



Transport Assessment

Planning Proposal Keyhole Lands, Horsley Park

11/10/2023
P1219r05v1



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APPENDICES

Appendix A. Technical Modelling Assessment Report

Glossary

Acronym	Description
AGRD	Austrroads Guide to Road Design
AGTM	Austrroads Guide to Traffic Management
ATC	Automatic Tube Count
Council	Fairfield City Council
CIC	Classified Intersection Count
DA	Development Application
DCP	Development Control Plan
DoS	Degree of Saturation
Draft Structure Plan	Fairfield Rural Lands Urban Investigation Area Draft Preferred Structure Plan
FSR	Floor-Space-Ratio
FPI	Frasers Property Industrial
GFA	Gross Floor Area
GLA	Gross Leasable Area
HV	Heavy Vehicle
JTW	Journey to Work
LGA	Local Government Area
LoS	Level of Service
LV	Light Vehicle
MRP	Mamre Road Precinct
PC	Project Case
PBS	Performance-Based Standards
QL	Queue Length
RTA Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
RUM	Road User Movement'
SLR	Southern Link Road
STFM	Strategic Transport Forecast Model
TfNSW	Transport for New South Wales
UIA	Urban Investigation Area
vph	Vehicles per Hour
WSA	Western Sydney Aerotropolis
WSEA	Western Sydney Employment Area
WSIP	Western Sydney Infrastructure Plan

1 Introduction

1.1 Overview

Ason Group, on behalf of Frasers Property Industrial (FPI), has undertaken a Transport Assessment (TA) in support of a Post-Gateway Planning Proposal (PP) for the Keyhole Lands at Horsley Park (the Site). This assessment aims to facilitate the rezoning of approximately 66.8ha and 32 lots from RU2 Rural Landscape to an E4 General Industrial zone, enabling the development of general industrial warehousing.

The Site has already been the subject of a Pre-Gateway determination (reference: PP-2021-3824), which was supported by a previous traffic assessment study. This TA therefore provides an updated assessment in support of the PP, following consultation with Transport for New South Wales.

The Site is situated within the Fairfield City Council LGA and currently forms part of the Fairfield Rural Lands Urban Investigation Area. This area designates the Site as future “employment land” within its Structure Plan (discussed further in **Section 4.3**). Whilst the industrial use sought as part of this PP varies from the broader UIA Structure Plan, the intended use of the Site is consistent with employment land.

The location of the Site and the study area are shown in **Figure 1**.



Figure 1: Site Location and Study Area

1.2 Study Purpose & Objectives

The broad objective of this Study is to carry out preliminary investigations into the traffic and transport impacts of the PP. More specifically, the investigations undertaken include:

- Review of existing and future conditions, road network and demography of the study area.
- Collation and analysis of traffic data / information.
- Prediction of future trips associated with the intended use in two assessment horizon years, 2031 and 2036, incorporating latest land-use data (LU22) from the STFM.
- Evaluation of key intersections for existing and future scenarios.
- Assessment of the preferred Site access strategy and on-site parking provision rates and requirements.
- Identification of the Site's ability to assist in the State Governments objectives to create sustainable and accessible places, as detailed in Future Transport 2056.

1.3 Consultation and Authority Review

It should be noted that the study has been subject of a Pre-Gateway determination which was supported by a previous traffic assessment study. Various consultation meetings with Council and TfNSW were conducted throughout the Pre-Gateway process. The details of these meetings and previous documentation submitted are summarised below:

- Modelling Assumptions and Methodology Report, titled P1219I04v2_RtS Modelling Input Assumptions TfNSW, submitted on 19 July 2022.
- Transport Assessment, Planning Proposal Keyhole Lands, Horsley Park, Ason Group, titled P1219r01v4, Report 01, Version 4, submitted to TfNSW on 07/12/2021.
- Transport Assessment, Planning Proposal Keyhole Lands, Horsley Park, Ason Group, titled P1219r02v5, Report 02, Version 5, submitted to TfNSW on 22/12/2022.
- Traffic Assessment Technical Modelling Report, Planning Proposal Keyhole Lands, Horsley Park, Ason Group, titled P1219r03v4 Options Testing, Report 3, Version 3, submitted to TfNSW on 01/12/2022.
- Meeting on Trip Rates held with TfNSW on 24 November 2021.
- Subsequent Technical Note on Trip Rates, titled P1219I03v1 Trip Rate Memo_TfNSW RtS, submitted to TfNSW on 25 November 2021.
- Technical Note, titled Keyhole Pre-Gateway Assessment – Traffic Modelling for 2024' submitted to TfNSW on 31 May 2022.
- Pre-planning meeting was held with Fairfield City Council officers on 16 December 2020.
- Subsequent meeting with TfNSW and Council on 13 May 2021 to present initial findings.
- Comments received from Council's Peer Reviewer (Stantec) on the assessment received on 17 October 2022.
- Ason Group's Responses to Comments, titled P1219I01v1, dated 30 November 2022.
- Technical Note on Traffic Background Growth Rates, Ason Group's Technical Note titled 'P1219tn02 Keyhole, Traffic Growth Rates,' submitted to TfNSW on 8 August 2023.

Subsequent to the initiation of the Post-Gateway assessment, additional consultations with TfNSW were conducted, validating planned road infrastructure schemes, geometries, and modelling scenarios. The outcomes of the Post-Gateway assessment were discussed and showcased in a workshop held on 5 September 2023, involving TfNSW and various other stakeholders.

1.4 Reference Documents

In preparing this assessment, Ason Group has reviewed (and referenced) the following documents:

- Draft Keyhole Estate Development Control Plan 2023 (Draft Site-Specific DCP)
- Fairfield City Council, Fairfield Citywide Development Control Plan 2013 (Council's DCP).
- Fairfield City Council, Fairfield Local Environmental Plan 2013.
- Greater Sydney Commission, Our Greater Sydney 2056 – Western City District Plan, March 2018.
- NSW Government, Practitioner's Guide to Movement and Place, Implementing Movement and Place in NSW, March 2020.
- SMEC, The Horsley Drive upgrade between M7 Motorway and Cowpasture Road–Submissions Report, December 2018.
- State Environmental Planning Policy (Western Sydney Employment Area) 2009.
- NSW Freight and Ports Plan 2018 – 2023, September 2018.
- Aecom, Eastern Creek Resource Energy and Business Precinct – Flood, Traffic and Access Study, 28 November 2013.
- Roads and Traffic Authority (now TfNSW), Guide to Traffic Generating Developments, 2002.
- Roads and Maritime Services (now TfNSW) Guide to Traffic Generating Developments: Technical Direction – Updated Traffic Surveys.
- Roads and Maritime Services (now TfNSW), Traffic Signal Design: Section 7 – Phasing and Signal Group Display Sequence, Issue 1.3 (July 2016).

2 Summary of Proposal

2.1 Proposed Planning Control Amendments

The proposal primarily involves the transformation of the Site's current RU2 Rural Landscape designation into an E4 General Industrial zoning classification. This rezoning sets the stage for a two-stage development plan, with Stage 1 slated for completion by 2028, followed by the finalisation of Stage 2 by 2036.

The proposal seeks to amend the Fairfield Local Environmental Plan 2013, including:

- Rezoning the Keyhole Lands (32 lots and 66.8ha) from RU2 Rural Landscape to E4 General Industrial.
- Removal of the existing height of buildings control applying to the Keyhole Lands
- Introduction of a floor space ratio control of 0.55:1
- Reduction of the minimum lot size development standard from 10,000m² to 930m²
- Removal of the minimum lot size for dual occupancy development standard.

The land of which is being sought under the rezoning is shown by **Figure 2**.

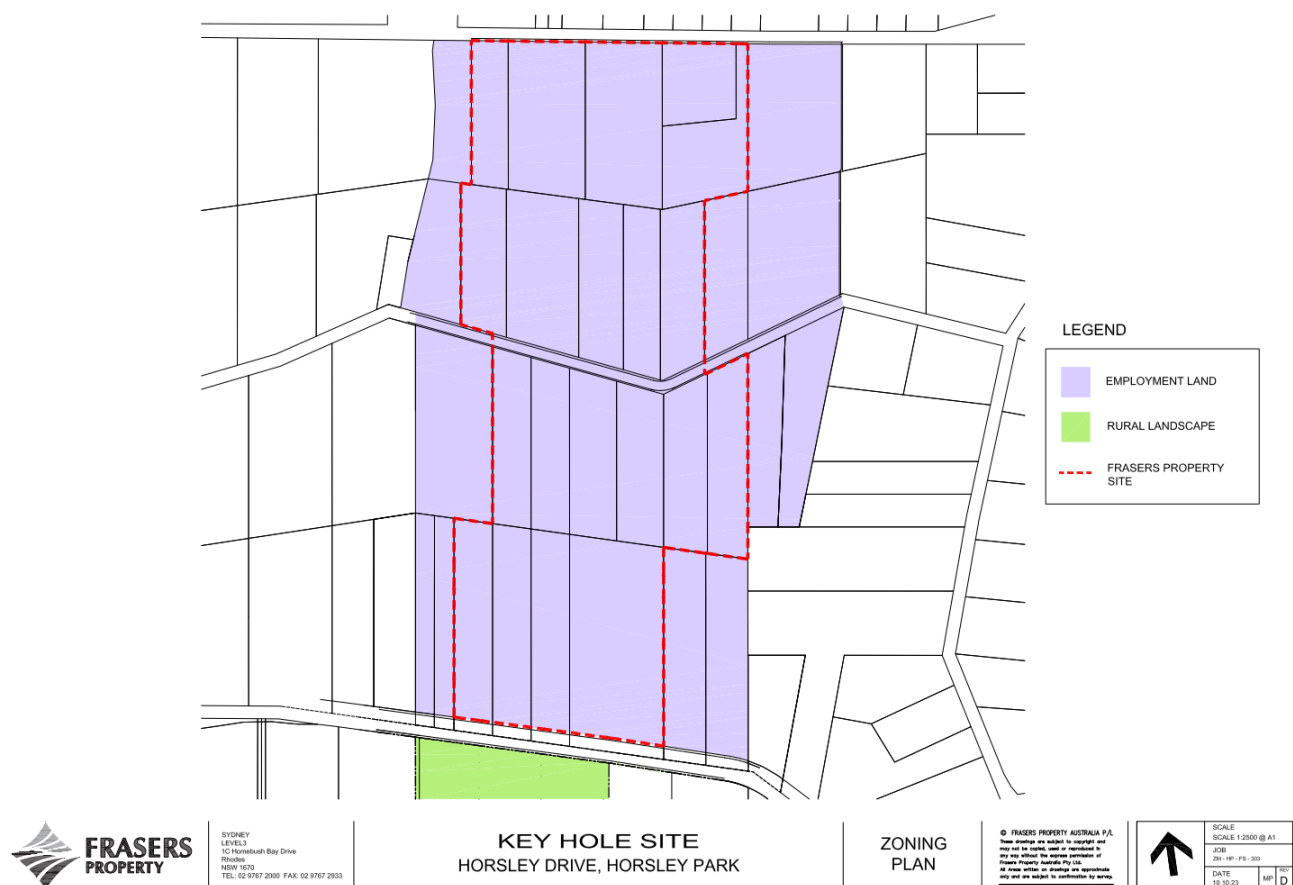


Figure 2: Rezoning Plan

2.2 Indicative Development Outcome

An indicative Master Plan layout, dated 14 September 2023, provides information on Gross Floor Area (GFA) and staging and is shown in **Figure 3**.

Interim Stage 1:

The initial phase of development aims to complete approximately 205,000m² of GFA for warehouse and logistics uses by the year 2028. This stage also includes the allocation of a 500m² space specifically designated for larger warehouse retailers. It is noted that FPI anticipate that the whole Site would be occupied by warehouse and logistics uses. However following consultation with TfNSW, an assumption has been made for retail uses within the detailed traffic impact assessment.

Full Development (Stage 1 + 2):

The fully realised development plan encompasses a total of approximately 316,000m² of GFA, encompassing the previously mentioned 500m² area allocated for bulky goods. The timeline for the project's completion is set for the year 2036.



Figure 3: Site Staging and Master Plan

3 Existing Conditions

3.1 Site Context

The Site is located to the north of The Horsley Drive at Horsley Park and occupies multiple lots stretching further north across Redmayne Road to Chandos Road. It is currently zoned *RU2 Rural Landscape* under Council's LEP.

The Site is situated approximately 32 kilometres west of the Sydney Central Business District (CBD) and approximately 13 kilometres west of the Parramatta CBD.

The Site is currently occupied by a variety of small agricultural farms, rural residential dwellings, and recreational facilities, with several minor access driveways (from individual lots) to The Horsley Drive, Redmayne Road, and Chandos Road. Given the existing uses on the Site, it currently generates a minor level of vehicle trips. These are distributed broadly to the available access roads and adjacent intersections, with little or no impact on local network operations. It is noted that the painted median strips in both The Horsley Drive and Chandos Road do not prohibit right turn movements to and from these driveways.

3.2 Existing Road Network Conditions

The road network surrounding the Site includes a mix of state, regional and local roads. Key roads within the study area are shown in **Figure 4**.

More details of the existing road network are provided within a Technical Modelling Report of the PP provided as **Appendix A** of this Transport Assessment.

