peopletrans

Lindfield Village Living 259 & 265-271 Pacific Highway

Transport Impact Assessment

Stage 3 Report

315 Residents (130 Apartments)
2 FTE Employees

peopletrans

Lindfield Village Living 259 & 265-271 Pacific Highway

Transport Impact Assessment

Stage 3 Report

Document Quality Information

Client	Ku-ring-gai Council
Job Number	18S380
Issue	D
Date	18/03/20
Details	Final
Prepared By	Alan Stewart Barry Li Sherlock You
Reviewed By	Matthew Houlden
Approved By	Alan Stewart
Signature	

Table of Contents

Figures

1. Introduction

1.1 Background

A development application is to be lodged with Ku-ring-gai Council for a proposed residential development on land located at 259 & 265-271 Pacific Highway, Lindfield.

The proposed development incorporates a 7-storey residential flat building with 130 apartments, 2 levels of basement parking of 153 carparking spaces, a 62m^2 retail space, communal garden / open space and a swimming pool. There is also a new road connecting Tryon Lane to Pacific Highway to provide vehicular access to the site.

PeopleTrans was commissioned by Fox Johnston Architects in October 2018 to undertake a transport impact assessment of the proposed development.

This report should also be read in conjunction with PeopleTrans correspondence dated 15/07/19 which addressed item 6 of Ku-ring-gai Councils early independent assessment letter dated 18/04/19 which is included in **Appendix A** of this report.

1.2 Scope and Objectives of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

(1) the active transport requirements (pedestrians and cyclists)
(2) the public transport in the vicinity of the site
(3) the existing traffic, transport and parking conditions surrounding the site
(4) the adequacy of the proposed parking supply and layout
(5) the service vehicle requirements
(6) the transport generating characteristics of the proposed development
(7) the suitability of the proposed vehicle access
(8) the transport impact of the proposal on the surrounding road network.

1.3 Background Studies/Proposals

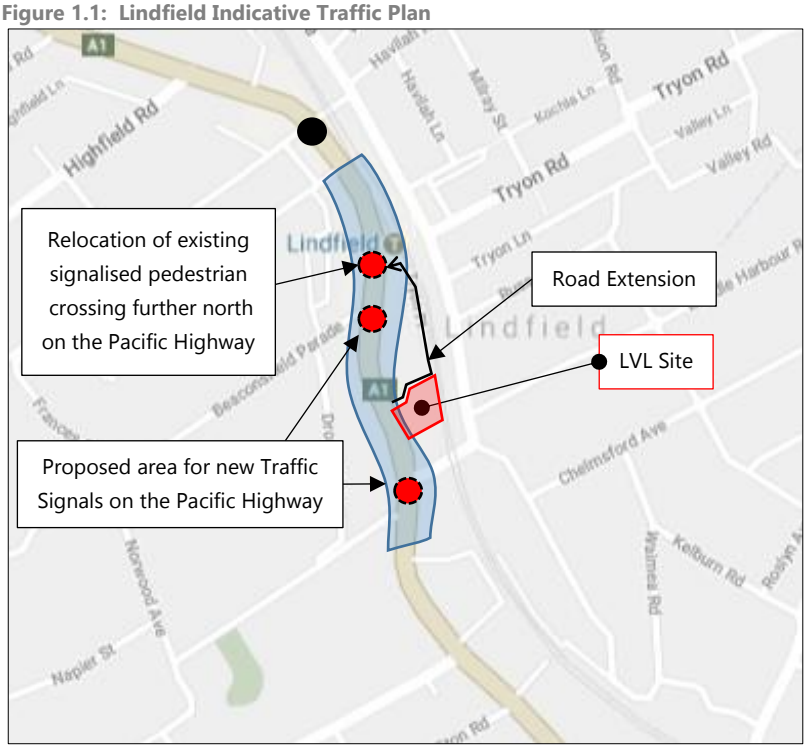
It is important to recognise that this site is one of three Council owned sites which have been subject to planning in the context of the entire Lindfield Town Centre.

Importantly from a traffic, transport & access perspective, Ku-ring-gai Council has had discussions with Roads & Maritime Services (RMS) to agree a traffic/road network plan which can accommodate the future impacts of development across all of Lindfield.

The key components of this traffic / road network plan (Provided indicatively in Figure 1.1) which would have an impact on the LVL site are as follows:

- Proposed new traffic signals on the Pacific Highway at Strickland Avenue and Beaconsfield Parade. (Including a banned right turn from the Pacific Highway into Beaconsfield Parade.)
- A banned right turn from Havilah Road onto the Pacific Highway
- Relocation of the existing traffic signal pedestrian crossing further north on Pacific Highway
- Tryon Place road extension to the Pacific Highway.

Figure 1.1: Lindfield Indicative Traffic Plan



Base map source: maps.google.com.au

Although this plan has not yet been formally adopted by Council or RMS, for the purposes of this study, these arrangements have been assumed to be proposals which are likely to proceed in one form or another in the future.

1.4 References

In preparing this report, reference has been made to the following:

- an inspection of the site and its surrounds
- Ku-ring-gai Local Centres Development Control Plan (DCP), 2017
- RTA Guide to Traffic Generating Developments 2002
- Car parking requirements section of SEPP65, NSW Government Department of Planning & Environment
- Architectural plans for the proposed development (A-100-001 and A-400-000, 001, 002, 003 dated 07/02/2020) prepared by Fox Johnston Architects
- Landscape architectural plans for the proposed development (L-DA-05 and L-DA-05A dated 11/02/2020) prepared by 360 Degree Landscape Architects
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- Australian Standard, Parking Facilities, Part 3: Bicycle Parking Facilities AS2890.3:1993
- other documents and data as referenced in this report.

- Traffic surveys undertaken by Matrix as referenced in this report
- other documents and data as referenced in this report.

2. Existing Conditions

2.1 Site Location

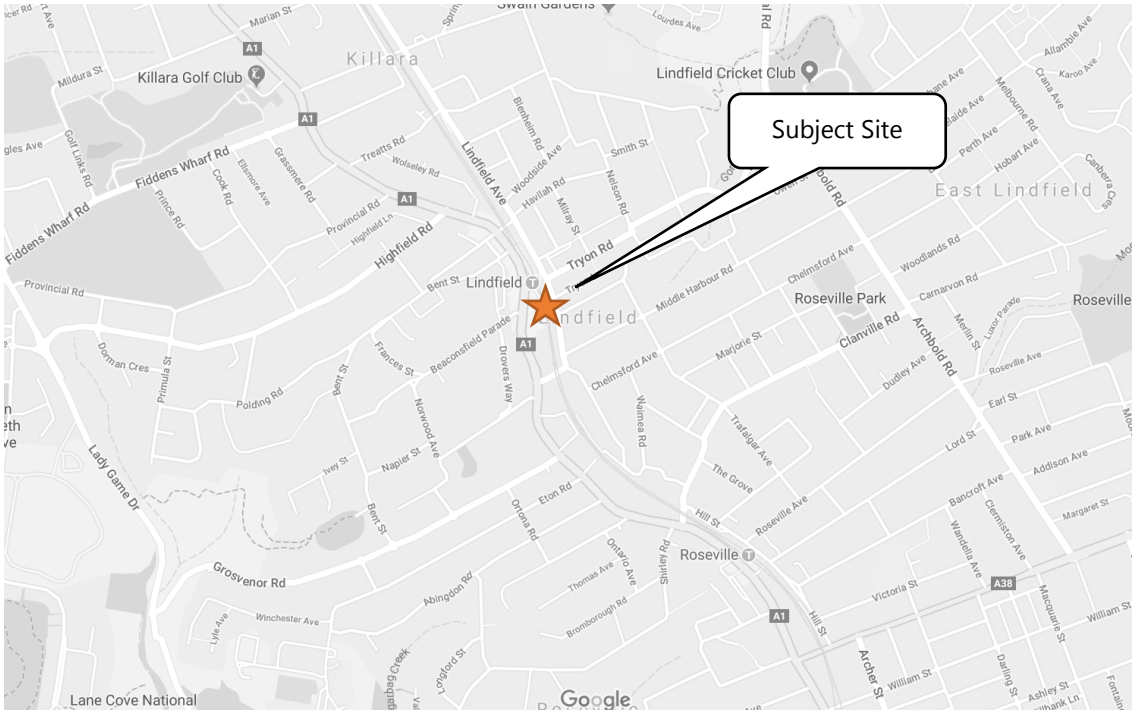
The subject site is located at 259 & 265-271 Pacific Highway in Lindfield within the Local Government Area of Ku-ring-gai. Bounded on the west by Pacific Highway and on the east by the rail corridor, the site of approximately 5,850m2, is located within 200m of Lindfield Station and has a frontage of 70m to Pacific Highway.

The site and its immediate vicinity are shown in Figure 2.1.

Figure 2.1: Subject Site and Its Immediate Vicinity

The location of the subject site and its neighbourhood is shown more widely in Figure 2.2.

Figure 2.2: Site Location and Its Neighbourhood



Base map source: maps.google.com.au

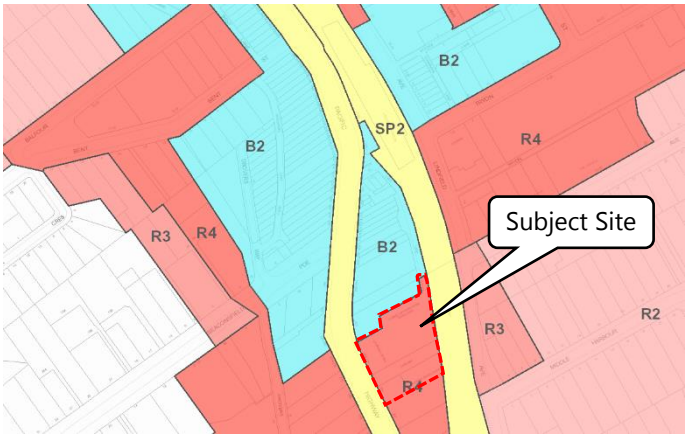
2.2 Land Uses

The site was previously zoned as B2 Local Centre in the Ku-ring-gai LEP (Local Centres) 2012 before the 29th September 2017. It is currently zoned as R4 High Density Residential in the Ku-ring-gai LEP (Local Centres) 2012 (Amendment No.5) as shown in Figure 2.3.

It is currently occupied by the Lindfield Branch Library and welfare centre, self-contained residential units, Lindfield Community Centre, Lindfield Resource Centre, Lindfield Community Centre tennis courts, carpark and an access road.

The surrounding properties predominantly include B2 Local Centres and R4 High Density Residential uses.

Figure 2.3: Current Lane Uses



Note: the land use map is sourced from Ku-ring-gai Council Online Map Viewer (http://maps.kmc.nsw.gov.au/PRODWebmap/index.html)

2.3 Road Network

2.3.1 Adjoining Roads

Details of the roads in close proximity to the site are provided in Table 2.1

Table 2.1 Summary of Adjoining Roads

Road Name	Classification	Orientation	Configuration	Width	Daily Volume [1]	On-Street Restrictions
Pacific Highway	State Road	North-South	3 Lane Dual Carriageway	20m	48,500	Varies – Peak Period Clearways – Off Peak Parking
Tryon Place	Local Road (No Through Road)	North-South	1 Lane in Each Direction	5.3m – 7.3m	1,000	Varies – No Parking – Unrestricted Parking
Lindfield Avenue	Local Road	North-South	1 Lane in Each Direction	12m	10,000	Varies – 1/4P, 1/2P and 1P Parking - Unrestricted Parking
Havilah Road	Local Road	East-West	1 Lane in Each Direction	7m	5000	No Stopping
Strickland Avenue	Local Road	East-West	1 Lane in Each Direction	10m	4,800	Varies – 2P Parking - Unrestricted Parking

[1] Based on a peak-to daily ratio of 8% for Pacific Highway and 10% for all other roads

2.3.2 Surrounding Intersections

The existing intersections in the vicinity of the site are summarised in Table 2.2.

Table 2.2 Existing Intersections in the Vicinity of the Site

Intersection	Intersection Control
Pacific Highway / Balfour Street / Havilah Road	Signalised
Pacific Highway / Tryon Place	Priority Controlled T-Intersection
Pacific Highway / Strickland Avenue	Priority Controlled T-Intersection
Lindfield Avenue / Tryon Road	Signalised
Lindfield Avenue / Havilah Road	Priority Controlled Intersection

2.4 Vehicle Movements

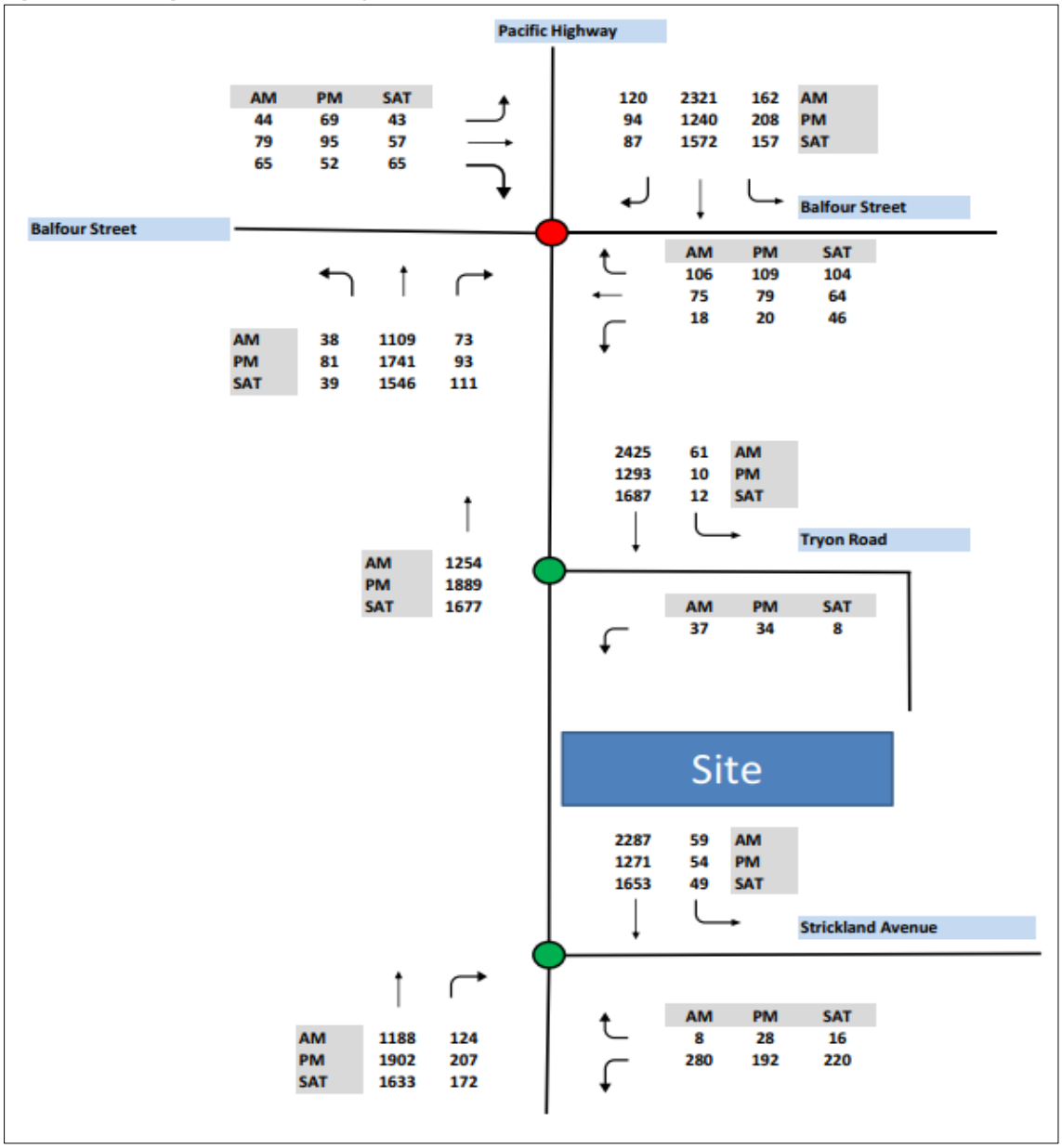
PeopleTrans commissioned Matrix Traffic and Transport Data to undertake vehicle movement counts at the surrounding intersections. The surveys were undertaken on Saturday the 20th October 2018 (11am to 2pm) and on Tuesday the 30th October 2018 (7am-9am & 4pm-6pm).

The peak hours for each of the survey periods were identified as follows:

- Weekday AM – 7:30am to 8:30am
- Weekday PM – 5:00pm to 6:00pm
- Saturday Midday – 12:30pm to 1:30pm

The AM, PM, Saturday peak hour traffic volumes are summarised in Figure 2.4 with full results provided in **Appendix B.**

Figure 2.4: Existing AM / PM / Saturday Peak Hour Traffic Volumes



2.5 Public Transport

Trains and buses are the two primary forms of public transport available to the residents and visitors of the proposed development. Details of the services are set out in the following sections.

2.5.1 Trains

Lindfield Station is located within a 200m walking distance of the site and is on the T1 North Shore line providing very good access to wider parts of Sydney. During the AM & PM peak 2-hour period, there can be as many of 30 train services departing Lindfield Station towards the Sydney CBD as indicated in Table 2.3. On average, the trip into the Sydney CBD from Lindfield Station is approximately 30 minutes.

Table 2.3: Train Services at Lindfield Station

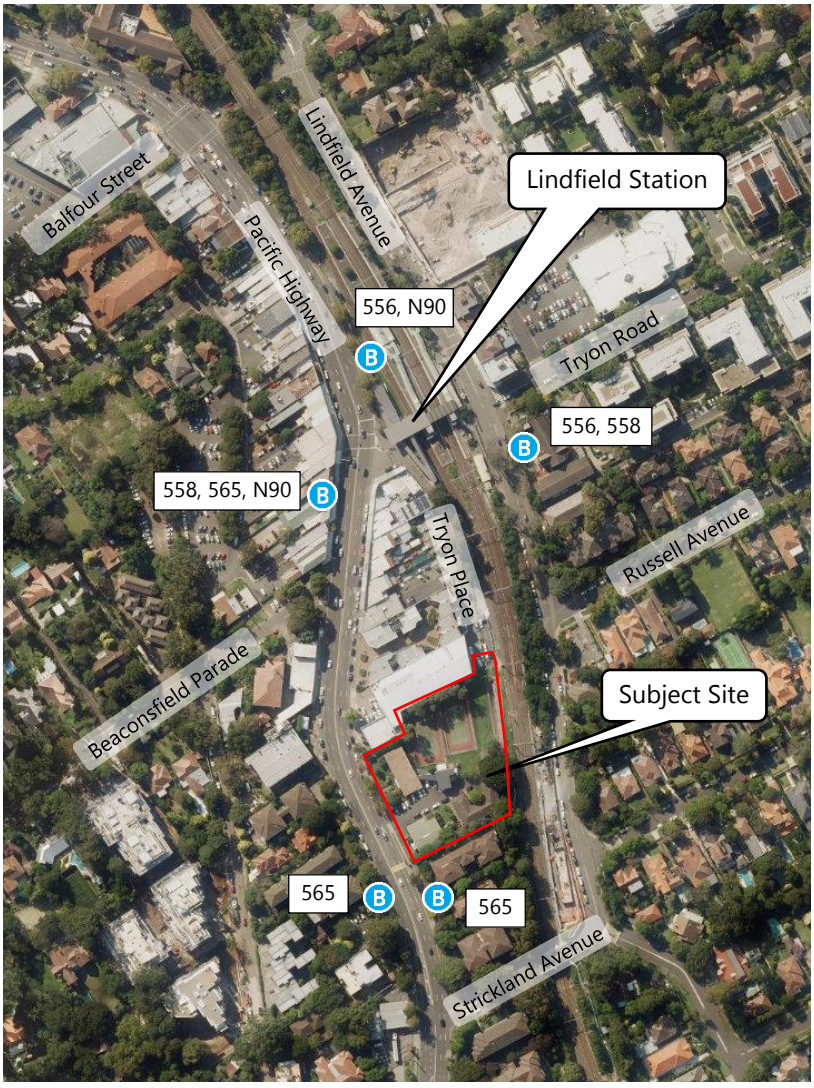
Route	Route Description	Services Departing Lindfield Station		
		Weekday AM Peak (7am-9am)	Weekday PM Peak (4:30pm-6:30pm)	Saturday Midday Peak (11am-1pm)
T1	Southbound	17 services	32 services	17 services
T1 and Limited Inter-City Services	Northbound	30 services	20 services	16 services

In a southbound direction, the first train departs at 4:28am on weekdays and 4:22am on Saturdays. In a northbound direction, the first train departs at 4:54am on weekdays and 5:33am on Saturdays.

2.5.2 Buses

There are two bus stops located directly outside the site on Pacific Highway with three bus stops located further north outside Lindfield Station as shown in Figure 2.5.

Figure 2.5: Bus Stops in the Vicinity of the Site



These bus stops, indicated in Figure 2.5, service bus routes 556, 558, 565 and N90 as indicated graphically in Figure 2.6. Further peak hour service details are provided in Table 2.4.

