Transport Impact Assessment

Rural Residential Development Application

Horsley Road, Horsley Park

Ref: 1022r01v1
12/09/2019

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Revision History

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1 Introduction

1.1 Overview

Ason Group has been engaged by Jacfin to prepare a Transport Impact Assessment (TIA) to assess the access and traffic characteristics of a proposed rural residential development (the Proposal) in Horsley Park.

The Site is located across the southern portion of Lot A in DP 392643 (Lot A) which lies within Kemps Creek, and also includes Lot 21 in DP 1010514 (Lot 21) which lies within Horsley Park; however, for ease of reference the Site is better identified as lying immediately north of Horsley Road and west of Greenway Place, Horsley Park.

It is noted from the outset that the majority of the Site (including the portion which will accommodate most of the residential lots) is located with Lot A, which lies within the Penrith City Council (Penrith Council) Local Government Area (LGA). However, Lot 21 – through which an access road between Lot A and Greenway Place will be provided – is located within the Fairfield City Council (Fairfield Council) LGA.

The Proposal provides for the development of 16 rural residential lots; the residential lots on Lot A will each have a minimum area of 2 hectares; while those on Lot 21 have a minimum area of 1 hectare. The Proposal also provide for ancillary infrastructure, including internal roads and a new road connection to Greenway Place north of Horsley Road.

Full details of the Proposal are provided in the Statement of Environmental Effects (SEE) which this TIA accompanies.

1.2 Transport Impact Assessment Tasks

This TIA provides an assessment of the relevant access and traffic characteristics of the Proposal, and the potential impacts of the Proposal on the local road network. This has included a detailed assessment of:

- Existing and future local road network conditions, and specifically the operation of Horsley Road and the intersection of Horsley Road & Greenway Place & Garfield Road.
- Existing and future public and active transport services and infrastructure.
- The peak period trip generation and distribution of the Site further to the Proposal, and the potential impact of those trips on the local road network.
- The design of the proposed access intersection to Greenway Place, and the design of internal access roads.

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1.3 Reference Documents

In preparing this TIA, Ason Group has referenced the following key planning documents:

- Penrith City Council *Penrith Local Environmental Plan 2010* (Penrith LEP).
- Penrith City Council *Penrith Development Control Plan 2010* (Penrith DCP).
- Penrith City Council *Engineering Construction Specifications for Civil Works* (Penrith Specifications).
- Penrith City Council *Residential Subdivision Waste Management Guidelines* (Waste Guidelines).
- Fairfield City Council *Fairfield Local Environmental Plan 2013* (Fairfield LEP).
- Fairfield City Council *Fairfield Citywide Development Control Plan 2013* (Fairfield DCP).
- Fairfield City Council *Specification for Roadworks and Drainage associated with subdivision or other development* (Fairfield Specifications).
- Department of Planning & Environment (DPE) *Lot A Burley Road Horsley Park Interface Area Planning Report* May 2015 (Interface Report).
- Jacobs *Horsley Park and Cecil Park Urban Investigation Area Draft Structure Plan Options* 2018 (Horsley Park Draft Structure Plan).
- Additional assessment prepared for the Western Sydney Employment Area (WSEA); Broader Western Sydney Employment Area (BWSEA); Western Sydney Aerotropolis (WSA); and for the broader sub-regional in which the Site lies.

This TIA also references general access, traffic and parking guidelines, including:

- Roads and Maritime Services (RMS) *Guide to Traffic Generating Developments* (RMS Guide)
- RMS *Guide to Traffic Generating Developments – Updated Traffic Survey* (RMS Guide Update)
- *Australian Standard 2890.1: Parking Facilities Off-Street Parking* (AS 2890.1)
- *Australian Standard 2890.2: Parking Facilities Off-Street Commercial Vehicle Facilities* (AS 2890.2)

1.4 Report Structure

This TIA is structured as follows:

- Section 2 describes the existing Site characteristics and planning history.
- Section 3 describes the existing and future road network providing access for the Site.
- Section 4 describes the Proposal and the key access requirements for the Site.
- Section 5 provides an assessment of potential traffic impacts of the Proposal.
- Section 6 provides a summary of the key TIA conclusions.

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2 The Existing Site

2.1 Site Location

The Site is located across the southern portion of Lot A in DP 392643, and also includes Lot 21 in DP 1010514; the Site is shown in its local context in **Figure 1**.

Figure 1: Site Location

2.2 Site Zoning

The Site is currently zoned RU4: Primary Production Small Lots under both the Penrith LEP (Lot A) and Fairfield LEP (Lot 21); the Objectives of the RU4 zoning (in both LEPs) are:

- To enable sustainable primary industry and other compatible land uses.
- To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To ensure land uses are of a scale and nature that is compatible with the environmental capabilities of the land.

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The Penrith LEP provides the following additional Objectives:

- To preserve and improve natural resources through appropriate land management practices.
- To maintain the rural landscape character of the land.
- To ensure that development does not unreasonably increase the demand for public services or facilities.

The Proposal also provides for development fully compliant with these same objectives and land use provisions. More information in regard to the current RU4 zoning is provided in **Section 2.5** below.

2.3 Access

Site access is currently available via a minor driveway to Horsley Road, located to the west of Greenway Place (and immediate east of Capitol Hill Drive).

2.4 Traffic Generation

The Site currently generates little if any traffic on a daily basis, with the exception of the single existing residential dwelling on Lot 21 (with access to Greenway Place), which would generate approximately 1 - 2 vehicle trips per hour (vph) in the AM and PM peak periods.

2.5 Site Interface Planning

While part of the Site was originally included in the WSEA boundaries (and zoned IN1 for industrial development), the Site itself is somewhat unique in the broader WSEA context, being an interface site between existing rural residential sites (in Horsley Park) and WSEA zoned industrial sites to the immediate north and west of the Site. The Planning Assessment Commission therefore recommended in 2013 that alternative zoning and land use options be investigated along the southern and south-eastern boundaries of Lot A.

A more detailed review of the Interface Report is provided in the SEE which this TIA accompanies, while the key assessment issues and subsequent recommendations of the DPE specifically relating to traffic and transport considerations are detailed below.

2.5.1 Recommended Site Yield

Jacfin and the DPE, in consultation with Council and local residents, worked through a number of yield proposals for the Site.

After the assessment of initial proposals providing for approximately 53 lots (at approximately half a hectare per lot) Jacfin put forward a proposal for 27 lots (at approximately 1 hectare per lot). While this proposal was generally considered appropriate by the DPE, Councils and the community, Penrith Council was of the view that a minimum lot size of 2 hectares should apply; this was ultimately accepted by the DPE.

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In this regard, the Interface Report states:

The Department considers that a rural residential buffer of 2 hectare allotments would be a suitable means of mitigating visual impacts for the adjacent residential properties at Greenway Place and Capitol Hill. The Department proposes to amend the WSEA SEPP to excise part of the site and call up the rural residential (RU4 Primary Production Small Lots) zone under Penrith LEP to rezone the land and allow for a suitable rural residential buffer.

Additionally, in accordance with the PAC's determination, Jacfin must provide further detailed information to prove to the Department's satisfaction that suitable amenity can be maintained. In determining this position, the Department has undertaken extensive consultation with Penrith Council, Fairfield Council and the local community. The proposed land use arrangement is the most suitable means of ensuring that residential amenity is protected without significantly impacting on the existing local community and the operations of adjoining industrial sites.

The proposed rezoning and completion of the PAC's requirements will provide a suitable interface between employment and rural residential land uses and successfully mitigate amenity impacts for adjoining residents.

