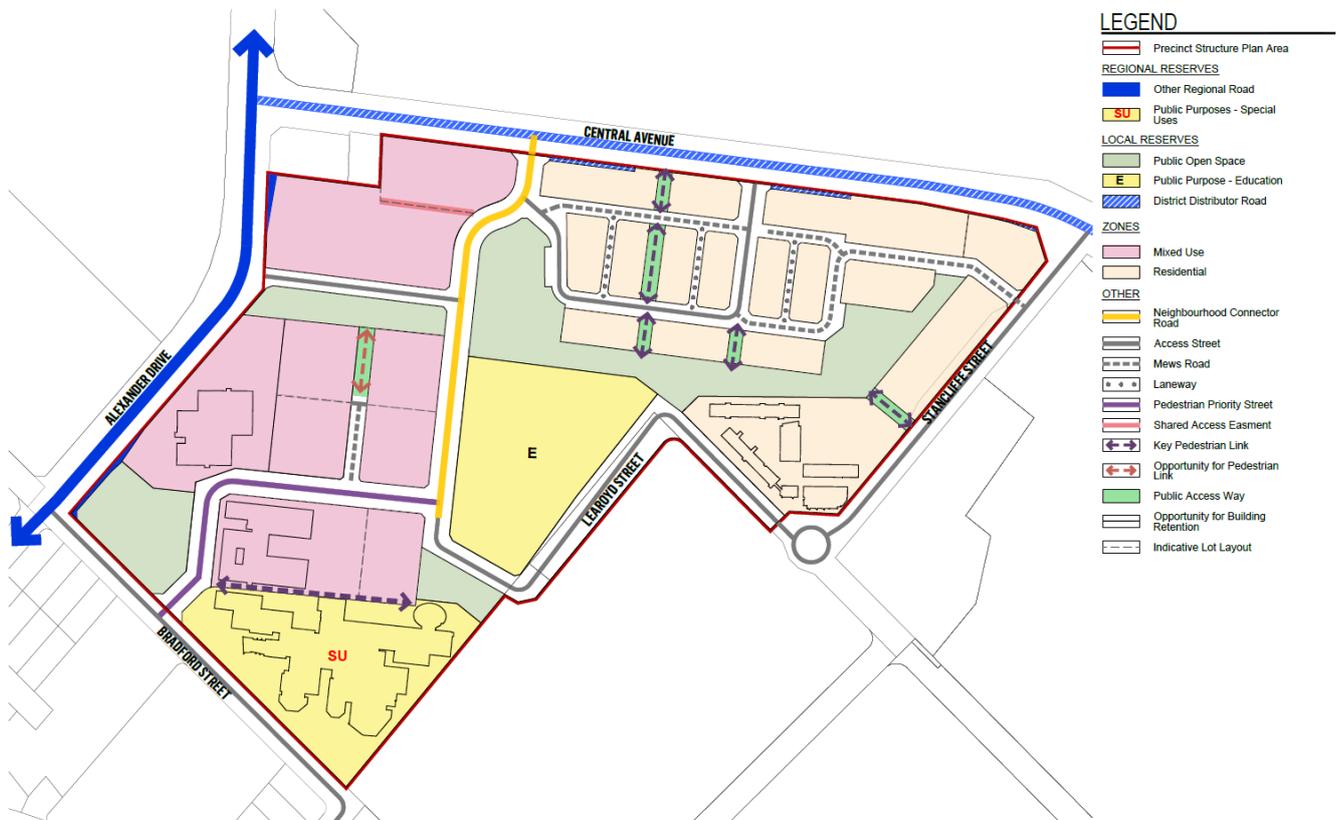


Figure 2 ECU Mt Lawley PSP (source: Urbis)

Within State Planning Policy (SPP) 7.2, the Department of Planning, Lands and Heritage (DPLH) sets out the broad parameters of a PMP that supports the broader development:

**“Parking supply and management plan that considers a range of policy options such as parking caps or time restrictions and includes efficiency measures such as reciprocal/common user parking and the location and management of parking supply”**

SPP 7.2 also sets out an Objective and five considerations, which are:

**“Objective O4.4:** To ensure the quantity, location, management and design of parking supports the vision of the precinct.