Figure 2.6: Extract of Region 12 Network Map (Transdev NSW)

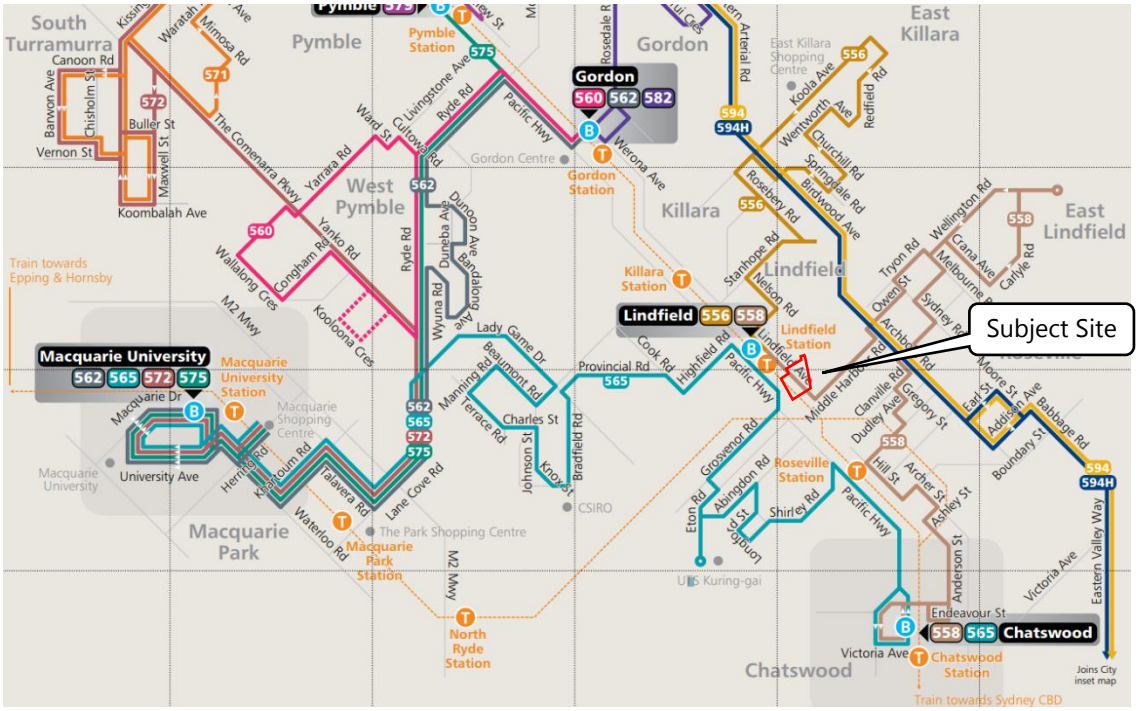


Figure 2.6 indicates that these routes operate at a relatively local level and provide access from East Killara (Route 556), East and West Lindfield (Routes 558 & 565) to Lindfield Station and slightly further afield from Lindfield Station to Chatswood (Routes 558 & 565) and Macquarie Park (Route 565).

Table 2.4: Bus Services

Route	Route Description	Services Departing Lindfield Station		
		Weekday AM Peak (7am-9am)	Weekday PM Peak (4:30pm-6:30pm)	Saturday Midday Peak (11am-1pm)
556	Lindfield to East Killara to Lindfield (Loop)	3 services	4 services	3 services
558	Lindfield to Chatswood	2 services	2 services	1 service
	Chatswood to Lindfield	3 services	3 services	1 service
565	Chatswood to Macquarie Park via Lindfield	4 services	6 services	2 service
	Macquarie Park to Chatswood via Lindfield	7 services	5 services	2 services
N90	A nightrider service runs from Sydney CBD (Town Hall) to Hornsby via Chatswood between 12:30am and 5am.			

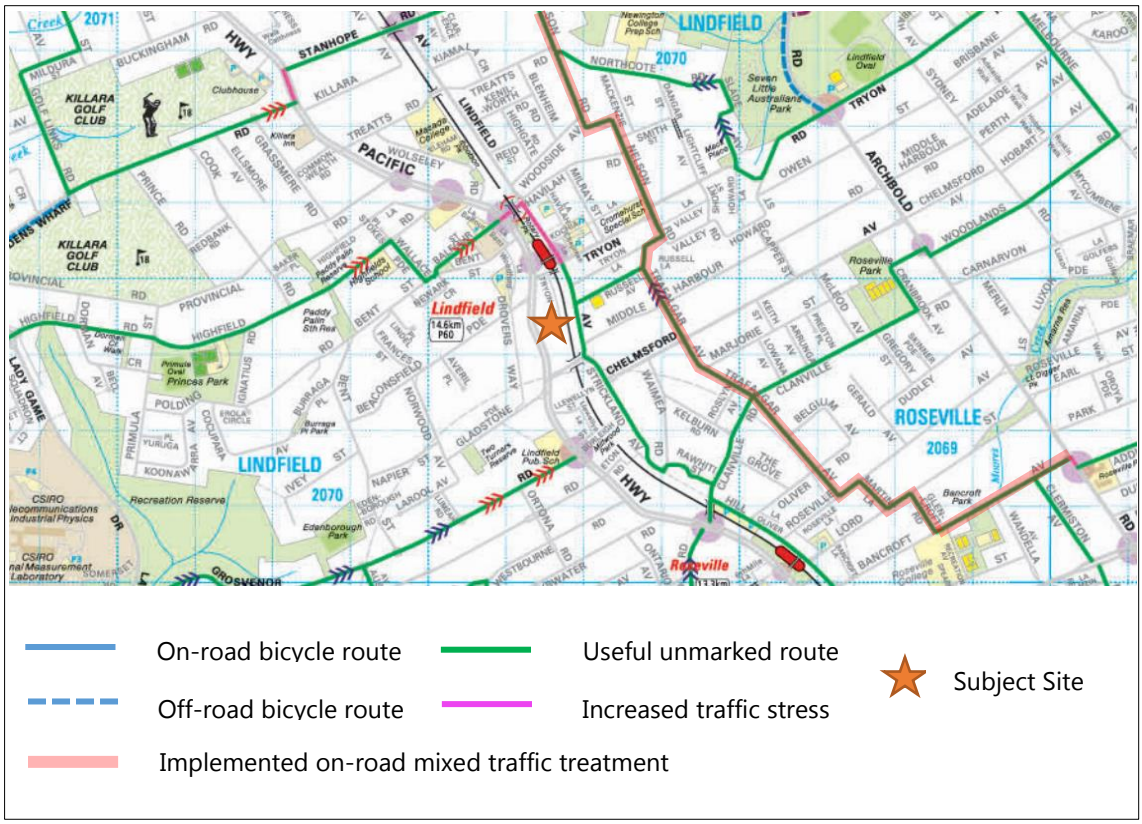
Source: Transdev NSW website/Timetable & Maps/Upper North Shore (https://www.transdevnsw.com.au/services/timetables/upper-north-shore)

Table 2.4 indicates that there are good bus services connecting Lindfield and Chatswood with approximately one service every 15 minutes during weekday peak hours.

2.6 Cycle Facilities

The existing Ku-ring-gai bicycle network is indicated in Figure 2.7.

Figure 2.7: Current Ku-ring-gai Cycleways Map Extract



Source: Ku-ring-gai Cycleways Map (http://www.kmc.nsw.gov.au/Services_facilities/Basics/Cycling)

Within the vicinity of the site, Lindfield Avenue is recognised as an important commuter cycling route through Lindfield. However, Figure 2.7 indicates a section of Lindfield Avenue between Havilah Road and Tryon Road as having "increased traffic stress". Although the Ku-ring-gai Cycleways Map only identifies Nelson Road and Trafalgar Avenue as useful unmarked routes, on-road mixed traffic treatments have already been implemented on these two local roads as indicated in Figure 2.7.

2.7 Pedestrian Facilities

Pedestrian footpaths are provided on both sides of the majority of roads in the vicinity of the site with the exception of Tryon Place. There are 3.5m wide footpaths on both sides of Pacific Highway.

There are two signal-controlled pedestrian crossings on the Pacific Highway in the vicinity of the site as follows:

- Signalised mid-block pedestrian crossing adjacent to Lindfield Station, approximately 200m north of the site
- Grosvenor Road/ Pacific Highway intersection, approximately 400m south of the site.

On the east side of Lindfield Station, a signalised mid-block pedestrian crossing is provided on Lindfield Avenue between Tryon Road and Kochia Lane.

There are two locations which provide pedestrian access between the east and west sides of Lindfield across the railway corridor in the vicinity of the site as follows:

- Pedestrian Bridge/Concourse at Lindfield Station which incorporates disabled access lifts and ramps, approximately 200m north of the site
- Strickland Avenue road overbridge, approximately 200m south of the site.

The pedestrian crossing locations are indicated in Figure 2.8.

Figure 2.8: Pedestrian Crossings Locations

2.8 Taxis

There is one taxi rank located outside of Lindfield Station on the west side of Lindfield Avenue. This taxi rank is approximately 30m in length and has the capacity for five parked taxis.

2.9 Kiss & Ride Parking / Activity

The observed kiss-and-ride activity at Lindfield Station is summarised as follows:

- Woodford Lane - easily accessed to and from the north and south from the Pacific Highway
- Pacific Highway near the pedestrian crossing at the Station entrance for the northbound vehicles on the Pacific Highway
- Tryon Place at the Station entrance for southbound vehicles on the Pacific Highway
- Lindfield Avenue near Kochia Lane for southbound vehicles on Lindfield Avenue
- Chapman Lane near Tryon Road for westbound vehicles on Tryon Road.

2.10 Travel Characteristics

To understand residents in Lindfield, especially those living within an 800m catchment (10-minute walking distance) of Lindfield Station, travel pattern and travel modes were investigated.

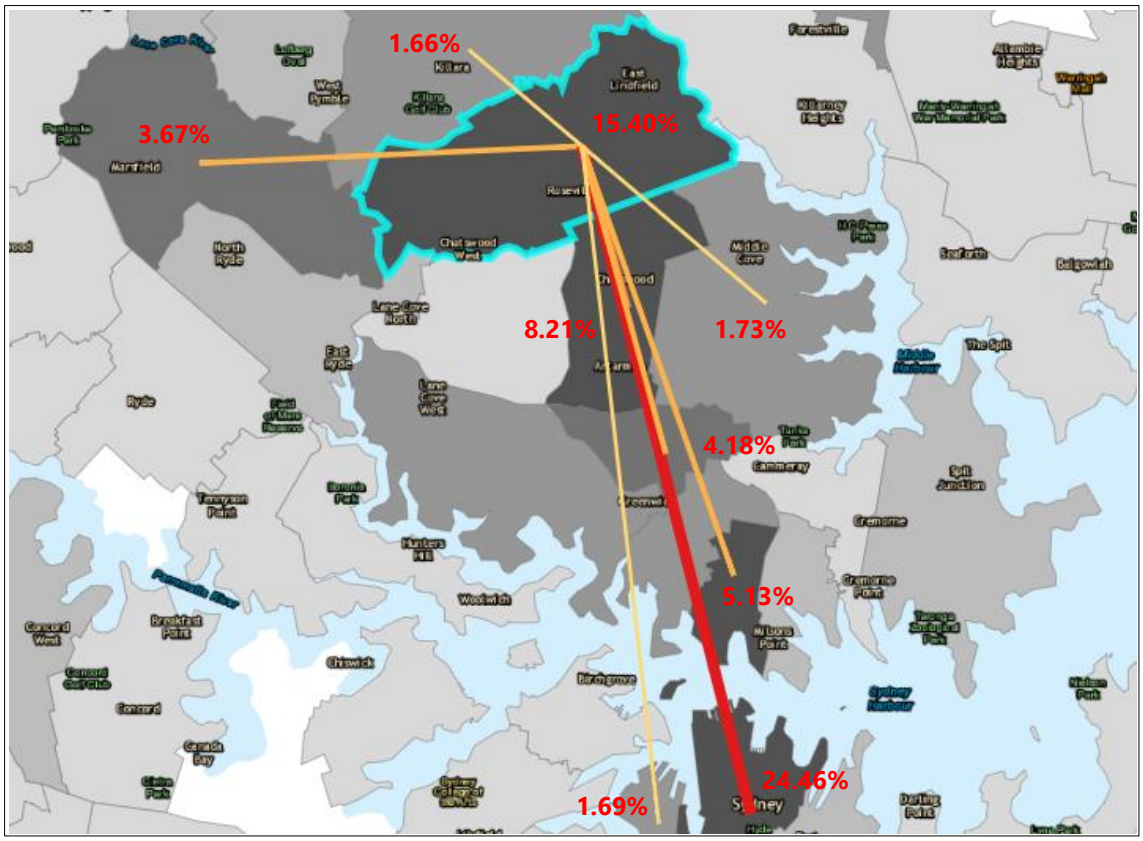
The 2016 Census data, published by the Australian Bureau of Statistics (ABS), was sourced to obtain the following information:

- where Lindfield residents work
- mode of travel to work.

2.10.1 Where Lindfield Residents Work?

The place of work of Lindfield Residents has been analysed based on Statistical Areas Level 2 (SA2) regions of the ABS' statistical geography boundaries, which is the available work place data with the smallest boundary. The suburb of Lindfield is in the Lindfield-Roseville SA2 region, together with suburbs of East Lindfield, Roseville and Roseville Chase. A snapshot of the ABS Interactive Map – Journey to Work from Place of Usual Residence is provided in Figure 2.9 with the usual residence set to Lindfield-Roseville SA2 region.

Figure 2.9: Place of Work - Residents of Lindfield-Roseville SA2



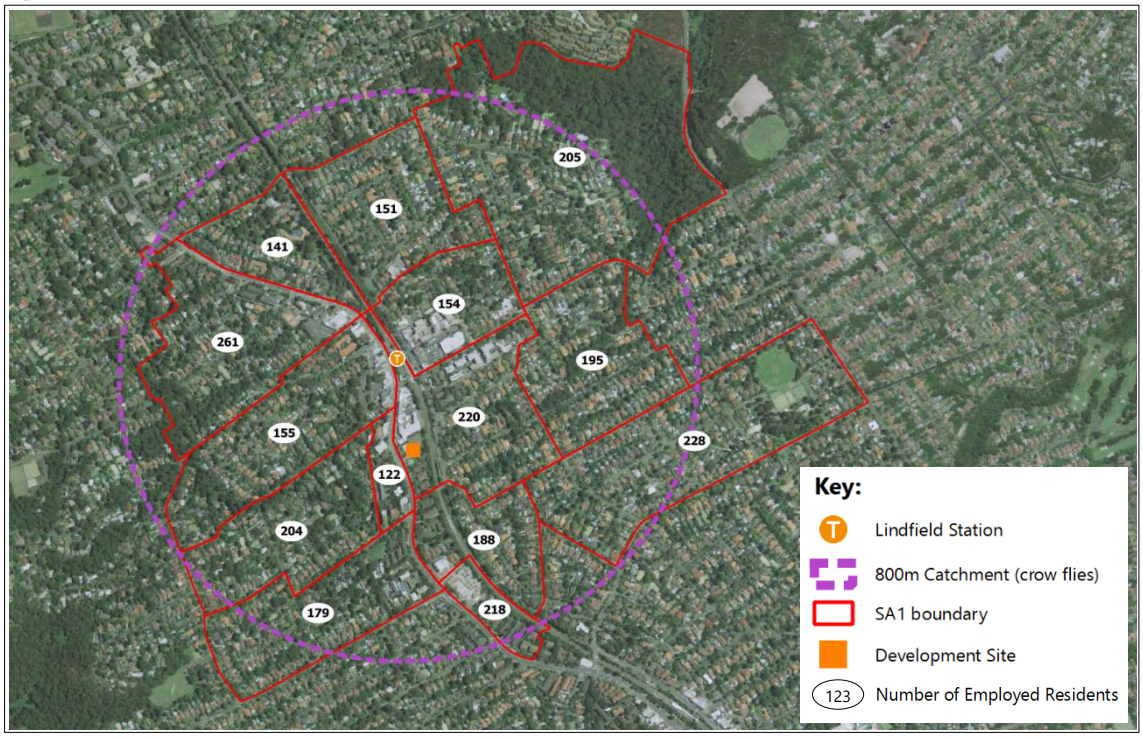
Source: ABS Interactive Map – Journey To Work from Place of Usual Residence, accessed on 07/11/2108 (http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2071.0.55.001~2016~Main%20Features~Journey%20to%20Work%20from%20Place%20of%20Usual%20Residence~55)

Figure 2.9 indicates that among the top 5 work locations for the Lindfield-Roseville SA2 region residents, the Sydney-Haymarket-The Rocks SA2 region was the first, followed by the Lindfield-Roseville SA2 region, the Chatswood (East)-Artarmon SA2 region, the North Sydney-Lavender Bay SA2 region and the St Leonards-Naremburn SA2 region in the 2016 Census.

2.10.2 Mode of Travel to Work

The modes of travel to work of Lindfield residents has been analysed based on the Statistical Areas Level 1 (SA1) areas of the ABS' statistical geography boundaries, which is the available travel modes data with the smallest boundary. The selected SA1 areas are shown in Figure 2.10.

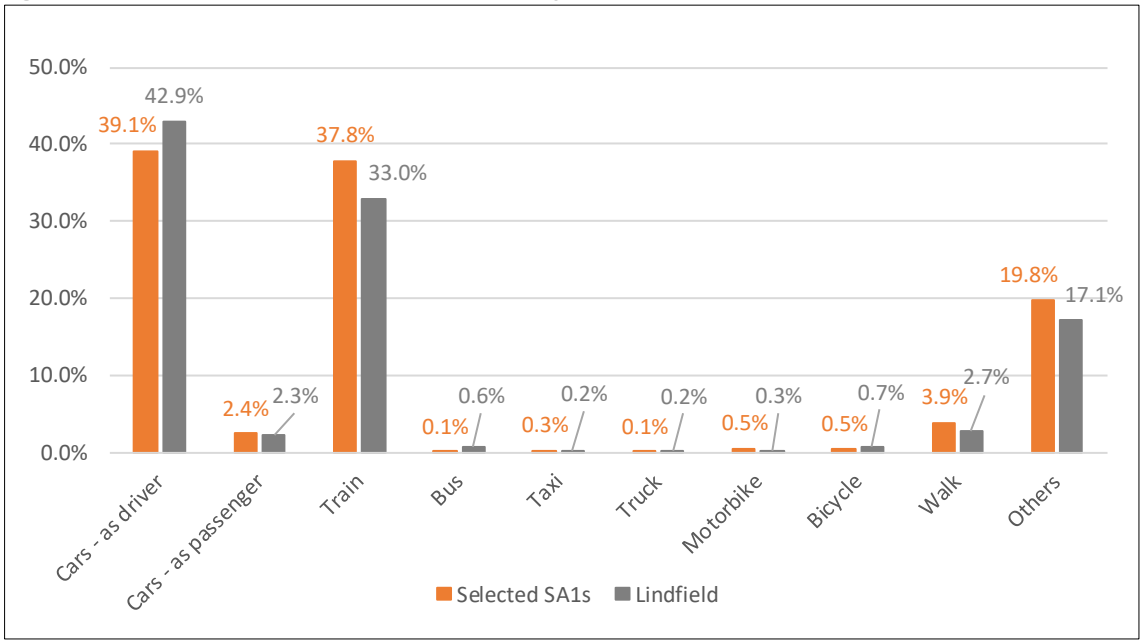
Figure 2.10: Selected SA1 Areas



As indicated in Figure 2.10, there are 14 SA1 areas have been selected with a total of 2,621 employed residents.

The distribution of travel modes for those residents on their journey to work in the 2016 Census is summarised in Figure 2.11. This has been compared against the journey to work information of residents across the entire Lindfield suburb.

Figure 2.11: Travel Modes - Lindfield Residents Journey to Work



Source: ABS 2016 Census

"Others" in Figure 2.11 includes other modes, residents worked at home, residents did not go to work and residents did not state.

Figure 2.11 indicates that private cars and trains are the two predominant methods of travel to work for both selected SA1 areas and the whole suburb. It is also evident that taking trains to work is a more popular choice than driving for the residents living within 800m of Lindfield Station compared with the residents living further afield.

3. Proposed Development

3.1 Land Uses & People Occupancy

The proposed development includes the construction of a 7-storey residential flat building comprising a total of 130 apartments with 2 levels of basement parking and 153 car parking spaces. It also includes a 62m^2 specialty retail space, communal garden / open space and a swimming pool at the ground level. The details of the proposed land uses are summarised in Table 3.1.

Table 3.1: Development Schedule

Proposed Land Uses		Scale / Size
High Density Residential	1-bedroom apartment	52 units
	2-bedroom apartment	50 units
	3-bedroom apartment	28 units
	Total	130 units
Retail Shop		62 m^2 GFA

In people terms this is equivalent to approximately 315 residents[3] and 2 full time employees[4].

The site plan (ground floor) of the proposed development is shown in Figure 3.1.

3.2 Vehicle Access

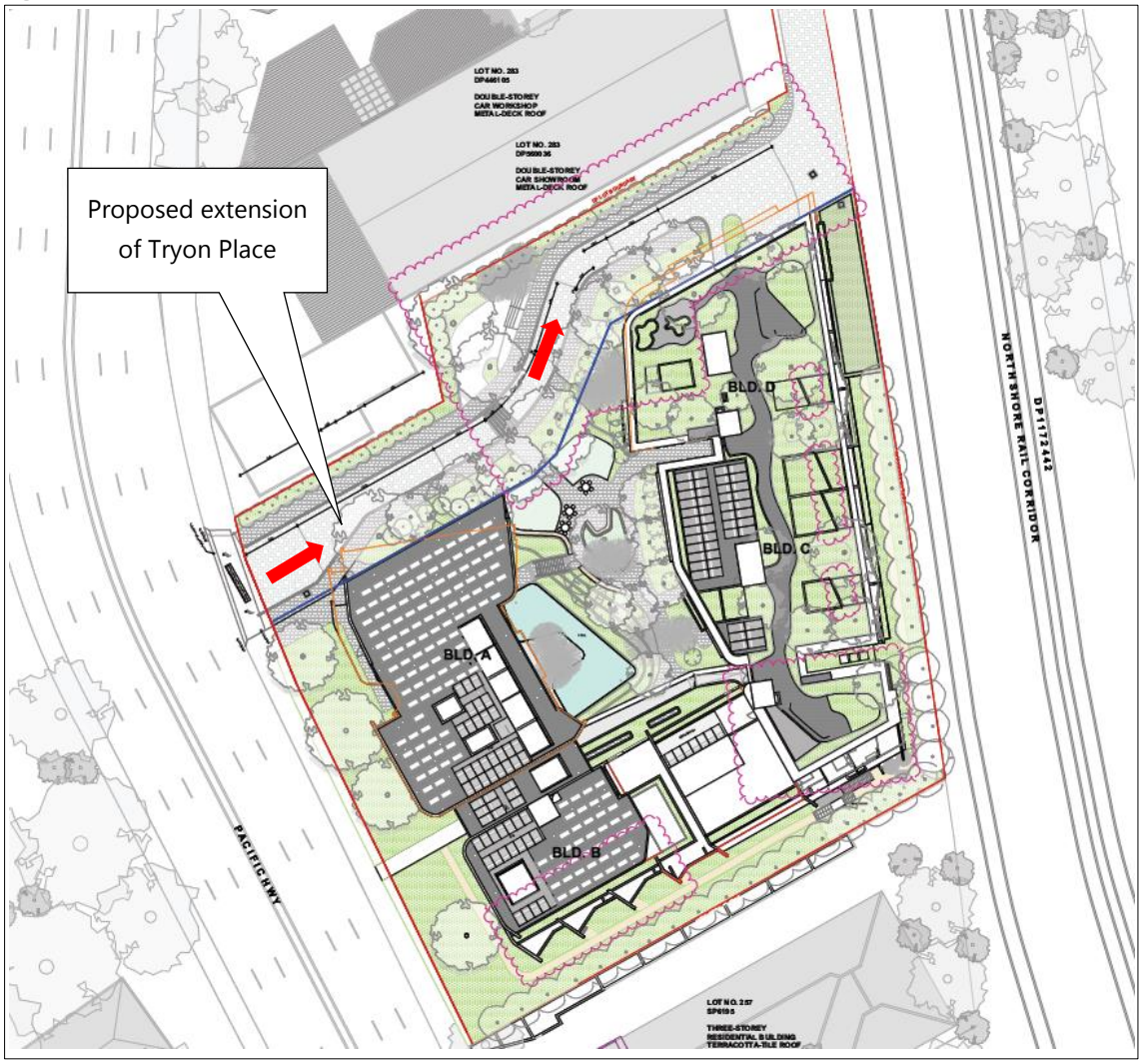
An extension of Tryon Place through the site is proposed to connect the existing Tryon Place to Pacific Highway. Tryon Place is proposed to be a shared zone with a south to north one-way vehicular movement. The vehicle access to the proposed basement car parking is provided from Pacific Highway via Tryon Place as indicated in Figure 3.1.