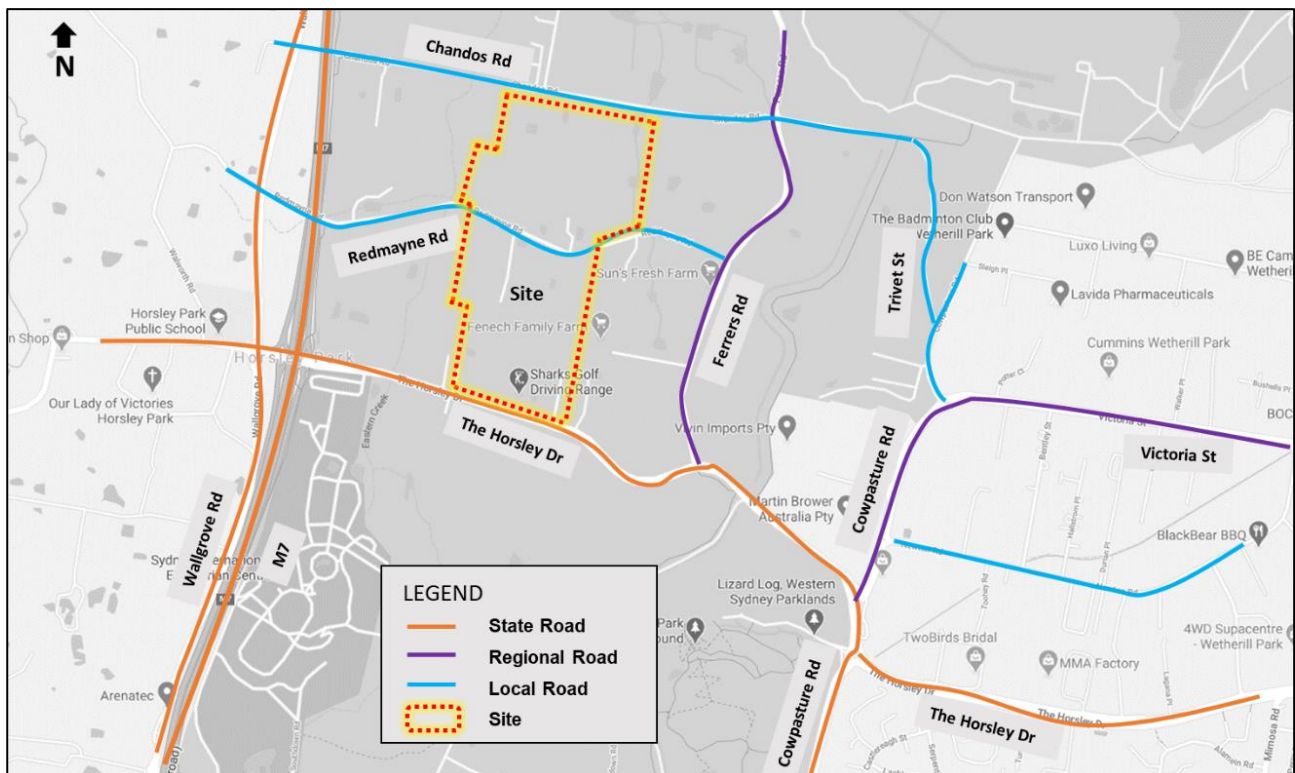


Figure 4: Road Hierarchy within the Study Area

3.3 Journey to Work Data

Journey to Work (JTW) data was obtained from the website of Australian Bureau of Statistics (ABS) for the 2021 Census of Population and Housing data 2021. The data was extracted for the relevant destination zone (Horsley Park Destination Zone DZN 115184209), as shown in **Figure 5** and **Figure 6**.

Among the car trips that were recorded from different places to Horsley Park area, approximately 27% trips were from nearby areas including Blacktown and Parramatta. 23% of trips were each from the 'Outer West and Blue Mountains' and the Southwest region, and 9% from the 'Outer Southwest' region. The remaining trips were from other parts of Greater Sydney.

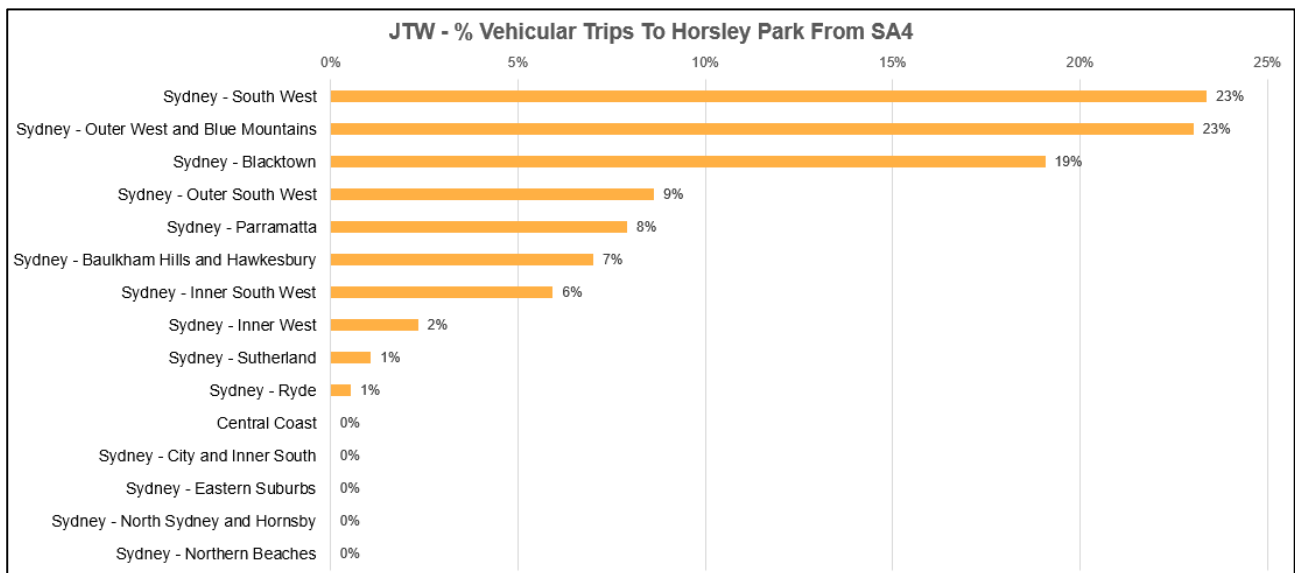


Figure 5: JTW Data – Trips to Horsely Park

The JTW data also shows that almost all these commuter trips were made by car (both as driver and passenger) which constitutes up to 99% of all trips. This presents an opportunity for improved take up of non-car travel in the future, subject to improvement in active and public transport infrastructure.

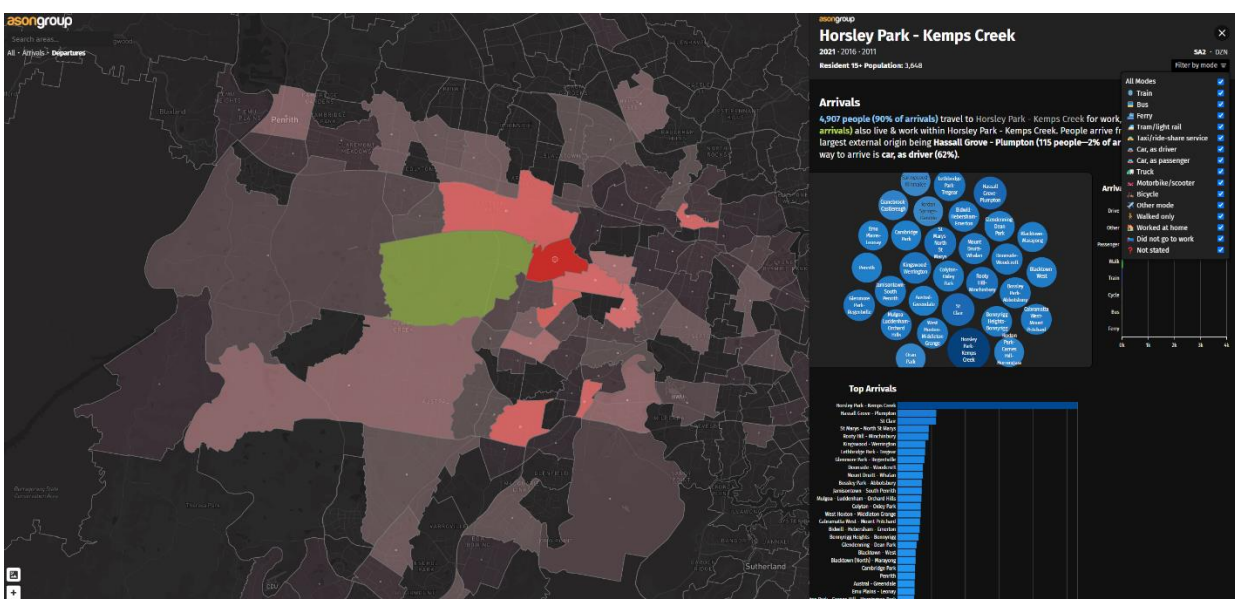


Figure 6: Travel Data from 2021 Census

3.4 Public & Active Transport

3.4.1 Bus Services

Bus services in the study area are summarised in **Table 1**, including their frequency during peak hours.

It is noted that these existing routes have been provided for within the modelling assessment undertaken (as detailed in **Appendix A**) and have been based on available public transport information at <http://www.transportnsw.info/>.

TABLE 1: PEAK HOUR BUS OPERATION

Service Number	Route	AM Peak	PM Peak
813	Bonnyrigg to Fairfield	1	2
835	UWS to Prairiewood	5	4

The map of these bus services within the study area are shown in **Figure 7**, while an indicative bus trip catchment is presented in **Figure 8**.

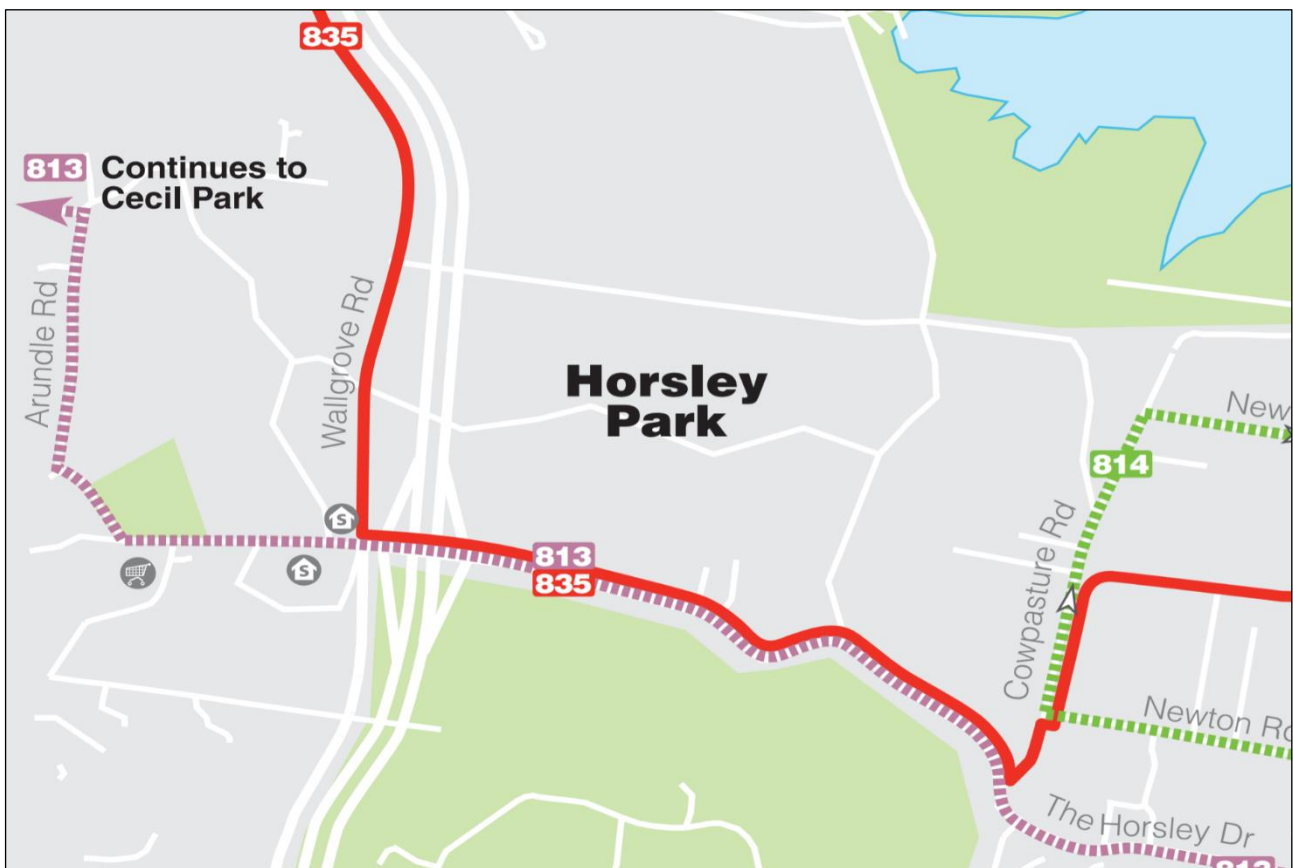


Figure 7: Bus Service Map

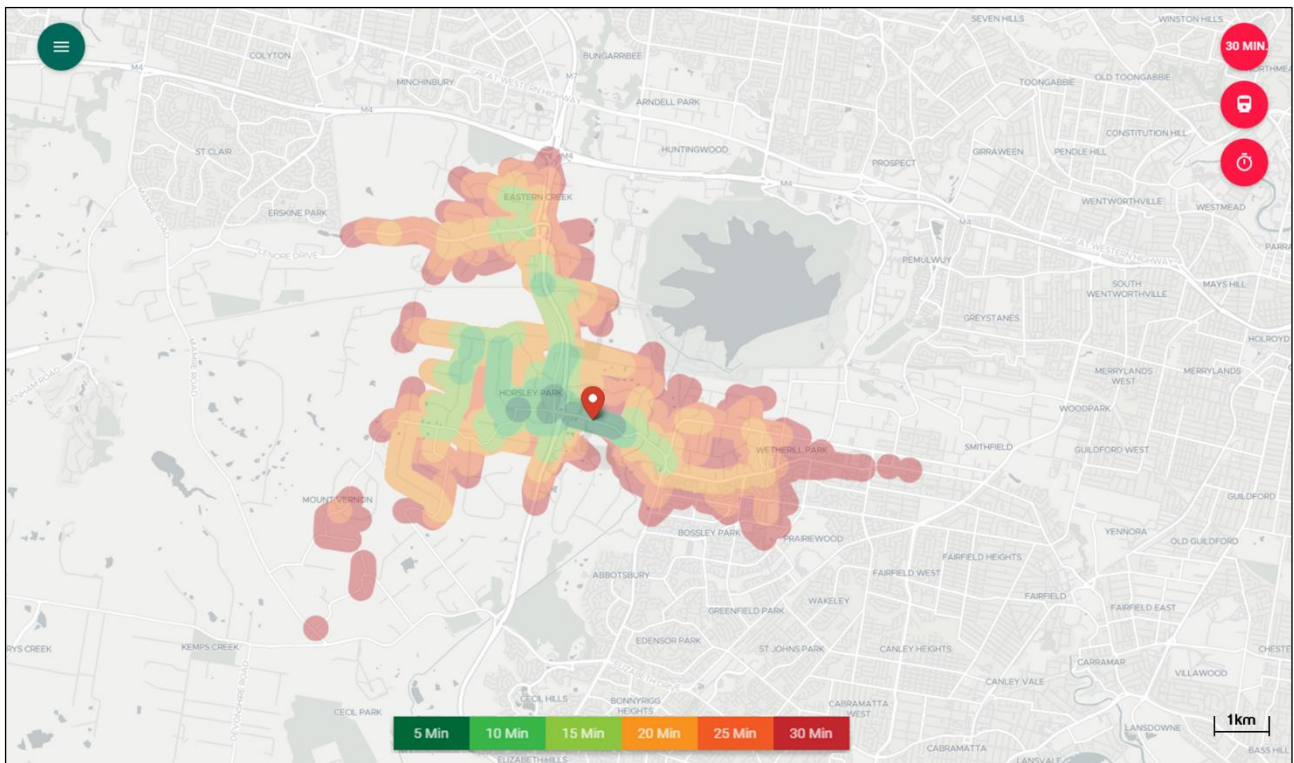


Figure 8: Peak Period Public Transport Trip Catchment

3.4.2 Walking and Cycling

As shown in **Figure 9**, the Fairfield City Council's cycleway path network indicates that there is an existing regional cycleway as part of The Horsley Drive corridor linking Wallgrove Road to an off-road trail that runs parallel to Sydney Water Supply Channel. There are no cycle lanes along The Horsley Drive corridor, however there is a kerbside footpath on the northern side of The Horsley Drive fronting the site between M7 and Ferrers Road for pedestrians.