2.5.2 Site Access

With regard to Site access, the Interface Report states:

Jacfin's subdivision design drawings indicate that access to the residential component of the site may be achieved through the creation of a local road connection to Horsley Road running along the southern and eastern boundaries of the site. Jacfin has ownership of the southernmost adjoining land parcel on the corner of Greenway Place and Horsley Road [Lot 21] *and it is anticipated that access could be achieved via a road through this site.*

The introduction of a local road along the eastern boundary of the site would provide an additional barrier between existing residents and future residents within the interface area. It is expected that these potential future roads would have minimal impact on surrounding houses at Greenway Place and Capitol Hill Drive and on local traffic along Horsley Road due to the small number of traffic movements generated by the proposed residential development (provided a minimum lot size of 2 hectares is adopted) and the lack of a connection through to the industrial component of the site.

2.5.3 Interface Report Consideration

The Proposal has been developed in accordance with the Site yields and general planning provisions detailed in the Interface Report, i.e. in accordance with the plans for the Site previously considered by the DPE, Penrith and Fairfield Councils, and the local community to be generally appropriate, subject to an increase in lot size from 1 hectare to 2 hectares across Lot A consistent with the recommendation of Penrith Council (see further details in **Section 4** below).

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2.6 Public & Active Transport

The Site is provided with only minimal access to public and active transport services and infrastructure.

Bus stops are located in Horsley Road immediately east and west of Greenway Place, serviced by Route 813, which runs between Bonnyrigg to Fairfield. This route provides important connections to transport interchanges including the Liverpool – Parramatta T-Way and Fairfield Railway Station; however, it must be acknowledged that, given the very low frequency of these services, bus services are unlikely to represent any significant proportion of mode share for future residents.

Route 813 is shown in **Figure 2**.

With regard to active transport, local roads generally provide wide and traversable verges but little formal (pedestrian) infrastructure. Similarly, there are no formal cycling facilities in the immediate area, but local on-road cycling is generally safe given the wide local roads and low traffic volumes and vehicle speeds.

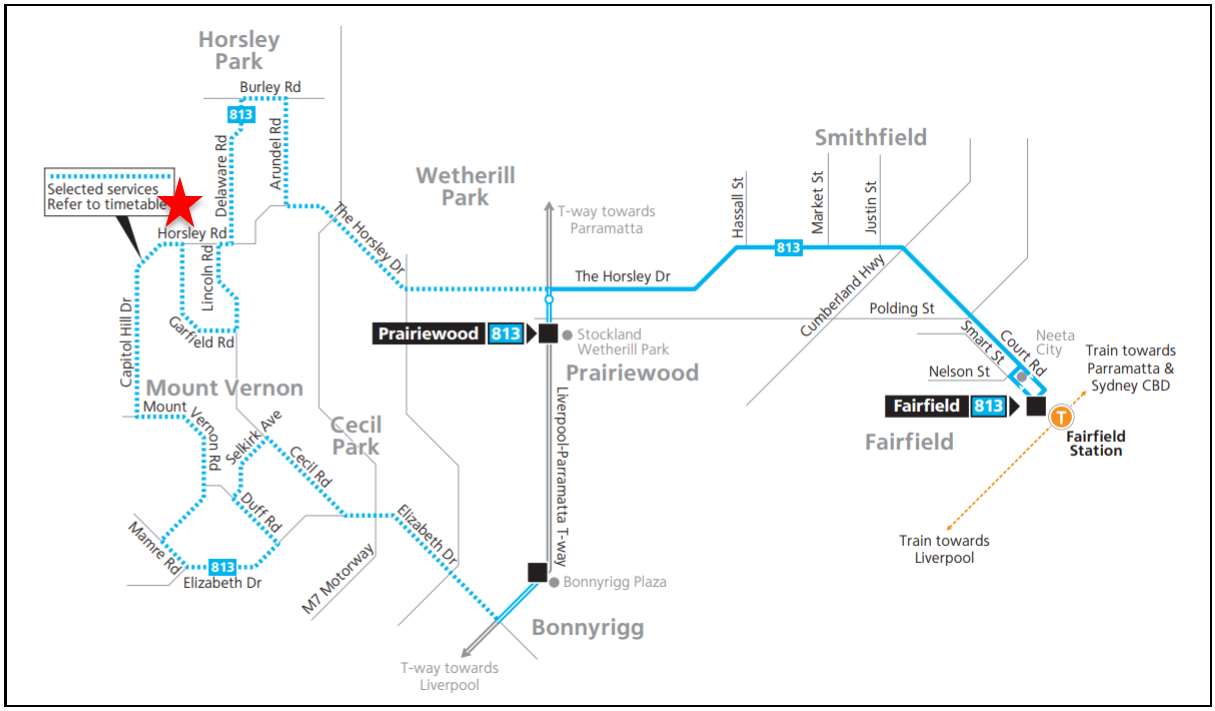

Figure 2: Bus Route 813

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3 The Road Network

3.1 Existing Road Network

The existing road network providing access for the Site is shown in **Figure 3**, and described further in sections below.