The design of Tryon Place and the suitability of the proposed access arrangements is discussed in Section 4 of this report.

[3] Based on an estimated average of 1.5 people per 1 bedroom apartment, 2.5 people per 2 bedroom apartment and 4 people per 3 bedroom apartment

[4] Based on an estimated 1 employee per 50m^2 GFA

Figure 3.1: Site Plan (Ground Floor)



3.3 Car Parking

The proposed development will provide a total of 153 car parking spaces (including 21 disabled spaces) and 2 car share spaces over two levels of basement car parking. The breakdown of car parking spaces is as follows:

- 4 commercial parking spaces
- 123 resident parking spaces including 20 disabled parking spaces
- 23 visitor parking spaces including 1 disabled visitor parking space
- 1 car wash bay which will also be used for visitor parking
- 2 car share spaces

The suitability of the car parking provision and layout is discussed in Section 5 of this report.

3.4 Bicycle Facilities

The development will provide bicycle parking for a total of 44 bicycles, these bicycle facilities are located the Basement 2 and Basement 3 car park. The breakdown of bicycle parking is as follows:

- 28 resident bicycle parking spaces
- 16 visitor bicycle parking spaces

The suitability of the bicycle provisions is discussed in Section 5 of this report.

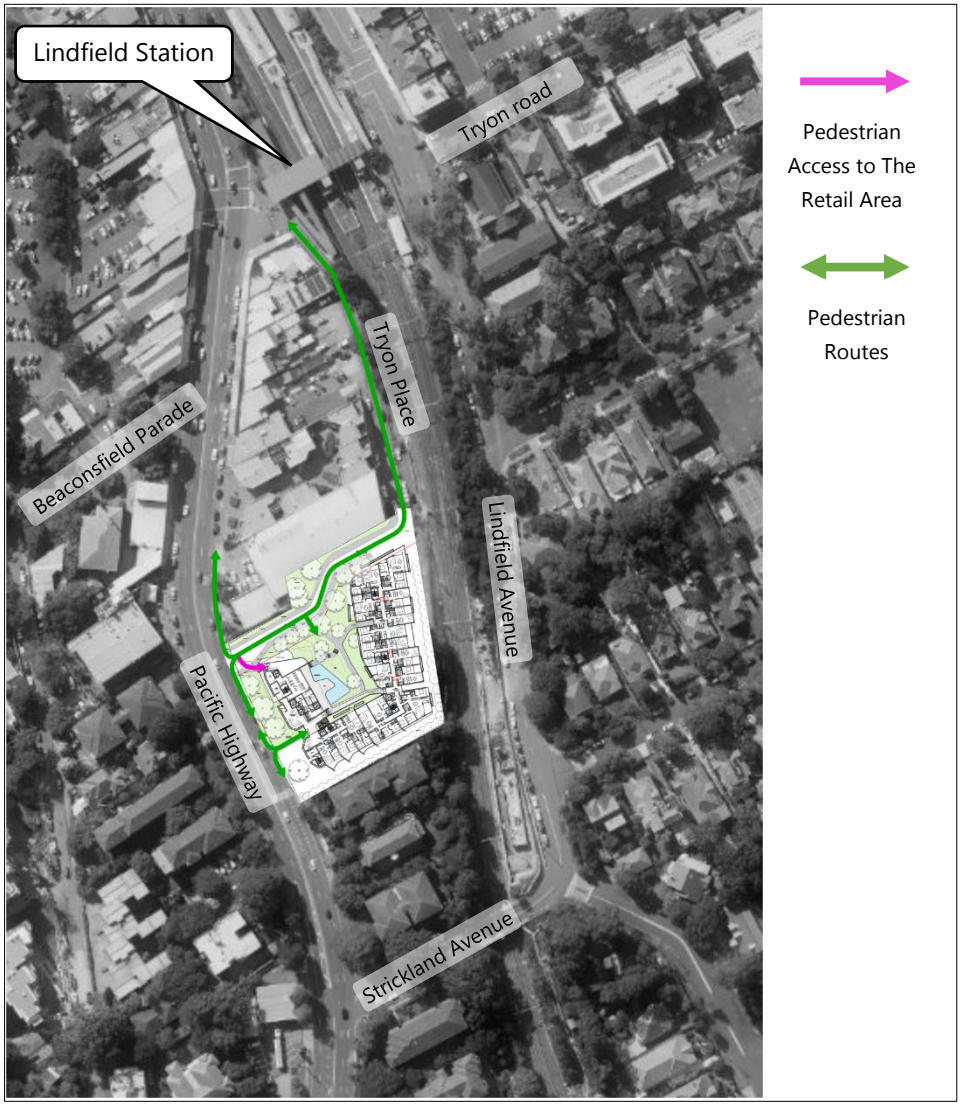
3.5 Pedestrian Facilities

Pedestrian access for residents and their visitors is proposed via Tryon Place or a dedicated pedestrian access located further south on Pacific Highway.

Pedestrian access to the retail area of the site is proposed via Tryon Place.

The pedestrian access routes are indicated in Figure 3.2.

Figure 3.2: Pedestrian Routes and Accesses



3.6 Loading Facilities

There are two loading areas proposed within the site as follows:

- A 16m long on-street loading area located on Tryon Place opposite the entrance of the basement car park, for use of vehicles up to and including 12.5m vehicles, such as Ausgrid servicing vehicles and furniture delivery vehicles.
- A loading area for waste collection located in the Basement 2 for a small waste collection vehicle of 6.3m in length as specified in Ku-ring-gai Councils Waste Management Information Pack – Guidelines for development application August 2010.

Service vehicle access is proposed via Tryon Place to both the on-street loading area and the waste collection area.

The waste collection storage area is located in Basement 2.

The suitability of the proposed loading arrangements is discussed in Section 6 of this report.

4. Tryon Place Design and Wider Site Access Analysis

4.1 Introduction

Tryon Place is currently a dead-end street with no through access and provides rear lane access for vehicles servicing the adjoining retail/commercial properties which back onto Tryon Place.

An extension of Tryon Place running through the site is proposed to connect Tryon Place with the Pacific Highway as part of this development. The new Tryon Place will provide vehicle access to the site from the Pacific Highway.

Due to the geometrical constraints, including limited carriageway width and intersection sight distances, Tryon Place is proposed to operate as a south to north (anticlockwise circulation) one-way road.

4.2 Tryon Place Design

The one-way arrangement for the future Tryon Place is largely due to the limited available carriageway width and the available intersection sight distances dictated it to have a south to north one-way vehicle travel direction.

4.2.1 Road Width

The existing carriageway width of Tryon Place varies between 4.5m and 6.8m with 4.3m at the narrowest point. The total road reserve width (between boundary of the abutting properties) varies between 6m and 9.4m with 6m at the narrowest point.

The proposed extension of Tryon Place running through the site is generally 7.5m wide with a 3.5m wide vehicle travel path in the middle delineated by a different pavement pattern on the road surface.

The existing Tryon Place, outside of the boundary of this development, will be upgraded to be consistent with the new extension, but the carriageway width will generally remain the same as the existing road.

4.2.2 Intersection Sight Distances

The sight distances at the intersection of the proposed extension of Tryon Place and Pacific Highway have been assessed based on Austroads Guide to Road Design, particularly Part 3: Geometric Design[5] and Part 4A: Unsignalised and Signalised Intersections[6].

The safe sight distances which apply to this project have been summarised in Table 4.1 and have been used as the basis for assessing the adequacy of sight lines for the intersection of Pacific Highway and the new extension of Tryon Place.

[5] 2010 Edition referenced for this report

[6] 2017 Edition referenced for this report

It is important to note that Stopping Sight Distance (SSD) and Safe Intersection Sight Distance (SISD) are considered the most critical requirements of the sight distance criteria listed in Table 4.1.

Table 4.1: NSW Sight Distance Criteria

Criteria No.	Criteria	Heights Measured From (Cars)	Height Measured From (Trucks)	Austroads Design Reference Tables
1.	Stopping Sight Distance (SSD)	1.10m (Drivers Eye) to 0.2m (Object)	2.40m (Drivers Eye) to 0.2m (Object)	Guide to Road Design Part 3: Geometric Design. Table 5.4 & 5.5 [1].
2.	Approaching Sight Distance (ASD)	1.10m (Drivers Eye) to 0m (Line Marking)	2.40m (Drivers Eye) to 0m (Line Marking	Guide to Road Design Part 4A: Unsignalised and Signalised Intersections. Table 3.1 & Table 3.4 [2].
3.	Safe Intersection Sight Distance (SISD)	1.10m (Driver Eye) to 1.25m (Top of other Car)	2.40m (Driver Eye) to 1.25m (Top of other Car)	Guide to Road Design Part 4A: Unsignalised and Signalised Intersections. Table 3.2, Table 3.3 & Table 3.4 [2]
4.	Minimum Gap Sight Distance (MGSD)	1.10m (Driver Eye) to 0.65m (Indicator Lights of other Car)	2.40m (Driver Eye) to 0.65m (Indicator Lights of other Car)	Guide to Road Design Part 4A: Unsignalised and Signalised Intersections. Table 3.4 & Table 3.5 [2]

[1] 2010 Edition

[2] 2017 Edition

The definitions of the site distance criteria provided in Austroads Guide to Road Design Part 3 & 4A are as follows:

- **Stopping Sight Distance (SSD)**

"*It is generally measured between the drivers' eye height 1.10m and a 0.2m high, stationary object on the road. The object height represents a hazard that cannot be driven over and hence requires the vehicle to stop to avoid a collision."*

"Car stopping sight distance *shall be available along all traffic lanes on all roads. This distance is considered to be the minimum sight distance that should be available to a driver at all times.*"

"The design of all new roads should cater for the sight distance requirements of trucks."

- **Safe Intersection Sight Distance (SISD)**

"*It is measured from a driver eye height of 1.10m above the road to points 1.25m above the road which represents drivers seeing the upper part of cars.*"

"*SISD is the minimum distance which should be provided on the major road at any intersection*" and "*provides sufficient distance for a driver of a vehicle on the major road to observe a vehicle on a minor road approach moving into a collision situation (e.g. in the worst case, stalling across the traffic lanes) and to decelerate to a stop before reaching the collision point.*"

- **Approach Sight Distance (ASD)**

"*The minimum level of sight distance which must be available on the minor road approaches to all intersections to ensure that drivers are aware of the presence of an intersection.*"

"Also desirable on the major road approaches so that drivers can see the pavement and markings within the intersection and should be achieved where practicable."

- **Minimum Gap Sight Distance (MGSD)**

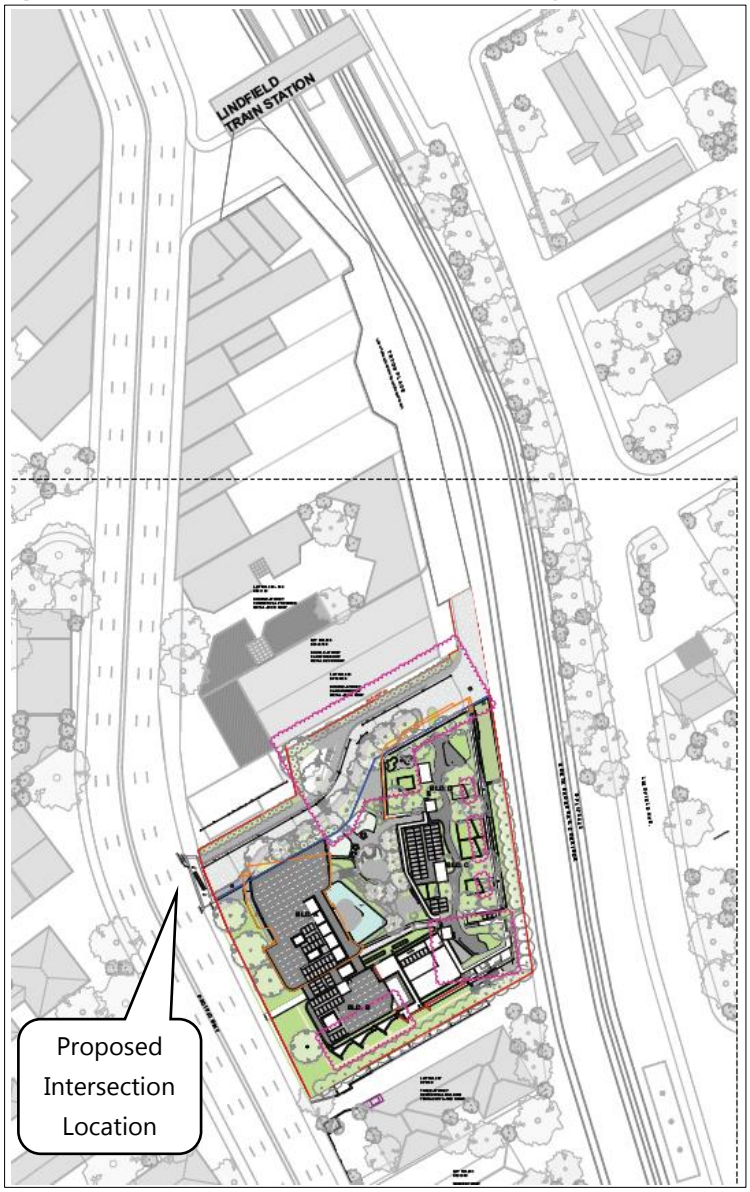
"*MGSD is based on distances corresponding to the critical acceptance gap that drivers are prepared to accept when undertaking a crossing or turning manoeuvre at intersections.*"

"*It is measured from a point 1.1m (drivers' eye height) to a point 0.65m (object height-typically a vehicle indicator light) above the travelled way.*"

4.2.3 Safe Sight Distance Assessment (Pacific Highway)

The location of the proposed intersection is indicated in Figure 4.1 noting that it is located on the exit of a curve on the Pacific Highway.

Figure 4.1: Location of the proposed intersection of Tryon Place and Pacific Highway



Given its limited width, Tryon Place could only operate as a one-way road. Therefore the Tryon Place/Pacific Highway connection would therefore be configurated either as a left-in only or a left-out only access depending on the circulation direction of Tryon Place.

In a south to north circulation the Tryon Place/Pacific Highway connection would operate as an entry only and in a north to south circulation the Tryon Place/Pacific Highway connection would operate as an exit only.

The sight distance criteria which applies to both of these access configurations are summarised in Table 4.2 with the outcomes of the sight distance assessment summarised in Table 4.3.

Table 4.2: Required Sight Distance Assessments

Configuration Option	Required Road Approaches	Required Sight Distances
Entry Only (left-in)	Pacific Highway North Approach	SSD, ASD
Exit Only (left-out)	Pacific Highway North Approach	SSD, ASD, SISD
	Tryon Place East Approach	SSD, ASD, MGSD

Table 4.3: Summary of Sight Distance Assessment

Configuration Option	Road	Criteria	Required Distance	Available Distance	Assessment Outcome
Entry Only (left-in)	Pacific Highway	SSD	73m for Cars 82 for Trucks	82m	Both car and truck SSD are satisfied.
		ASD	73m for Cars 82 for Trucks	82m	Both car and truck ASD are satisfied.
Exit Only (left-out)	Pacific Highway	SSD	73m for Cars 82 for Trucks	82m	Both car and truck SSD are satisfied.
		ASD	73m for Cars 82 for Trucks	82m	Both car and truck SSD are satisfied.
		SISD	123m for Cars 132m for Trucks	58m	Both car and truck SISD are not satisfied.
	Tryon Place	SSD	-	-	Given that the future speed limit on Tryon Street would be low and the road alignment and grading could be designed to provide sufficient sight distance, the SSD and ASD are unlikely to be an issue.
		ASD	-	-	
		MGSD	83m	58m	The MGSD is not satisfied.

Notes:

1) Uses a posted speed limit of 60km/hr for Pacific Highway
2) The sight distance assessment is undertaken in the Normal Design Domain (NDD).
3) Assumes a coefficient of deceleration of 0.36 and a reaction time of 2.0 seconds for the SSD and ASD assessment for cars.
4) Assumes a coefficient of deceleration of 0.29 and a reaction time of 2.0 seconds for the SSD and ASD assessment for trucks.
5) Assumes a coefficient of deceleration of 0.36, a reaction time of 2.0 seconds and an observation time of 3.0 seconds for the SISD assessment for cars.
6) Assumes a coefficient of deceleration of 0.29, a reaction time of 2.0 seconds and an observation time of 3.0 seconds for the SISD assessment for trucks.
7) Vertical alignment and the correction for grades have not been taken into the assessment given that there are no apparent vertical/grades changes on this section of Pacific Highway.
8) The required and available SSD and ASD for Tryon Place will need to be assessed based on the proposed speed limit for Tryon Place and the determined road alignment and grading.

Table 4.3 indicates that there is sufficient ASD, SSD and SISD for an entry only configuration of Tryon Place at the proposed intersection location but that there is insufficient SISD for an exit only configuration at this location.

Based on the above, the intersection of the new extension of Tryon Place and Pacific Highway was proposed to be configured as left-in only.

4.2.4 Shared Zone Treatment

The decision to make Tryon Place a shared zone was based on the desire to provide pedestrian priority for access to and from Lindfield Station and the Town Centre and was informed by the assessment of the feasibility of such a treatment against the RMS Shared Zone guidelines. The key outcomes of this assessment were as follows:

- The traffic volumes anticipated in the future would be less than the required 100 vehicles/hour as indicated in Section 7 of this report, but this was subject to there being no kiss & ride facility in Tryon Place.
- No stopping restrictions would need to be installed in Tryon Place near the station to prevent kiss & ride activity occurring illegally.
- The start of the shared zone on Tryon Place at the southern end is to be set back approximately 20m from Pacific Highway to provide a transition from higher to lower speed and not impact traffic flows on the Pacific Highway.

4.3 Proposed Design of Tryon Place

The proposed design of Tryon Place is shown in Figure 4.2 and Figure 4.3 .

The landscape plans assessed in this report are provided in **Appendix C.**

Figure 4.2: Proposed Design of Tryon Place (within the boundary of the Lindfield Village Living Development site)

As indicated in Figure 4.2, the new extension of Tryon Place within the development site is generally 7.5m wide with a 3.5m wide vehicle travel path with 2m wide footpaths delineated by a different

pavement pattern on the road surface. The road is widened at the intersection of Pacific Highway and Tryon Place to accommodate a 12.5m Heavy Rigid Vehicle turning left onto Tryon Place from Pacific Highway.

The road is proposed to be raised to the footpath level from the edge of the Pacific Highway and a new vehicle crossover is provided at the kerb to allow vehicles to turn onto Tryon Place.