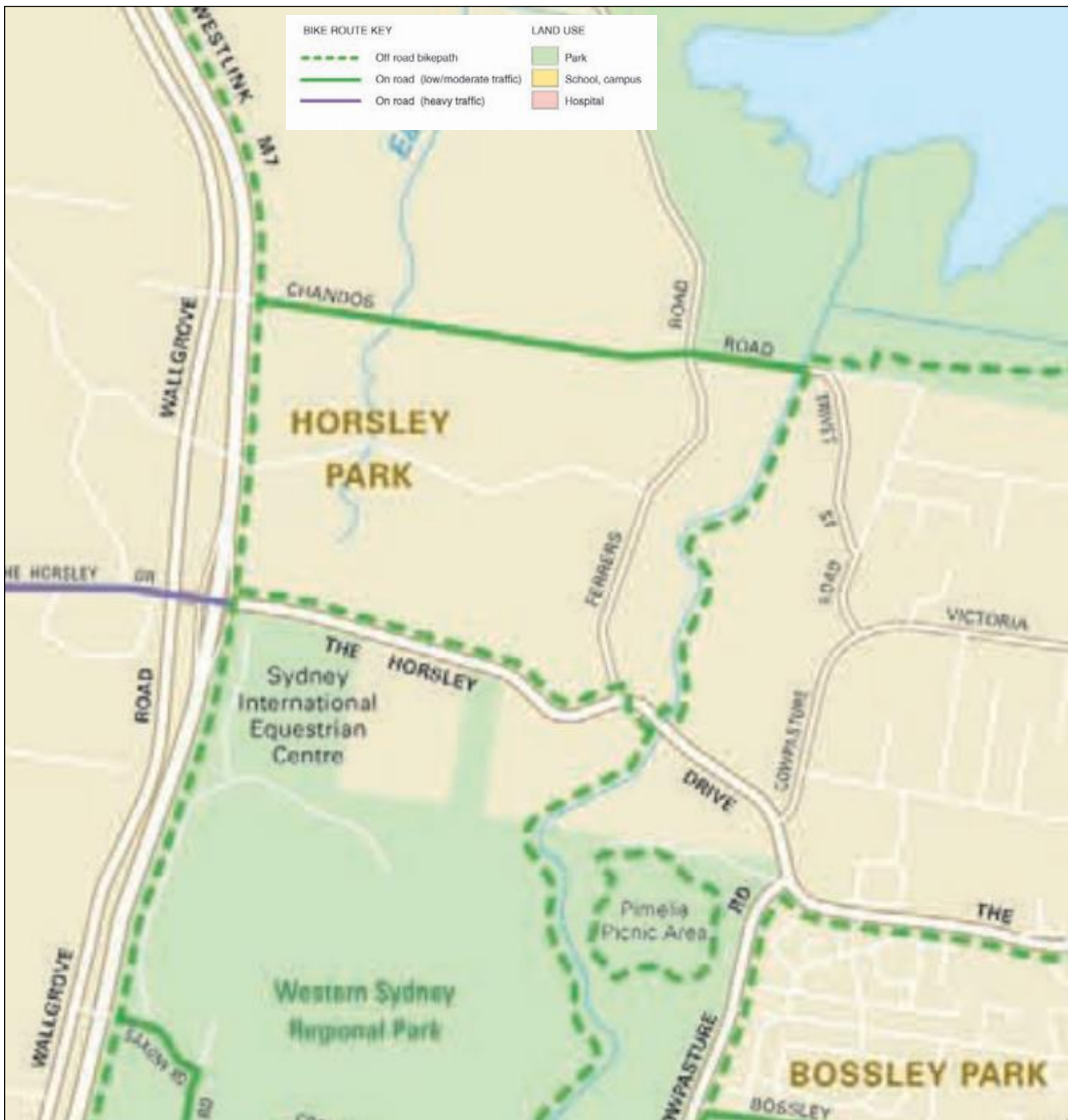


Figure 9: Fairfield and Liverpool Bicycle Route Map (Source: Fairfield City Council web site)

The road section of The Horsley Drive between Ferrers Road and Cowpasture Road has no kerbside footpath, however there is a signalised mid-block pedestrian crossing on The Horsley Drive approximately 170 metres east of Ferrers Road providing north-south connectivity to the parkland cycle trail. Council's cycleway map indicates that this route does not extend further east towards Cowpasture Road, thereby providing poor connectivity to the shared path network further east.

An indicative cycle trip catchment is presented in **Figure 10**.

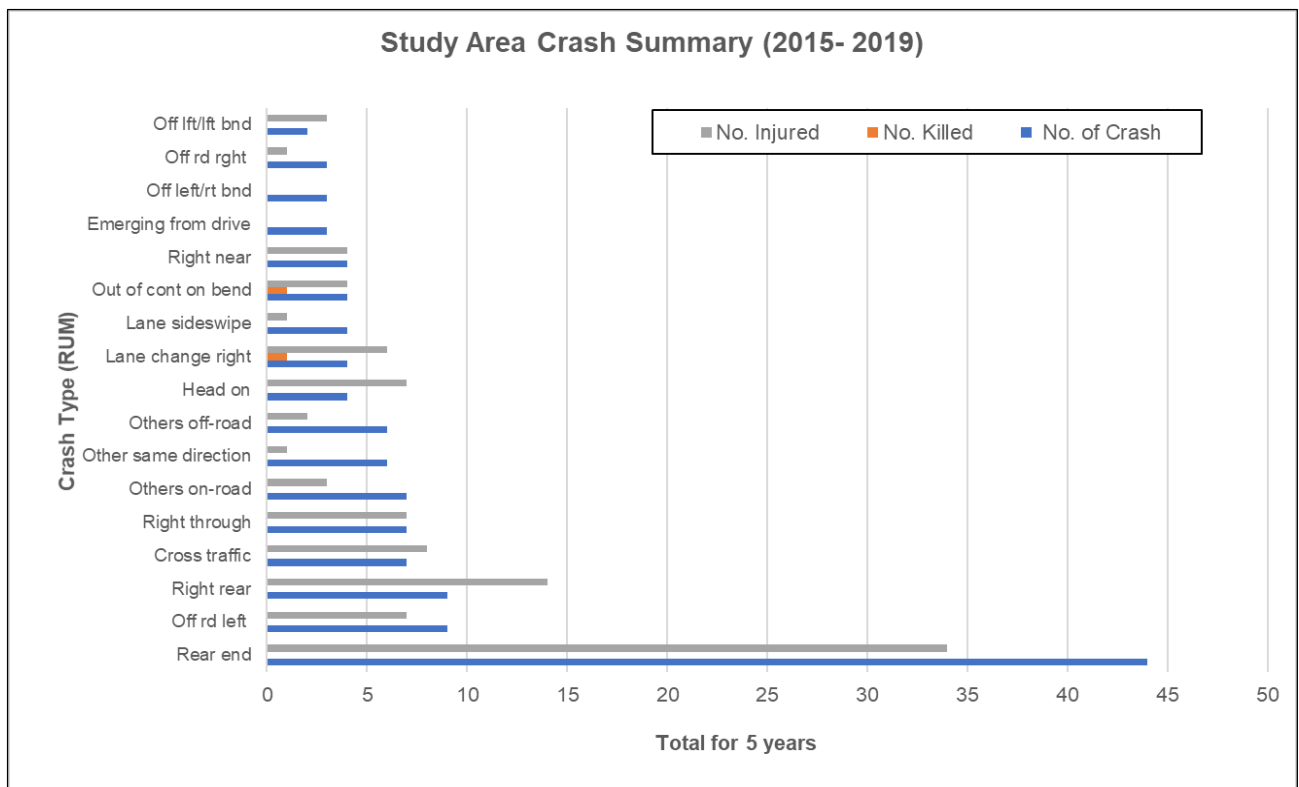


Figure 11: Number of crashes per movement type

4 Strategic Context

4.1 Overview

The Site lies within an area undergoing significant change, and as such it is essential to view the PP in the broader future context further to new development and infrastructure across the sub-region.

For the purposes of the modelling scenarios adopted, the road and intersection configurations for each scenario have been predicated upon the forthcoming or recently realised upgrades along The Horsley Drive, Wallgrove Road, Trivet Street, and the Southern Link Road (SLR) interlinking with Wallgrove Road.

Table 2 summarises relevant infrastructure upgrades and sub-regional proposals, adopted for the two horizon years (2031 and 2036) assessed.

TABLE 2: FUTURE ROAD INFRASTRUCTURE UPGRADES – SCENARIOS ASSESSED

Assessment Year	The Horsley Drive Concept Design upgrade	Southern Link Road	Wallgrove Road widening	Trivet Street / Cowpasture Rd Intersection upgrade
2031	✓	✗	✗	✓
2036	✓	✓	✓	✓

4.2 Future Road Network

4.2.1 The Horsley Drive Upgrade

The Horsley Drive Upgrade Traffic and Transport Assessment Report was prepared by SMEC in June 2017 (referred as the 'Concept Design' upgrade) to inform upgrade of an approximately 2.5km section of The Horsley Drive between Wallgrove Road and Cowpasture Road. Key components of the upgrades include:

- Widening of The Horsley Drive between Wallgrove Road and Cowpasture Road to four lanes (two lanes per direction) with a central median capable of accommodating two additional lanes (one lane per direction) in the future.
- An additional third eastbound lane from the Ferrers Road to Cowpasture Road North intersections.
- An upgrade of The Horsley Drive / Ferrers Road intersection.
- An upgrade of The Horsley Drive / Cowpasture Road (North) intersection.
- An upgrade of The Horsley Drive / Cowpasture Road (South) intersection.
- An upgrade of The Horsley Drive / M7 Motorway Interchange.
- An upgrade of The Horsley Drive / Wallgrove Road intersection.

An overview of these upgrades, which currently planned, is shown in **Figure 12**.

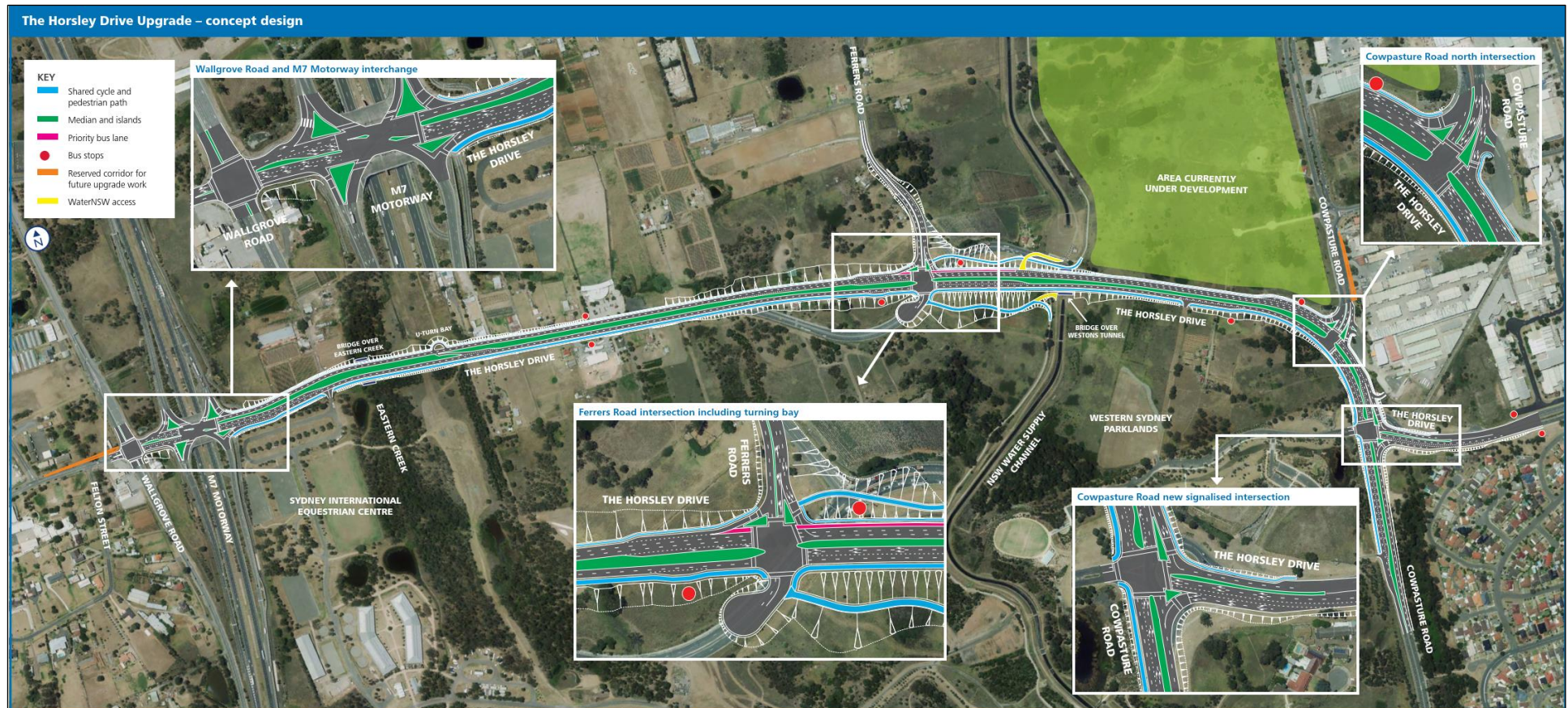


Figure 12: The Horsley Drive Concept Design Upgrade Plan¹

¹ Source: <https://roads-waterways.transport.nsw.gov.au/projects/01documents/the-horsley-drive-upgrade/the-horsley-drive-map.pdf>

4.2.2 Cowpasture Road / Trivet Street

This intersection has recently been upgraded from a stop-controlled intersection to a roundabout as part of the approved State Significant Development 7664² for the Horsley Drive Business Park Stage 2. The upgraded roundabout is shown in **Figure 13**. Construction on the roundabout started after the commencement of this study (and the time of survey). However, it has been assessed in its upgraded configuration.



