

**FONTENOY ROAD
PRECINCT TRAFFIC STUDY**

2026



ACKNOWLEDGEMENT OF COUNTRY

“The City of Ryde values the unique status of Aboriginal people as the Traditional Custodians of the lands and waterways across the Ryde Local Government Area. The City of Ryde acknowledges that this study has been undertaken on Wallumatta Ngurunga land, the place of the Wallumai (Black Snapper fish). We pay our respects to Elders both past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples across Australia.”

EXECUTIVE SUMMARY

This Traffic Study assesses the current and future transport performance of the Fontenoy Road Precinct within Macquarie Park, bounded by Fontenoy Road, Lane Cove Road, Waterloo Road and Khartoum Road. The study has been prepared in response to Council's resolution following the NSW Land and Environment Court decision relating to the Eden Gardens development and provides an evidence-based assessment of the precinct's ability to accommodate future growth.

The assessment considers existing traffic conditions using recent traffic counts, site observations and SIDRA network modelling, together with projected 10-year traffic growth derived from Transport for NSW's Strategic Traffic Forecasting Model (STFM). It also reviews the precinct's active transport and public transport networks and examines opportunities to improve accessibility, safety and network efficiency.

The findings indicate that the existing transport network generally performs at acceptable levels during weekday and weekend peak periods, although congestion is evident along Lane Cove Road and on sections of Fontenoy Road during weekday commuter peaks. Forecast growth associated with the continued expansion of Macquarie Park, is expected to increase traffic volumes by approximately 17–37 percent over the next decade. Without intervention, several key intersections are forecast to operate at Level of Service 'F' during peak periods, resulting in increased delays, longer queues and reduced network reliability.

The study recommends a package of integrated multimodal transport improvements, including targeted intersection upgrades, new traffic signals, bus priority measures, active transport enhancements, accessibility improvements, and strategic road network modifications. These recommendations are designed to improve network resilience while supporting greater use of public transport, walking and cycling, consistent with the NSW Government's Movement and Place Framework and Council's Integrated Transport Strategy.

The recommendations identified within this study are consistent with the transport vision for Macquarie Park established within the State Government and Council's strategic planning documents. Further investigation, detailed design, funding commitments, and collaboration between Council, Transport for NSW, the Department of Planning, Housing and Infrastructure, and other key stakeholders will be required to assess the feasibility and delivery of these initiatives.

The study provides a strategic roadmap for future transport investment within the Fontenoy Road Precinct, ensuring the transport network can safely and efficiently accommodate anticipated residential, employment and economic growth while supporting a more connected, accessible and sustainable Macquarie Park.

CONTENTS

	ACKNOWLEDGEMENT OF COUNTRY	ii
	EXECUTIVE SUMMARY	iii
<hr/>		
1	INTRODUCTION	5
2	BACKGROUND	6
2.1	Eden Gardens Development Court Decision (LDA 2021/0095)	6
2.2	Strategic Vision for Macquarie Park	6
2.3	Relationship with Other Key Strategies	7
<hr/>		
3	EXISTING TRANSPORT CONDITIONS	9
3.1	Road Description	9
3.2	Active Transport Network	11
3.3	Public Transport	12
3.3.1	Bus Services	12
3.3.2	Metro Services	14
3.4	Existing Network Performance	15
<hr/>		
4	FUTURE TRANSPORT CONDITIONS	20
4.1	Future 10-Year Network Performance	20
4.2	Potential and Planned Future Transport Treatments	24
<hr/>		
5	CONCLUSION	28

1

INTRODUCTION



This study has been prepared to assess the current and future transport implications within the Fontenoy Road precinct, which is a subset of Macquarie Park, bound by Fontenoy Road in the north, Lane Cove Road in the east, Waterloo Road in the south and Khartoum Road in the west. **Figure 1** below illustrates the extent of the study area.