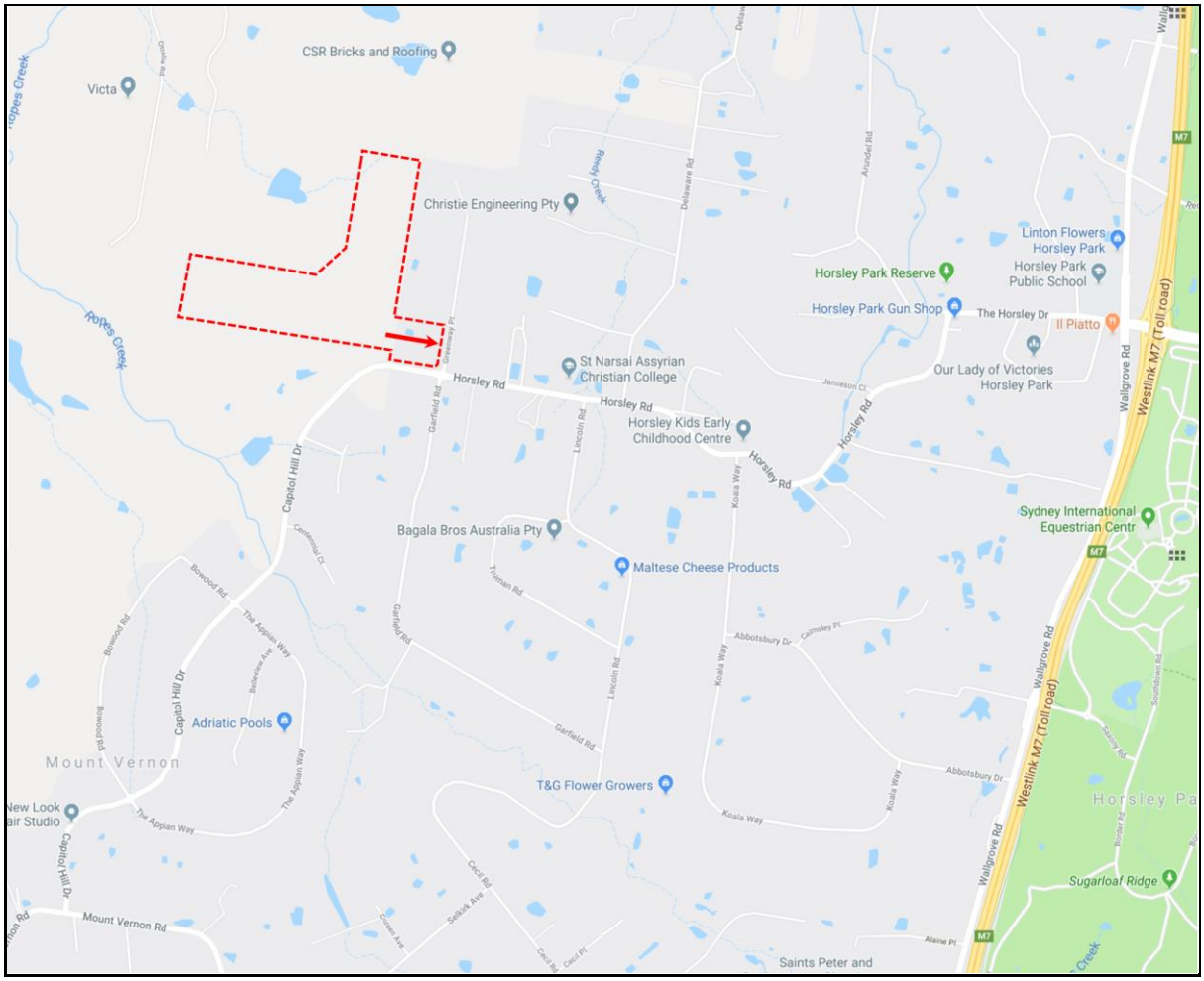

Figure 3: Local Road Network

3.1.1 Key Roads & Intersections

- **Horsley Road:** Horsley Road operates as a local collector road, providing access for primarily rural land holdings between The Horsley Drive to the east and Mamre Road and Elizabeth Drive (via Capitol Hill Drive) to the south-west and south respectively. In the vicinity of the Site, Horsley Road provides 2 (unmarked) traffic lanes for two-way traffic, and has a posted speed limit of 60km/h.

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- **Capitol Hill Drive:** Capitol Hill Drive also acts as a local collector route, and as described above provides an extension of Horsley Road south towards Mamre Road and Elizabeth Drive. In the vicinity of the Site, Capitol Hill Drive also provides 2 (unmarked) traffic lanes for two-way traffic, and has a posted speed limit of 60km/h.
- **Greenway Place:** Greenway Place is a local access road running north from Horsley Road servicing larger rural residential lots. Greenway Place provides 2 (marked) traffic lanes for two-way traffic and has a posted speed limit of 60km/h.
- **Garfield Road:** Garfield Road is a local access road servicing rural residential and local industrial lots between Horsley Road in the north and Lincoln Drive to the south-east. Garfield Road provides 2 (unmarked) traffic lanes for two-way traffic and has a nominal (unmarked) speed limit of 60km/h.
- **Intersection Horsley Road & Greenway Place & Garfield Road:** This intersection provides a single lane roundabout with no auxiliary turn infrastructure.

With reference to sections below, it is anticipated that the majority of trips generated by the Site (and indeed by existing local development) will travel to / from the east via Horsley Road to The Horsley Drive, from where access to the regional road network is available via Wallgrove Road, the M7 Motorway, and to the Cumberland Highway. The traffic generation of the Site (as a result of the Proposal) is not expected to have any impact on these roads (or intersections) to the east of Greenway Place.

Finally, the remaining portion of Lot A (industrial) will be provided with access to the north only (to the future Southern Link Road); no access will be provided between the industrial portion of Lot A and the Site (i.e. to Greenway Place).

3.1.2 Existing Traffic Flows

Peak period traffic surveys were undertaken by Matrix Traffic & Transport Surveys in June 2019 at the intersection of Horsley Road and Greenway Place; these surveys are summarised in **Figure 4** below.

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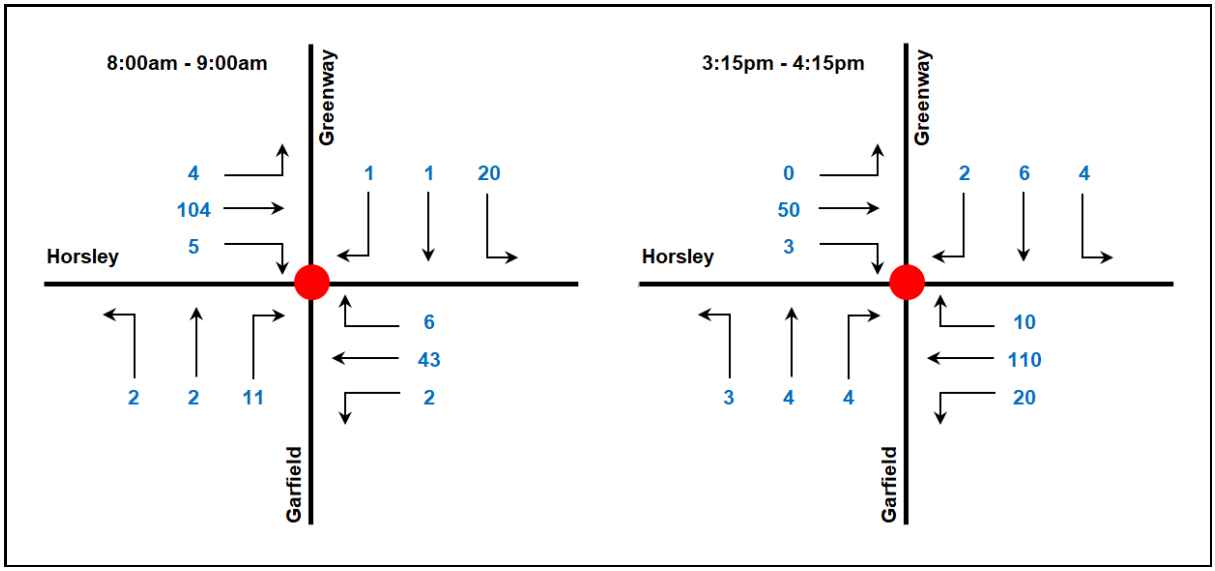

Figure 4: Existing Peak Period Traffic Flows

3.1.3 Intersection Operations

The performance of the key intersection of Horsley Road & Greenway Place has been analysed using RMS approved SIDRA intersection modelling software. SIDRA provides a range of performance measures, in particular:

- **Degree of Saturation (DOS):** DOS is defined as the ratio of demand (arrival) flow to capacity.
- **Average Vehicle Delay (AVD):** For roundabout intersections, the reported AVD relates to the average delay to all vehicle movements through the intersection.
- **Level of Service (LOS):** LOS is a comparative measure that provides an indication of the operating performance of an intersection, based on AVD. For signalised and roundabout intersections, LOS is based on the average delay to all vehicles, while at priority controlled intersections LOS is based on the worst approach delay.

Table 1 below provides a summary of the SIDRA LOS definitions and criteria, which references the RMS Guide.

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Table 1: SIDRA Level of Service Summary

Level of Service	Average Delay per Vehicle (s)	Traffic Signals & Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	70 <	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

The existing operation of the key intersections is summarised in **Table 2** below.

Table 2: Existing Intersection Operations

	Peak Period	Level of Service	Average Delay (seconds)	Degree of Saturation
Horsley Road & Greenway Place & Garfield Road	AM	A	5.2	0.09
	PM	A	5.0	0.10

With reference to **Table 2**, it is clear that the key intersection of Horsley Road & Greenway Place & Garfield Road operates with minimal delays and significant spare capacity.

3.2 Future Road Network

3.2.1 Sub-Regional Planning

The WSEA is undergoing significant change; industrial development in particular continues apace to the north of the Site through Erskine Park and Eastern Creek, as well as to the west and south throughout Kemps Creek. In the vicinity of the Site itself though, there is little information to suggest the potential for any significant changes to traffic conditions, even in the medium to long term.

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Further to review of the most recent State Government documents in regard to the WSEA, the Broader Western Sydney Employment Area (BWSEA), the Aerotropolis and South West Growth Centre, some specific reference to the local rural area in which the Site lies is provided in the Broader WSEA SLRN - Options Refinement Final Report prepared by Aecom in 2014 (SLRN Report).

Specifically, the SLNR Report identifies the possibility of an extension of Capitol Hill Drive (immediately south of the Site) north to the future Southern Link Road; as well as a future road (unlabelled and undefined) using the existing road corridor that runs east-west immediate adjacent to and south of the Site (effectively a western extension of Horsley Road). These links are shown in **Figure 5**.