**Consideration C4.4.1** - Provide the minimum amount of car parking appropriate for the precinct.

**Consideration C4.4.2** - Manage and locate car parking to prioritise access according to the needs of different user groups.

**Consideration C4.4.3** - Design parking to be integrated with the urban form.

**Consideration C4.4.4** - Design parking for adaptability over time to accommodate potential future change of use.

**Consideration C4.4.5** - Consider parking requirements and end of trip facilities for other transport modes.”

## 1.2 Private and Public Parking Functions

Within the PSP, there will be two considerations – the provision of public parking (on and off-street) and the requirements for off-street parking for both residential and non-residential development (private parking). The existing land use of ECU University has a significant proportion of existing at-grade parking supply. Given those land uses will be largely removed, that parking provision will also largely be removed and replaced with lot by lot consideration of parking provision.

In addition, the PSP is proposing a street network which will include on-street parking provision. At present on-site there is no public street network or road reserves that provide on-street parking provision so this will be a new dynamic for the development site.

For private parking provision, existing guidelines and requirements set out within an SPP and State planning framework context will be referred to. These guidelines and policies are:

- SPP 7.2 Precinct Design Guidelines
- SPP 7.3 Residential Design Codes Volume 2 – Apartments
- Liveable Neighbourhoods
- WA Planning Manual - Non-Residential Car Parking Rates in Perth and Peel 2024
- City of Stirling Policy Manual 6.7 Parking and Access, specifically:
  - > Section 5.1.1
  - > Section 5.1.3
  - > Section 6
  - > Section 7
  - > Section 8
  - > Section 9
  - > Section 11.

For parking provision within the Primary School site, the form, volume and location of parking would be considered through design development by the Department of Housing and Works (DoHW) taking into consideration all factors required to be addressed. The DoHW Primary School Brief takes precedence given it is a school site.

### 1.3 SPP 7.3 – Residential Design Codes Volume 2 – Apartments

As set out in SPP 7.3:

*“This Volume (R-Codes Volume 2 - Apartments) provides planning and design standards for residential apartments (multiple dwellings) in areas coded R40 and above, within mixed use development and activity centres. The policy also:*

*Guides developers, planners, urban designers, architects, landscape architects, builders and other professionals when designing apartments and preparing an application for development approval.*

*Assists planning professionals in local and State government with strategic planning and in the preparation of local controls, design guidelines and the assessment of development proposals.*

*Informs the community on the principles of good design and planning practice for the development of residential apartments.*

*For multiple dwelling developments in areas coded below R40, refer to Volume 1 of the R-Codes”.*

Given that all of the proposed residential codes in the development area are above R40, the provisions of SPP 7.3 would apply and would take precedence over other elements of this PMP.

### 1.4 WA Planning Manual - Non-Residential Car Parking Rates in Perth and Peel 2024

As set out in the WA Planning Manual for Non-Residential Car Parking:

*“The guidance has been approved by the WAPC to support the review of existing non-residential car parking rates under the local planning framework on zoned land, in the Perth and Peel regions.*

*Specifically, the guidance:*

*(a) defines consistent (on-site) car parking rates for non-residential land uses in activity centres and precincts, and Service Commercial industrial zones; and*

*(b) provides details on the process to adopt and implement the car parking rates under a local planning framework.*

*The document provides minimum and maximum car parking rates which can be applied in the following areas:*

- *Commercial/Mixed Use areas in activity centres and precincts*
- *Service Commercial zone*

- *Industrial zones including Light Industry, General Industry, Strategic Industry, and Industrial Development*

Given the form of development being considered within the ECU Mt Lawley PSP area, the provisions of the WA Planning Manual would apply.

## 2. CONSIDERATION C4.4.1 MINIMUM PARKING ALLOCATION

### 2.1 Parking Allocation

Land use within the development area would be subject to individual development applications which would establish the level of parking per site that is provided. That minimum level would be based on the development controls that are evident for most sites. The proposed controls within the PSP are as follows:

- For all residential properties, provisions within SPP7.3 relating to residential development, which is replicated in Figure 3. Given the majority of the residential lots would be within 250m of a stop for the 960 service on Alexander Drive, the sites should be considered as Location A. The 250m straight line radius from existing stops is illustrated in Figure 4