Figure 4.3: Proposed Design of Tryon Place (outside of the boundary of the Lindfield Village Living Development site)

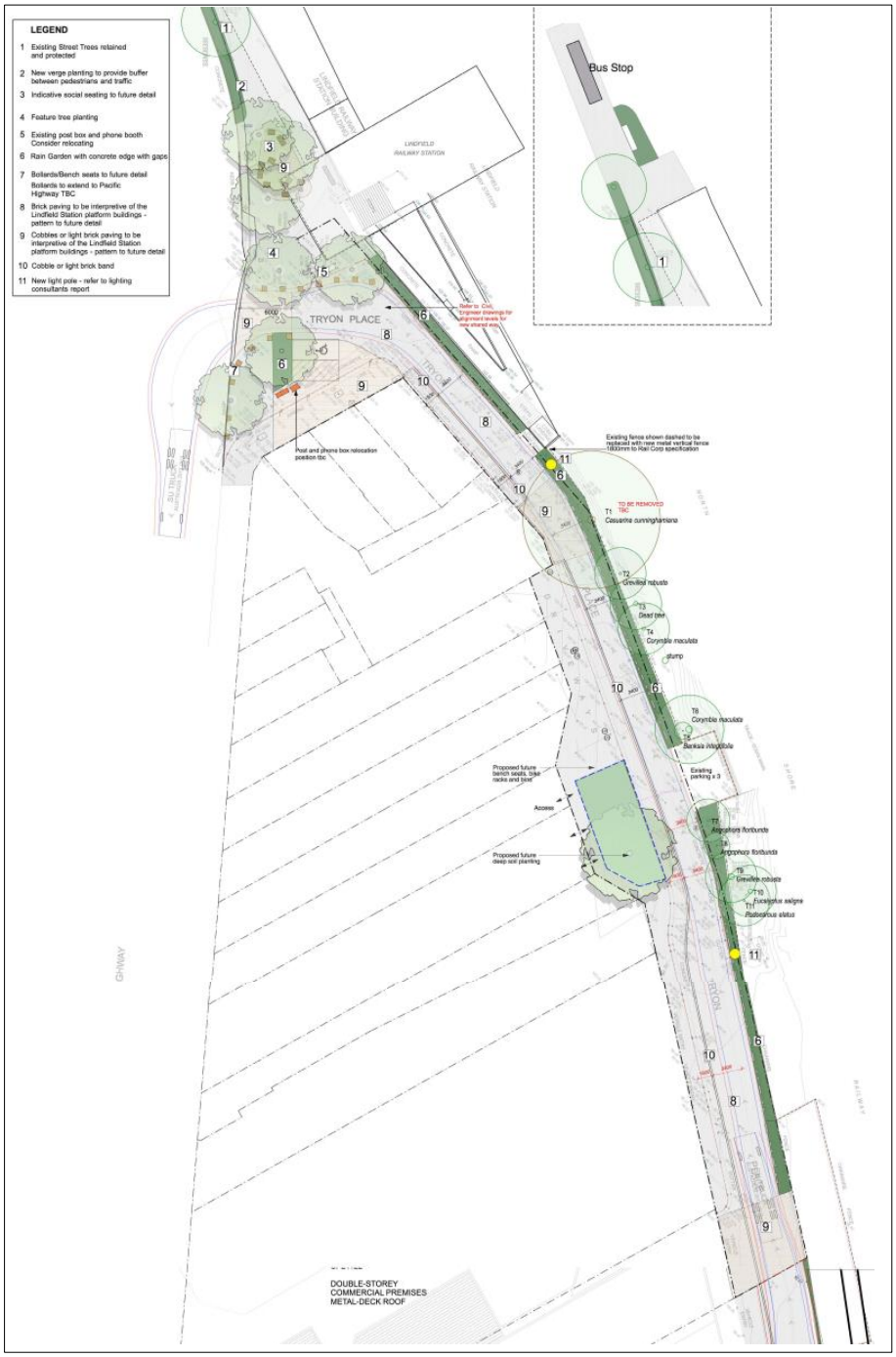


Figure 4.3 indicates that the existing Tryon Place, outside of the boundary of this development, will be upgraded to be consistent with the new extension, but the carriageway width will generally remain the same as the existing road.

The proposed shared zone would end at the intersection of the Pacific Highway and Tryon Place at its northern most point near Lindfield Station.

Although the RMS shared zone "guidelines" for category 1 indicates that the kerbs and any delineation be removed to provide a sense of priority for pedestrians, in the case of Tryon Place, the section of road between Pacific Highway and the rail corridor has a relatively steep grade which would have a natural tendency to increase vehicle speeds over this section.

As such, different pavement patterns are proposed to provide a degree of delineation for a safer environment for pedestrians. Furthermore, different pavers are proposed to indicate the start of a steep section of the road and at the pinch point areas visual cues will be provided to drivers to improve pedestrian safety. This shared zone design is considered to be satisfactory and consistent with the intent of the RMS shared zone guidelines.

A disabled car parking space on Tryon Place is provided at the Lindfield Station entrance in accordance with AS2890.6:2009 Parking facilities Part 6: Off-street parking for people with disabilities.

The swept path assessment for the design of Tryon Place is provided in **Appendix D.**

4.4 Wider Vehicle Site Access Analysis

The potential driving access routes to and from the site have been assessed based on both the current road network configuration and the future anticipated traffic / road network as discussed in Section 1.3 of this report. The outcome of the assessment is summarised in the following sections.

4.4.1 Current Road Network Access Routes

The potential driving access routes for the residents and visitors of the proposed development based on the current road network are indicated in Figure 4.4 and Figure 4.5.

Figure 4.4: Access Routes From/To the South

Figure 4.4 indicates that access from the site to the south would be easily achieved with residents / visitors simply using Tryon Place and then turning left onto the Pacific Highway near Lindfield Station.

Figure 4.4 also indicates that access to the site from the south on the Pacific Highway would be relatively circuitous with residents/visitors needing to turn right onto Strickland Avenue and then turn left onto Lindfield Avenue followed by turning left onto Havilah Road and then turning left onto the Pacific Highway before turning left into the new extension of Tryon Place (entry only) to access the site.

Figure 4.5: Access Routes From/To the North

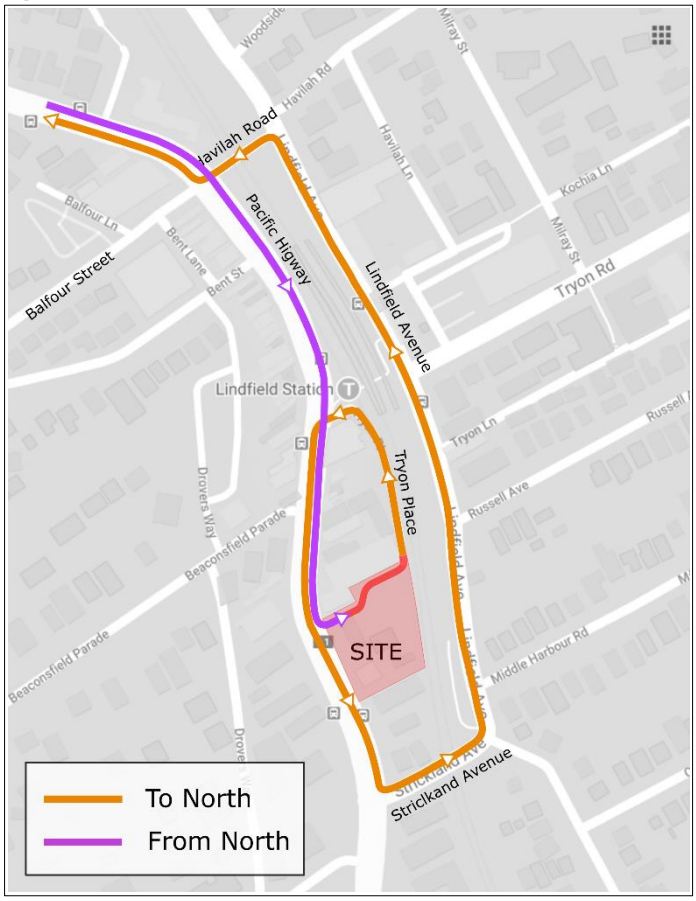


Figure 4.5 indicates that access to the site from the north would be easily achieved with residents/visitors simply turning left from the Pacific Highway into the new road created from the extension of Tryon Place.

Figure 4.5 also indicates that access from the site to the north would again be relatively circuitous with residents/visitors needing to turn left from Tryon Place onto the Pacific Highway then left onto Strickland Avenue, left onto Lindfield Avenue, left onto Havilah Road and then right onto the Pacific Highway.

4.4.2 Future Anticipated Road Network Access Routes

The potential driving access routes for the residents and visitors of the proposed development based on the future anticipated road network are indicated in Figure 4.6 and Figure 4.7.

Figure 4.6: Future Access Routes From/To the South

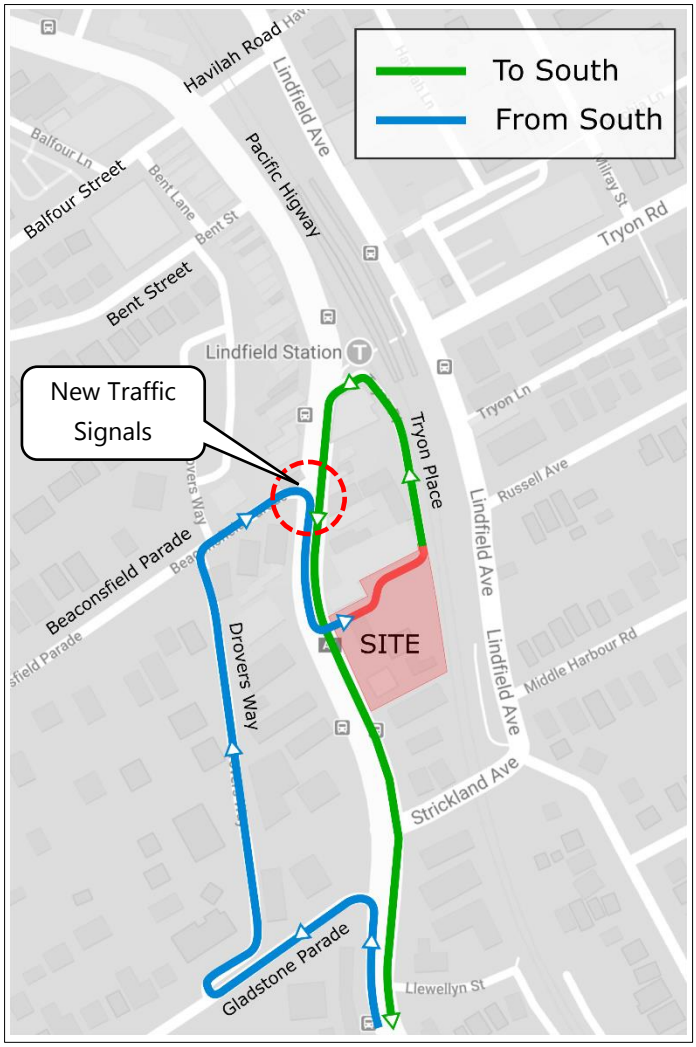


Figure 4.6 indicates that access from the site to the south would not be affected by the proposed changes in the Ku-ring-gai Council's traffic / road network plan. Residents / visitors could simply use Tryon Place and then turn left onto the Pacific Highway near Lindfield Station and continue south.

Figure 4.6 also indicates that access to the site from the south on the Pacific Highway would be improved in terms of travel time/distance compared with the route on the current road network as a result of the new traffic signals at the intersection of Beaconsfield Parade and Pacific Highway. Resident / visitors on Pacific Highway could turn left onto Gladstone Parade and then turn right onto Drovers Way followed by a right turn onto Beaconsfield Parade, right turn onto the Pacific Highway and then a left turn into the new extension of Tryon Place (entry only) to access the site.

Figure 4.7: Future Access Routes From/To the North

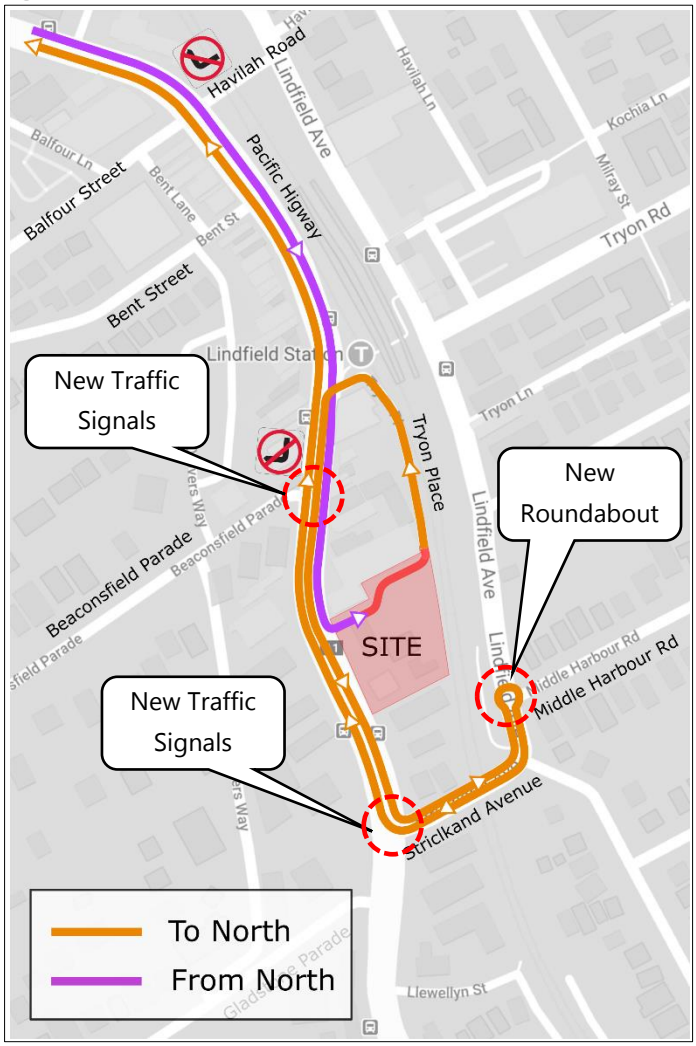


Figure 4.7 indicates that access to the north from the site could potentially be an issue as there would be no easy way for residents/visitors to continue north on the Pacific Highway due to the right turn ban at Havilah Road.

A potential solution for this would be to provide a roundabout at the intersection of Lindfield Avenue/Middle Harbour Road to allow vehicles heading north to use this as a u-turn facility to re-enter Strickland Avenue and then turn right onto the Pacific Highway. Access to the north from the site would include turning left from Tryon Place, then left into Strickland Avenue, left into Lindfield Avenue, turning around at Middle Harbour Road and then turning right into Strickland Avenue and then right again onto the Pacific Highway.

Figure 4.7 also indicates that access to the site from the north would not be affected by the proposed changes in the Ku-ring-gai Council's traffic / road network plan. Residents / visitors simply turn left from Pacific Highway into the new road created from the extension of Tryon Place to access the site.

5. Car and Bicycle Parking

5.1 Parking Requirements

The parking requirements for cars and bicycles are set out in the following sections.

5.1.1 Car Parking Requirements

The car parking requirements for different development types are set out in Ku-ring-gai Local Centres Development Control Plan (DCP) 2017. A review of the car parking rates and the floor area schedule results in the parking requirement for the proposed development as summarised in Table 5.1.

Table 5.1: Council DCP Car Parking Requirements

Land Use	Measure	Minimum number of parking spaces per dwelling	Maximum number of parking spaces per dwelling	Proposed Development Measure	Required parking spaces for the proposed development
High Density Residential Dwellings – [1]	1-bedroom apartments	0.6 spaces	1.0 space	52 apartments	32 – 52
	2-bedroom apartments	1.0 space	1.25 spaces	50 apartments	50 - 63
	3-bedroom apartments	1.4 spaces	2 spaces	28 apartments	40 - 56
	Total car parking spaces for residents				**122 - 171**
	Visitor parking	1 space for every 6 apartments			22
	Total car parking for the residential development				**144 - 193**
Retail – [2]	GFA	1 space per 17 sq.m GFA		62 sq.m GFA	4

[1] based on Ku-ring-gai Local Centres Development Control Plan 2017 Part 7 – Residential Flat Buildings

[2] based on Ku-ring-gai Local Centres Development Control Plan 201 Part 22 – General Access and Parking

It should be noted that the car parking rates adopted in Table 5.1 apply to residential flat developments on sites within 400m walking distance of a railway station entry, in this case, Lindfield Station.

The car parking requirements section of SEPP65, prepared by the Department of Planning & Environment, state that for development on sites that are within 800m of a railway station or light rail stop in the Sydney Metropolitan Area, the minimum car parking requirement for residents and visitor is set out in the RMS Guide to Traffic Generating Developments (GTTGD) 2002, or the car parking requirement prescribed by the relevant council, **whichever is less**.

The minimum car parking requirements based on the RMS Guide to Traffic Generating Development (GTTGD) 2002 are summarised in Table 5.2.

Table 5.2: RMS GTTGD Car Parking Requirements for Metropolitan Sub-Regional Centres

Land Use	Measure	Minimum number of parking spaces per dwelling	Proposed Development Measure	Required parking spaces for the proposed development
High Density Residential Dwellings	1-bedroom apartments	0.6 spaces	52 apartments	32
	2-bedroom apartments	0.9 space	50 apartments	45
	3-bedroom apartments	1.4 spaces	28 apartments	40
	Total car parking spaces for residents			**117**
	Visitor parking	1 space for every 5 apartments		27
	Total car parking for the residential development			**144**

Based on above the minimum number of car parking spaces required for this development is summarised as follows:

- 117 car parking spaces for residents
- 22 car parking spaces for resident visitors
- 4 commercial car parking spaces

In addition, Ku-ring-gai Local Centre DCP 2017 also requires providing:

- at least one visitor space to be accessible
- at least one car share space in a publicly accessible area
- a dedicated car wash bay or one visitor space with a tap for on-site car washing

This equates to a total parking requirement of 146 car parking spaces.

5.1.2 Bicycle Parking Requirements

The bicycle parking requirements set out in for different development types are set out in Ku-ring-gai Local Centres Development Control Plan (DCP) 2017. A summary of the minimum bicycle parking requirements is provided in Table 5.3.

Table 5.3: Bicycle Parking Requirements

Land Uses	Type	Minimum Parking Rates	Proposed Development Measure	Minimum Parking Requirements
High Density Residential Dwellings	Residents	1 bicycle parking space per 5 units	130	26
	Visitors	1 bicycle parking space per 10 units		13
Retail	Employee / Customers	Secure bicycle parking spaces and storage are to be provided on site at the following rates for retail and commercial uses: i) 1 bicycle locker per 600m2 of GFA for staff; and ii) 1 bicycle parking space (in the form of a bicycle rail) per 2500m2 GFA for visitors. – [1]		

[1] Ku-ring-gai Local Centres DCP 2017 – Part 8: Mixed Use Development

5.2 Adequacy of Parking Supply

The development proposes a total of 153 car parking spaces and 44 bicycle parking spaces. The parking provision details are summarised in Table 5.4.

Table 5.4: Proposed Parking Supply

Land Uses	Parking Type	Usage	Required	Supply
High Density Residential dwellings	Car Parking	Residents	117	123 with 20 accessible
		Visitors (Including Car Share and Car Wash)	23	26 with 1 accessible
	Total Car Parking for Residential Development			**149**
	Bicycle Parking	Residents	26	28
		Visitors	13	16
	Total Bicycle Parking for Residential Development			**44**
Retail	Car Parking	Employees/Customers	4	4
	Bicycle Parking	Employees/Customers	To be shared with the parking provided for visitors - [1]	

[1] A bicycle locker could be considered at the detail design stage of the retail space.

Table 5.4 indicates that the proposed parking provision satisfies the minimum requirements for the development.

A car wash bay is provided in the visitor parking area of the Basement 2 car park, which will also be used for visitor parking.

Two car share spaces are provided in the Basement 2 car park.

In addition to this 5-10% of the total resident car parking spaces have been allocated car charging facilities.

5.3 Car Parking Layout Review

The car park design review is set out in the following sections.

The assessed layout plans are provided in **Appendix E.**

5.3.1 Car Park Layout and Circulation

The car park layout has been reviewed against the requirements of the Ku-ring-gai Council Local Centre Development Control Plan 2016 and the Australian Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009). This assessment included a review of the following:

- bay and aisle width
- adjacent structures
- turnaround facilities
- circulation roads and ramps
- ramp grades
- height clearances
- internal queuing
- pick-up / set-down area
- parking for persons with disabilities

Table 5.5 shows the minimum car parking and aisle width requirements of the proposed development.

Table 5.5: AS2890.1:2004 Car Parking Geometry Requirements

Parking Uses	Parking Category	Space Dimensions	Aisle Width
Residential	Class 1A	2.4m x 5.4m	5.8m
Residential Visitor	Class 2	2.5m x 5.4m	5.8m
Retail	Class 3	2.6m x 5.4m	5.8m

5.3.2 Car Park Dimensions

The proposed basement car park layout has been reviewed by PeopleTrans and is consistent with the requirements set out in AS/NZS2890.1:2004, AS/NZS2890.6:2009 and Ku-ring-gai Local Centres DCP 2017.

5.3.3 Internal Vehicle Access and Circulation

There are two basement parking levels being Basement 2 and Basement 3. Access to each basement level is as follows:

- Access to Basement 2 is provided via a two-way ramp from Tryon Place.
- Access between Basement 2 and Basement 3 is provided via a two-way ramp with a width of 5.8m (6.4m wide between walls).

A review of the vehicle access and circulation by PeopleTrans indicated that the proposed car parking layout is expected to operate satisfactorily and is consistent with AS2890.1:2004.

6. Loading and Service Arrangements

6.1 Loading Requirements

Ku-ring-gai Local Centre Development Control Plan 2016 specifies the requirements for providing the loading/unloading area for service, waste collection and removalist vehicles. These requirements are summarised in Table 6.1.

Table 6.1: Service/Loading Area Requirements

Provision	Ku-ring-gai Council Local Centre DCP 2016 Requirements
Service / removalist	**Part 7 – Residential Flat Buildings** A clearly signposted parking bay for temporary parking of service and removalist vehicles is to be provided. The space is to have the following standards: ♦ a minimum dimension of 3.5m x 6m; ♦ a minimum manoeuvring area 7m wide.
Waste Collection	**Part 23 – General Building Design and Sustainability** ♦ The full path of travel to and from the waste and recycling room is to be designed to allow a 6m rigid vehicle, weighing GVM 7 tonnes, to enter and exit the development in a forward direction. ♦ The maximum grade of any access road leading to a waste and recycling room must be not more than 1:5 (20%). The turning area at the base of any ramp must be sufficient to allow for the manoeuvre of a 6.0m rigid vehicle to exit the building in a forward direction. ♦ The minimum floor to ceiling height within the vehicle accessway leading to and from the waste and recycling room(s) must be 2.6m for the entire length of travel required within the development.

6.2 Proposed Loading Arrangements

An on-street loading bay is proposed on Tryon Place opposite the basement car parking entrance.

The length of the loading bay is approximately 16m to accommodate service vehicles, furniture delivery or removalist vehicles up to 12.5m in length. The vehicle swept path of a Heavy Rigid Vehicle (12.5m) accessing the proposed loading bay is provided in **Appendix D.**

The maximum grade of the proposed Tryon Place road extension, in accordance with the requirement of the maximum roadway and ramp grades of Australian Standard AS2890.2:2002 Parking facilities Part 2: Off-street commercial vehicle facilities, is 1 in 8 or 12.5%.