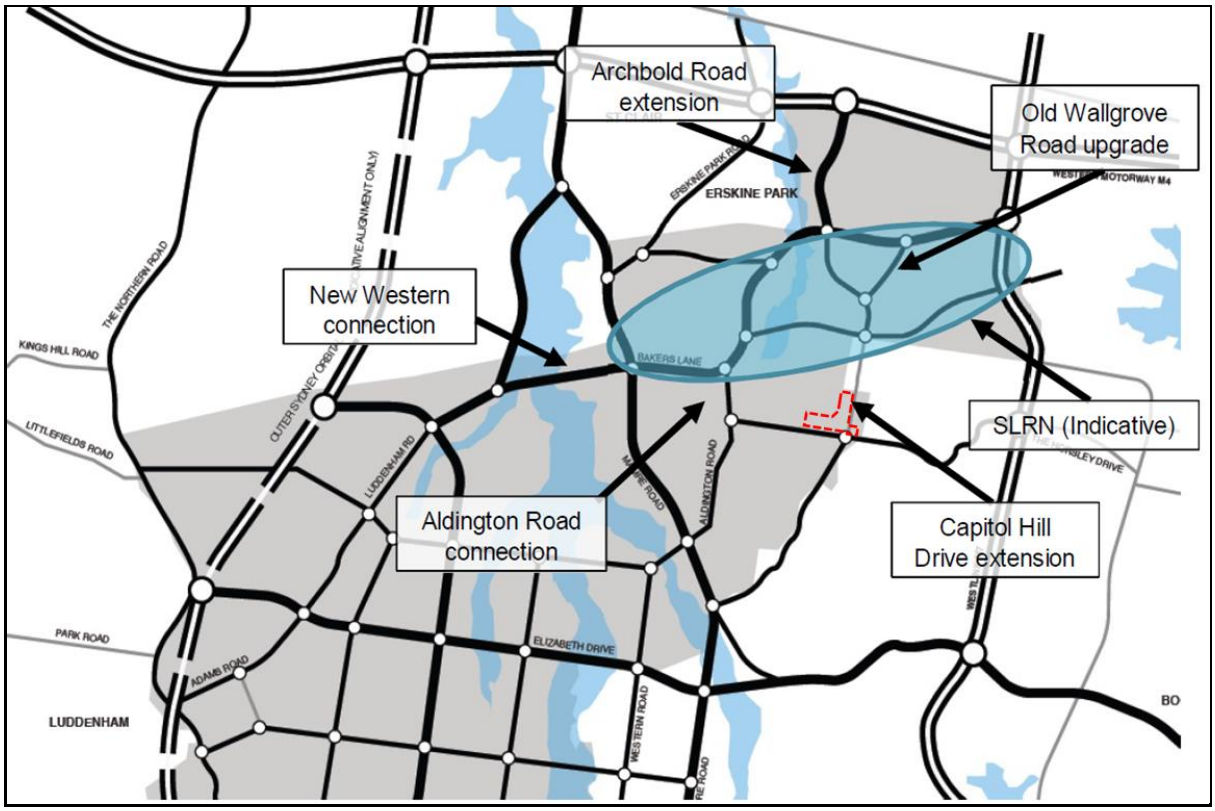

Figure 5: BWSEA Structure Plan Proposed Road Network

More recently, the Horsley Park Draft Preferred Structure Plan Option (recently adopted by Fairfield Council in April 2019) again indicates a future western extension of Horsley Road immediately south of the Site, as shown in **Figure 6**.

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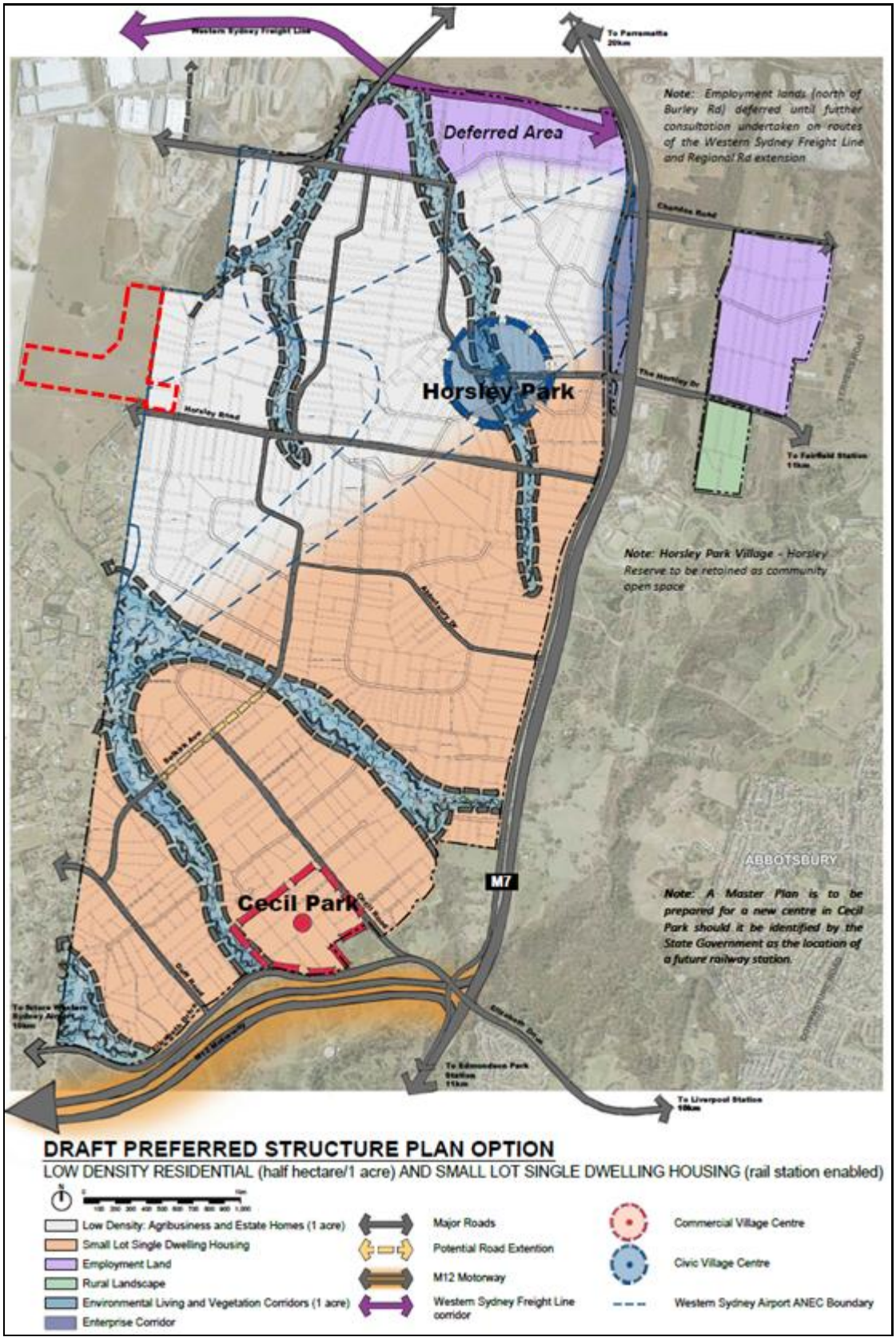

Figure 6: Horsley Park Draft Preferred Structure Plan Option

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Critically, neither the SLNR Report or Draft Preferred Structure Plan provide any further information in regard to these potential links; nor has Ason Group been able to find any other documents or reports suggesting any proposals for either Capitol Hill Drive or the east-west road reserve.

Overall therefore, there is no information available to suggest that the existing road network in the vicinity of the Site would be altered in the foreseeable future, or more importantly that existing traffic conditions in the vicinity of the Site would be subject to any significant change.