Minimum levels are based on a range of factors and some development may achieve a zero minimum. Typical development outcomes for an area such as the PSP would achieve parking ratios of around 1.2 bays average per unit based on surveys undertaken to inform this SPP

Parking types		Location A	Location B
Car parking <sup>1</sup>	1 bedroom dwellings	0.75 bay per dwelling	1 bay per dwelling
	2+ bedroom dwellings	1 bay per dwelling	1.25 bays per dwelling
	Visitor	1 bay per four dwellings up to 12 dwellings 1 bay per eight dwellings for the 13th dwelling and above	
Bicycle parking <sup>1</sup>	Resident	0.5 space per dwelling	
	Visitor	1 space per 10 dwellings	
Motorcycle/ Scooter parking <sup>2</sup>	Developments exceeding 20 dwellings provide 1 motorcycle/scooter space for every 10 car bays		
<p><sup>1</sup> Calculations of parking ratios shall be rounded up to the next whole number.  <sup>2</sup> For each five motorcycle/scooter parking bays provided in accordance with Table 3.9, car parking bays may be reduced by one bay.</p> <p><b>Definitions:</b>  <b>Location A:</b> within 800m walkable catchment of a train station and/or 250m of a transit stop (bus or light rail) of a high-frequency route and/or within the defined boundaries of an activity centre.  <b>Location B:</b> not within Location A.</p>			

Figure 3 Provisions within SPP 7.3 for parking types and locations (source: DPLH)



### 3. CONSIDERATION C4.4.2 MANAGEMENT AND LOCATION OF CAR PARKING

#### 3.1 Introduction

This consideration covers:

*“Consider reciprocal car parking opportunities where different land uses have differing parking patterns of use. This should be reviewed individually in the context of the precinct and the target mode share to identify whether parking is required, and if so, how much and in what form.*

*Locate and consolidate parking to enable ‘park once’ precincts where drivers can park once to access multiple locations on foot. Shared off-street parking provided on the periphery of walkable precincts can assist.*

*Manage the on-street parking within the precinct. Consider the provision of ‘short stay parking’ bays and accessible parking bays (available for ACROD parking permits) in convenient locations. Provide a safe space for passenger drop-off and pick-up, including coach parking, where appropriate. These bays should be carefully planned with regard to number and location”.*

#### 3.2 Reciprocal Car Parking

Within the ECU Mt Lawley PSP area, the opportunity for reciprocal parking is most evident through on-street bays and linked trips taken to the site. The form of land uses developed in a PSP largely determine the potential for reciprocal parking. Examples of this based on the land uses presented in the ECU Mt Lawley PSP include:

- Potential for parents / carers to use on-street parking at drop off or pick up for students but then also use local park facilities or attend before or after school hours activities in adjacent open space areas
- User of the retail facilities parking their vehicle off-street within a development site but then also using a nearby food and beverage outlet or café
- Attendees at an event run by the CoS or MLSHS using bays outside of peak periods to park a vehicle, including available bays external to the PSP boundary at the adjoining sports grounds and open space.

#### 3.3 Park Once Potential

The ECU Mt Lawley PSP area is an ideal “park once site” with all land uses in the area able to be access easily by foot once a vehicle has been parked. The site has been deliberately planned to have minimal street crossings and has an east-west spine through the area which accommodates pedestrian movements.

### 3.4 On-Street Parking Management

It is recommended that all on-street bays are time managed from the finalisation of construction when the new street network is in place. This is due to the potential impacts associated with parking demands evident with the adjacent MLSHS and also the potential for commuters to park in the area and catch high frequency bus services along Alexander Drive. The following is information as set out within the TIA for the PSP relating to the approach to on-street parking management:

The level of on-street parking, and how that could be managed, was examined within the reporting for the ECU Mt Lawley Redevelopment Scheme Amendment. That initial analysis was:

*“For on-street parking, there will be limitations on the level of on-street parking simply through the areas available for provision of bays. There would also be limitations on where bays can and cannot be provided (e.g. design parameters set out within AS2890.1, AS2890.5 and AS2890.6) and the City of Stirling (CoS) would also have existing policies relating to the management of on-street bays that would require consideration.*

*For on-street parking provision, the recommended approach for more detailed design stages of the project would be:*