The grade line of the vehicle path has been checked against the ground clearance templates of a Heavy Rigid Vehicle and a Medium Rigid Vehicle using the assessment method provided in Appendix A of AS2890.2:2002 where the grade line has a number of closely spaced grade changes.

The results indicated that the proposed grade transitions are compliant with the requirements of AS2890.2:2002.

The gradient of the section of Tryon Place where the on-street loading bay is located is 4% which meets the requirement for an Ausgrid Vehicle to use the loading bay for servicing the substation.

6.3 Waste Collection Arrangements

A loading area is proposed in Basement 2 in front of the waste storage room. According to the Ku-ring-gai Council Waste Management Information Pack, a 6.3m long waste collection vehicle will be used to collect waste for this development.

A 12m long ramp with a grade of 5% is proposed to connect Tryon Place and the Basement 2 car park, which is compliant with AS2890.2:2002 related to ramp grades for commercial vehicles. This also ensures the waste collection vehicle can enter the Basement 2 in a forward direction.

Sufficient headroom (minimum of 2.6m) is provided over the waste collection vehicle travel path between Tryon Place and the loading zone as indicated on the layout plans.

Given the space within the loading bay and the space of the adjacent aisle, sufficient manoeuvring space is provided for service and removalist vehicles up to a small rigid vehicle (6.4m long) to turn around within the basement. This ensures that the vehicle can exit Basement 2 in a forward direction.

The swept paths of a 6.4m Small Rigid Vehicle accessing the loading area are provided in **Appendix F.** Based on the assessment undertaken, the waste collection arrangements are considered satisfactory.

7. Traffic Impact Assessment

7.1 Construction Impacts

It is important with any development proposal to understand the transport impacts during construction of the development as it relates to truck movements on the road network, truck queueing locations, truck parking locations (i.e. work zones) and construction staff parking.

Although one of the key factors that requires close consideration with respect to the management of construction traffic is ensuring safety, the other important consideration is limiting the impacts of construction traffic on the nearby community.

The common types of issues which arise when construction traffic is not adequately managed are as follows:

- Construction vehicles using local roads rather than the designated construction routes along State Roads and the associated noise and amenity impacts that this has on the nearby community.
- Work zones not suitably located and operating for longer periods than actually required removing parking and/or parts of bus lanes.
- Construction staff parking not provided on-site resulting in further parking pressure on nearby local roads.
- Safety issues associated with pedestrian pathways being impeded by construction access points or in some cases restricted completely.

These items above are typically detailed in a Construction Traffic Management Plan which should be prepared and approved once a construction strategy has been determined and prior to the commencement of construction.

7.2 Operational Impacts

7.2.1 Site Traffic Generation

Information on the likely traffic generation of the proposed development has been sourced from the RTA Guide to Traffic Generating Developments.

The RTA Guide to Traffic Generating Developments contains a range of survey information from existing land uses across New South Wales and details typical traffic generation and car parking rates to apply to new developments. The most recent version of the document was released in 2002 and some of the survey information dates back to the 1980s.

Recently, Roads and Maritime Services (RMS) released an update, to the Guide to Traffic Generating Developments (TDT 2013/04a) with surveys conducted on a range of land uses after 2002.

The latest document nominates a Sydney average AM peak hour traffic generation rate for High Density Residential Dwellings of 0.19 movements per dwelling with 0.15 movements per dwelling in the PM peak hour. As the proposed development is close to Lindfield train station and the travel patterns of existing residents shows that public transport is highly utilised, the RMS rates are considered applicable to this site.

Based on the above, the proposed development is estimated to generate a total maximum peak hour in and out movement of 25 trips as indicated in Table 7.1.

Table 7.1: Traffic Generation Estimates

Land Use	Quantity	Traffic Generation Rate	Peak Hour Time Periods	Total Peak Hour Traffic Generation
High Density Residential	130 Dwellings	AM-0.19/Dwelling PM-0.15/Dwelling	Weekday AM/PM	25/20
Retail Shop	62m2 GFA	4.6/100m^2	Thurs. 4:30-5:30pm, Sat. 11am-12pm	0/3
			Total	25/23

The existing site is occupied by the Lindfield library & welfare centre, self-contained residential units, community centre, resource centre, community centre, two tennis courts and an at-grade car park. These uses currently generate traffic to and from the site which varies at different times of the day and this needs to be accounted for in the calculation of future trip generation for the proposed development.

It has been estimated that the existing uses currently generate a total of 16 trips and up to 25 trips during the weekday AM and PM peak hours as indicated in Table 7.2.

Table 7.2: Existing Trip Generation

Land Use	Quantity	Traffic Generation Rate	Peak Hour Time Periods	Total Peak Hour Traffic Generation
Medium Density Residential	14 Dwellings (Assume 60% 2-Bed/40% 3 Bed)	0.5/2 Bed Dwelling & 0.65/3 Bed Dwelling (RMS GTTGD)	Weekday AM/PM	8
Community Facilities (Library, Welfare Centre, Seniors Centre, Resource Centre)	761m2 GFA	0.5 trips per parking space (17 parking spaces) [1]	Weekday AM/PM	8
Total				**16**

[1] Utilising Councils DCP Parking Rate of 1/45m2 g community facilities.

Based on the above, the site could generate an additional 7 to 9 to peak hour trips which equates to one additional vehicle every 7 to 8 minutes during the weekday peak hours.

These low levels of additional weekday vehicle trips would have a negligible impact on the safety and operation of the road network in the vicinity of the site.

7.2.2 Future Development Traffic Generation

It is anticipated that the existing sites which back onto Tryon Place could redevelop within the next 10 years, specifically given the current DA0443/17 for the site at 305-307 & 309-311 Pacific Highway which includes 41 units and 169m2 of retail.

The estimated trip generation of future anticipated development of the lots between Lindfield Station and the Lindfield Village Living development in Tryon Place are provided in Table 7.3.

Table 7.3: Trips Generated During Peak Hours

Land Use	Trip Generation Rates		Peak Hour Vehicle Movements		
	Rate	In / Out Split	In	Out	Total
305, 307 and 309 – 311 Pacific Highway – Residential (41 units)	AM: 0.19 trips / unit	AM: 20% in / 80% out	2 trips / hr	6 trips / hr	8 trips / hr
	PM: 0.15 trips / unit	PM: 60% in / 40% out	4 trips / hr	2 trips / hr	6 trips / hr
305, 307 and 309 – 311 Pacific Highway – Retail (169)	AM: 2.3 trips / 100 GFA	AM: 50% in / 50% out	1 trip / hr	1 trip / hr	2 trips / hr
	PM: 4.6 trips / 100 GFA	PM: 50% in / 50% out	3 trips / hr	3 trips / hr	6 trips / hr
Future Anticipated Development – Residential (139 units)	AM: 0.19 trips / unit	AM: 20% in / 80% out	5 trips/ hr	21 trips/ hr	26 trips/ hr
	PM: 0.15 trips / unit	PM: 60% in / 40% out	13 trips/ hr	8 trips/ hr	21 trips/ hr
Future Anticipated Development – Retail (1831)	AM: 2.3 trips / 100 GFA	AM: 50% in / 50% out	16 trips/ hr	16 trips/ hr	32 trips/ hr
	PM: 4.6 trips / 100 GFA	PM: 50% in / 50% out	32 trips / hr	32 trips / hr	64 trips / hr
Total Trips	AM		24 trips / hr	34 trips / hr	68 trips / hr
	PM		52 trips / hr	45 trips / hr	97 trips / hr

Table 7.3 indicates that the anticipated development in Tryon Place could potentially generate a total of 68 vehicle movements (in/out) during the AM peak hour and 97 vehicle movements (in/out) during the PM peak hour in the future.

Assuming that the current sites on Tryon Place generate existing trips of approximately 10 vehicle movements (in/out) during the AM and PM peak hours, which is a conservative estimate, then the future trips, including the Lindfield Village Living development, would result in the total future vehicle trips being 65 and 96 vehicles for the AM and PM peak hours respectively.

It is important to understand that these vehicle movements assume that kiss & ride parking is not permitted in Tryon Place.

7.2.3 Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development has been estimated based on the following:

- Our understanding of the local travel characteristics of the area as indicated in Section 2.10 of this report.
- Our understanding of the future road network configuration and intersection operation.
- The location and layout of the proposed access on the Pacific Highway.

In this regard it is important to understand the constraints of entering the sites from the south and exiting the site to the north, particularly given the one-way nature of Tryon Place.

Based on the future road network, this would require that traffic accessing the site from the south would use Drovers Way and the new signalised intersection at Beaconsfield Parade with traffic exiting the site to the North using Strickland Avenue and a turnaround facility at Middle Harbour Road.

Utilising simple in/out splits of 80/20 for residential AM, 60/40 for residential PM and 50/50 for retail and considering the constraints on directional movement due to the left in/left out access driveway Figure 7.1 has been prepared to indicate the estimated level of additional vehicles movements following full development of this site and future development on Tryon Place.

Figure 7.1: AM Peak Hour Future Volumes

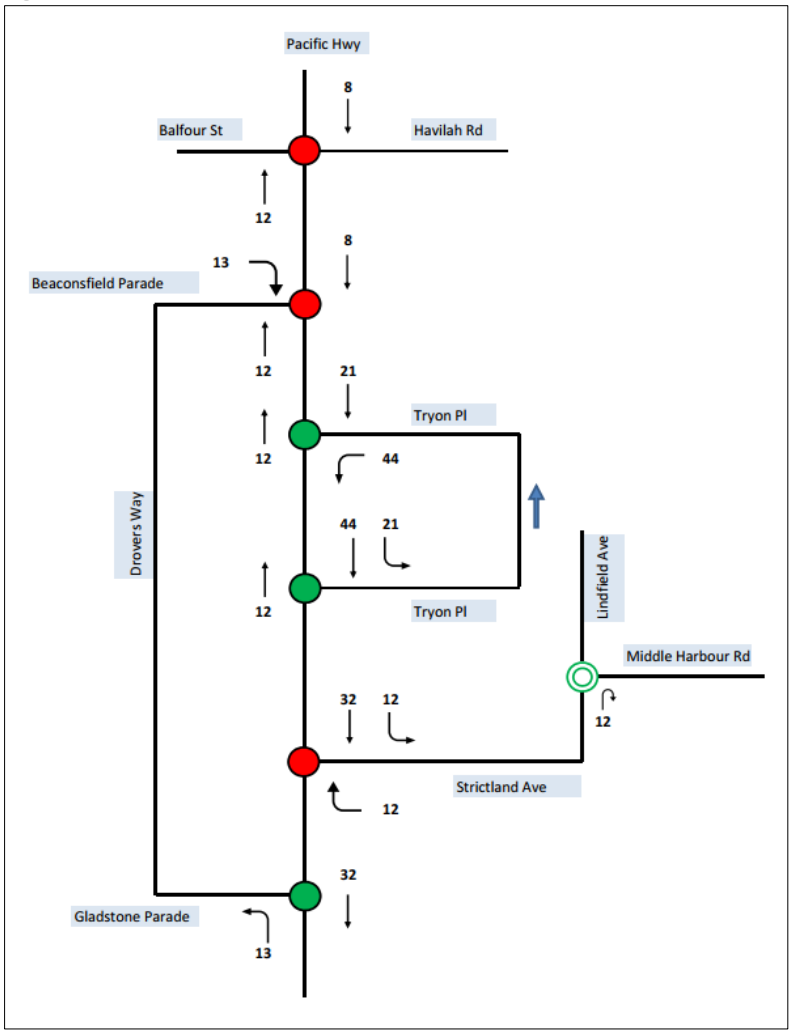
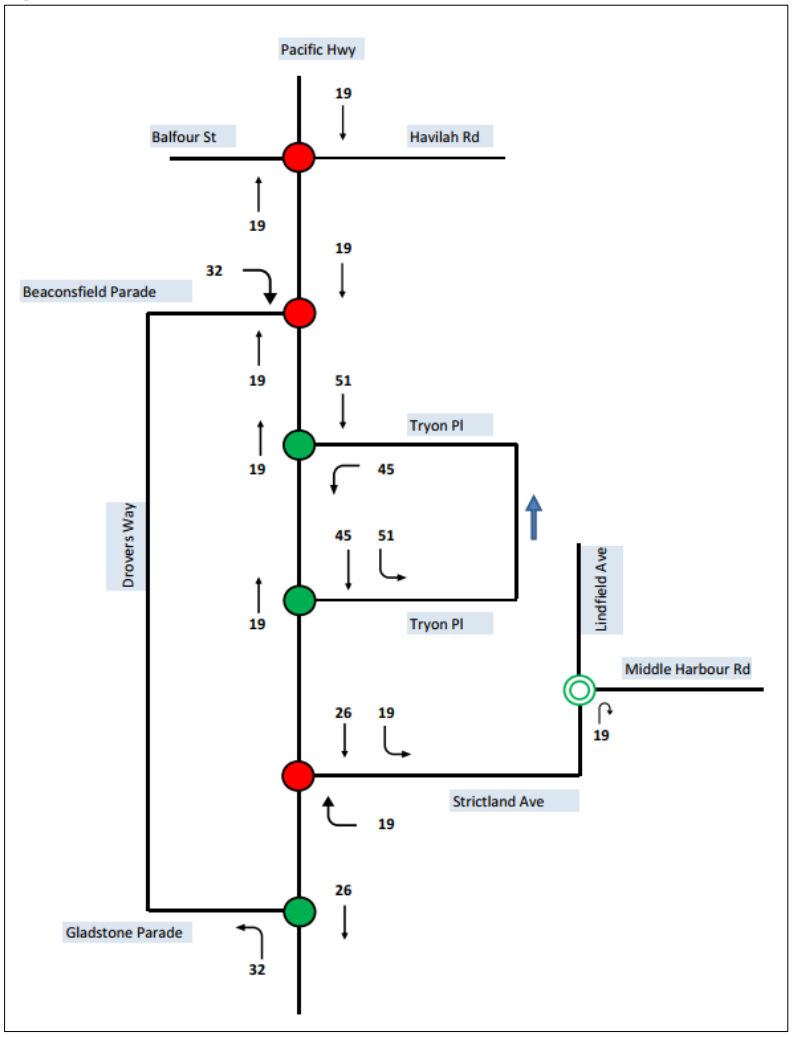


Figure 7.2: PM Peak Hour Future Volumes



The future levels of additional traffic on Tryon Place as indicated in Figure 7.1 and Figure 7.2 are also expected to have a negligible impact on the safety and operation of the surrounding road network.

7.2.4 Quantifying Pedestrian Movements on Tryon Place

PeopleTrans also estimated the level of pedestrian movement that would be generated by the Lindfield Village Living development together with development (DA0443/17) at 305, 307, 309-311 Pacific Highway and future anticipated development on Tryon Place. The assessment is summaries in the following sections.

Pedestrian Movement on Tryon Place (Generated from Residents)

Details of the pedestrian movements likely to be generated by residents of the Lindfield Village Living development, development at 305, 307 and 309-311 Pacific Highway and future anticipated development on Tryon Place are indicated in Table 7.4.

Table 7.4: Pedestrian Flow Analysis - Generated by Future Residents of Lindfield Village Living Development, 305, 307 & 309-311 Pacific Highway and Future Anticipated Developments

Linfield Village Living Development	305, 307 & 309-311 Pacific Highway	Future Anticipated Developments	Assumptions
130 dwellings	41 dwellings	139 dwellings	
315 residents	114 residents	385 residents	[1]
179 residents are of working age	64 residents are of working age	218 residents are of working age	[2]
Car = 36	Car = 13	Car = 44	Mode Share[8]. 20% car 60% train 10% bus 2% taxi 3% bicycle 5% walk
Train = 107	Train = 39	Train = 131	
Bus = 18	Bus = 6	Bus = 22	
Taxi = 4	Taxi = 1	Taxi = 4	
Bicycle = 5	Bicycle = 2	Bicycle = 7	
Walk = 9	Walk = 3	Walk = 11	
The number of residents walking on Tryon Place to catch trains, buses, taxis, or to work			
141	50	170	78%

[1] The average household size of 2.77 persons per household (Lindfield, 2016 Census) was adopted in this assessment for the 305, 307 & 309-311 Pacific Highway development and the future anticipated developments.

[2] It was assumed that 56.74% of residents are at age between 20 and 64 based on 2016 Census of Lindfield. (https://profile.id.com.au/ku-ring-gai/about?WebID=140)

Table 7.4 indicates that the Lindfield Village Living development, development at 305, 307 and 309-311 Pacific Highway and the future anticipated development could potentially generate a total of 361 residential in/out pedestrian movements during the peak hours on Tryon Place.

Pedestrian Movement on Tryon Place (Generated from Employees)

Details of the pedestrian movements likely to be generated by employees of the Lindfield Village Living development, development at 305, 307 and 309-311 Pacific Highway and future anticipated development on Tryon Place are indicated in Table 7.5.

Table 7.5: Flow Analysis - Generated by Future Employees of Lindfield Village Living Development, 305, 307 & 309-311 Pacific Highway and Future Anticipated Developments

Lindfield Village Living Development	305, 307 & 309-311 Pacific Highway	Future Anticipated Developments	Assumptions
62m2 GFA of retail space	169m2 GFA of retail space to be developed	1831m2 GFA of retail space to be developed	
2 employees	3 employees	37 employees	Commercial = 20m2/worker Retail = 50 m2/worker
The number of employees catching trains			
21			50%

Table 7.5 indicates that the Lindfield Village Living development, development at 305, 307 and 309-311 Pacific Highway and future anticipated development on Tryon Place could potentially generate a total of 21 employee in/out movements during the peak hours on Tryon Place assuming 50% of employees would travel to work by train.

[8] http://atrf.info/papers/2010/2010_Ellis_Parolin.pdf - accessed 09/04/18

Figure 7.3 and Figure 7.4 have been prepared to show the estimated pedestrian movement from the Lindfield Village Living development, development at 305, 307 and 309-311 Pacific Highway and future anticipated development of Tryon Place for the AM and PM peak hours.

Figure 7.3: AM Peak Hour Site Generated Pedestrian Flow

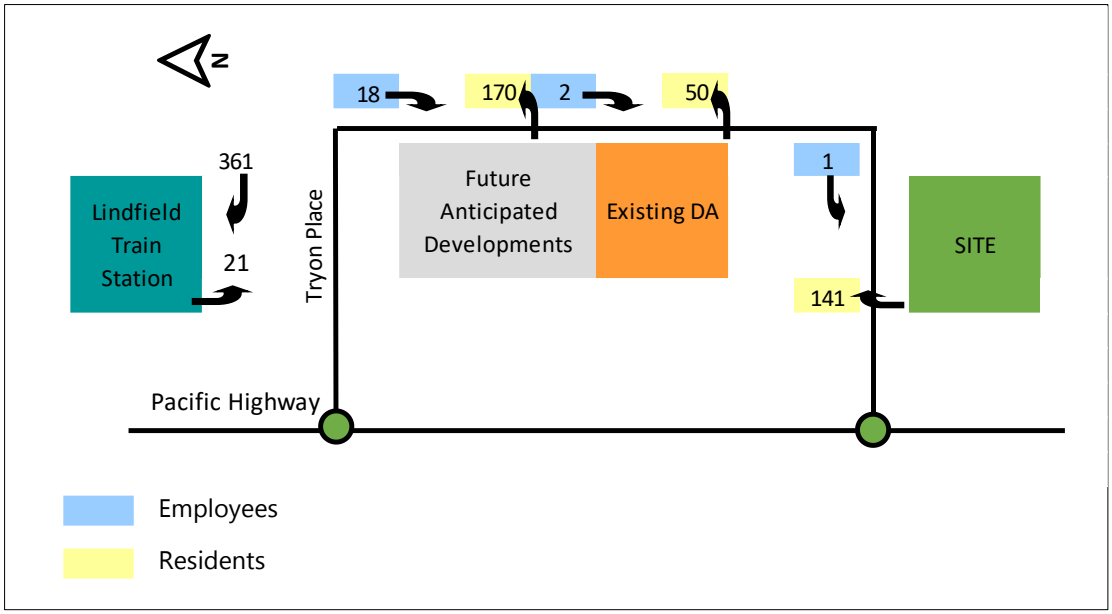


Figure 7.3 indicates that there could be approximately 380 pedestrians (two-way movement) using Tryon Place during the AM peak hour with the predominant pedestrian movement being northwards towards Lindfield Station.

The dominant pedestrian movement in the AM peak hour towards the station in Tryon Place is equivalent to 6 pedestrian movements a minute which, when combined with two-way traffic volumes of less than 2 vehicles per minute, would create a safe environment in Tryon Place.

Figure 7.4: PM Peak Hour Site Generated Pedestrian Flow

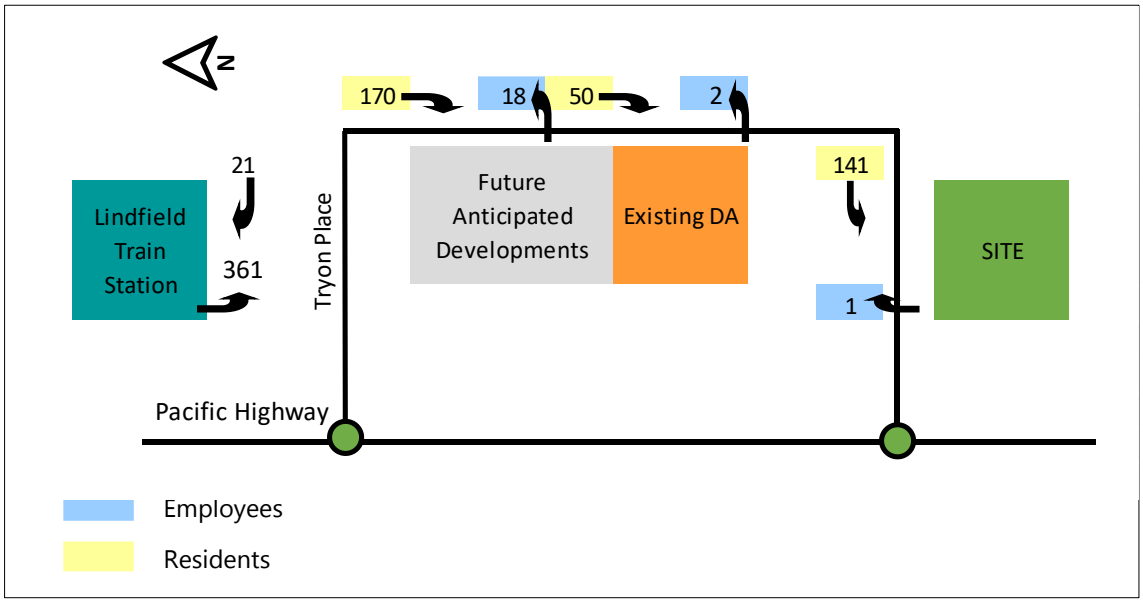


Figure 7.4 indicates that there could be approximately 380 pedestrians (two-way movement) also using Tryon Place during the PM peak hour with the predominant pedestrian movement being southwards away from Lindfield Station.