3.2.2 Localised Traffic Changes

Notwithstanding the above, local traffic conditions are expected to change to some minor degree over time as a function of development within the immediate local area, and general background traffic growth.

In this regard, the western portion of the Capitol Hill Estate lies to the immediate south of the Site. The indicative layout for this portion of the Capitol Hill Estate to the east of Capitol Hill Drive has been approved (and developed), while we understand that the western portion of the Capitol Hill Estate has been withdrawn.

Notwithstanding, Ason Group has included the development of the western portion of the Capitol Hill Estate in the assessment of future conditions. In this regard, we have assigned trips to the key intersection of Horsley Road & Greenway Place & Garfield Road referencing the trip generation and distribution of the existing lots in Greenway Place. The results of this assignment are provided below in **Figure 7**.

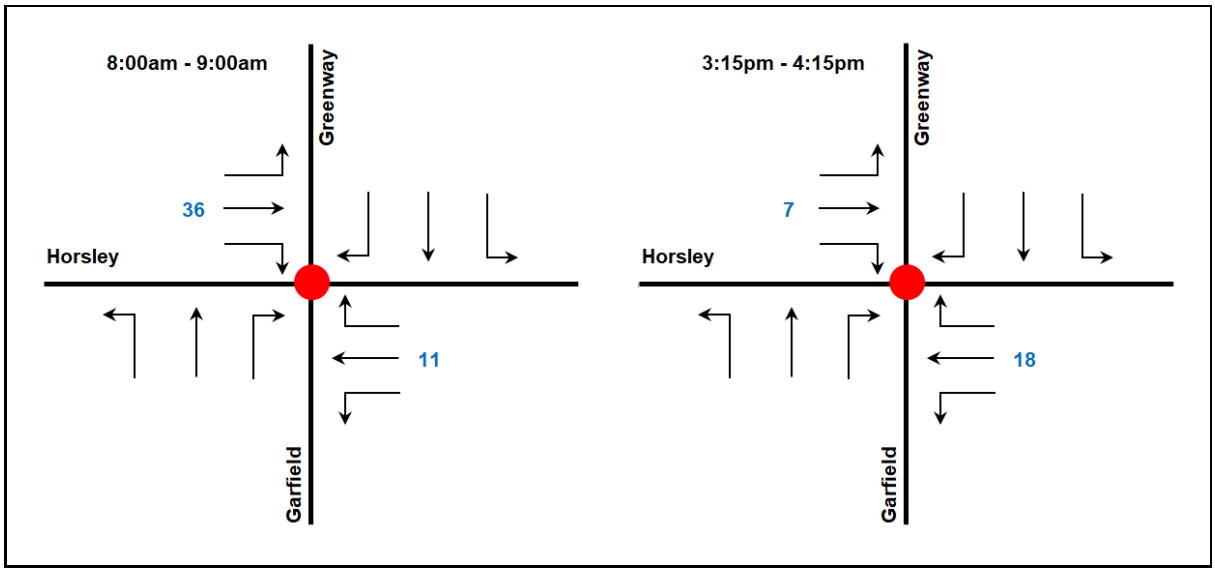

Figure 7: Potential Capitol Hill Estate Trip Generation

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With regard to background traffic growth, there is no historical data available for either Horsley Road or Capitol Hill Road by which to ascertain average growth forecasts, nor is forecast information that is available in key reports for the area – such as for The Horsley Drive Upgrade east of the M7 – reasonably applicable to Horsley Road at the Site.

Based on our experience in traffic assessment, and given the nature of local land uses and transport demands, Ason Group has applied a 2% per annum average growth rate to the existing traffic flows in Horsley Road to a forecast year 2031 (i.e. a 10 year forecast after the likely completion of Site development); there is no information to suggest any potential for higher annual growth resulting from new development in the area (i.e. the potential growth accounted for from the Capitol Hill Estate, and indeed from the Site itself). The results of this assignment are provided below in **Figure 8**.

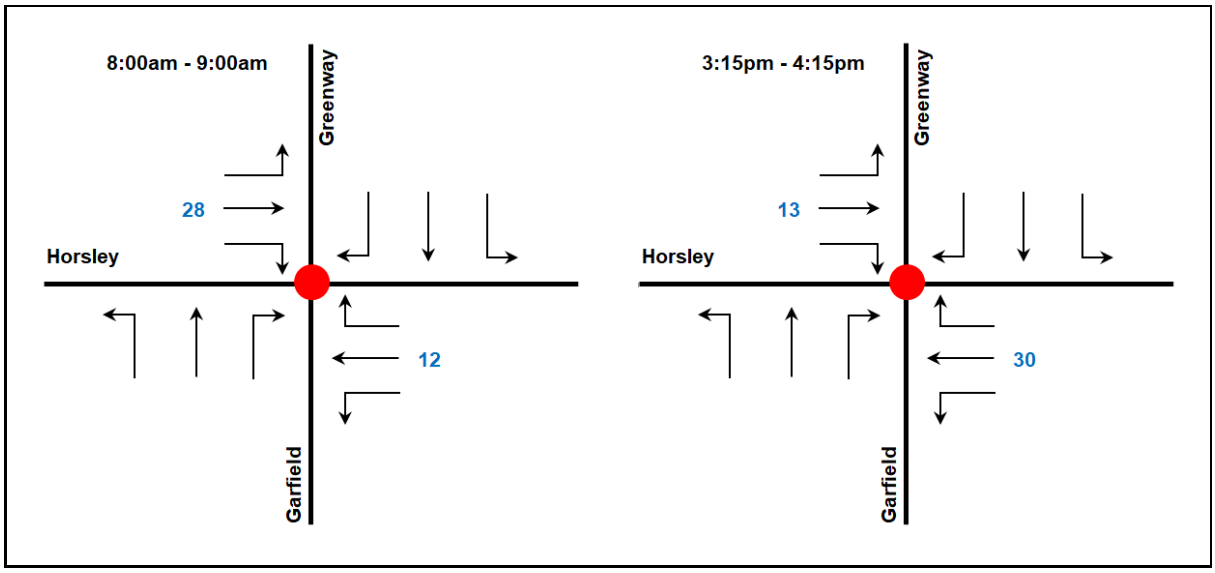

Figure 8: Average Traffic Growth to Forecast Year 2031

3.2.3 Future Intersection Operations

The operation of the key intersection under Base 2031 conditions (i.e. without the Proposal) is summarised in **Table 3** below.

Table 3: Base 2031 Intersection Operations

	Peak Period	Level of Service	Average Delay (seconds)	Degree of Saturation
Horsley Road & Greenway Place & Garfield Road	AM	A	5	0.13
	PM	A	5	0.13

With reference to **Table 3**, it is clear that the key intersection of Horsley Road & Greenway Place & Garfield Road continues to operate with minimal delays and significant spare capacity under Base 2031 conditions.

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4 The Proposal

4.1 The Proposal

The Proposal provides for the development of 16 rural residential lots across the Site; 14 of the lots (across Lot A) would have a minimum area of 2 hectares, while 2 of the lots (on Lot 21) would have a minimum area of 1 hectare. In addition, the Proposal provides for:

- A connection to the external road network (Greenway Place) via Lot 21.
- Internal access roads.
- Appropriate cul-de-sac treatments at the end of the internal roads to facilitate service vehicle turning movements.

It is noted that the existing dwelling on Lot 21 would be removed as part of the Proposal.

While full details of the Proposal are provided in the SEE which this TIA accompanies, it is immediately apparent that the Proposal is generally consistent with what was contemplated in the Interface Report (see **Section 2.5**). The proposed Site Plan is provided as **Figure 9** below.