- *Design of areas of on-street parking be cognisant of relevant design parameters (Australian Standards and CoS)*
- *No long term parking bays be provided in the area, with all on-street bays in the southern area (Streets A, B, C and Learoyd Street) being fee payable to reflect the existing conditions along Bradford Street. Maximum stay being 2P / 3P to remove potential for use by commuters as long term parking reduces supply for short term visits / use*
- *The provision of on-street bays set out a hierarchy of priority for users, most generally being ACROD bays, service / loading bays, bus stops and then short term fee payable parking (2P or 3P maximum)*
- *Area along the northern side of Bradford Street be considered for embayed on-street parking*
- *Relevant controls around the Primary School site be established to ensure management from the first day of operation of the school site. There should be an area set aside adjacent to the school site for drop off and pick up activity*
- *Existing parking area for students along Learoyd Street be converted to short-term bays.*

*The indicative provision of on-street bays along the internal network could range from a minimum provision of around 60-80 bays to a maximum of around 120-140 bays depending on the ultimate design approach and treatment of landscaping elements. Along Learoyd Street and Stancliffe Street there are nearly 30 existing on-street bays and some additional short stay spaces could be created on the northern section of Learoyd Street*

*meaning there could be a further 10 bays in that area. Some of those existing bays should be converted to provide additional landscaping along that corridor which is presently sparse.*

*This would see indicative on-street parking provision within the amendment area being between 100 to 180 spaces. This would be subject to more detailed design and configuration of all street spaces within the area and on the surrounding network’.*

Based on the layout of the PSP, the existing indicative volume of on-street bays that could be provided, which are a combination of embayments, street spaces and 90 degree bays, is approximately 150-160. This exact volume would be subject to detailed design and consideration of a range of inputs that would be refined. This includes location of access points into development site, landscaping considerations, civil design inputs and other factors such as drainage location and proximity to intersections.

The proposed approach to managing bays within the ECU Mt Lawley PSP area is retained – all on-street bays in the area should be managed from the opening of the site so that there are no amenity impacts from user behaviours and no expectation that parking in the area would be unconstrained. Given the nature of the land uses present and those planned in the PSP, management of parking will be key to ensuring that residents and visitors to the site have access to parking when required and those bays are not taken up by long term parking.

The CoS has a Residential Parking Policy, however that only applies to dwellings which have fewer than two parking spaces or if occupants have more vehicles than parking spaces. Given the typology of the residential dwellings being considered in the PSP, many sites may not be eligible for on-street permit parking. The overall eligibility conditions for permits are:

- *“You are a resident of the City of Stirling.*
- *You reside in an area determined by the City to be a high demand parking area where permits are required.*
- *The vehicle for which you intend to use the permit is not a commercial vehicle (with a tare weight greater than 2,500 kilograms), a trailer, truck, caravan, bus, bicycle or tractor.*
- *You have fewer than two parking spaces on the premises you occupy.*
- *You have more vehicles than parking spaces’.*

The potential layout of bays considered within the PSP are set out in Figure 5. Bays are generally embayed on-street parking set along street frontages that do not have individual lot access. Three areas of 90 degree on-street parking are proposed, all within the medium density residential area in the north-eastern corner of the PSP area.



Figure 5 Potential on-street parking locations in PSP (source: Urbis)

It is proposed that bays within the PSP area would be 2P or 3P between 8.00am – 5.00pm on weekdays. This would retain amenity for residents with on-street bays available for visitor use out of general hours and on weekends.

Adjacent to the Primary School site, there are on-street parking management mechanisms available which allow for bays to be made available for use during key times. An example of this is seen adjacent to Trinity College in East Perth where bays are typically 3P between 9.00am and 2.00pm and then P5 between 8.00am and 9.00am and 2.00pm and 6.00pm. A similar approach is used in front of many schools in the CoS, with an example being Servite College where P10 restrictions are in place between 7.30am and 9.00am and 2.30pm and 4.00pm for bays in front of the school on Cape Street on school days.

Given management of all on-street bays is the objective in this PSP and there will be limited on-site parking for the Primary School, the approach used within the City of Perth where specific management conditions apply over all hours of a weekday is preferred and should be applied by the CoS on opening of the development. It is recommended that bays adjacent to direct frontage of the Primary School site be 2P and then P15 between 8.00am and 9.00am and 2.00pm and 4.00pm Monday – Friday.