Figure 13: Cowpasture Road / Trivet Street Intersection Approved Upgrade

4.2.3 Southern Link Road

The SLR would provide a key east-west link from Wallgrove Road to Mamre Road, connecting the existing Western Sydney Employment Area to the broader Mamre Road Precinct. In August 2022, TfNSW released and update³ on the preferred alignment, as shown by **Figure 14**. The current preferred alignment will see the SLR connect to Chandos Road, as shown.

In the context of this TA, **Figure 15** shows the potential layout of the intersection at Wallgrove Road / Chandos Road / SLR.

² Source: <https://mpweb.planningportal.nsw.gov.au/major-projects/project/26996>, SSD-7664-Mod-1 - Stamped Plans Part 2 - Pages 12-30, page 17

³ <https://roads-waterways.transport.nsw.gov.au/projects/01documents/southern-link-road-upgrade/southern-link-road-upgrade-community-update-2022-08.pdf>



Figure 14: Southern Link Road Preferred Alignment (Source: TfNSW)

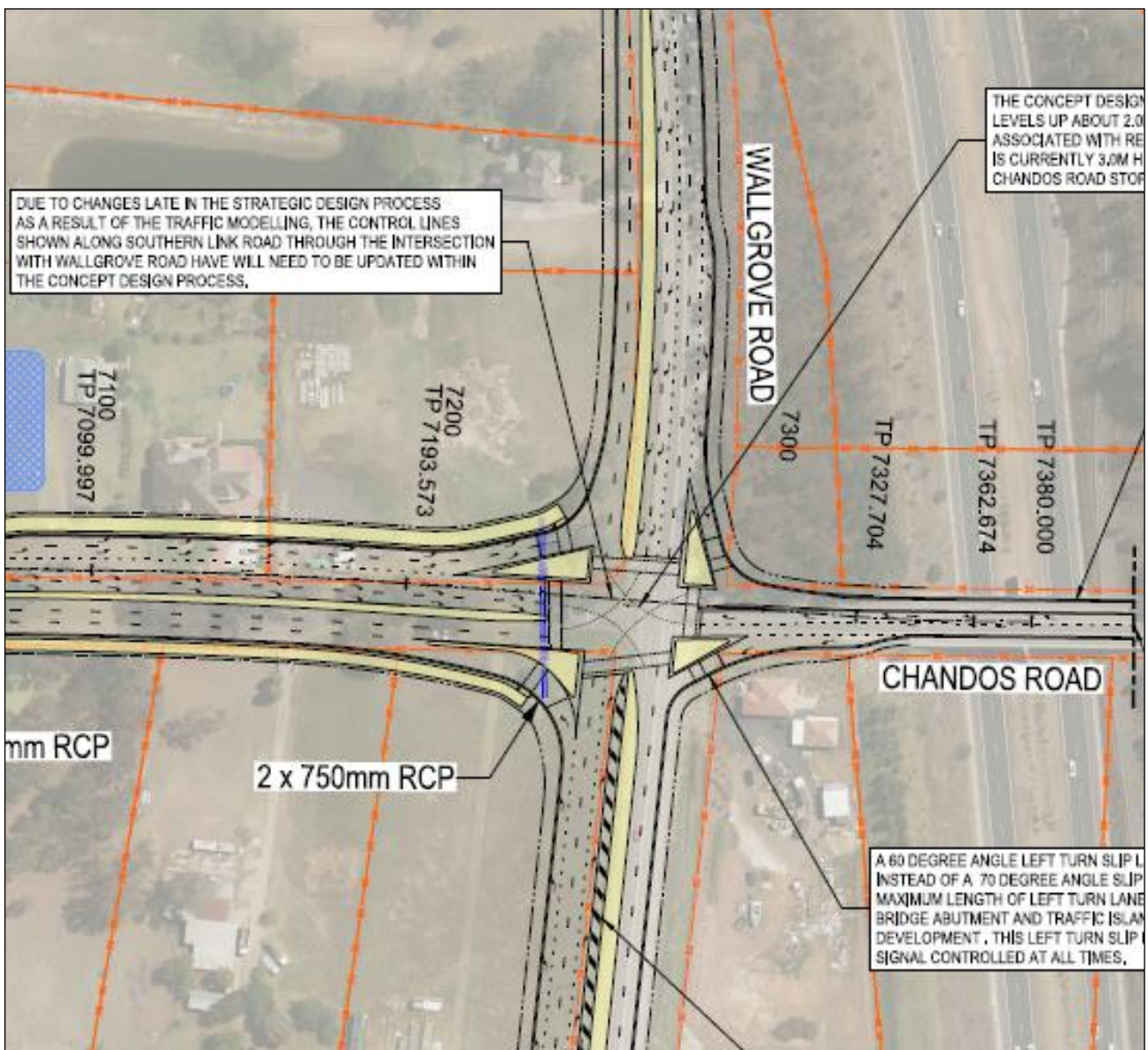


Figure 15: Southern Link Road / Wallgrove Road / Chandos Road Intersection Concept Plan

4.2.4 Western Sydney Infrastructure Plan

The Western Sydney Infrastructure Plan is delivering the road network to support the development of Western Sydney, including the Western Sydney Aerotropolis. The WSA will become a significant hub in western Sydney, delivering not only the Nancy-Bird Walton Airport but also significant commercial, industrial, and residential development. Key road network infrastructure to support the WSA includes:

- The M12
- The Northern Road Upgrade
- The Bringelly Road Upgrade (to a transit corridor).

Current projects in planning or being delivered are shown by **Figure 16**.

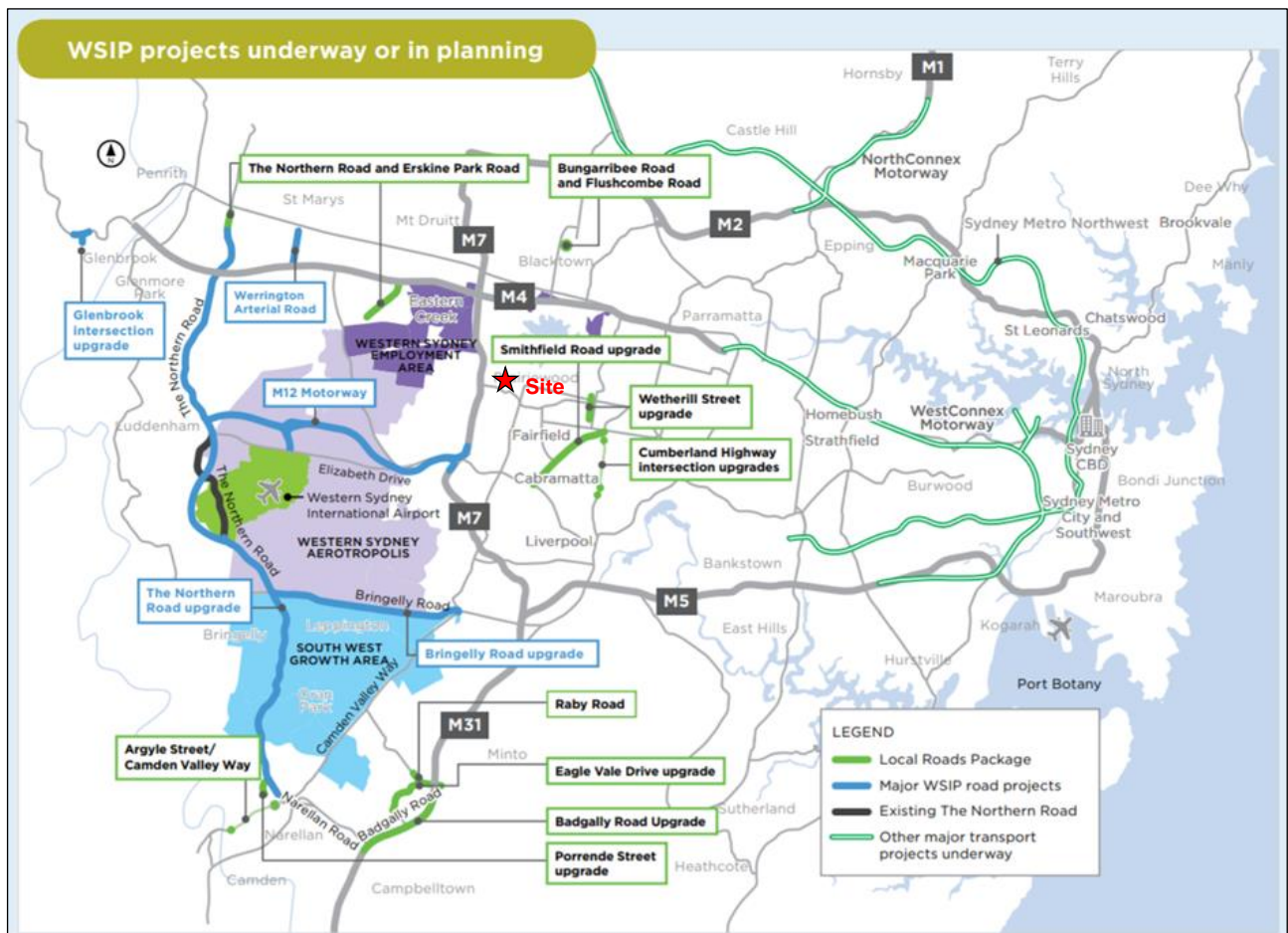


Figure 16: Western Sydney Infrastructure Plan⁴

⁴ Source: <https://roads-waterways.transport.nsw.gov.au/projects/infrastructure-plan/index.html>

4.2.5 Summary

There are several upgrades, all at the various planning stages, being undertaken to facilitate the growth of Western Sydney. As such, the assumptions adopted in the modelling assessment are summarised in the Technical Modelling Report provided in **Appendix A**.

It is acknowledged that some of these road upgrades do not currently have committed funding to completion. However, these upgrades are included in the TfNSW STFM data provided, and as such have also been included within this assessment as being delivered by the relevant horizon dates, to ensure consistency with TfNSW Strategic Modelling outputs.

4.3 Fairfield Rural Lands Urban Investigation Area

4.3.1 Overview

The Fairfield Rural Lands Urban Investigation Area Project was undertaken further to the UIA itself being identified in the Greater Sydney Region Plan (GSR Plan), as well as the Western City District Plan (WCD Plan). The UIA Project essentially aimed to:

- identify land within the area which could potentially be developed.
- identify the appropriate land uses for such land.
- provide a broader overview of the infrastructure requirements associated with preferred UIA options.

Several options were developed for further assessment as part of the UIA Project, and in 2019 Council voted to adopt a Draft Preferred Structure Plan. This is shown in **Figure 17** and discussed further in sections below.