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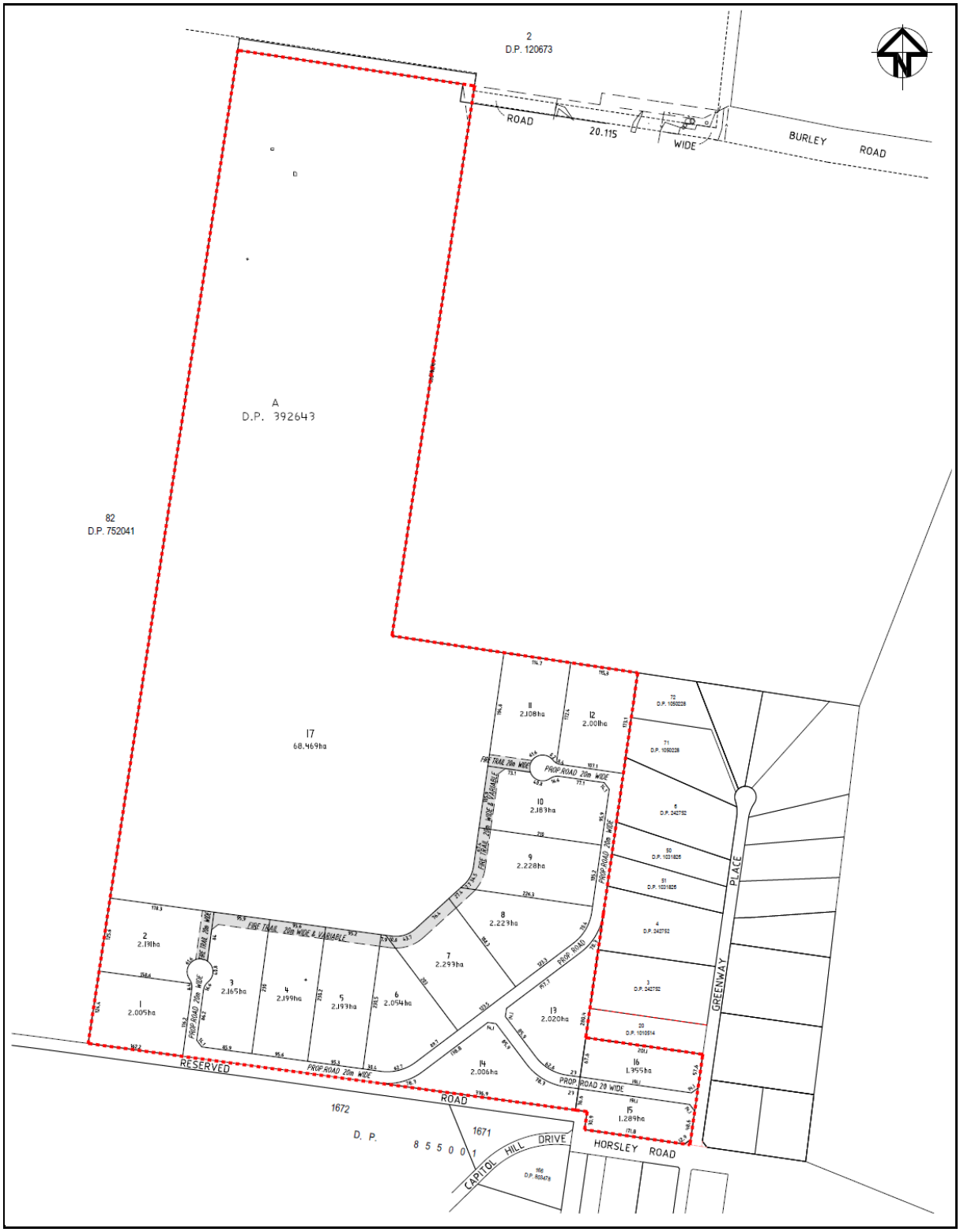

Figure 9: Proposed Subdivision Plan

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4.2 Access

4.2.1 Greenway Place & Site Intersection

As shown in **Figure 9**, the Proposal provides for a new connecting road between the internal local access roads and Greenway Place via Lot 21.

This new connection provides appropriate access to a local road (Greenway Place) and then access to Horsley Road via a suitable existing intersection (roundabout). Access directly to Horsley Road at or in the vicinity of the existing access driveway is relatively restricted, with both a sharp turn to / from the south (to Capitol Hill Drive) and an existing 'slow point' (the Capitol Hill Gates and chicane) adjacent to the existing Site driveway.

It is also the case that a future extension of Horsley Road (west along the southern Site boundary, as discussed in **Section 3.2.1**) would potentially restrict or at least 'impact' a Site intersection in this location, particularly considering a need to also provide an appropriate intersection with Capitol Hill Road (south of any extension).

While Fairfield Council does not provide any specific requirements in regard to the spacing of new intersections, this new intersection with Greenway Place is located over 100m north of the Horsley Road & Greenway Place & Garfield Road intersection, which provides more than appropriate separation between the intersections.

4.2.2 Greenway Place Connector Road Design

Section 4A of the Fairfield DCP provides the following information in regard to the design of the connection road between Greenway Place and the internal access roads, noting that this section of road is located in the Fairfield LGA and as such has different design requirements to the Site's internal roads (which are within the Penrith LGA).

A 20 metre road reserve applies for all public roads in the rural area as it does across other areas of the City. Generally, the sealed carriageway width will be shown on the typical cross sections for the roads in the area.

The applicable cross section in regard to the connector road is expected to be that shown in **Figure 10** below, which is the design adopted for Garfield Road (and, while not stated, generally for Greenway Place).

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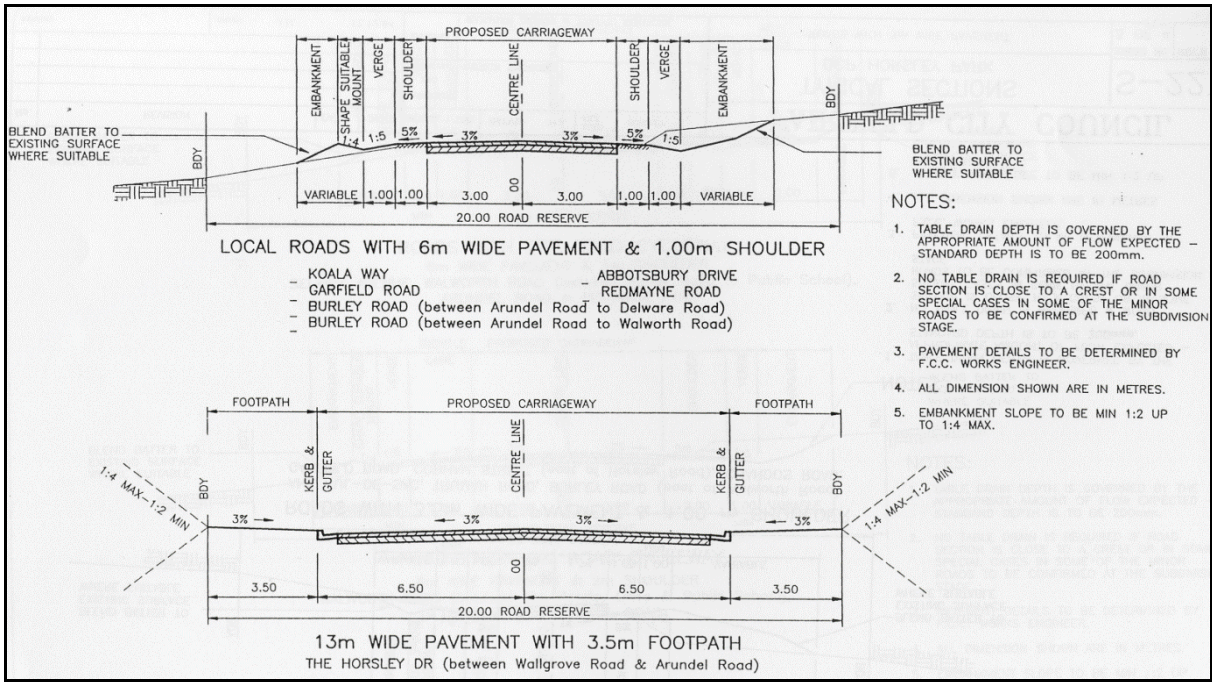

Figure 10: Fairfield Council Rural Road Profile

4.2.3 Internal Access Roads

With regard to the design of the internal roads, Section C10.4 of the Penrith DCP provides the design profile for a rural road, noting that *Rural road means a road providing access to rural areas and properties typically exceeding one (1) hectare*. The Penrith DCP rural road design profile is shown in **Figure 11**, and described further in **Table 4**.