Adjacent to the mixed use and commercial areas of the PSP, bays could be a mix of different time restrictions depending on location and land uses in the area. These could vary depending on type of bay as well. Short term bays could be installed where there are likely requirements for servicing and delivery, with areas further away from the Primary School site being 2P or 3P.

All marked bus bays and bus stops within the area would be subject to the controls set out under the Road Traffic Code.

The refinement of exact parking controls should be undertaken at the subdivision stage of the project with specific plans submitted to the CoS alongside a revision of this framework PMP.

## 4. CONSIDERATION C4.4.3 DESIGN PARKING TO BE INTEGRATED WITH THE URBAN FORM

### 4.1 Introduction

This consideration sets out the following:

*“Consider the location and quantity of on and off-street parking within the precinct and how it can contribute to or detract from the urban form.*

*Parking facilities should be located, designed and/or landscaped so that they do not visually dominate frontages to streets or other public spaces. Investigate locating parking at the rear of commercial and mixed use lots to allow buildings to front and address the streetscape.*

*Access to, from and within car parks should be safe, direct, and well-lit with passive surveillance such as windows from buildings overlooking car parks, in accordance with CPTED principles”.*

### 4.2 Location and Quantity of Parking

The location and potential quantity of on-street parking has been examined in the previous section. For off-street parking, the quantity and location of parking would be established through development controls for each site based on the proposed guidance set out in Section 3.

### 4.3 Design of Parking Locations

Within the ECU Mt Lawley Master Plan, it was noted:

*“Parking will be integrated into building design or located behind active frontages, with future design guidelines to ensure it is functional, discreet and adaptable”.*

Parking is generally to be sleeved behind buildings or integrated into the sites, with more detailed provisions for design to be set out within the Built Form Controls within the PSP.

### 4.4 Access to Parking

As set out, parking is to be sleeved behind buildings or integrated into the sites where practical, with more detailed provisions for design set out within the Built Form Controls developed for the PSP. Site access points will be limited to remove conflict areas between development sites and footpaths. Provisions within section 8 and 9 of the City of Stirling Policy Manual 6.7 would apply.

Access to lots will be limited to a single integrated crossover point where practical so as to ensure there is no impact on adjacent landscaping or treatment of the streetscape.

The proposed general access arrangements for the mixed use lots within the core of the PSP are shown in Figure 6. During detailed site planning and design development for key sites, access arrangements would be refined to ensure acceptable outcomes in keeping with the provisions included in Built Form Controls.