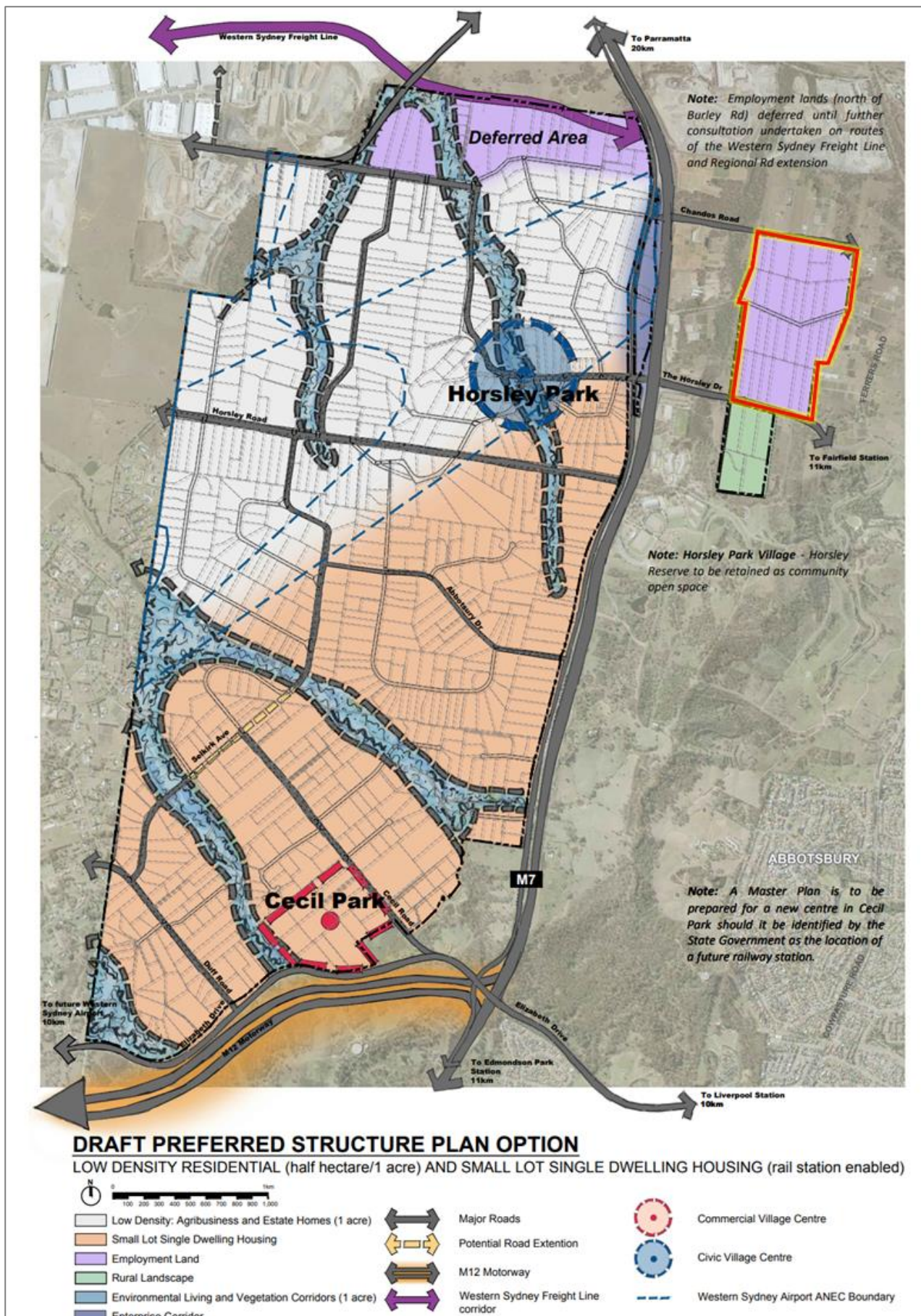


Figure 17: Fairfield Rural Lands Draft Preferred Structure Plan

4.3.2 The UIA Road Network

Under the UIA Draft Structure Plan, Chandos Road is designated a Major Road (Collector Boulevard) and extends east from Wallgrove Road to an unstated location, though it is expected to connect to either a northern extension of Cowpasture Road or to Victoria Street.

The Collector Boulevard design profile as detailed in the UIA Draft Structure Plan is shown in **Figure 18**.

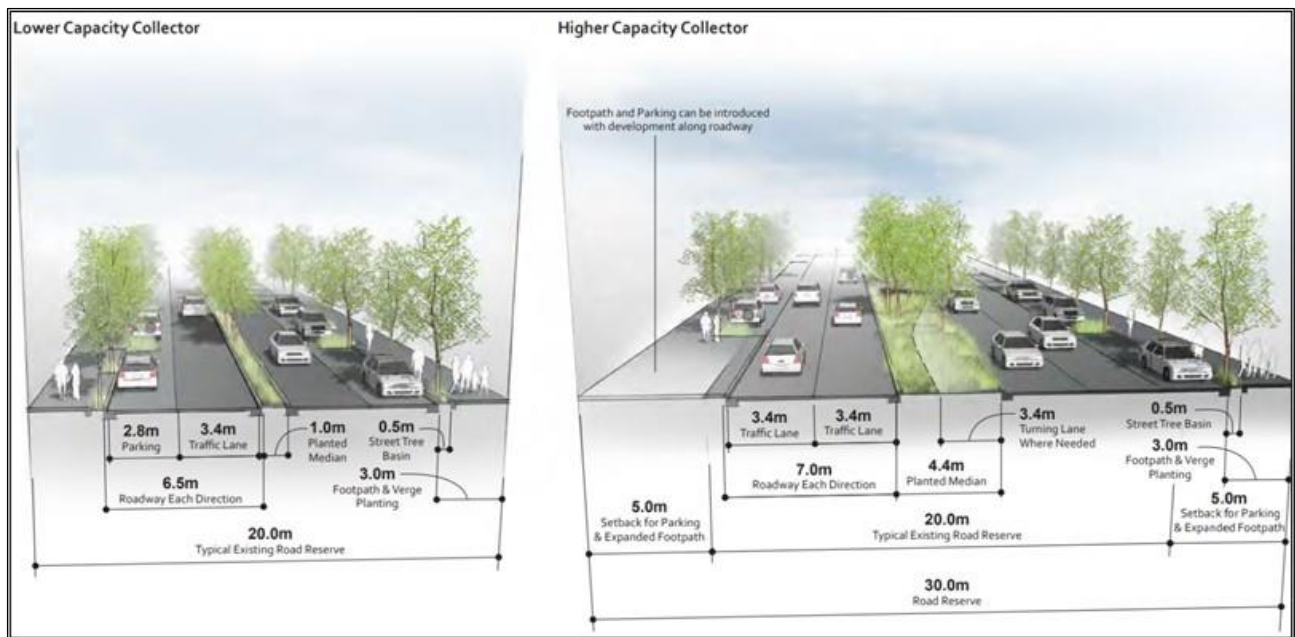


Figure 18: Fairfield Rural Lands UIA Collector Road Profiles

The Horsley Drive is also nominated as a Collector Boulevard and connects to additional Collector Boulevards generally along the alignment of Arundel Road and Burley Road through to Old Wallgrove Road.

Notwithstanding the adoption of the UIA Draft Structure Plan, the Council report endorsing the UIA Draft Structure Plan states:

Under further detailed precinct planning, a comprehensive traffic study will need to be undertaken for the whole of the UIA to determine the capacity of the existing road network to service future development in the area.

In this regard, at this stage it is not possible to completely discount the possibility that new or widened roads will need to be considered for the UIA as this will depend on future land uses and degree of development that could occur in the area.

Finally of particular importance to the UIA, is the proposed Central Arterial Boulevard. The Central Arterial Boulevard is intended to be the major transport corridor through the UIA and will provide a number of functions including:

- *Mass transit of private and public transport north-south through the UIA*
- *Enhancement of the green grid connectivity.*
- *Connectivity of active transport routes.*
- *Active and passive open space including furniture, outdoor gym or activity areas and play areas. Opportunities for community facilities, markets or community gardens.*
- *Shared truck service infrastructure.*
- *Land preservation for future transport initiatives.*

The Site will be well connected to this corridor by way of The Horsely Drive and Chandos Road and will provide significantly increased opportunities to connect the Site to the wider transport (public & active) network by means other than private car.

4.4 Movement & Place

Movement & Place is an approach to integrated transport planning, which seeks to integrate these often-disparate planning fundamentals. The objective of Movement & Place, as per the Practitioner's Guide, is to achieve roads and streets that:

Contribute to the network of public space within a location, where people can live healthy, productive lives, meet each other, interact, and go about their daily activities.

Are enhanced by transport and have the appropriate space allocation to move people and goods safely and efficiently and connect places together. Balancing movement and place recognises that trade-offs may be required to achieve a best fit for the objectives.

A key theme within the Movement & Place approach is to appreciate the relationship between movement and place, whereby a balance is required to be established between each objective. Traditionally, roads have been considered as just a way to get vehicles from A to B. The Movement & Place Framework reorients this focus to the importance of getting the right mix of transport in the right locations to create enjoyable space – which can better deliver social, environmental, and economic improvements for the community. Movement & Place aims for a cohesive approach to aligning:

- integrated and efficient movement of people and goods with
- amenity and quality of places.

The Practitioner's Guide provides 5 “*built environment themes*” in which to assess well designed environments:

- *Access and Connection: mode choice, reliable transport, and equity (of access)*
- *Amenity and Use: convenient facilities and local opportunities*
- *Green and Blue: a link to nature*
- *Comfort and Safety: a comfortable environment, that is low risk—Character and Form: a place that is human-scaled, that celebrates its distinct features.*

These indicators, measures, and data sources are to be understood in relation to the five built environment themes above and ten user outcomes. This is reproduced as **Figure 19**.

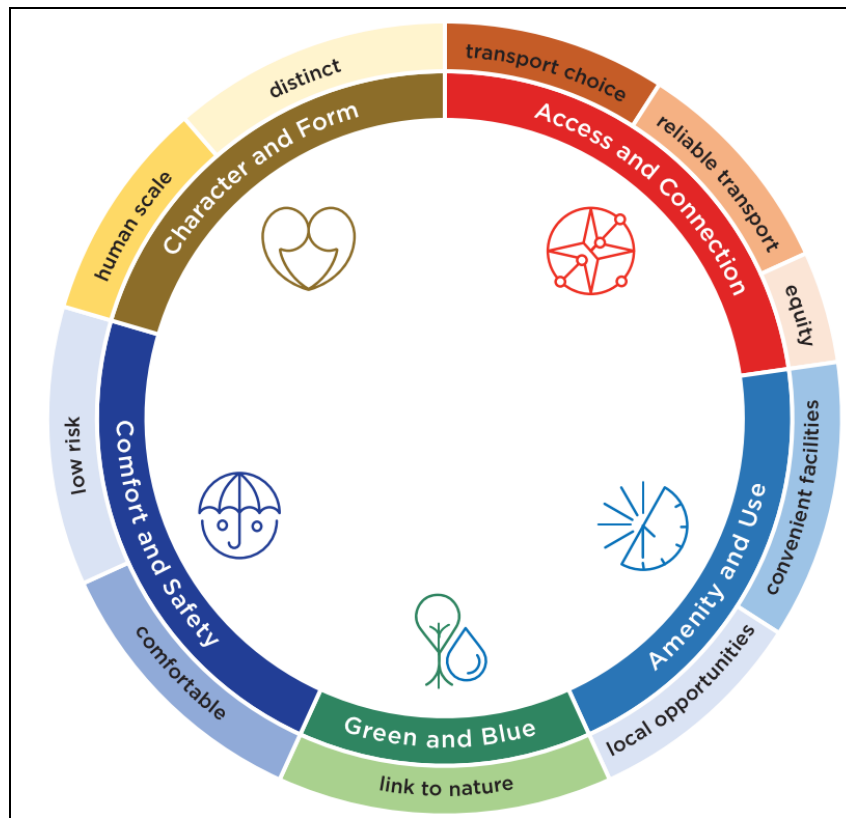


Figure 19: Built Environment Performance Indicators Themes & User Outcomes

The above five themes have been considered in the proposal to rezone this Site for industrial purposes. Further discussion of defining the Site as a 'place', with regards to the above, is detailed in **Section 8.1**.

5 Travel Demand Management

5.1 Reducing Private Vehicle Use

A key consideration missing from identification of the preferred Draft Structure Plan is the assessment of impacts of the proposed population growth on the transport infrastructure. Following consultation; it is understood that Council is in the process of conducting a detailed traffic modelling study. Further to the detailed traffic modelling, Action 7.2 of Council's Local Strategic Planning Statement also states that a Transport Strategy is to be delivered *which will align with State Government transport initiatives and advocate for the best land use and transport outcomes for Fairfield City.*

As is evidenced within **Section 7** and **Appendix A**, some of the critical intersections (such as Wallgrove Road / The Horsley Drive intersection) are anticipated to suffer from capacity constraints, despite the current committed upgrades by TfNSW. Noting that the future flows assessed do not include the impact of the UIA Draft Structure Plan, it is evident that any uplift in density in the UIA would further exacerbate these issues.

Other relevant strategic plans and policies have seen an increased focus on place-based planning, with integration of place and movement which, ensures appropriate planning and management of transport corridors.

To facilitate growth within the UIA, therefore it is critical to consider a holistic approach to resolving road network issues, which does not focus solely on increasing road network capacity, but also seeks to improve and promote alternative travel modes.

Travel demand management strategies work to redistribute trips to other modes, times or routes and include measures to limit unnecessary car trips; provide excellent travel choices; and promote alternatives to car ownership.

In relation to the Site, as discussed in **Section 8**, it has potential to allow for strong bus and active transport links to the future residential areas of the UIA. Therefore, measures which seek to reduce private vehicle use should be implemented.

Two key strategic approaches which can be implemented at the development level to reduce car travel is to:

- Implement restrictive approaches to parking provision. As discussed in **Section 6.1**, there is evidence that rates with TfNSW guidance as a minimum would be appropriate for industrial warehousing; and
- Implement Sustainable Travel Plans. Such Plans provide a package of Site-specific measures to promote and maximise the use of sustainable travel modes, including walking, cycling, public transport and car sharing. It is to include a review of existing transport choices and sets targets so that the effective implementation of it can be assessed. It is to be monitored as part of an ongoing review process.

Implementation of Sustainable Travel Plans can ensure via suitable Conditions of Consent at the appropriate Development Application stage. It is noted that they will be critical to reducing the traffic impact of the Site.

6 Parking Assessment

6.1 Car Parking

6.1.1 Car Parking Rates

A Draft Site-Specific DCP has been developed for the Site which specifies parking requirements, which have been informed by the Mamre Road Precinct (MRP) DCP.

Chapter 3 of the Draft Site-Specific DCP provides for the minimum rates highlighted in **Table 3**:

TABLE 3: ALTERNATIVE CAR PARKING RATES

Use	RTA Guide Minimum	MRP DCP Minimum
Warehouse / Distribution centres	1 space per 300m ² GFA	1 space per 300m ² of gross floor area or 1 space per 4 employees, whichever is the greater.
Factory / Industries	1.3 spaces per 100m ² GFA	1 space per 200m ² of gross floor area or 1 space per 2 employees, whichever is the greater
Ancillary Office ¹	-	1 space per 40m ² GFA

Note 1. Ancillary office is defined as up to 20% of the total GFA in the RTA Guide and is included within the warehouse / factory rate. Any office larger than that is to be considered separately.

6.1.2 Parking Requirements

Table 4 provides a summary of the anticipated parking demand. The Site could generate a demand of 1,404 spaces.

TABLE 4: INDICATIVE PARKING REQUIREMENTS

Stage	Use	GFA (m ²)	MRP DCP
1	Warehouse / Distribution Centre	194,389	648
	Office ¹	10,231	256
	Sub Total	204,620	904
2	Warehouse / Distribution Centre	105,184	351
	Office ¹	5,536	138
	Retail ²	500	11
	Sub Total	111,220	500
Total	-	315,840	1,404

Note 1: Assumed 5% of total GFA adopted for study.