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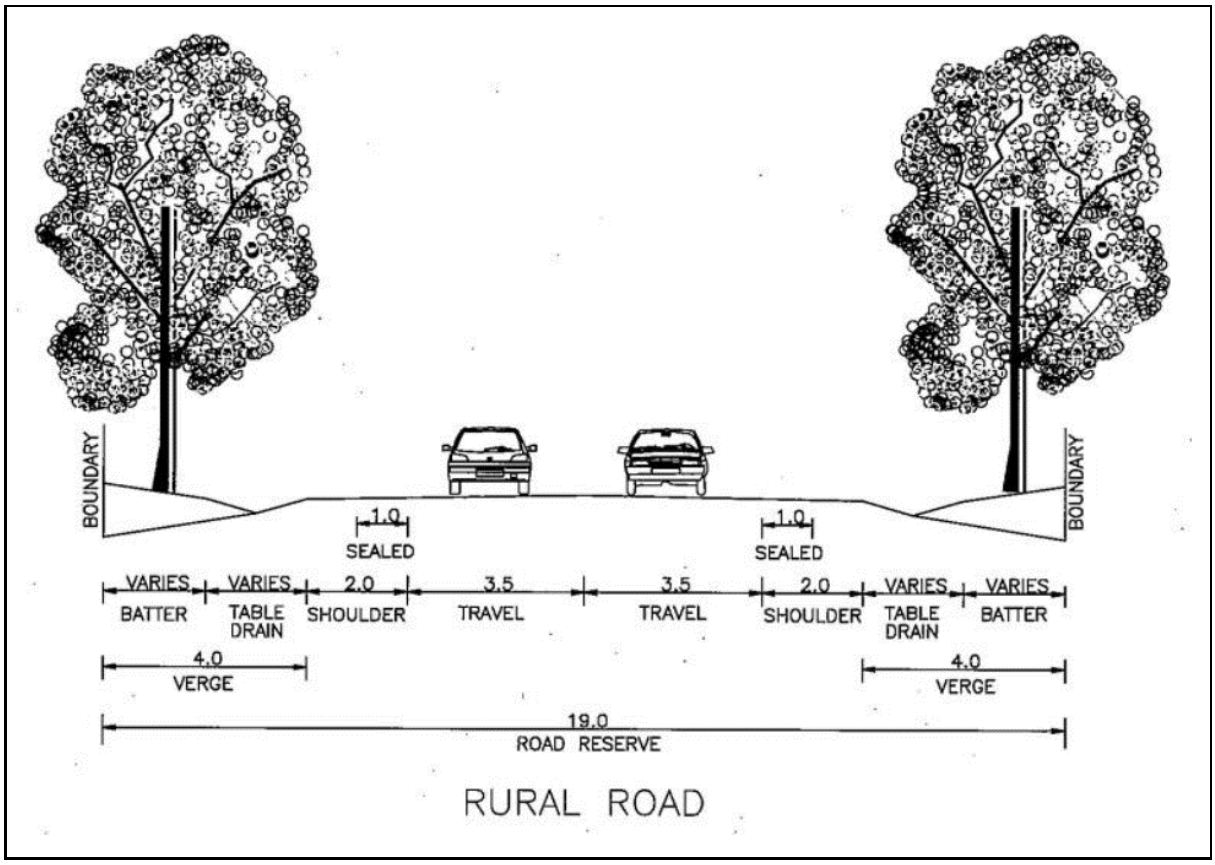

Figure 11: Penrith Council Rural Road Profile

Table 4: Penrith Council Road Profiles

Street/Road Type	Parking Lane Provision (m)	Width of Dedicated Travel Lanes – Both directions (m)	Verge widths (m)	Road Reserve (m)	Concrete Pathway 1.5m wide
Local	2 x 2.5	3	2 x 3.8	15.6	Both sides[9]
Collector	2 x 2.5[4]	7[4]	2 x 4.8	21.6[4]	Both sides[4]
Distributor	2 x 3.95[6]	7[6]	2 x 4.8	24.5	Both sides
Industrial	2 x 3.0[4]	7[4]	2 x 3.8	20.6[4]	Both sides[4]
Rural	n/a	7	2 x 6.0[7]	19	n/a

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4.3 Cul-De-Sac Treatments

Both internal access roads require the provision of cul-de-sac treatments to allow for the safe and efficient movement of waste and service vehicles.

In this regard, the design of the cul-de-sac treatments have been designed with reference to the Waste Guidelines, and specifically the design specifications for the standard Council waste vehicles, which are detailed in **Table 5** and **Figure 12** below.

Table 5: Penrith Council Road Profiles

Vehicle Class:	Heavy Rigid Vehicle Dimensions
Overall Length (m)	12.5
Design Width (m)	2.8
Design Height (m)	3.7
Swept Circle (m)	22.5
Clearance (travel height) (m)	4.5
Roadway/ramp grade (max)	1:6.5 (15.4%)
Rate of change of grade (max)	1:16 (6.25%) in 7.0m of travel
Gross Weight (max tonnes)	28.0
Capacity (m^3)	24
Front Chassis Clearance	13°
Rear Chassis Clearance	16°

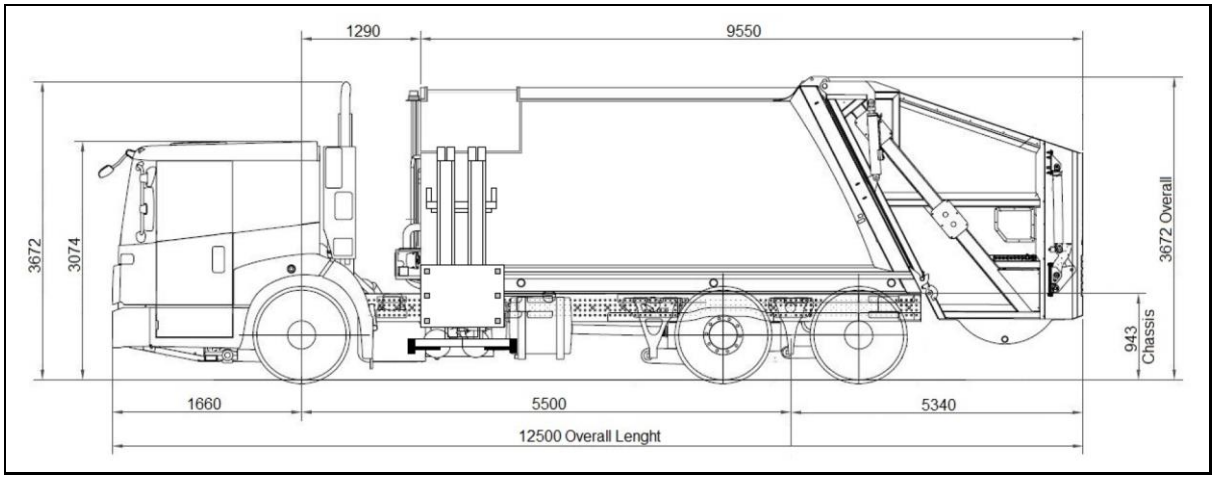

Figure 12: Penrith Council Rural Road Profile

It is noted that these design provisions would also accommodate Emergency Services vehicles, and specifically fire appliances; and Heavy Rigid Vehicles (HRVs) such as delivery vehicles and the like.