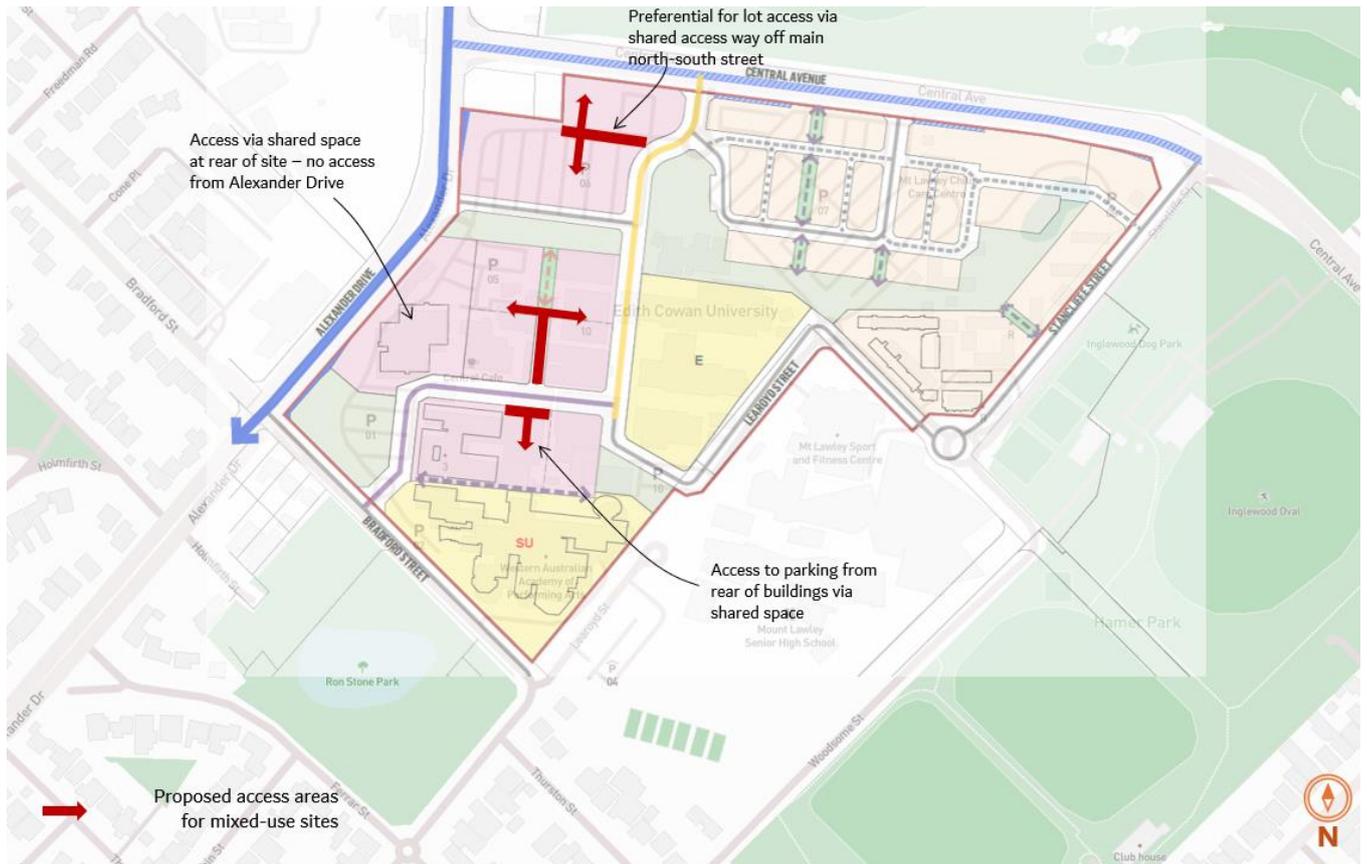


Figure 6 Potential access routes for integrated parking of mixed use lots (source: Planwisely / Urbis)

## 5. CONSIDERATION C4.4.4 - DESIGN PARKING FOR ADAPTABILITY OVER TIME

### 5.1 Introduction

This consideration sets out the following requirements:

*“Parking demand assessment should consider emerging technologies and required supporting services such as demand for electric vehicle charging stations.*

*When locating parking facilities, consider how potential future adaptation might be integrated into the public realm. Examples of repurposing car parking can include replacing car parking bays as parklets, seating and local planting spaces, while larger scale off-street car parks can be transitioned into community focussed green spaces, social spaces and community hubs.*

*Consolidated parking can make future adaptation easier to achieve”.*

### 5.2 Future Proof and Emerging Technologies

It is recommended that provisions within section 5.1.3 of the City of Stirling Policy Manual 6.7 apply with potential for inclusion of more specific provisions within the Built Form Controls for developments.

This approach is established within other development precincts, such as the statutory controls for the Perth Girls School site in East Perth adopted through the City of Perth which includes the following provisions:

- *“Parking areas, especially those above ground, are designed to be adaptable for future uses, for example:
 
  - > floor to floor heights of at least 3.1m;
  - > car parking not located on ramps; and
  - > the structure of the building makes provision for future adaptive reuse with the ability to insert openings for natural light and ventilation.*
- *Basement parking is designed with consideration to levels across the site and will not protrude more than 1m above natural ground level at any point, unless stated otherwise in these Design Guidelines, to minimise blank walls and prevent negative visual impact on the streetscape and active edges.*
- *Charging stations for electric vehicles and scooters are incorporated into parking areas, with the electrical supply to provide vehicle charging capacity for at least 50% of the total number of bays.*
- *Provisions of bays for innovative car-sharing programs, reciprocal parking, shared parking arrangements and car stackers are encouraged, to maximise efficiency of use.*

- *Provision of a minimum of two bays for fixed-point (i.e. not floating) car sharing vehicles in any public car parking area*’.

The inclusion of such provisions within the Built Form Controls should form the basis of ensuring that Consideration C 4.4.4 is addressed in addition to those provisions already set out within the CoS Policy Manual 6.7 section 5.1.3.