The dominant pedestrian movement in the PM peak hour away from the station in Tryon Place is also equivalent to 6 pedestrian movements a minute which, when combined with two-way traffic volumes of less than 2 vehicles per minute, would create a safe environment in Tryon Place.

8. Conclusions & Recommendations

Based on the transport and access assessment of the proposed 130 dwelling residential development with ancillary specialty retail shop at 259 & 265-271 Pacific Highway in Lindfield, PeopleTrans can confirm the following:

8.1 Conclusions

Internal Parking and Operation

- The proposed car parking layout is compliant with Australian/New Zealand Standard for Off Street Car Parking (AS/NZS2890.1:2004). As discussed in Section 5.3 the proposed design is considered satisfactory.
- The proposed accessible car parking spaces are compliant with Australian/New Zealand Standard for Off Street Car Parking (AS/NZS2890.6:2009).
- The proposed loading facilities are compliant with Australian/New Zealand Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.2:2002).
- The proposed bicycle parking layout is consistent with Australian Standard, Parking Facilities, Part 3: Bicycle Parking Facilities AS2890.3:1993 and is considered satisfactory.

Development Access

- The proposed development access location, layout, ramp widths and gradients are compliant with Australian/New Zealand Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).

Tryon Place Design/Shared Zone

- The design of the new intersection of Tryon Place/Pacific Highway needs to be entry only from Pacific Highway to meet the required safe stopping sight distance requirements.
- The design of the new intersection of Tryon Place/Pacific Highway requires an entry width of 7.5m to allow garbage collection and delivery vehicles to turn safely into Tryon Place.
- The shared zone (category 1) is feasible in Tryon Place based on the requirements of the RMS shared zone guidelines but should only start approximately 20m from the Pacific Highway.
- The proposed pavement treatment of the shared zone is also satisfactory and is consistent with the intent of the RMS shared zone guidelines.

Transport Integration/Sustainability

- The site is in close proximity to the Lindfield Railway Station and bus services on the Pacific Highway where residents can make use of public transport on their journey for work or for leisure.
- The site also provides bicycle parking which provides the opportunity for residents to cycle to and from work or for leisure using the surrounding local road or cycle network.

Construction Traffic Impact

- A detailed construction traffic management plan should be prepared prior to commencement of work on the site.

Operational Traffic Impact

- The site is expected to generate an approximate additional 10 in and out vehicle movements during the AM and PM peak hours having consideration to the existing site generation of 16 vehicle movements per peak hour.
- The level of additional traffic is expected to have a negligible impact on the safety and operation of the surrounding road network.
- The future traffic generated by the adjoining sites on Tryon Place is expected to be less than 100 vehicles per hour during the weekday AM or PM peak hours.
- The future levels of additional traffic on Tryon Place is also expected to have a negligible impact on the safety and operation of the surrounding road network.

8.2 Recommendations

- In order to improve safety of access to Tryon Place from the Pacific Highway during off-peak times No Stopping Restrictions should be implemented on the Pacific Highway for a length of some 20m to the north of the access as indicated in Figure 1 in Appendix A. It should however be noted in this regard that RMS are currently investigating extending the peak hour clearway hours along the Pacific Highway to include weekday off-peak periods and weekends.
- Consideration should also be given to installing No Stopping Restrictions in Tryon Place near the station to prevent kiss & ride activity occurring in Tryon Place and in support of the traffic volume requirements for a shared zone.
- Consideration should also be given to providing a roundabout at the Lindfield Avenue/Middle Harbour Road intersection to provide a turn-around facility for residents and visitors travelling north from the site.

Appendix A

PeopleTrans Response to Item 6 of Ku-ring-gai Councils Early Independent Assessment Letter

Our Ref: 18S380

15 July 2019

Fox Johnson Architects
Level 1
268A Devonshire Street
SURREY HILLS NSW 2010

Attention: Mr. Brad Philips (Associate)

Dear Brad,

RE: 259 and 265-271 Pacific Highway, Lindfield, NSW 2070 (DA0570/18)

I refer to Ku-ring-gai Councils independent development assessment letter dated 18 April 2019, and the meeting with the independent planning panel at Ku-ring-gai Council offices on the 04/06/2019 specifically in relation to items 5 and 6 as detailed in this letter. **(Refer Attachment 1)**

Further to this it is important to understand that as a result of Ku-ring-gai's letter and the meeting of the 04 June 2019 Fox Johnson Architects have amended the building scale and footprint with the removal of 1x1 bedroom, 1x2 bedroom and 1x3 bedroom apartments and setting back the building further from the Pacific Highway which impacts on the requirements for parking and the parking layout within the basement levels which have been further assessed by PeopleTrans and the outcomes included in this letter.

1.1 Council Assessment Letter Items

1.1.1 Item 6 - Left-turn access into the new road

Council Comment: *Concern is raised regarding left-turn access into the new road of the proposed development, given the curve of the Pacific Highway on the approach to the development site, the speed of southbound traffic, the visibility of the entry taking into account the alignment of the adjoining building to the north of the development site and the parking of vehicles in front of that adjoining building. It is requested that the feasibility of removing on street-parking and creating a deceleration lane to assist with the left turn access be further investigated as part of the preparation of amended plans.*

RMS Advisory Comment: *Deceleration Lane: since Tryon Place would be converted as a "one way" and would be heavily used by commuters to drop off and pick up in addition to development traffic there would be high demand of left turns from Pacific Highway to Tryon Place, which might have potential impact on the kerbside lane. In order to maintain continuous traffic flow and network efficiency, Roads and Maritime*

PeopleTrans' Response:

It should firstly be recognised importantly that this new road link is not intended to permit drop off or pick up activity at the station and the traffic proposed to use it would be associated primarily with residential uses generating low levels of traffic consistent with the shared zone treatment requirements (<100 vehicles per hour) proposed for this road. This is in turn would mean low levels of traffic turning left from the Pacific Highway into Tryon Place.

Although it is acknowledged that a dedicated left turn/deceleration lane on the Pacific Highway for vehicles entering the proposed one-way (entry only) new road of the development would maintain continuous traffic flow and network efficiency of the Pacific Highway, the constraints of the development site indicate that such a treatment would be very difficult, if not impossible, to implement at this location.

Austroads Guide to Road Design Part 4 also states inter alia that:

"The need for deceleration turn lanes cannot be stated definitively in all instances because of the many factors to be considered, such as speeds, traffic volumes, capacity, type of road, service provided, traffic control and crash history. The need is usually established on the basis of ensuring that turning traffic does not impede through traffic to the extent that the operational efficiency of an intersection or intersection approach is compromised or an unacceptable level of safety would result due to turning traffic slowing or stopping in a through lane."

Based on the Austroads guidance, PeopleTrans believes that a dedicated left-turn lane on the Pacific Highway for the new road (extension of Tryon Place) is not necessary for the following reasons:

- The left-turn volumes estimated to enter the new road from the Pacific Highway will be very low, 21 vehicles during the AM peak hour and 51 vehicles during the PM peak hour which are equivalent to 1 vehicle every 3 minutes in the AM peak hour and 1 vehicle every 1 minute in the PM peak hour. These levels of turning volumes would have a negligible impact on slowing of through traffic and the overall road network efficiency of the Pacific Highway.
- Safety would not be impaired by left turning traffic from the kerbside lane on the Pacific Highway during the AM peak clearway hours as the available sight distance for traffic using the kerbside lane meets the minimum requirements (Stopping Sight Distance and Approach Sight Distance) for an entry only access based on a speed of 60km/h. *(Refer section 4.22 and 4.23 of PeopleTrans Transport Impact Assessment Report dated 03/12/18 for further details.)*

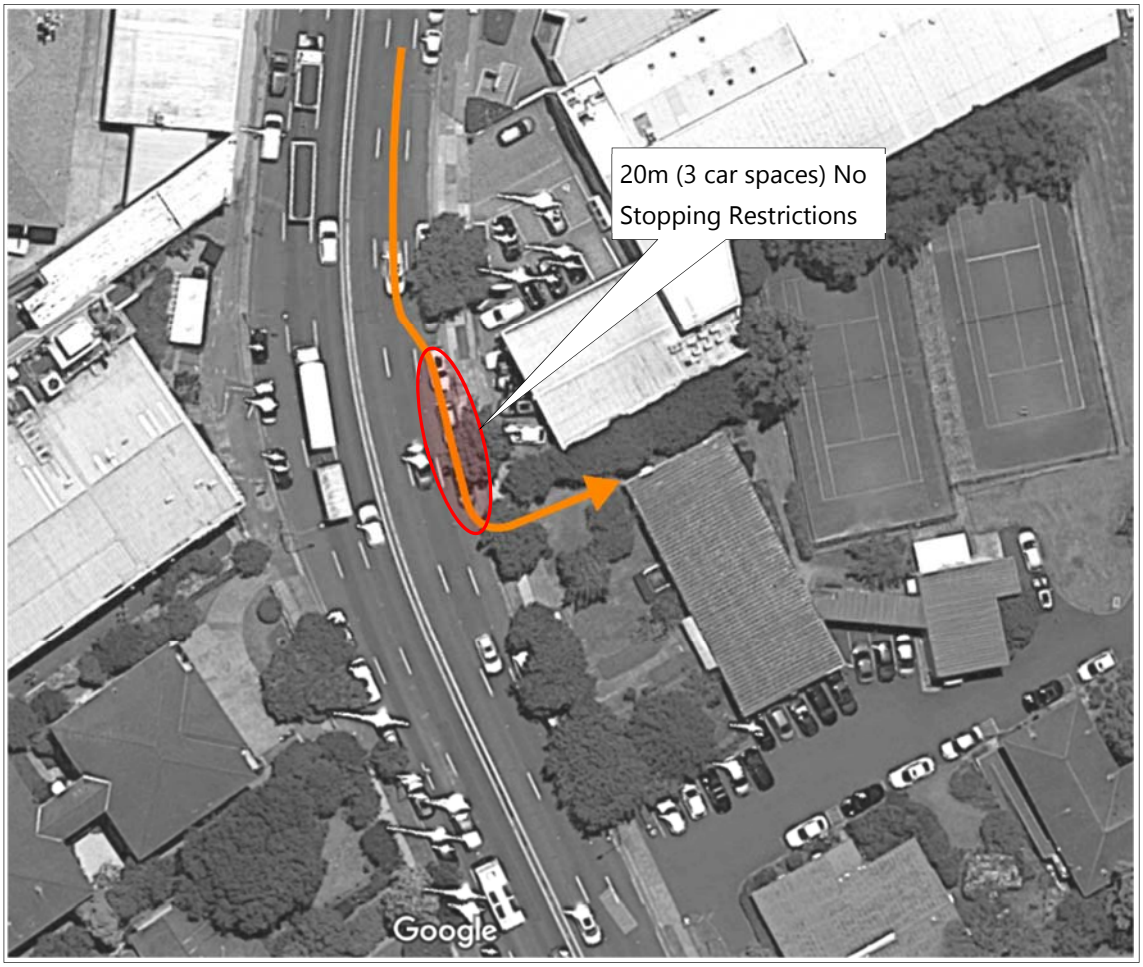
(It is also important to recognise that the speed of southbound traffic on the Pacific Highway during a large part of the AM peak period is likely to be lower than 60km/hr due to the sheer volume of traffic during these periods but also as a result of the start of a school zone 40km/hr speed limit which occurs directly after the proposed site access. This would result in traffic slowing before they enter the school zone on the Pacific Highway.)

- There are no existing instances of an auxiliary left-turn lane treatment at non-signalised intersections southbound along the Pacific Highway so in order to meet driver expectations a degree of consistency should be maintained.

However outside of the clearway hours, the turning movements would need to occur from the middle lane of the Pacific Highway due to the 1P parking restrictions in the kerbside lane. This could result in potential safety risks as traffic slows abruptly in the middle lane before entering the new access road.

This situation could be improved by the implementation of a no stopping restriction for a length of 20m (i.e. removal of 3 x kerbside parking spaces) on the southbound approach to the access creating a de-facto diverge lane for vehicles entering during times when clearways are not in operation as indicated in Figure 1.

Figure 1: No Stopping Restrictions



1.1.2 Item 5 – Urban Design – Minor Issues

Council Comment: *Through-site link carriageway width is to meet KLCDCP 14E.13 6 which requires a 6m wide carriageway with parking on one side.*

The KLCDCP 14E.13 6 states:

"The new road is to be a one way, 13.0m wide street, including:
i) 6.0m one-way carriageway;

ii) 3.5m verges with 2.0m wide footpaths;
iii) 1.5m landscaping with street tree zone planting;
iv) on street parking on one side."

PeopleTrans' Response:

The design and characteristics of this road were guided by the need to limit the use of it by external private vehicles and to make it as pedestrian friendly as possible in line with the proposal for it to be a shared zone. A 6.0m carriageway assumes a one-way road including parking on one side.

The design specifically excluded on-street parking to discourage use by external traffic and to complement the shared zone proposal resulting in a cross section with 2m footpath areas, 1.5m landscaping (as per Council DCP) but with the roadway reduced to a minimum width of 3.5m to accommodate the largest vehicle anticipated to travel through it.

It should also be noted that given the dogleg nature of the road alignment there would be limited opportunity to provide on-street parking anyway other than in the area adjacent to the proposed open space which is not a desired outcome.

Based on the above, the current design cross section of the new Tryon Place road is considered t be complementary to the design intent for this residential development site.

All other items raised in relation to traffic & transport have been addressed separately to this letter.

1.2 Parking Assessment

This part of the letter should be read in conjunction with PeopleTrans report titled ***"Lindfield Village Living 259 & 265-271 Pacific Highway Transport Impact Assessment – Stage 3, Issue B, dated 03/12/18"*** and provides an update to Section 5 of that report.

1.2.1 Car Parking Requirements

The determination of the parking for the proposed development was guided by the recommendations in SEPP65 which states that where a site is located within 800m of a railway station that the lessor of the rates for parking within the Council DCP and RMS guidelines be applied.

Based on this, the car parking requirements are summarised in Table 1.

Table 1: Minimum car parking requirements

Land Use	Measure	Minimum number of parking spaces per dwelling	Proposed Development Measure	Required parking spaces for the proposed development
High Density Residential Dwellings	1-bedroom apartments	0.6 spaces	52 apartments	31
	2-bedroom apartments	0.9 space	51 apartments	46
	3-bedroom apartments	1.4 spaces	28 apartments	40
	Total car parking spaces for residents – [1]			**117**
	Visitor parking	1 space for every 6 apartments – [2]		22
	Car Share	1 space in a publicly accessible area		1
	Total car parking for the residential development			**140**
Retail – [3]	GFA	1 space per 17 sq. m GFA	68 sq. m GFA	4

[1] based on RMS GTTGD Car Parking Requirements for Metropolitan Sub-Regional Centres

[1] based on Ku-ring-gai Local Centres Development Control Plan 2017 Part 7 – Residential Flat Buildings

[3] based on Ku-ring-gai Local Centres Development Control Plan 201 Part 22 – General Access and Parking

In addition, Ku-ring-gai Local Centre DCP 2017 also requires:

- at least one visitor space to be accessible
- a dedicated car wash bay or one visitor space with a tap for on-site car washing

1.2.2 Bicycle Parking Requirements

The bicycle parking requirements set out in for different development types are set out in Ku-ring-gai Local Centres Development Control Plan (DCP) 2017. A summary of the minimum bicycle parking requirements is provided in Table 2.

Table 2: Bicycle Parking Requirements

Land Uses	Type	Minimum Parking Rates	Proposed Development Measure	Minimum Parking Requirements
High Density Residential Dwellings	Residents	1 bicycle parking space per 5 units	131	27
	Visitors	1 bicycle parking space per 10 units		14
Retail	Employee / Customers	Secure bicycle parking spaces and storage are to be provided on site at the following rates for retail and commercial uses: i) 1 bicycle locker per 600m2 of GFA for staff; and ii) 1 bicycle parking space (in the form of a bicycle rail) per 2500m2 GFA for visitors. – [1]		

[1] Ku-ring-gai Local Centres DCP 2017 – Part 8: Mixed Use Development

1.2.3 Adequacy of Parking Supply

Based on above the minimum number of car parking spaces required for this development together with the corresponding supply of parking for this development is summarised in Table 3.

Table 3: Proposed Parking Supply

Land Uses	Parking Type	Usage	Required	Supply
High Density Residential dwellings	Car Parking	Residents	117	121 with 20 accessible
		Visitors	22	25 with 1 accessible
		Car Share	1	2
	Total Car Parking for Residential Development		**140**	**148**
	Bicycle Parking	Residents	27	34
		Visitors	14	16
	Total Bicycle Parking for Residential Development		**41**	**50**
Retail	Car Parking	Employees/Customers	**4**	**4**
	Bicycle Parking	Employees/Customers	To be shared with the parking provided for visitors - [1]	

[1] A bicycle locker could be considered at the detail design stage of the retail space.

Table 3 indicates that the proposed parking provision satisfies the minimum requirements for the development.

In addition to this:

- A car wash bay has been provided within the visitor parking area of the Basement 2 car park, which will also be used for visitor parking.
- 5-10% of the total residential car parking spaces have been allocated car charging facilities.

1.2.4 Parking Layout Review

The car park design review was assessed against the layout plans provided in **Attachment 2.**

1.2.5 Car Park Layout and Circulation

The car park layout has been reviewed against the requirements of the Ku-ring-gai Council Local Centre Development Control Plan 2016 and the Australian Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009).

This assessment included a review of the following:

- bay and aisle width
- adjacent structures
- turnaround facilities
- circulation roads and ramps
- ramp grades
- height clearances
- internal queuing
- pick-up / set-down area
- parking for persons with disabilities

1.2.6 Car Park Dimensions

The proposed basement car park layout has been reviewed by PeopleTrans and is consistent with the requirements set out in AS/NZS2890.1:2004, AS/NZS2890.6:2009 and Ku-ring-gai Local Centres DCP 2017.

1.2.7 Internal Vehicle Access and Circulation

There are two basement parking levels being Basement 2 and Basement 3. Access to each basement level is as follows:

- Access to Basement 2 is provided via a two-way ramp from Tryon Place.
- Access between Basement 2 and Basement 3 is provided via a two-way ramp with a width of 5.8m (6.4m wide between walls).

A review of the vehicle access and circulation by PeopleTrans indicated that the proposed car parking layout is consistent with AS2890.1:2004 and is expected to operate satisfactorily.

Should you have any questions or require any further information, please contact me on (02) 8226 8760.

Yours sincerely

PeopleTrans

Alan Stewart
Director

encl.

Attachment 1 – Council Assessment Letter Dated 18/04/19

Attachment 2 – Architectural Plans (Basement 2 & 3) Dated 12/07/19

Attachment 1

818 Pacific Highway, Gordon NSW 2072
Locked Bag 1006 Gordon NSW 2072
T 02 9424 0000 F 02 9424 0001
DX 8703 Gordon TTY 133 677
E kmc@kmc.nsw.gov.au
W www.kmc.nsw.gov.au
ABN 86 408 856 411

Contact: Jonathan Goodwill

Ref: DA0570/18

18 April 2019

Olsson & Associates Architects Pty Ltd
Level 4, 68-72 Wentworth Avenue
SURRY HILLS NSW 2010

Dear Sir/Madam

APPLICATION STATUS – INITIAL ASSESSMENT COMPLETE

Application No.:	DA0570/18
Proposed development:	Demolition of existing structures and construction of a residential flat building with 134 apartments, a neighbourhood shop, basement car parking with associated works, tree removal and public domain works including a new road linking Pacific Highway to Tryon Place
Property:	259 and 265-271 Pacific Highway LINDFIELD NSW 2070

An assessment of your application has been undertaken by an independent town planning consultant, urban design consultant and internal referral officers. As a result of that assessment the following issues are required to be addressed:

1. Public Notification

The application was advertised and notified for a period of 30 days to surrounding owners and residents from mid-December until 14 February 2019, 17 submissions objecting to the proposal were received:

The following key issues were identified in the submissions:

(i) Overshadowing/loss of solar access to adjacent residential flat building comprising 15 dwellings [9 north and east facing];
(ii) Overlooking and loss of privacy;
(iii) Excessive height and visual bulk of building – development is an overdevelopment;
(iv) Proposed building is out of character with the area;
(v) Construction impacts upon adjacent residential flat building (access, dust, noise, pedestrian safety, parking);
(vi) Loss of established trees, without adequate justification;
(vii) Inadequate setbacks, deep soil and landscaping;
(viii) Inadequate assessment of traffic impacts;
(ix) Impacts on heritage, including the historic well;
(x) Loss of functioning community facilities and concerns as when the equivalent community facilities; will be replaced by Ku-ring-gai Council –

what will happen in the meantime? [This is a matter for the Council to respond to the community on];

(xi) Failure of development to incorporate community facilities.

A reply to submissions report is requested.

2. Application of SEPP (Affordable Rental Housing) 2009

Further background information on the 14 existing studio dwellings on the site is required. It is noted that some background information is provided in the Heritage Impact Report. A copy of the assessment report (if available) and development approval with conditions from 1961 is requested to clarify the situation and avoid any doubt. A detailed explanation as to why Part 3 'Retention of existing affordable rental housing' of the SEPP does not apply to the proposal should be provided.