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5 Traffic Assessment

5.1 Trip Rates

The RMS Guide Update provides the following summary trip rates for residential dwellings:

- AM Peak Hour: 0.95 trips per dwelling
- PM Peak Hour: 0.99 trips per dwelling

Based on these rates, the Site (16 lots) would generate approximately 16 - 17 vph in both the AM and PM peak periods.

Conversely, the traffic surveys indicate a trip generation for Greenway Place of some 34vph in the AM peak and 26vph in the PM peak; for the 18 lots with access to Greenway Place, this equates to an average trip generation rate of approximately 1.9 trips per dwelling in the AM peak hour and 1.5 trips per dwelling in the PM peak.

While these rates are high for residential dwellings – and indeed for rural residential dwellings, where trips rates are often lower given the great distance to services (and therefore a higher tendency to combine trips rather make individual trips) – they also account for the fact that minor agricultural activities are undertaken on some lots.

Given that this potential would also be available at the Site, these trip rates have been adopted for the assessment. As such, it is estimated that the Site (16 lots) could generate up to 31vph in the AM peak and 24vph in the PM peak.

5.2 Trip Distribution & Assignment

5.2.1 Direction Trip Distribution

The directional distribution of trips at the intersection of Horsley Drive & Greenway Close & Garfield Road references the surveyed Greenway Place distribution profile, which is expected to be similar to that of the future Site lots.

5.2.2 Arrival & Departure Distribution

Similarly, the arrival and departure distribution references the surveyed Greenway Place distribution profile, which again is expected to be similar to that of the future residential lots.

5.2.3 Traffic Assignment

With reference to sections above, the additional trip generation of the Site further to the Proposal has been assigned to the intersection of Horsley Road & Capitol Hill Drive & Garfield Road under forecast Base 2031 conditions, i.e. with both the Capitol Hill Estate traffic flows and additional background traffic flows as described in **Section 3.2.2**. The future total flows at the intersection are shown in **Figure 13**.

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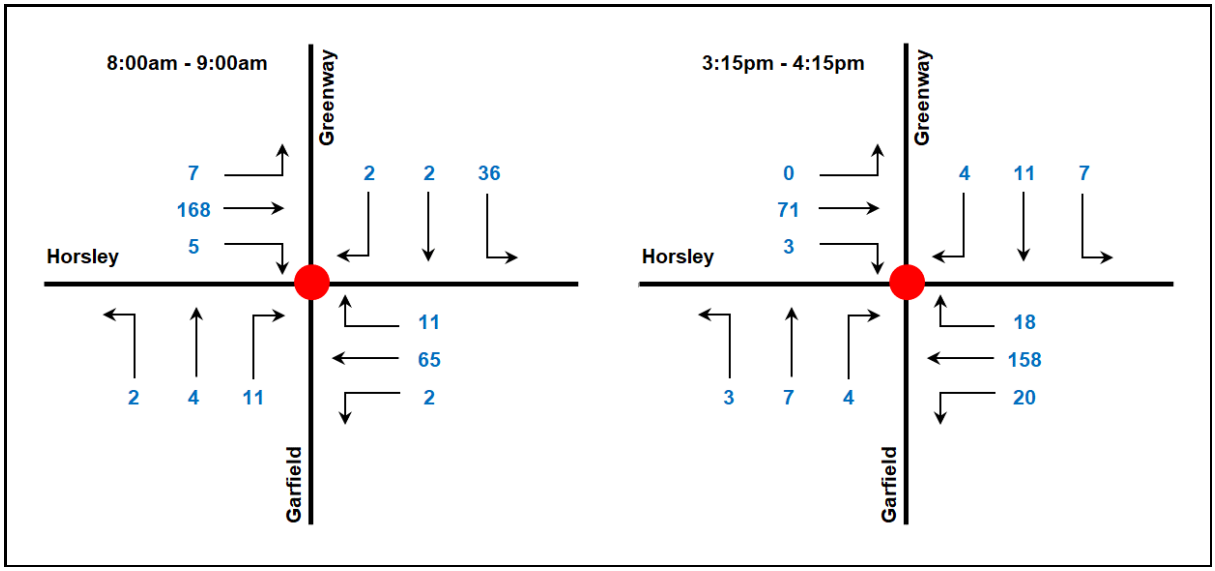

Figure 13: Future Total Flows Base 2031 + Proposal

5.3 Traffic Impacts

5.3.1 Intersection Operations

While it is immediately apparent that the additional trip generation of the Site would have little impact on the local road network, SIDRA modelling has again been undertaken to assess these future conditions. The results of this analysis are provided in **Table 6**.

Table 6: Future Intersection Operations Base 2031 + Proposal

	Peak Period	Level of Service	Average Delay (seconds)	Degree of Saturation
Horsley Road & Greenway Place & Garfield Road	AM	A	5	0.13
	PM	A	5	0.14

With reference to **Table 6**, the additional traffic generated by the Proposal has little impact on the operations of the intersection of Horsley Road & Capitol Hill Drive & Garfield Road, with no change in LOS; no significant increase in AVD or queue lengths; and the retention of significant spare capacity.

5.3.2 Environmental Capacity

Table 4.6 of the RMS Guide provides guidance in regard to the appropriate 'environmental capacity' of local roads, and is reproduced below in **Table76**.

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Table 7: RMS Environmental Amenity Guidelines

Road class	Road type	Maximum Speed (km/hr)	Maximum peak hour volume (veh/hr)
Local	Access way	25	100
	Street	40	200 environmental goal
			300 maximum
Collector	Street	50	300 environmental goal
			500 maximum

While Greenway Place essentially operates as a Local Street (though with a higher speed limit) the total flow in Greenway Place north of Horsley Road further to the Proposal – some 61vph and 47vph in the AM and PM peak periods respectively – represents a total flow well less than even the environmental goal for lower order roads (i.e. a Local Access Way).

As such, the Proposal would have no impact on the environmental amenity of Greenway Place.

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6 Conclusions & Recommendations

Ason Group has been engaged by Jacfin to prepare a TIA to assess the access and traffic characteristics of a proposed rural residential development across the southern portion of Lot A in DP 392643 and on Lot 21 in DP 1010514. Sections below provide a summary of Ason Group's Conclusions and Recommendations further to our assessment.

6.1 Conclusions

Further to a detailed and independent assessment of the Proposal, Ason Group has concluded that:

- The Proposal provides for development of the Site in accordance with the principles and objectives outlined in the Interface Report, which themselves were determined further to detailed consultation between Jacfin, the DPE, local Councils and the local community.
- Access to the Site will be provided to / from Greenway Place, with the new intersection connection road to be designed in accordance with Fairfield Council's requirements and reference the appropriate Australian Standards and Austroads guidelines.
- The internal access roads within the Site will be designed in accordance with Penrith Council's requirements and reference the appropriate Australian Standards and Austroads guidelines.
- Cul-de-sac treatments at the end of each internal road will be designed in accordance with Penrith Council's requirements for waste collection vehicles, which would also meet the design requirements for fire appliances and other Heavy Rigid Vehicles.
- The traffic generation of the Site is very moderate, and would have no impact on the operation of the key intersection of Horsley Drive & Greenway Place & Garfield Road; nor breach environmental amenity guidelines in Greenway Place.

As such, Ason Group has concluded that the Proposal is supportable.

6.2 Recommendations

Notwithstanding the Conclusions provided above, the road profiles provided by Fairfield Council (for the connector road to Greenway Place) and Penrith Council (for the internal roads) vary slightly. Ason Group recommends discussions with both Councils in this regard, with the potential to provide a single design profile across the Site; however, the provision of the different road profiles (if required) would in our opinion be no impediment to an approval.

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