## 6. CONSIDERATION C4.4.5 - PARKING REQUIREMENTS AND END OF TRIP FACILITIES FOR OTHER MODES

### 6.1 Introduction

This consideration requires examination of:

*“Parking for bicycles, motorcycles, scooters, ride sharing, mobility scooters and other vehicles should all be considered in the context of the precinct’s environment, character, purpose and mode share targets.*

*End of trip facilities should be provided to cater for and promote cycling within commercial/mixed use, residential and community developments such as showers, change rooms and lockers”.*

### 6.2 Active Transport Parking

The PSP has been analysed for active transport networks within the TIA which formed part of the overall PSP suite of documents. For individual sites, residential provisions are covered for residential development in the area through the provisions in SPP7.2 as shown in Figure 3.

As per the configuration of parking spaces, existing precedents for application of bicycle and scooter parking rates and facilities can be found within the Perth Girls School Design Guidelines within the City of Perth Planning Policy Manual. The provisions for those sites, should be incorporated within the Built Form Controls for the ECU Mt Lawley PSP and would take precedence over the CoS Policy Manual 6.7 section 7, are:

*“Acceptable Outcomes*

- *Developments are provided with bicycle parking and end of trip facilities in accordance with (Figure 7).*
- *All bicycle parking facilities are to be designed and constructed in accordance with Australian Standard 2890.3 (as amended) and Austroads Guide to Traffic Engineering Practice Part 14 – Bicycles.*
- *Bicycle parking for visitors should be located at ground level adjacent to the building entry and such that it:*
  - > *allows for passive surveillance from public spaces such as from roads and other buildings;*
  - > *does not disrupt pedestrian movement(s);*
  - > *is accessible from the road and cycle path; and*
  - > *is in well-lit areas.*
- *Bicycle parking facilities for commuting staff are designed in accordance with CPTED principles to promote the safety and security of users and be co-located to promote efficient use.*

- *Lockers and locker rooms are ventilated and of a size sufficient to allow the storage of cycle attire and equipment.*
- *Charging stations for electric bicycles and other micro mobility means are incorporated into bicycle parking areas, with the electrical supply and car parking distribution boards to provide vehicle charging capacity for at least 50% of the total number of bays.*
- *Non-residential car bays located near bicycle and end or trip facilities, are designed to facilitate later adaptation for expanded bike parking facilities in future, should the demand profiles change.*
- *Where incorporated into private storerooms, residential bicycle parking spaces are designed and marked as designated spaces at the front of the storage areas, and are provided in addition to the required minimum area.*
- *A Bicycle and End-of-Trip Facility Management Plan is required to be prepared and submitted as part of any development application, to demonstrate appropriate regimes for regular cleaning and maintenance, monitoring of use and occupancy rates, and locker allocations”.*

Use	Requirement
Bicycle Parking	Bicycle parking is provided at a minimum rate of: <ol style="list-style-type: none"> <li>2 bicycle spaces per dwelling, may be added to residential storeroom or in a shared bike parking area.</li> <li>1 bay per 10 dwellings or 200m<sup>2</sup> NLA for visitors, located adjacent to the main public entrance of a building.</li> <li>1 bay per 100m<sup>2</sup> of net leasable area (rounded up) for staff of non-residential uses.</li> </ol>
End-of-Trip Facilities	A minimum of 2 lockers is to be provided for every non-residential bicycle bay A minimum of two female and two male showers, located in separate changing rooms, for the first 10 non-residential bicycle bays. Additional showers to be provided at a rate of one male and one female shower for every 20 bicycle bays thereafter. At least one unisex toilet to be provided for every 10 showers or part thereof.

Figure 7 Bicycle Parking Requirements and End-of-Trip Facilities from Perth Girls School site (source: City of Perth)

Provision of active transport storage and facilities within the Primary School site would be required as part of the DoHW subconsultants brief within the Primary School Brief section 5.7 – Traffic Management. The updated brief as of June 2025 requires the following:

New Standard Pattern Primary School of 540 or more students shall have parking for a total of 150 student bicycles/scooters. New 430 student standard pattern schools shall have parking for 100 bicycles/scooters. This allocation is inclusive of future Transportables allowed for in 4.1 Masterplanning.