Note 2: Council's DCP Industrial Retail rate adopted for all options.

6.2 Additional Parking Considerations

6.2.1 Accessible Parking

Council's DCP requires accessible parking to be provided in accordance with the Disability (Access to Premises – Buildings) Standards 2010 from the Building Code of Australia, which provides the following rate:

- 1 space for every 100 car parking spaces, or part thereof.

It is anticipated that full compliance with these rates would be achieved for any future development on the Site.

6.2.2 Bicycle Parking

Council's DCP encourages the provision of bicycle parking but does not specify a particular rate. Consideration to the provision of bicycle parking should be considered in more detail at the appropriate Development Application stage and is to be subject to support by a suitable Sustainable Travel Plan. However, it is currently proposed that rates consistent with MRP DCP be adopted as a minimum, which are as follows:

- 1 space per 600m² of gross floor area of office and retail space (over 1200m² gross floor area)
- 1 space per 1000m² of gross floor area of industrial activities (over 2000m² gross floor area)

It is noted that these rates are also consistent with the *Cycling Aspects of Austroads Guides (2017)*. Finally, bicycle parking is to be provided in accordance with the requirements of AS2890.3.

7 Traffic Assessment

7.1 Introduction

A SIDRA network modelling assessment has been conducted to understand the traffic impacts that the PP could have on the road network. The Technical Modelling Report (**Appendix A**) provides a more detailed assessment.

7.2 Traffic Generation

The trip rates adopted for this assessment have been provided by TfNSW. **Table 5** details the agreed trip rates and development GFA figures detailed in **Section 2.2**.

It should be noted that Ason Group has conducted extensive analysis of traffic generation rates in the Broader Western Sydney Employment Area for the assessment of the MRP road network, in conjunction with TfNSW. The surveys - which analysed more than 1 million m² of warehouse GFA conducted as part of this analysis - found an average trip rate of 0.17vph per 100m² in the AM peak and 0.15vph per 100m² in the PM peak. As such, it is evident that the trip rates adopted for this assessment are conservative.

TABLE 5: PEAK HOUR DEVELOPMENT TRIP GENERATION (TWO-WAY)

Stage	Indicative Gross Floor Area (m ²)	Peak	Trip Rate	Total Vehicular Trips (Two-Way)
Stage 1	205,000 (incl. 500 retail)	AM	0.22 per 100 m ² GFA (warehouse) 4.6 per 100m ² GFA (retail)	474
		PM	0.22 per 100 m ² GFA (warehouse) 4.6 per 100m ² GFA (retail)	474
Stage 1 +2	316,000 (incl 500 retail)	AM	0.22 per 100 m ² GFA (warehouse) 4.6 per 100m ² GFA (retail)	717
		PM	0.22 per 100 m ² GFA (warehouse) 4.6 per 100m ² GFA (retail)	717

The other input parameters which have been adopted in the modelling assessment, such as the traffic distribution, are provided in the Technical Modelling Report.

It is noted that all input parameters have either already been review by Council and / or TfNSW and agreed or have been updated to reflect the most recent comments.

7.3 Proposed Access Strategy

The evaluation of four access scenarios for the Site has led to the identification of the preferred access strategy. Detailed information on each scenario is available in the Technical Modelling Report in Appendix A. The preferred strategy involves a signalised intersection onto The Horsley Drive, as illustrated in **Figure 20**. This intersection serves as the exclusive access point for the development. Constraints, such as weight limitations on the M7 overpass from Chandos Road and a sub-standard height underpass under the M7 from Redmayne Road, restrict access via these alternative routes.

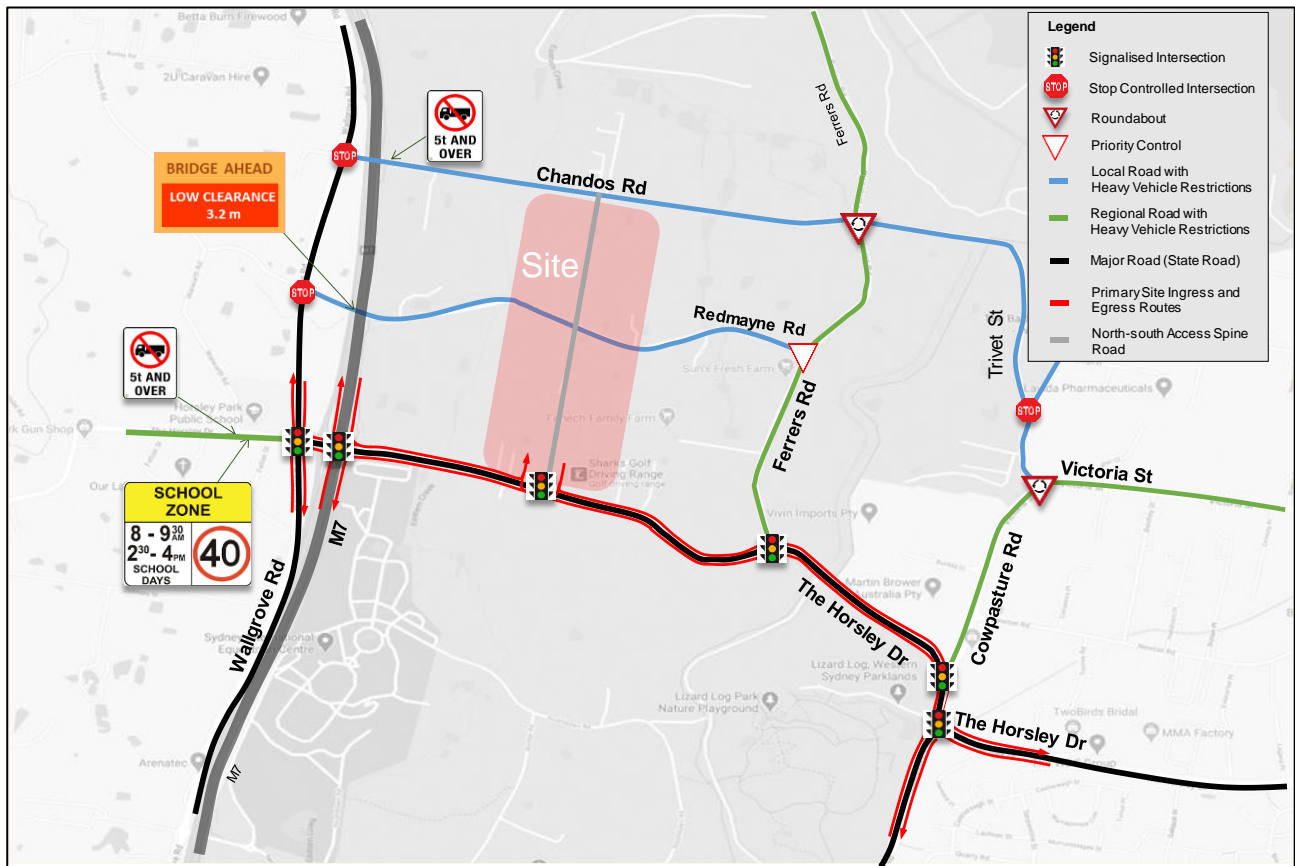


Figure 20: Preferred Site Access Strategy

In determining the access strategy for the Site, a holistic approach has been taken which considers several factors. The Technical Modelling Report demonstrates that, from a traffic impact prospective, a signalised intersection can be accommodated on The Horsley Drive.

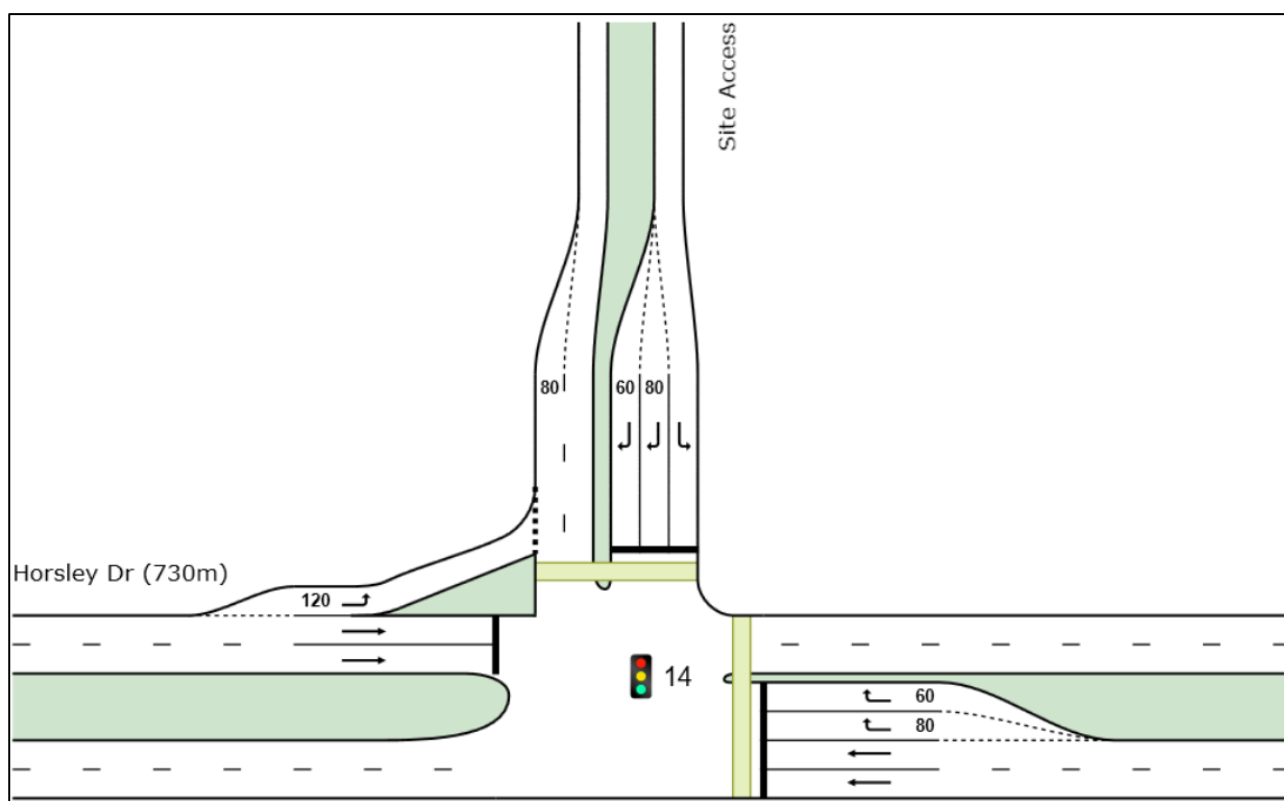
Further, the access strategy finds strong support from several key factors, including:

- 1. Direct Connection to M7 Motorway:** It offers the most direct access to and from the M7 motorway, which is expected to serve as the primary route to and from the Site. This aligns with the goal of efficiently integrating development traffic into the broader regional road network.
- 2. Avoidance of Heavy Vehicles on Local Roads:** By avoiding regional and local roads, such as Ferrers Road, Chandos Road, Trivet Street, and Redmayne Road, the strategy ensures seamless access

without encountering regulatory obstacles. Prioritising heavy vehicle routes onto state routes aligns with TfNSW's Future Transport 2056 strategy⁵.

3. **Traffic Performance:** The strategy shows slightly better traffic performance at key intersections within the broader traffic network when compared to alternative access strategies. Consequently, it minimises travel distances, mitigating congestion and reducing delays on these local roads.
4. **CO2 Emission Reduction:** The shorter access route aligns with the government's ambitious CO2 objectives for achieving net-zero emissions by 2050. It contributes to a more sustainable transportation solution by reducing carbon emissions.
5. **Support for Active Transport and Community Well-being:** By avoiding heavy vehicle routes on local and regional roads, this strategy opens opportunities for active transport initiatives. It simultaneously reduces noise levels, improves air quality and safety, and enhances the quality of life in residential areas along local roads, aligning with TfNSW's Future Transport 2056 strategy⁶.

Figure 21 illustrates the proposed signalised intersection on The Horsley Drive serving as the primary access point to the Site. This intersection will be designed to accommodate all possible directional traffic movements, based on relevant safety reviews, compliant with TfNSW Safe design guidelines.



Note: Lane lengths are indicative used in the modelling and may be adjusted to meet Austroads design standards

Figure 21: Proposed The Horsley Drive Site Access Intersection

It's important to note that an additional intersection will be created to facilitate access between the north and south areas of the Site at Redmayne Road. However, Redmayne Road itself will not be utilised for regular vehicle access.

⁵<https://www.future.transport.nsw.gov.au/documents/future-transport-strategy>

7.4 Staging Opportunity and Benefit to Government

Considering the anticipated population and employment growth in Western Sydney in the coming years, it's important to highlight the potential benefits and opportunities for the Government that development of the Site could provide.

Within the study area, TfNSW has planned various road and intersection upgrades, with one of the most significant projects being the enhancement of The Horsley Drive corridor from Wallgrove Road to Cowpasture Road. This upgrade is essential to accommodate the increasing traffic demands resulting from the growth and development in Fairfield and the broader Western Sydney Employment Area.

However, there is an awareness that budget constraints within the government might lead to delays or the partial implementation of this crucial upgrade. In this context, this PP and the proposed construction of the Site access intersection presents a unique opportunity. At this stage, only the intersection upgrades to the M7 interchange and The Horsley Drive / Cowpasture Road intersections have committed funding for delivery.

Therefore, the current proposal under this PP involves the potential delivery of approximately 750 meters of the planned upgrade between the M7 Interchange and Ferrers Road (see **Figure 22**). Currently, The Horsley Drive in this section has only one eastbound lane, leading to a noticeable bottleneck. By taking advantage of this opportunity, future stages of the upgrade can be realised sooner.