3. Activation of Proposed Through-site Link

Concern is expressed whether the amount of retail space provided at the ground level (currently 56m²) will be sufficient to activate the through-site link as envisioned in the DCP. Amended plans which increase the amount of floor space allocated to commercial and community use at the ground level should be considered. It is noted that a neighbourhood shop can be up to 100m², and that there can also be more than one space. A community use should also be considered for inclusion in the development.

4. Subdivision Plan to Excise New Road

To facilitate the dedication of the new road the preparation of a subdivision plan for the area that is to be dedicated to Council is required.

5. Urban Design

Amended plans should be prepared which address the 7 major concerns identified by Council's Urban Design Consultant:

Built form encroachment on through-site link

Elements of the proposed building and private landscape encroach into the minimum 13m wide new road reserve [This contradicts KLCDCP14E.13 4 (iii) by as much as 3.7m]. This could impact on the required road dedication.

Upper storey setback to Pacific Highway

8m setback is not achieved at the upper levels, resulting in greater visual bulk. [This contradicts KLCDCP 7A.3 2(iii) and objective 4 to reduce the visual bulk from the street]. Expanse of wall is excessive [This contravenes KLCDCP 7C.6.2]

Setback of topmost storey

The top storey is not set back from the outer face of the floor below. This does not meet the 2.4m setback to all sides to the top floor required by KLCDCP 7C.8 2. It reduces visual interest, adds to visual bulk and increases overshadowing.

Calculation of gross floor area

There is a concern that internal walls and foyer areas have been incorrectly excluded from the calculation of gross floor area. If this is so, then the proposed FSR would exceed the allowable 2:1 permissible under the LEP. Verification from the applicant is required to ensure compliance with the maximum FSR.

Overshadowing of southern neighbours

The 'sun's views' diagrams [A-600-000 A, and A-600-001 A] show that the proposed development retains a minimum of 2 hours direct sunlight to living rooms and private open spaces between 9am and 3pm at mid- winter for only the upper and middle central and eastern apartments, ie only 4 out of the 9 neighbouring apartments. This contravenes ADG 3B-2 1, 2, 4 and 5. The 'sun's views' diagrams [A-600-000 A and A-600-001 A] appear not to be perfectly vertical, resulting in accuracies. If is further noted that the 'neighbour shadow diagram [A-600-005] does not match the 'sun's views' diagrams and incorrectly labels living area windows. As this matter has been raised in neighbour submissions, it is important the degree of impact on the adjoining properly No. 257 be properly understood and documented.

The plans demonstrating the impact of overshadowing should be corrected where necessary. Amended plans which carefully consider all options to reduce the level of impact, including building adjustments to increase solar access to the adjoining building to the south should be provided.

Solar Access

Only 84 of 134 apartments, ie 63% receive a minimum of 2 hours direct sunlight to living rooms and private open spaces between 9am and 3pm at mid-winter. This does not meet the 70% required by ADG 4A-1 1.

Acoustic treatment and natural ventilation

74 of 134, ie 55% apartments are naturally cross ventilated, failing to meet the 60% required by ADG 4B-3 1. It is noted that 6 additional apartments [A105, A205, A305, A405, A505, A605] are noted as having a plenum over their front door, however a detail of this solution has not been provided. If the plenum solution can be demonstrated as adequate, 80 of 134 or 60% of apartments will be naturally cross ventilated and the development would comply.

Closed glazing is relied upon to achieve the acoustic criteria. This contravenes the ADG.

Many of the proposed dwellings are intended to be acoustically protected from the Pacific Highway and the rail line, by using a 'mechanical outside air fan' [A-801-002 A]. Objective ADG 4B-1 requires that 'all habitable rooms are naturally ventilated.

Whilst sealing of dwellings and use of an 'acoustically treated mechanical ventilation system [acoustic report p14] is a possible solution under SEPP Infrastructure, it is not an acceptable solution under SEPP65 and the ADG.

Similarly, many of the proposed dwellings are intended to be acoustically protected from the rail noise by incorporating a '30% fix open winter garden [A-801-002 A]. The acoustic report [p15] states that closed glazing is relied upon to achieve the acoustic criteria. This does not meet the requirements of the ADG.

The following is a list of the minor issues also identified by the Urban Design Consultant. Should the applicant proceed to resolve the major issues, then the minor issues should also be addressed:

- Boundary lengths and site area to be verified;
- Through-site link carriageway width is to meet KLCDCP 14E.13 6 which requires a 6m wide carriageway with parking on one side;
- Include ventilation grilles to eastern car park wall;
- Provide screened external clothes drying areas;
- Provide deep soil in communal areas between buildings;
- Reduce extent of excavation at southern boundary to reduce impact on trees;
- Retain more existing trees;
- Revise soil volume and soil depth of planting on structure;
- Some units are undersized [73m² instead of the minimum of 75m²];
- Some rooms identified as media rooms would be habitable but have no windows;
- Habitable room depths greater than 8m;
- Inadequate size of some 1-bedroom balconies;
- Under-achieved storage volumes for some apartments;
- Improved solution to foyer security is required;
- Not all apartments achieve the minimum Silver Level requirements of the Living Housing Design Guidelines [LHDG];
- Improved location of accessible car spaces;
- Improved wayfinding to building entries;
- Improved mailbox design;
- Increase corridor width outside lift.

5.

6. Left-turn access into the new road

Concern is raised regarding left-turn access into the new road of the proposed development, given the curve of the Pacific Highway in the approach to the development site, the speed of southbound traffic, the visibility of the entry taking into account the alignment of the adjoining building to the north of the development site and the parking of vehicles in front of that adjoining building. It is requested that the feasibility of removing on street-parking and creating a deceleration lane to assist with the left turn access be further investigated as part of the preparation of amended plans.

7. Landscape and Tree Assessment Officer

The following issues have been identified by Council's Landscape and Tree Assessment Officer:

Issue/s:

- Insufficient landscape width (1 metre) to road along northern boundary (min 1.5m required).
- The proposed areas of landscape mounding of deep soil area within the front setback is inconsistent with the existing character of adjacent residential zoning, creates unstable growing conditions for proposed tall trees and is not supported.
- Insufficient deep soil within the centre of the site for tall tree planting required for building separation.

- The encroachment of Unit LG05, Building C further into the eastern side setback and forward of the rest of Building C and D is not supported.
- The Building B private courtyards provide insufficient area for effective landscape treatment to boundaries within common ownership. Similarly the proposed courtyard fencing to Unit LG05 is to not to encroach beyond the building line.
- Excessive width of planters to individual units – Building B
- Insufficient amenity provided in the 'pocket park'.
- Access from Building A and B to both communal open spaces is not very direct and relies on a fairly circuitous route through the basement that has multiple entrapment locations (Lower Ground). The pool is also not accessible. This is not considered acceptable amenity.
- BASIX certificate does not reflect the landscape component of the proposed development

Amendments that could resolve the issue:

Amend:

- Delete the drainage swale and give back to minimum 1.5m width landscape zones for street zone planting on either sides of the proposed road.
- Reduce the size of the retail terrace to provide minimum 1.5m width landscape area to road, reduce height of 2 metre high retaining wall adjacent the footpath and optimise area of deep soil for tall tree planting within the centre of the site
- Delete landscape mounding to front setback to Pacific Highway. A more characteristic arrangement with tall trees small trees, shrubs, groundcovers and lawns at grade is to be provided.
- Reduce the basement within the northern half of the central communal open space
- The Building B private courtyards are to be setback minimum 4 metres from the southern boundary to provide sufficient area for effective landscape treatment to boundaries within common ownership. Access paths are to be maximum 1 metre width and minimum 3 metre from site boundary.
- Proposed sloping retaining walls, fire stairs or access stairs to the Building C to the southern boundary are not to encroach within 4 metres of the side setback.
- Maximum 1 metre width roof edge planter to individual units to ensure safe and reasonable access for maintenance. Larger planters are recommended at centre of roof area to maximise access.
- The proposed 'pocket park' should be enlarged to optimise the available useable area adjacent the road to increase visibility and access.
- The open lawn area within the central communal open space is to be larger with more opportunities for seating and level lawn and for for level differences to be created through retained structures rather than batters. There is an opportunity for a larger paved podium court at the path intersection.

Additional information required:

Basix certificate is to be amended as follows:

- The proposal does not accurately reflect the landscape commitments in the BASIX certificate. The private gardens and upper floors planters are to be included in the area of garden and lawn for individual dwellings.

Landscape Plan is unsatisfactory for the following reasons:

- Unit numbers are to be shown on all plans
- Proposed planting design is to be identified in accordance with Council's DA Guide. Proposed planting palettes are not acceptable. *Angophora hispida* is to be substituted with a canopy tree that is representative of Blue Gum High Forest such as *Angophora floribunda* or similar. Proposed Blue Gums are to be setback minimum 8m from building and 5 metre from basement. Within the proposed 6m setbacks medium evergreen and deciduous trees such as Nyssa are to be used.
- Proposed hardworks as indicated in the legend are illegible on the plans due to coloured canopy conflicting with tone colours indicated in Legend. A separate hardworks plan is required.
- The line of the basement is to be consistent with the architectural plans.
- Proposed walls with top of wall heights to Level 3 planters, Building B to be shown.
- Top of wall height to roof terrace should be minimum 1 metre (760mm provided).
- Proposed inaccessible planters including to roof terraces (behind AC units), covered walk to northern elevation of Building B and C and above ground units, including Unit 101, Blg B, LG03, Blg D, are to be deleted. Planters adjacent balconies are to be maximum 1 metre width.
- A shade structure is to be provided in association with the rooftop BBQ dining areas.
- All retaining walls are to be shown including to basement podium planters as indicated on landscape sections. Top of wall levels are to be provided.
- Proposed planter depths to basement podium within central courtyard (600-800mm) excluding drainage, insufficient depth to support proposed size of trees shown (13m height) are more suited to shrubs (p116 ADG).
- Access steps to pool dominate central communal open space and are to be relocated to optimise useable open space. The proposed 2m width paths/steps through these areas should be reduced to maximum 1.2m.
- The proposed sandstone edging to the bioretention basin conflicts with the proposed canopy tree planting.
- Proposed use of decomposed granite as a surface treatment in an urban precinct is not supported and is to be replaced with a hard wearing alternative.

The stormwater plans are to be amended as follows:

- Swale alongside the TSL is to be deleted to enable viable

planting.

- Proposed pipeline to the Pacific Highway is to be realigned to avoid the TPZ of Tree 36 as per arborist recommendation.
- Realign the proposed subsoil pipeline parallel to the southern boundary to run along the southern side of the proposed landscape retaining wall as per arborist recommendation.

Drawing inadequacies/inconsistencies

- Clarification is required as to the proposed removal/retention of Trees 25, 26, 30, 32 and 34 that are shown to be removed on existing trees /landscape plan and retained on demolition/excavation/ground/site level plans.

- Clarification is to be provided as to the extent of non shared/shared zones.

- Sections through the proposed road are to be provided to enable assessment of cut and fill to boundaries. Levels along the northern side of the proposed road including retaining walls are to be provided.

- The provision of acceptable sight lines for users crossing from the 'pocket park' to the entrance to the residential development should be demonstrated.

- The extent of structures and available soft landscape area at the northern end of Building D including the basement access, drainage swale and Bioretention area within the side setback is inconsistent on the architectural (6.2, Dwg A-400-002 Rev A), civil and landscape plans.

- Bioretention Basin is to be shown in relation to the Basement 2 floor level (98.00AHD).

- Pool fencing indicated on Landscape plan is to enclose southwest corner of pool area.

- Proposed 20m long on-street loading area on Tryon Place opposite the entrance to the basement carpark (Transport Impact Assessment, Peopletrans, Issue B 3/12/18) is to be indicated on the site plan. It would be preferable to locate this in the basement.

- Location of Landscape Section B, dwg L-DA-013 is incorrect.

- Clarification is to be provided as to the extent of non shared/shared zones.

- The communal open space calculation is to be amended as follows:
  - skylights on roof terrace are to be deleted
  - the steel fencing defining the communal open space is inconsistent with the communal open space plan (DA A-

660-000 Rev A, Fox Johnston) and should be setback from the public footpath to allow for planting in front of fence.
- The pool terrace can be included as communal open space

8. Development Engineer

The following issues identified by Council's Development Engineer are required to be addressed:

Stormwater

- The stormwater report states that a water balance calculation has been carried out to show a 50% reduction in runoff days. A copy of this water balance calculation shall be provided to confirm the 50% reduction in runoff days and ensure compliance with Part 24C.3-4 of the Ku-ring-gai local centres DCP.

- It is proposed to provide a swale adjacent to the proposed footpath alongside the new road to capture flows from the roadway. This water is not proposed to be retained/detained. Further details of this proposed swale shall be provided; in particular the width of this swale shall be shown.

Traffic

- Insufficient visitor parking spaces have been provided. Visitor parking is provided at the rate of 1 space for every 5 apartments, therefore the proposed 134 apartments generate a visitor parking space requirement of 27 spaces, 24 resident visitor spaces are proposed which is a shortfall of 3 spaces.

- Sight triangles of 2m x 2.5m to allow sight lines for pedestrians and vehicles on Tryon Place shall be provided in accordance with AS2890.

- A construction traffic management (CTMP) is required to be submitted for assessment.

- A driveway longitudinal section has been submitted however further detail regarding the access to the basement is required. In particular, a plan which identifies the chainages as referred to on Drawings C210, C220, and C250, by Nicholson Jones has not been provided.

9. Outstanding external referrals

Please note that external refers to the Natural Resources Access Regulator (Water Management Act 2000) and Sydney Trains (SEPP (Infrastructure) 2007) are outstanding. Any issues arising from these referrals will be subject of further correspondence.

Application status/progression

Should you choose to amend your application, we ask that you contact the assessment officer to discuss resolution of the above issues and submission requirements. This is to ensure any amendments satisfactorily address the assessment issues, prior to further expenses and resources being spent on the application.

To prevent a protracted and ineffectual assessment process, it is recommended that a genuine attempt is made to address these issues in their entirety as only **one** opportunity for amendments will be provided.

Subsequently, should we invite you to submit formal amended plans; you would need to provide these in electronic format with written particulars, identifying the changes made to the original application and amended documentation/reports as necessary. The submission of amended plans will result in an additional assessment and administrative fee (20% of the statutory DA fee) being $18,658.80. This fee must be paid when the amended plans are lodged in person, at our Customer Service centre. If any of the required information and/or fees are not provided, the amended plans will not be accepted.

Your response to the above is requested within 28 days of the date of this letter.

Should you have any further enquiries I can be contacted on telephone 9424 0000.

Regards

Jonathan Goodwill
Executive Assessment Officer

Attachment 2

Fox Johnston | olsson& associates architects PTY LTD

Level 1, 268A Devonshire Street
Surry Hills
NSW 2010 AUSTRALIA
foxjohnston.com.au

T + 61 2 9211 2700
F + 61 2 9211 2785
ABN - 63111324353
contact@foxjohnston.com.au

Client: Ku-ring-gai Council

Rev	Description	Drawn	Date
A	For DA	VA / JY / BP	30.11.18
B	DA Amendments - Coordination	SR/BP	04.06.19
C	DA Amendments	BP/CJ	03.07.19
D	DA Amendments	BP/CJ	12.07.19

ALL LEVELS TO AUSTRALIAN HEIGHT DATUM.

IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM ALL MEASUREMENTS ON SITE PRIOR TO COMMENCEMENT OF WORK. DRAWINGS SHOULD NOT BE SCALED. WRITTEN DIMENSIONS ONLY SHOULD BE TAKEN FROM DRAWINGS. ALL DIMENSIONING IS TO SUBSTRATE BRICKWORK / BLOCKWORK UNLESS OTHERWISE NOTED.

Project: LINDFIELD VILLAGE LIVING PROJECT

Title: Basement 2

Job No.	1709
Scale	1:200 @ A1 1:400 @ A3
Date	12.07.19
Drawn/Checked	BP/CJ

Dwg No. A-400-001 Rev. D

Fox Johnston / olsson & associates architects pty ltd	Level 1, 268A Devonshire Street Surry Hills NSW 2010 AUSTRALIA foxjohnston.com.au	**T** + 61 2 9211 2700 **F** + 61 2 9211 2785 ABN - 63111324353 contact@foxjohnston.com.au	Client **Ku-ring-gai Council**

Rev	Description	Drawn	Date
A	For DA	VA / JY / BP	30.11.18
B	DA Amendments - Coordination	SR/BP	04.06.19
C	DA Amendments	BP/CJ	03.07.19
D	DA Amendments	BP/CJ	12.07.19