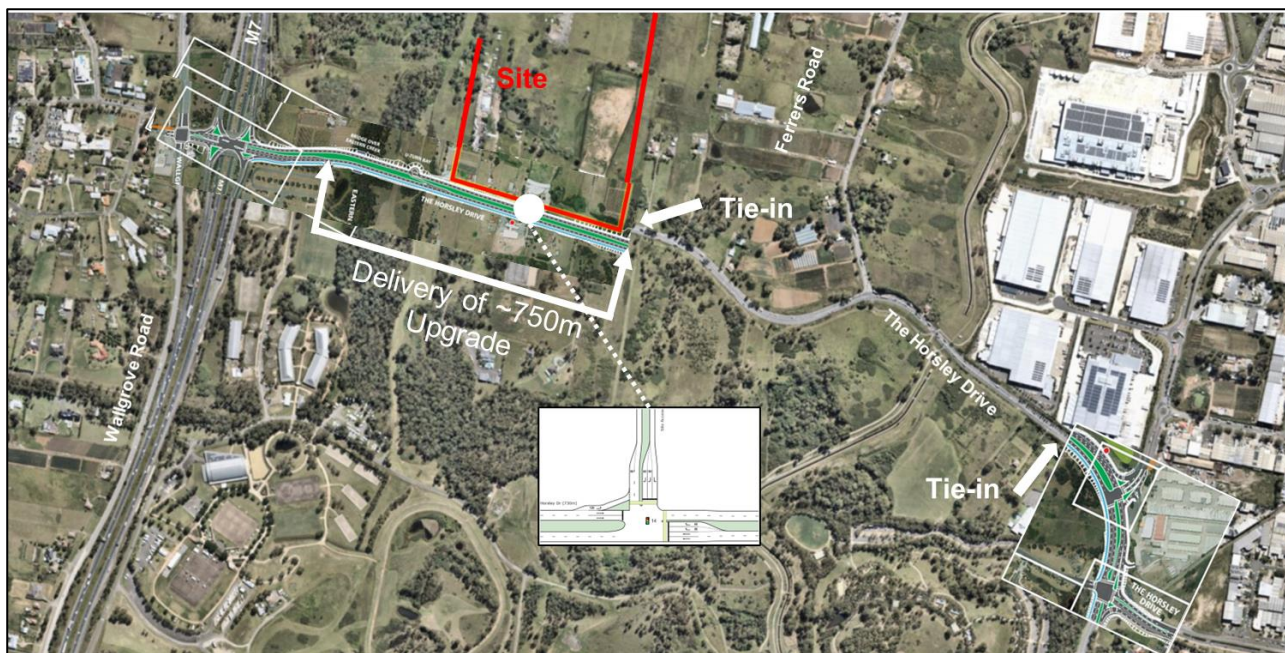


Figure 22: Proposed Upgrade Along Site Frontage

7.5 Assessment Scenarios – Proposed Access Strategy

Table 6 provides a summary of the assessment scenarios for which results are presented within this TA. The base case scenarios exclude the additional traffic associated with the development, and the project case scenarios include the development trips, with a distinct distribution pattern to and from the Site based on the proposed access strategy for the Site.

Additional scenarios are detailed in the Technical Modelling Report, providing a more comprehensive overview.

TABLE 6: ASSESSMENT SCENARIOS

Scenario	Assessment Year	Network Geometry		Demand	
		The Horsley Drive Upgrade	Preferred Access	Background Traffic	Site Trip Generation
2031 Base Case	2031	✓	✗	2031 Growth	✗
2036 Base Case	2036	✓	✗	2036 Growth	✗
2031 Project Case	2031	✓	✓	2031 Growth	Stage 1
2036 Project Case	2036	✓	✓	2036 Growth	Stage 1 + 2

7.6 Intersection Performance – Future Base Case

Table 7 serves as a summary of the SIDRA intersection assessment results specifically for the future base case scenarios, i.e., excluding the traffic associated with the PP. The findings suggest that the network is expected to experience congestion based on projected future baseline traffic flows. This congestion is anticipated even with the currently adopted network upgrades.

TABLE 7: SIDRA RESULTS - FUTURE BASE CASES

#	Intersection	Peak	DoS		Delay (s)		LoS	
			2031 Base	2036 Base	2031 Base	2036 Base	2031 Base	2036 Base
1	Wallgrove Rd / Chandos Rd	AM	1.13	0.83	>100	46	F	D
		PM	1.00	0.97	>100	55	F	D
2	Wallgrove Rd / Redmayne Rd	AM	0.65	2.82	72	>100	F	F
		PM	1.00	1.00	>100	>100	F	F
3	Wallgrove Rd / The Horsley Dr	AM	1.18	1.70	>100	>100	F	F
		PM	0.88	1.20	48	>100	D	F
4	The Horsley Dr / M7	AM	0.72	0.69	40	42	C	C
		PM	0.70	0.72	31	36	C	C
5	The Horsley Dr / Ferrers Rd	AM	0.73	0.70	29	30	C	C
		PM	0.90	0.90	35	33	C	C
6	The Horsley Dr / Cowpasture Rd (North)	AM	0.63	0.65	22	23	B	B
		PM	0.89	0.86	44	39	D	C
7	The Horsley Dr / Cowpasture Rd (South)	AM	0.81	0.93	35	49	C	D
		PM	1.09	1.15	>100	>100	F	F

8	Ferrers Rd / Redmayne Rd	AM	0.37	0.38	16	15	B	B
		PM	0.64	0.65	45	40	D	C
9	Ferrers Rd / Chandos Rd	AM	0.85	0.92	26	31	B	C
		PM	0.81	0.81	30	42	C	C
10	Cowpasture Rd / Victoria St	AM	0.82	0.89	26	30	B	C
		PM	0.47	0.49	15	16	B	B
11	Cowpasture Rd / Trivet St	AM	0.42	0.44	11	12	A	A
		PM	0.53	0.57	12	13	A	A

7.7 Intersection Performance – Project Case

The preferred access strategy, entails providing access through The Horsley Drive via the introduction of a signalised intersection situated on the southern edge of the Site.

Table 8 serves as a summary of the SIDRA intersection assessment results specifically for the future project case scenarios, i.e., including the traffic associated with the PP.

TABLE 8: SIDRA RESULTS - FUTURE PROJECT CASES

#	Intersection	Peak	DoS		Delay (s)		LoS	
			2031 Project	2036 Project	2031 Project	2036 Project	2031 Project	2036 Project
1	Wallgrove Rd / Chandos Rd	AM	1.13	0.83	>100	46	F	D
		PM	1.00	0.97	>100	54	F	D
2	Wallgrove Rd / Redmayne Rd	AM	0.66	2.79	81	2128	F	F
		PM	1.00	1.00	>100	>100	F	F
3	Wallgrove Rd / The Horsley Dr	AM	1.29	1.91	>100	>100	F	F
		PM	1.07	1.24	65	>100	E	F
4	The Horsley Dr / M7	AM	0.78	0.83	44	44	D	D
		PM	0.75	0.82	33	38	C	C
5	The Horsley Dr / Ferrers Rd	AM	0.74	0.75	27	29	B	C
		PM	0.99	0.93	50	40	D	C
6	The Horsley Dr / Cowpasture Rd (North)	AM	0.66	0.68	20	20	B	B
		PM	0.93	0.87	49	41	D	C
7	The Horsley Dr / Cowpasture Rd (South)	AM	0.85	0.94	38	49	C	D
		PM	1.12	1.18	>100	>100	F	F
8	Ferrers Rd / Redmayne Rd	AM	0.40	0.41	18	17	B	B
		PM	0.65	0.67	53	47	D	D
9	Ferrers Rd / Chandos Rd	AM	0.90	0.98	29	48	C	D
		PM	0.84	0.89	39	61	C	E
10	Cowpasture Rd / Victoria St	AM	0.83	0.90	26	32	B	C
		PM	0.47	0.50	15	16	B	B
11	Cowpasture Rd / Trivet St	AM	0.42	0.45	11	12	A	A
		PM	0.54	0.57	12	13	A	A
14	The Horsley Dr / Site Access	AM	0.69	0.77	13	14	A	A
		PM	0.77	0.77	11	13	A	A

When comparing the Base Case and Project Case scenarios, a general trend emerges where intersections tend to maintain similar levels of performance, with Degrees of Saturation (DoS) and Levels of Service (LoS) largely remaining unchanged, except for:

- The Horsley Drive / Wallgrove Road intersection which transitions from LoS D to E in the AM peak (2031).
- The M7 interchange which transitions from LoS C to D in the AM peak (changes in Delay are minor).
- The Horsley Drive / Ferrers Road intersection which transitions from LoS C to D in the PM peak (2031).
- Ferrers Rd / Chandos Rd intersection which transitions from LoS B to C (AM), and LoS C to E (PM).

Importantly, the Project Case modelling shows that the queue lengths resulting from the introduction of Site access intersection will not extend into the next upstream intersections. Specifically, the M7 interchange to the west and the Ferrers Road intersection to the east will not experience congestion spillover from the site access intersection.

The operation of the M7 interchange is found to be satisfactory under the project case assessment, with spare capacity and motorway ramps capable of accommodating expected queues.

Some intersections experience a counter-intuitive improvement in operational performance between the Base Case and Project Case. This is due to congestion effects upstream limiting the volume that can arrive downstream. The reduced arrival flow results in improved downstream intersection performance. This is observed at The Horsley Drive intersection / Ferrers Road intersection.

8 Design Considerations

8.1 Movement & Place Framework

As discussed in **Section 4.4**, Movement & Place is an approach to integrated transport planning, which seeks to integrate these often-disparate planning fundamentals. The key theme is to appreciate the relationship between movement and place, whereby each can ultimately have a detrimental impact on one another.

With consideration to the Site, it presents an opportunity to provide for industrial land uses within the UIA, of which there is currently a demand for. These uses would be undesirable in significant proportions of the UIA which envisage large residential use and / agribusiness. Further, the Site has the potential to be well connected to wider transport network, with Chandos Road and The Horsley Drive traversing the northern and southern sides of the Site, respectively. Given the high volumes of through traffic flows they are anticipated to be subject to, these roads would fall under the “Main Roads” classification.

This is complimented by the UIA Draft Structure Plan, which has a clear intent to implement strong public and active transport links. The Central Boulevard, for example, not only provides for shared pathways but also provides sufficient width that public transport can be improved as demand develops (has provision for light rail corridor and dedicated bus lanes).

While still only in its very early stages, development of the Site will incorporate the key themes from the Movement & Place approach to achieve its objectives. However, for the purposes of this PP assessment, the proposed use of the Site in this location can meet the objectives from an access and connectivity perspective.

The below questions provide contextual prompts for the project in consideration of the Movement & Place framework and form critical points in defining the project as a ‘place’.

TABLE 9: MOVEMENT & PLACE OBJECTIVES

Objective	Objective Question	Project Considerations
1.2	Are all walking and cycling desire lines accommodated within the project boundary and all adjacent networks connected? Are these staged for delivery on day 1?	Access to the wider cycle networks along Chandos Road and The Horsley Drive will be incorporated into future detailed master planning of the Site.
1.3	Can residents access all their daily needs such as shops, schools, and jobs without a car?	The Site has the potential to be well connected to the residential areas within the wider UIA via public & active transport – the design can facilitate connectivity to the wider network via the proposed internal spine road.
1.4	Is there a precinct-wide strategy for loading and deliveries, (delivery bots, cargo bikes, freight consolidation, laneways, rideshare pick up), parking, and kerbside activities?	As an industrial precinct, precinct-wide or shared servicing strategies are not typically required. An overarching travel demand management plan can be investigated further, which would set the precinct-wide strategy for ridesharing and other non-freight task travel demands.
3.1	Can people, especially those with lower incomes or disadvantaged, easily access destinations such as hospitals, schools, and jobs by public transport?	The Site has the potential to be well connected to the residential areas within the wider UIA via public & active transport, providing greater and more affordable opportunities for people to travel to and from it for employment purposes.

3.2	Are there sufficient end-of-trip facilities to serve the place: parking, deliveries, passenger and parcel loading, bicycle parking, bus waiting space and slimline departure bus shelters? Are they balanced to the desired mode share?	The provision for on-site facilities such as parking and bus stop locations largely depend on the anticipated demand for the Site. In the planning stages, this will be determined based on the current planning controls. However, regardless of the planning controls – the design of any future development proposal for the Site should not hinder the provision of such facilities; and should be flexible enough to be to be modified to respond to differing demands.
4.6	Can workers access food, services, and parks within their area during breaks and at lunch?	Of reference for the future users of the Site itself, it is notable that the land directly to the south of the Site is currently designated as “Rural Landscape” which presents an opportunity for a direct connection to nature. A barrier to this will be the ability for workers to safely cross The Horsley Drive. The current proposal includes a signalised crossing at the Site access, which would also facilitate a location for pedestrian to access this area.
5.1	Does the project contribute to an increase in public transport patronage, walking or cycling? Were public transport operators consulted and any new services/routes required being provided?	This should be noted in the future delivery of the Site; the proposed north-south spine road allows for bus permeability through the Site and operators should be consulted to either offer new route and / or amend an existing route.
5.3	Are existing strategies / plans for cycling embedded in the project, particularly the principal bicycle network and key council routes? Are there any gaps in the bicycle grid?	The project should consider cycling connectivity of the Site to other significant places in the UIA and wider area during further detailed design phases.

8.2 Access

The preferred access strategy envisages provision of a north-south access spine road through the Site. Access to the west of the Site from Chandos Road is restricted by way of weight limitations on the M7 overpass. Similarly, access to the west of the Site from Redmayne Road is restricted by way of a sub-standard height underpass under the M7. The traffic modelling suggests little benefit associated with works to facilitate Heavy Vehicle movements travelling west and, as such, resolution of those constraints is not considered necessary to support the development.

It is therefore envisaged at this stage that the key routes into the Site will be through The Horsley Drive (refer to **Section 7.3**), with Redmayne Road to continue to act as local access road only for the relevant properties.

8.3 Design Vehicle

The proposed design vehicle is for future assessment of the proposed layouts is a 30m PBS Type 2 Vehicle. This is consistent with the current requirements for other industrial land release areas, such as the Mamre Road Precinct.

8.4 Road Design

Regarding the north-south spine road running through the Site, the Draft Site-Specific DCP currently designates a 24m road reserve. It is expected that all local road with the Site would be designed in accordance with Figure 3 of the Draft Site-Specific DCP, which is replicated below.