Project
LINDFIELD VILLAGE LIVING PROJECT

Title
Basement 3

Job No.	1709
Scale	1:200 @ A1 1:400 @ A3
Date	12.07.19
Drawn/Checked	BP/CJ

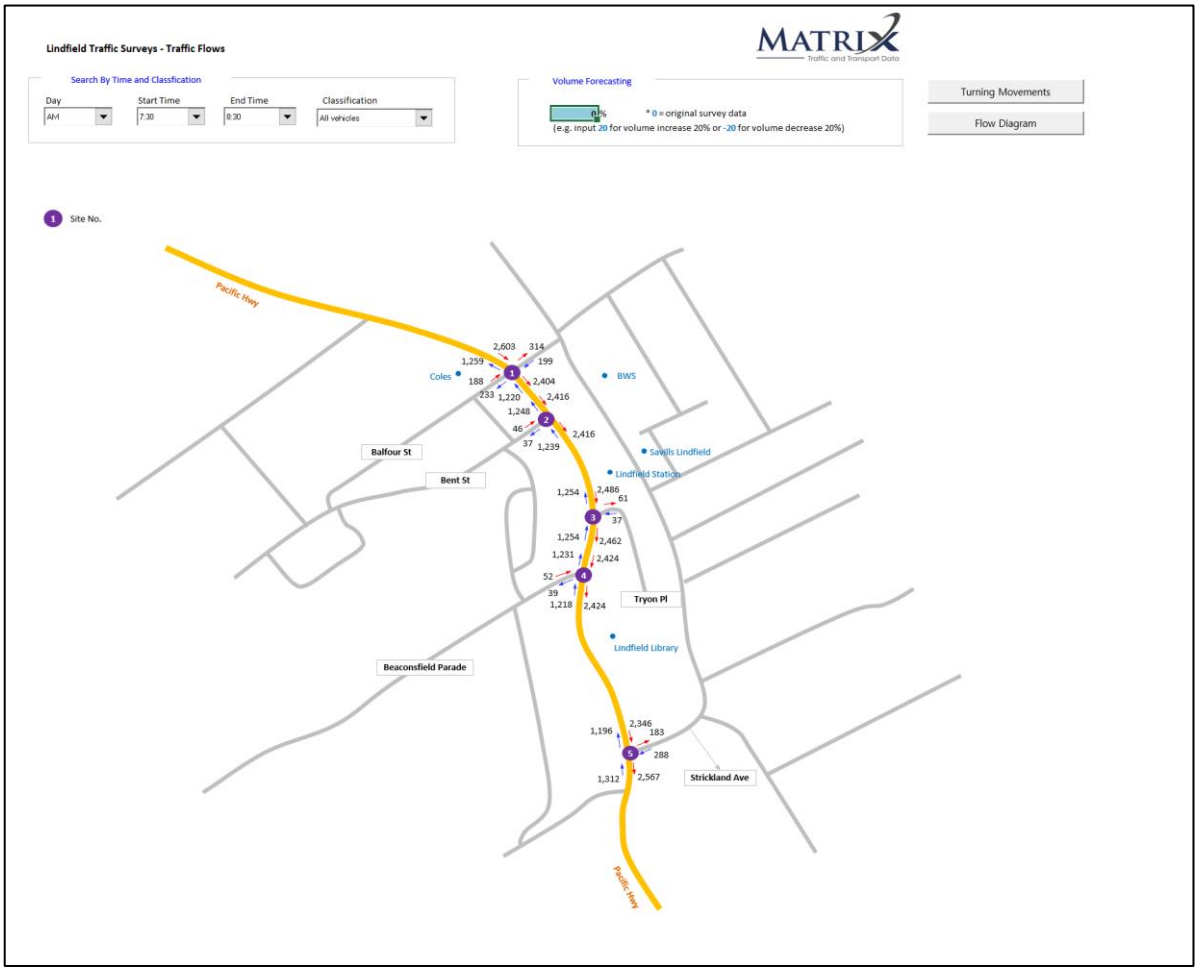
Dwg No. **A-400-000**

Rev. **D**

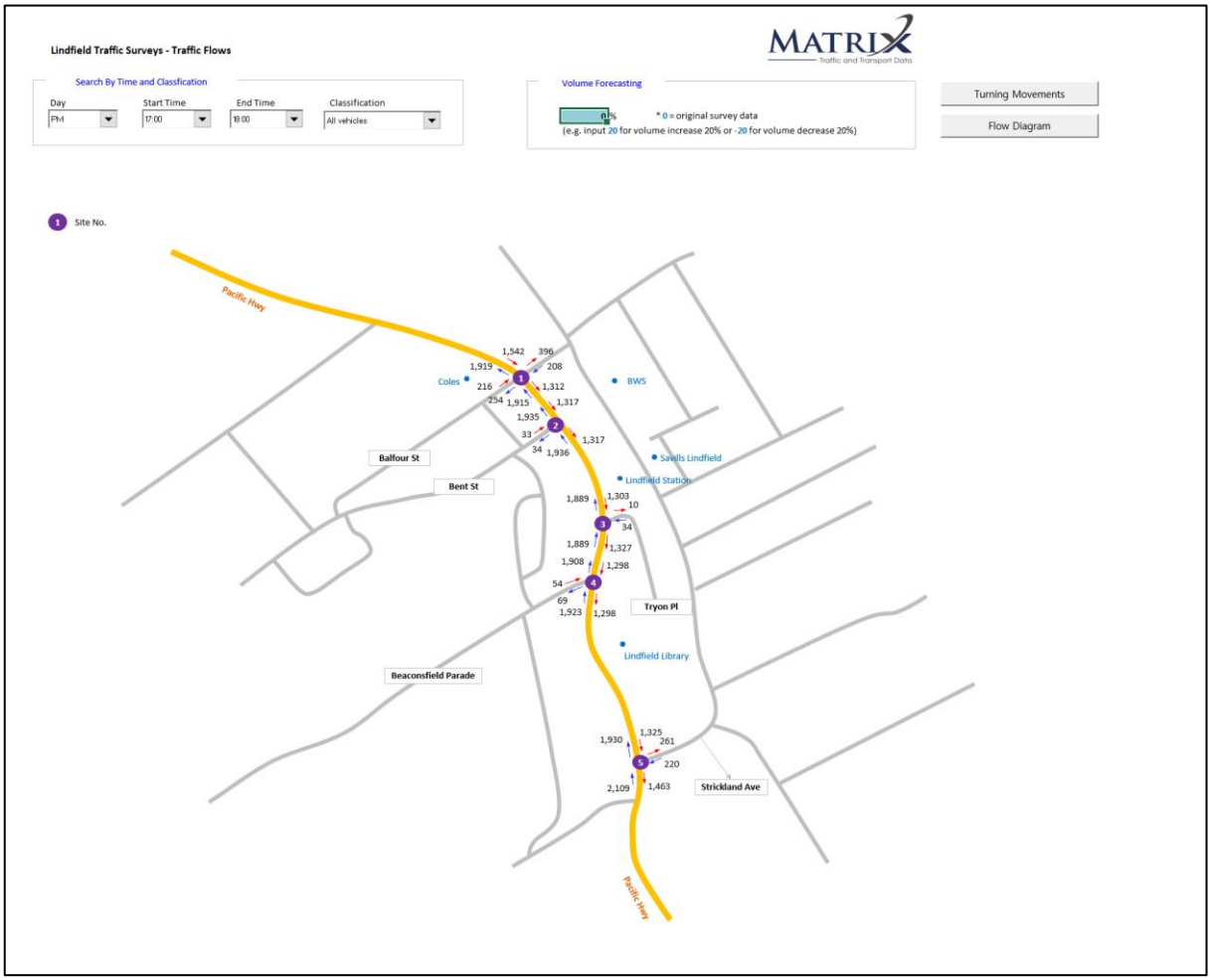
Appendix B

Peak Hour Traffic Surveys

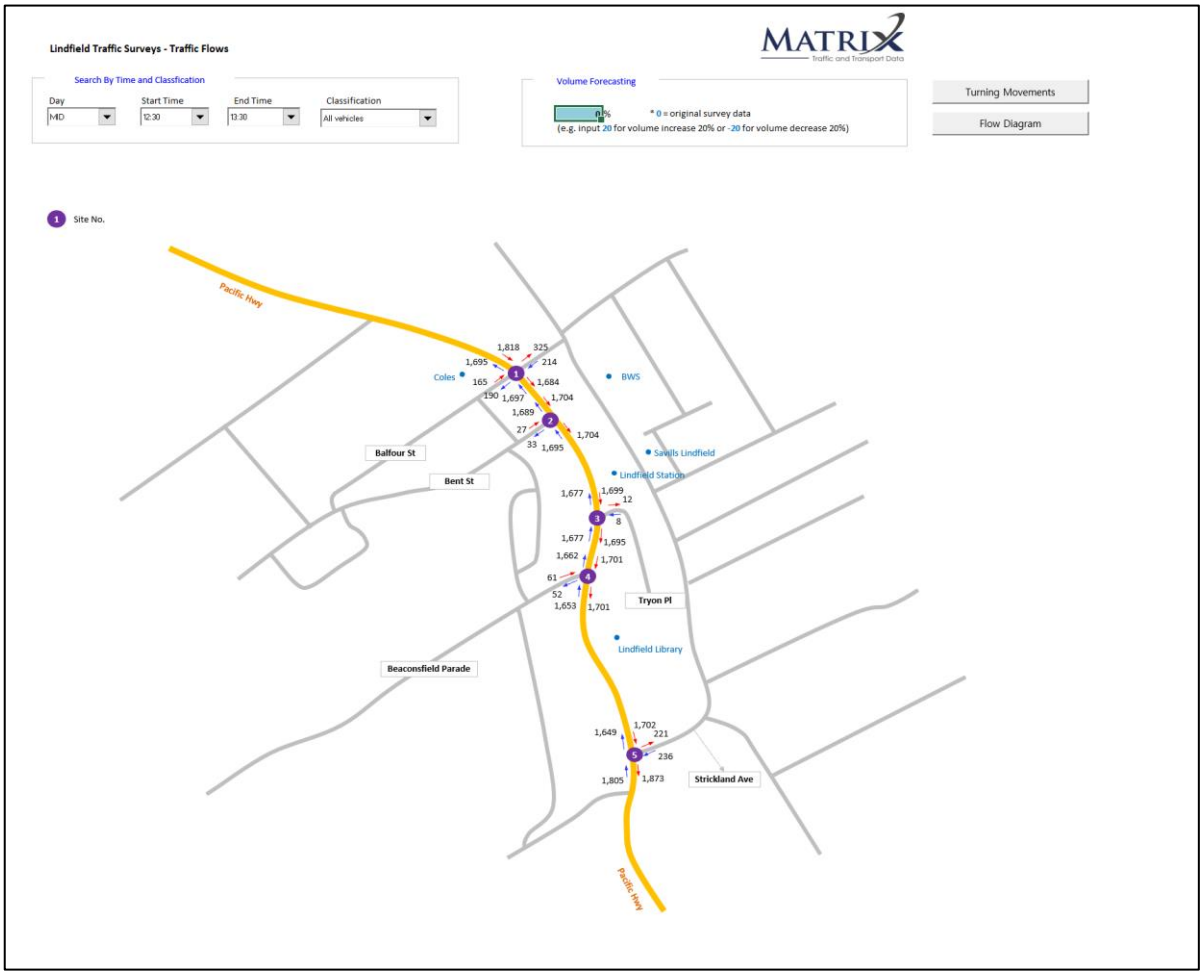
AM Peak Hour Volumes



PM Peak Hour Volumes



Saturday Peak Hour Volumes



Appendix C

Tryon Place Landscape Architectural Plans

LEGEND

▬ · ▬	SITE BOUNDARY
🟩	GARDEN BED
🟩	LAWN
▨ P1	BRICK PAVING
▨ P2	COBBLE STONE PAVING
▨ P2A	200MM COBBLE STRIP IN BRICK PAVING
▨ P3	PERMEABLE PATH
▨ P4	ASPHALT
🟦	SWIMMING POOL / WATER
	SANDSTONE RETAINING WALL
🟫	TIMBER BENCH SEATING
- - -	STEEL FENCE
	TREES - EVERGREEN
	TREES - DECIDUOUS
	PALMS
	SCREEN PLANTING

- **1A** VEHICLE ENTRY TO TRYON PLACE LANEWAY
- **1B** PEDESTRIAN ENTRY TO TRYON PLACE LANEWAY
- **2** PEDESTRIAN ENTRY TO DEVELOPMENT
- **3** GARDEN WITH LARGE NATIVE TREES AND SMALLER DECIDUOUS TREES
- **4** SHARED ZONE TO COUNCIL SPECIFICATION. TRANSITION ZONES INDICATED WITH MATERIAL CHANGE (BRICK AND COBBLE STONES)
- **5** RETAIL LANDSCAPE COURTYARD WITH WATER FEATURE TO ENTRY BY ARCHITECT (INTERPRETIVE OF HISTORIC WELL)
- **6** SWIMMING POOL WITH TIMBER DECK SURROUNDS
- **7** CENTRAL COMMUNAL COURTYARD WITH BRICK PAVING
- **8** VERDANT LANDSCAPE BUFFER PLANTING
- **8A** ACESS TO PRIVATE COURTYARD
- **9** NEW 1800MM HIGH BOUNDARY FENCE TO RAIL CORP SPECIFICATION
- **10** PROPOSED POCKET PARK WITH COBBLE PAVING. TREES AND BENCH SEATS
- **11** POTENTIAL NEW BUILDING PEDESTRIAN ENTRY SUBJECT TO FUTURE DEVELOPMENT
- **12** STREET VERGE PLANTNG
- **13** BIO RETENTION BASIN TO HYDRAULIC ENGINEERS DRAWING (WITH INFORMATION ON PLAQUE)
- **14** EXISTING VEHICLE ENTRY
- **15** PROPOSED NEW LIGHT POLE TO LIGHTING CONSULTANTS DRAWING
- **16** SOCIAL POCKET WITH BENCH SEAT, LAWN, MOVEABLE FURNITURE AND FEATURE TREES
- **17** STEPS TO POCKET PARK AND SITTING EDGE
- **18** EXISTING STREET TREE TO BE RETAINED AND PROTECTED
- **19** NEW STREET TREE TO PACIFIC HIGHWAY (*PISTACIA*)
- **20** ROOF PLANTING (ACCES VIA BALCONY)

NOTE:
KERB AND ASPHALT FOR FIRST 20M (ENTRY)
SHARED ZONE TO REST OF TRYON PLACE LANEWAY

Notes:

1. All planting areas to be mulched, typically 75mm depth. Organic mulch to conform to *AS 4454 - 2003 Compost Soil Conditioners & Mulches*

2. Soils to conform to AS 4419 - 2003 Soils for Landscaping & Garden Use
   Soil Depths:
   - Grass Areas minimum 300mm deep
   - Planting/Garden areas minimum 450mm deep

3. All planting areas to have drip irrigation lines with a backup connection to main water supply, installed to satisfy all current Sydney Water requirements and relevant Australian Standards.

4. Garden Beds with maximum 1:4 slope are sufficient for planting trees, shrubs and groundcovers (maximum 1:3 slope is Industry Standard)

N

0 2 4 6 8 10m
1:200 @ A1 _ 1:400 @ A3

ISS.	AMENDMENT	DATE	BY
D	DRAFT Revised Development Application	09.07.19	CB
E	DRAFT Revised Development Application	15.07.19	CB
F	DRAFT Revised Development Application	06.08.19	CB
G	Revised Development Application	07.08.19	CB
H	Revised Draft Development Application	19.12.19	CB
I	Revised Draft Development Application	23.01.20	CB
J	Revised Development Application	11.02.20	CB

ARCHITECT
Level 1, 268A Devonshire Street
Surry Hills NSW 2010,
Australia
+61 2 9211 2700

Fox Johnston

CLIENT	CHECKED
KU-RING-GAI COUNCIL	GD

SCALE	DRAWN	ISSUE
1:200@A1	CB	DA

DWG. TITLE
Landscape Plan - Ground and Lower Ground

PROJECT
Lindfield Village Living Project

PRELIMINARY
NOT FOR CONSTRUCTION

360°
Level 1, 1 Marys Place
Surry Hills NSW 2010
p +612 9332 3601
w www.360.net.au
ABN: 90 146 901 322

L-DA-05

LEGEND

- SITE BOUNDARY
- P1 — BRICK PAVING
- P2 — COBBLE STONE PAVING
- P2A — 200MM COBBLE STRIP IN BRICK PAVING
- P3 — PERMEABLE PATH
- P4 — ASPHALT
- SWIMMING POOL / WATER
- SANDSTONE RETAINING WALL
- TIMBER BENCH SEATING
- STEEL FENCE

1A VEHICLE ENTRY TO TRYON PLACE LANEWAY

1B PEDESTRIAN ENTRY TO TRYON PLACE LANEWAY

2 PEDESTRIAN ENTRY TO DEVELOPMENT

3 RAISED SANDSTONE PLANTER / WALL

4 SHARED ZONE TO COUNCIL SPECIFICATION. TRANSITION ZONES INDICATED WITH MATERIAL CHANGE (BRICK AND COBBLE STONES)

KERB FOR FIRST 20 METERS

5 RETAIL LANDSCAPE COURTYARD WITH BRICK AND COBBLE PAVING

6 CENTRAL COMMUNAL COURTYARD WITH BRICK PAVING

7 TIMBER BENCH SEAT

8 PROPOSED POCKET PARK WITH COBBLE PAVING AND BENCH SEATS

9 STEPS TO POCKET PARK AND SITTING EDGE

10 TIMBER DECK TO POOL

N

0 2 4 6 8 10m

1:200 @ A1 _ 1:400 @ A3

ISS.	AMENDMENT	DATE	BY
B	DRAFT Revised Development Application	15.07.19	CB
C	DRAFT Revised Development Application	06.08.19	CB
D	Revised Development Application	07.08.19	CB
E	Revised Draft Development Application	19.12.19	CB
F	Revised Draft Development Application	23.01.20	CB
G	Revised Development Application	11.02.20	CB

ARCHITECT
Level 1, 268A Devonshire Street
Surry Hills NSW 2010,
Australia
+61 2 9211 2700

Fox Johnston

CLIENT	CHECKED
KU-RING-GAI COUNCIL	GD
SCALE 1:200@A1	**DRAWN** CB
	ISSUE DA

DWG. TITLE
Landscape Plan - Hardworks & Levels - Ground & Lower Ground

PROJECT
Lindfield Village Living Project

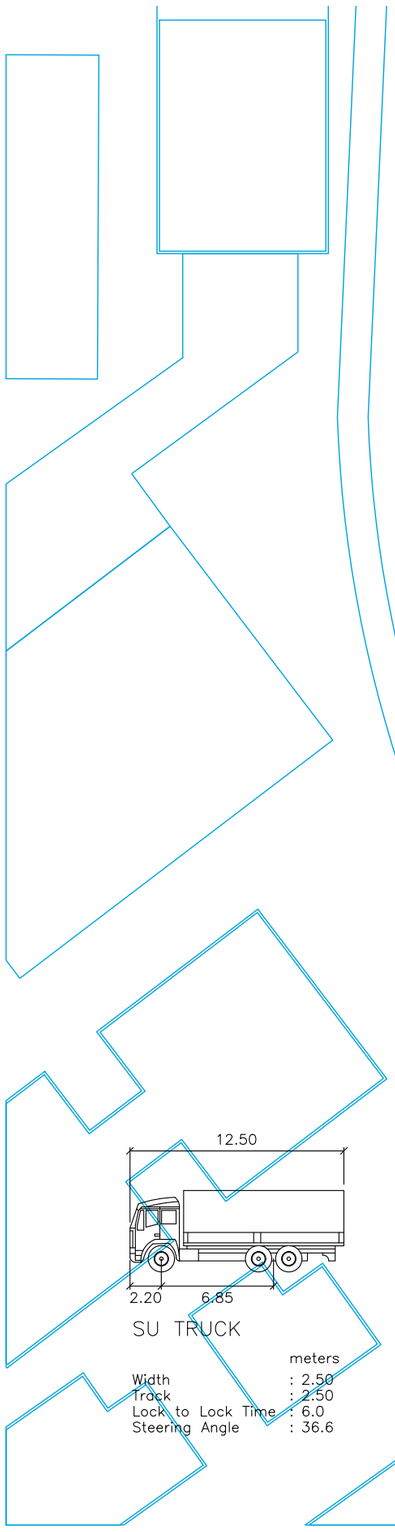
PRELIMINARY
NOT FOR CONSTRUCTION

360°
Level 1, 1 Marys Place
Surry Hills NSW 2010
p +612 9332 3601
w www.360.net.au
ABN 90 146 901 362

L-DA-05A

Appendix D

Tryon Place & Loading Bay Swept Path Analysis

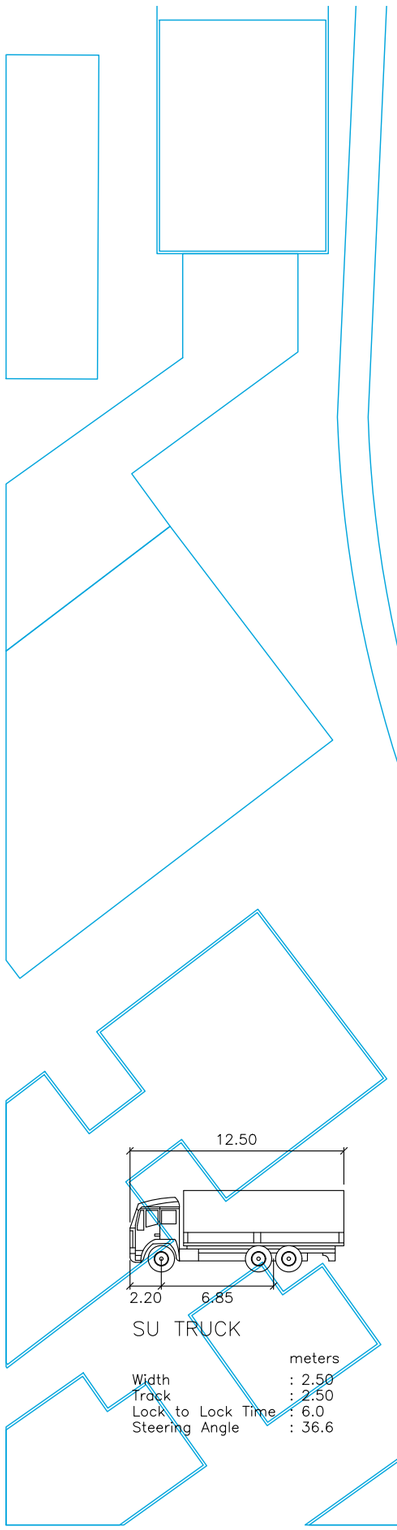


peopletrans

DRAWN:	CHECKED:	DRAWING NO:	SHEET:
S.YOU	A.STEWART	18S380-CS-15-V2	01 OF 06
		SCALE: 1:500 @ A3	DATE: 11.02.2020

0 5 10 15

LINDFIELD VILLAGE LIVING
SWEPT PATH ASSESSMENT
GROUND



peopletrans

DRAWN: S.YOU
CHECKED: A.STEWART
DRAWING NO: 18S380-CS-15-V2
SHEET: 02 OF 06
SCALE: 1:500 @ A3
DATE: 11.02.2020
0 5 10 15

LINDFIELD VILLAGE LIVING
SWEPT PATH ASSESSMENT
GROUND

Appendix E

Basement Car Park Layout Architectural Plans

Fox Johnston / alsson & associates architects pty ltd	Level 1, 268A Devonshire Street Surry Hills NSW 2010 AUSTRALIA foxjohnston.com.au	**T** + 61 2 9211 2700 **F** + 61 2 9211 2785 ABN - 63111324353 contact@foxjohnston.com.au	Client **Ku-ring-gai Council**

Rev	Description	Drawn	Date
B	DA Amendments - Coordination	SR/BP	04.06.19
C	DA Amendments	BP/CJ	03.07.19
D	DA Amendments	BP/CJ	12.07.19
E	DA Amendments	BP/CJ	06.08.19
F	Council Amendments	BW/BP	05.11.19
G	DA Amendments		11.11.19

ALL LEVELS TO AUSTRALIAN HEIGHT DATUM.

IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM ALL MEASUREMENTS ON SITE PRIOR TO COMMENCEMENT OF WORK. DRAWINGS SHOULD NOT BE SCALED. WRITTEN DIMENSIONS ONLY SHOULD BE TAKEN FROM DRAWINGS. ALL DIMENSIONING IS TO SUBSTRATE BRICKWORK / BLOCKWORK UNLESS OTHERWISE NOTED.

Project
LINDFIELD VILLAGE LIVING PROJECT

Title
Basement 2

Job No.	1709
Scale	1:200 @ A1 1:400 @ A3
Date	07.02.20
Drawn/Checked	BW/BP

Dwg No. **A-400-001** Rev. **H**

Rev	Description	Drawn	Date
B	DA Amendments - Coordination	SR/BP	04.06.19
C	DA Amendments	BP/CJ	03.07.19
D	DA Amendments	BP/CJ	12.07.19
E	Council Amendments	BW/BP	05.11.19
F	DA Amendments		11.11.19

Fox Johnston
olsson & associates architects pty ltd
Level 1, 268A Devonshire Street
Surry Hills
NSW 2010 AUSTRALIA
foxjohnston.com.au
T + 61 2 9211 2700
F + 61 2 9211 2785
ABN - 63111324353
contact@foxjohnston.com.au

Client
Ku-ring-gai Council

ALL LEVELS TO AUSTRALIAN HEIGHT DATUM.

IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM ALL MEASUREMENTS ON SITE PRIOR TO COMMENCEMENT OF WORK. DRAWINGS SHOULD NOT BE SCALED. WRITTEN DIMENSIONS ONLY SHOULD BE TAKEN FROM DRAWINGS. ALL DIMENSIONING IS TO SUBSTRATE BRICKWORK / BLOCKWORK UNLESS OTHERWISE NOTED.

Project
LINDFIELD VILLAGE LIVING PROJECT

Title
Basement 3

Job No.	1709
Scale	1:200 @ A1 1:400 @ A3
Date	07.02.20
Drawn/Checked	BW/BP

Dwg No. **A-400-000**

Rev. **G**

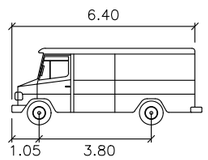
Appendix F

Swept Path Analysis of Basement Loading Area

peopletrans

DRAWN: S.YOU
CHECKED: A.STEWART
DRAWING NO: 18S380-CS-15-V2
SHEET: 03 OF 06
SCALE: 1:500 @ A3
DATE: 11.02.2020
0 5 10 15

LINDFIELD VILLAGE LIVING
SWEPT PATH ASSESSMENT
GROUND



SRV

	meters
Width	: 2.30
Track	: 2.30
Lock to Lock Time	: 6.0
Steering Angle	: 38.0

peopletrans

DRAWN: S.YOU
CHECKED: A.STEWART
DRAWING NO: 18S380-CS-15-V2
SHEET: 04 OF 06
SCALE: 1:500 @ A3
DATE: 11.02.2020

0 5 10 15

LINDFIELD VILLAGE LIVING
SWEPT PATH ASSESSMENT
BASEMENT 2

sydney@peopletrans.com.au
melbourne@peopletrans.com.au

People, Passion, Perseverance

peopletrans.com.au