The cross section adopted is consistent with that of the MRP DCP.

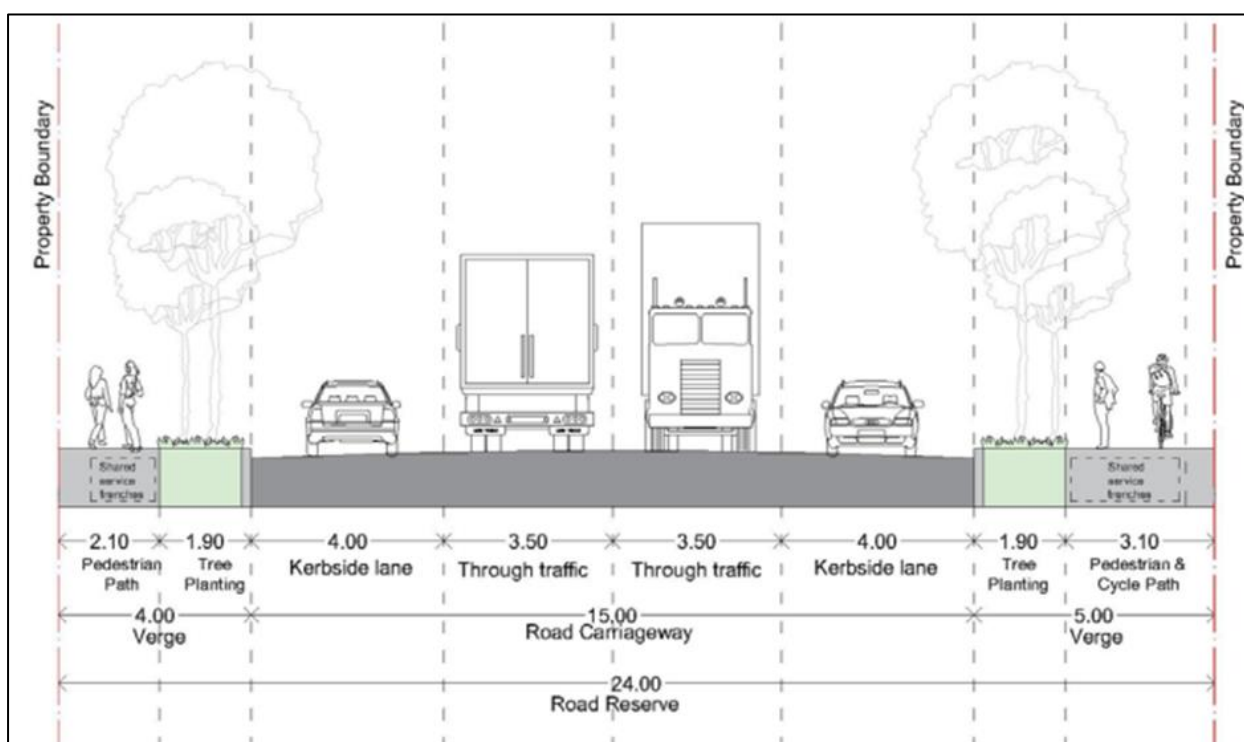


Figure 23: Draft Site-Specific DCP Proposed Cross Section

The UIA Draft Structure Plan identifies Chandos Road as a collector boulevard. Based on the currently anticipated traffic flows along Chandos Road, it is expected that one lane in each direction would be sufficient, with turning lanes provided to allow for right turns.

Should the SLR be extended along the alignment of Chandos Road, it is anticipated that the cross section would then be like the rest of the SLR. The currently proposed typical cross section for the SLR is provided as **Figure 24**.

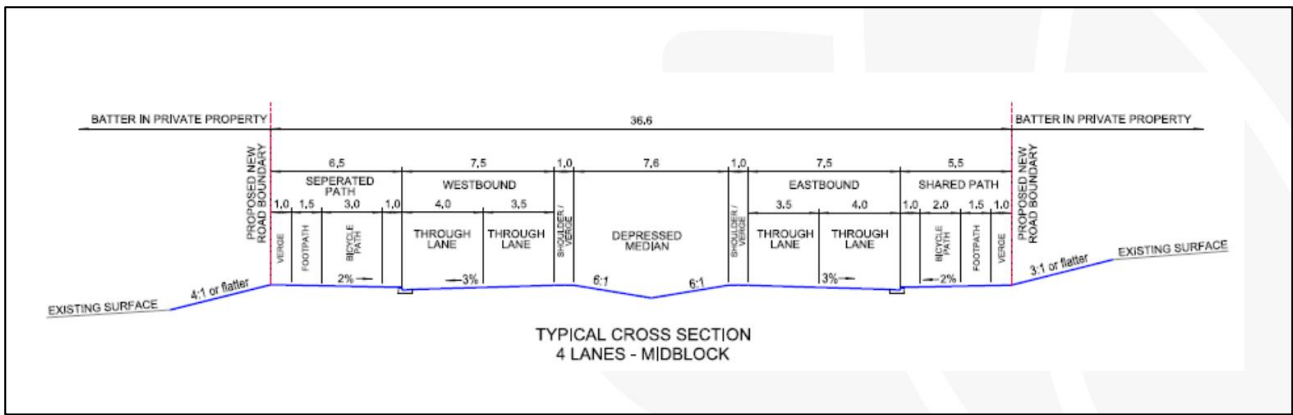


Figure 24: Southern Link Road - Typical Cross Section

8.5 On-site Design

The Site's access, car park and loading areas will necessarily be designed to comply with the following relevant Australian Standards as part of any future Development Application:

- AS2890.1:2004 for car parking areas.
- AS2890.2:2018 for commercial vehicle loading areas.
- AS2890.3 2015 for bicycle parking.
- AS2890.6:2009 for accessible (disabled) parking.

Based on our review of the Proposal's concept plans, there is no evidence to suggest that compliance with these requirements cannot be achieved once detailed lot design has been undertaken.

9 Summary & Conclusions

9.1 Summary

9.1.1 Overview and Site Context

- Ason Group has been engaged by Frasers Property Industrial to prepare a Transport Assessment to support a Planning Proposal (PP) for the rezoning of the Keyhole Site at Horsley Park (the Site) from RU2 Rural Landscape to industrial land uses. The PP generally relates to the provision of general industrial warehouses on approximately 66.8ha of land area.
- The Site is located within the LGA of the Fairfield City Council and currently forms part of the Fairfield Rural Lands Urban Investigation Area, which identifies the Site as future “employment land” within its Structure Plan. It is located to the north of The Horsley Drive at Horsley Park and occupies multiple lots stretching further north across Redmayne Road to Chandos Road.
- Key roads surrounding the Site can be described as a good mix of State roads (such as The Horsley Drive, Wallgrove Road, and M7 Motorway), regional roads (e.g., Ferrers Road, Victoria Street and Cowpasture Road) and local roads (e.g., Chandos Road, Trivet Street and Redmayne Road).
- Public transport facilities are limited in the study area, with only a few bus services operating along Wallgrove Road and The Horsley Drive. Similarly, active transport facilities are very limited in the locality.

9.1.2 Travel Demand Measures

- The Site's strategic location positions it advantageously to leverage the expanding public and active transport networks. Continued development of the Site can contribute to the feasibility of additional bus services, particularly considering its proximity to the established Wetherill Park industrial area to the east and the wider Urban Investigation Area (UIA). This highlights the potential for improved transport options and accessibility in the area.
- As the area develops, so too can the connectivity of the Site via non-car modes. While the detail is a matter for the relevant Development Application stages, the Site itself will deliver very similar connections to that of the Mamre Road Precinct, of which the DCP requires shared pedestrian and bicycle paths on internal roads. Further, there would be strong links from the sites themselves to these shared paths.
- As the area undergoes development, opportunities for enhancing connectivity to the Site through non-car modes are expected to evolve. While specific details will be addressed during the relevant Development Application stages, the Site's design anticipates establishing connections similar to those in the Mamre Road Precinct.
- In accordance with the Development Control Plan (DCP), shared pedestrian and bicycle paths are mandated for internal roads, promoting sustainable transportation options. Additionally, robust links are envisioned between the individual sites and these shared paths, fostering a pedestrian and cyclist-friendly environment within the development area. This commitment to non-car modes aligns with broader efforts to promote sustainable and accessible transportation choices.
- The traffic assessment has highlighted the anticipated congestion in the road network. To support growth within the UIA, it is important to adopt a comprehensive approach to address road network challenges. This approach should extend beyond simply increasing road network capacity and prioritise the enhancement and promotion of alternative travel modes. By diversifying transportation options and encouraging sustainable modes of travel, the UIA can effectively manage traffic congestion while promoting a more balanced and efficient transportation system.

- These strategies aim to shift trips to other modes, times, or routes while limiting unnecessary car travel. They also provide diverse travel options and encourage alternatives to car ownership, contributing to efficient and sustainable transportation systems.
- Future development will adhere to these measures, including Sustainable Travel Plans and strict car parking regulations, to promote sustainability.

9.1.3 Car Parking Assessment

- The Site is currently subject to the controls of Council's DCP which specifies parking rates for various industrial land uses. However, there are several strategic development sites within the Western Sydney area that have adopted parking rates which are consistent with the RMS Guide.
- Considering the expected use of the Site aligns with strategic development areas like the Mamre Road Precinct, it is suggested to adopt the rates outlined in Table 3 as a baseline requirement. This approach allows for the provision of parking to meet market demands for warehouses while retaining the flexibility to implement stricter parking standards when deemed necessary. Such flexibility is instrumental in promoting the adoption of alternative travel modes for accessing the Site.
- Considering the parking rates, the proposed GFA for the Site could potentially necessitate 1,062 spaces according to TfNSW Guide, 1,404 spaces following MRP DCP rates, or 2,113 spaces as per Council DCP rates. Notably, the Council DCP rates would result in a significantly higher parking provision (50% more) compared to the rates applied within the Mamre Road Precinct. To align with State Government initiatives aimed at reducing car travel, it is suggested to opt for a more restrictive parking rate.

9.1.4 Traffic Assessment

- To evaluate the traffic impacts of the Planning Proposal, a comprehensive assessment approach was adopted. This involved conducting SIDRA intersection, sensitivity, and midblock capacity analyses. These analyses were performed to gain insights into the existing traffic conditions, predict future baseline traffic conditions, and assess the potential traffic impacts of the project in the assessment years 2031 and 2036.
- The analysis of the current traffic conditions using SIDRA modelling (Scenario 1, 2021 baseline) has identified two intersections on Wallgrove Road with unacceptable delays, both rated as Level of Service F. These issues primarily arise from right-turn movements from minor roads onto Wallgrove Road, where vehicles struggle to find safe gaps. To address safety concerns, it is recommended that the Council considers banning these right-turn movements, pending their discretion.

In addition to the intersections with unacceptable delays, several others, such as The Horsley Drive / Ferrers Road intersection, are approaching a Degree of Saturation (DoS) of 1.0. This indicates that their operation is nearing capacity.

- Despite the planned upgrade schemes, the assessment for the future 2031 and 2036 baseline scenarios reveals several intersections would operate with unacceptable delays (LoS F).
- In contrast to the intersections with unacceptable delays, the M7 interchange, The Horsley Drive / Ferrers Road, Cowpasture North, Ferrers Road / Redmayne Road, and Chandos intersections are expected to operate with acceptable delays, ranging from LoS A to D. This indicates that these intersections should function efficiently in both the 2031 and 2036 baseline scenarios.
- The preferred access strategy for the development site involves implementing a signalised intersection on The Horsley Drive. This strategy is supported by several factors, including slightly improved operational performance at various intersections within the larger network compared to alternative access strategies.
- One significant advantage of this signalised access on The Horsley Drive is its ability to accommodate all directional traffic movements efficiently. This reduces the need for trips to be rerouted through the

alternative access route on Chandos Road, which would result in longer travel routes via Ferrers Road, Chandos Road, and Wallgrove Road, leading to increased congestion and delays at those intersections along these local roads.

- As detailed in the Technical Modelling Report, the operational performance of most intersections within the broader network remains similar to the Base Case scenarios under this preferred access strategy.
- The preferred access strategy avoids unnecessarily increasing heavy vehicle traffic on local roads, while also contributing to CO2 emission reduction and supporting active transport and community well-being, aligning with TfNSW's Future Transport 2056 strategy.

9.2 Conclusions

The key purpose of this Transport Assessment is to provide an updated assessment considering formal submissions received from both Council and TfNSW. The objectives of the study have been to establish the traffic impact of the Planning Proposal, which could facilitate up to 315,840m² of industrial warehouse GFA, with supporting retail uses.

It is concluded that the PP and subsequent development of the Site could assist in achieving key Government objectives of creating successful, accessible, and suitable places. This is on the basis that it will provide for a land-use which is in high demand, whilst increasing the viability of adding additional public and active transport connections along The Horsley Drive and Chandos Road corridors, as well implementing Travel Demand Measures such as Sustainable Travel Plans and a restrictive approach to parking.

The future baseline conditions of the road network are expected to be congested, irrespective to development of the Site.

The Technical Modelling Report, as indicated in Table 11, demonstrates that most intersections are projected to have a relatively minimal influx of development-related traffic, typically ranging from 1% to 5% of the total traffic volume. In essence, these intersections are expected to experience only minor impacts from the proposed development.

It's worth noting that Austroads recommends that assessments may not be necessary for intersections where development traffic accounts for less than 5% of the total traffic volumes. This finding suggests that many of the assessed intersections are likely to fall within this category, further highlighting the limited impact of the proposed development on the traffic flow in the surrounding area.

Higher contributions of project-related trips are primarily concentrated at the M7 interchange. This can be attributed to a significant proportion of development-related trips that are anticipated to use the M7 motorway for access and egress. Notwithstanding, the operation of the M7 interchange is found to be satisfactory under the project case assessment, with spare capacity and the motorway access ramps capable of accommodating expected vehicle queues.

Importantly, the Project Case modelling shows that vehicle queues that may form on The Horsley Drive due to the introduction of the site access intersection, are projected not to extend into the next upstream intersections, specifically the Ferrers Road intersection to the east, and the M7 interchange to the west.

Appendix A. Technical Modelling Assessment Report