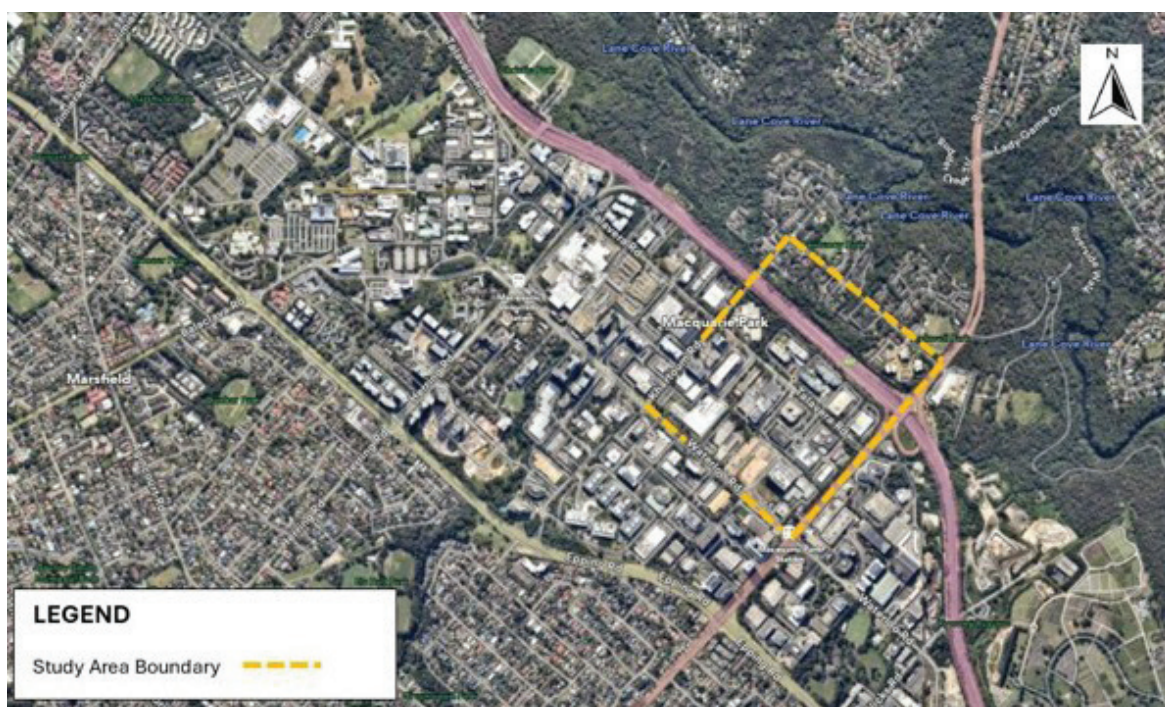


Figure 1 – Study Area

Specifically, this report will:

-  Review existing transport conditions and the ability of existing transport infrastructure within the study area to accommodate demand during peak periods. This analysis will be based on recent traffic volume surveys, queuing data and site observations.
-  Assess future 10-year transport conditions within the study area based on the projected traffic growth identified from Transport for NSW's (TfNSW) Strategic Traffic Forecasting Model (STFM).
-  Identify and review appropriate road and transport measures to better support the travel needs of different road users. This includes potential improvements to the walking, cycling and bus network in the area.
-  Determine potential solutions to ameliorate congestion, preserve residential amenity and improve accessibility on Fontenoy Road.

The recommendations in this study align with the objectives of key transport strategies, policies and planning proposals such as City of Ryde's Integrated Transport Strategy, City of Ryde's *Bicycle Strategy and Action Plan*, City of Ryde's *Community Strategy Plan*, TfNSW's *Movement and Place Framework* and the NSW State Government's *Transport Oriented Development Rezoning Proposal for Macquarie Park*.



BACKGROUND

2

2.1 Eden Gardens Development Court Decision (LDA 2021/0095)

City of Ryde Council (hereafter referred to as 'Council') resolved at its meeting on 28 May 2024:

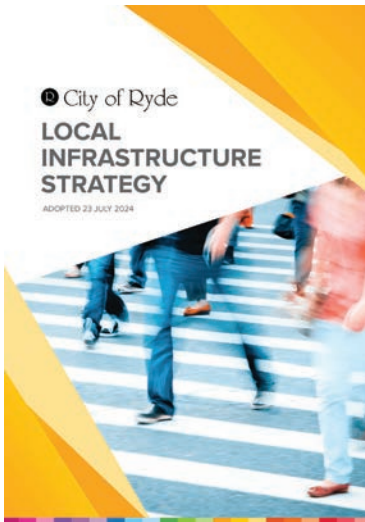
- A** That subject to a final Court decision being handed down with respect to the legal proceedings relating to LDA2021/0095 for alterations and additions to the existing garden centre and function centre and the construction of an office building and restaurant at Eden Gardens (Appeal), a traffic study be initiated for the Talavera, Khartoum, Waterloo and Fontenoy Roads precinct (Traffic Study).
- B** The Traffic Study is to include relevant community consultation so as to inform the study.
- C** Council notes that the Traffic Study can only commence once the Court has handed down its final decision with respect to the Appeal on the Eden Gardens development.
- D** That staff report back to Council on the outcomes of the Traffic Study and associated community consultation following the completion of this assessment.

The subject Development Application (Council reference: LDA 2021/0095) involves alterations and additions to an existing garden centre and the construction of an 18-storey office building including a multi-level car park and additional dining space at 307 Lane Cove Road, Macquarie Park. On 11 November 2024, the NSW Land and Environment Court handed down its decision to refuse consent for this development due to unresolved visual impact and traffic concerns with the development.

2.2 Strategic Vision for Macquarie Park

Macquarie Park, being Australia's original innovation district, is a thriving metropolis that currently supports over 6,000 residents and over 60,000 jobs. The NSW State Government plans to introduce an additional 20,000 jobs and 7,650 homes over the next 20 years as part of their Stage 2 (TOD) rezoning proposal. Significant investment in transport and road infrastructure will be essential to support the precinct's projected residential and economic growth. The NSW State Government has highlighted these essential civil works within their Macquarie Park Corridor Infrastructure Delivery Plan. The findings from this report will inform the design of future transport and road facilities within the study area, which will contribute to the long-term strategic vision for Macquarie Park.

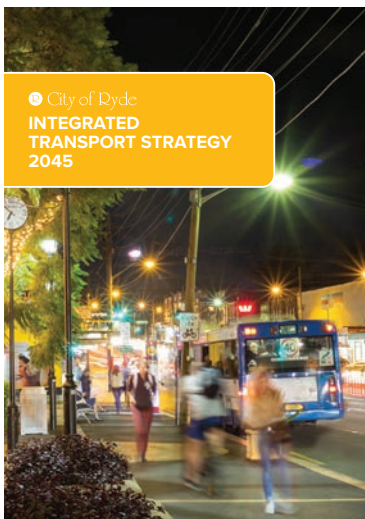
This study has been developed in accordance with the objectives set out in the following key strategic documents:



CITY OF RYDE LOCAL INFRASTRUCTURE STRATEGY

The Local Infrastructure Strategy provides a comprehensive and forward-looking framework to guide infrastructure investment and planning to ensure City of Ryde's infrastructure remains inclusive, sustainable and well-equipped for future challenges.

The strategy champions five (5) key principles, being *“collaboration, alignment of factors, maintenance of current asset base, resilience and sustainability and innovation and technology”*.



CITY OF RYDE INTEGRATED TRANSPORT STRATEGY 2045

The Integrated Transport Strategy (ITS) establishes the long term blueprint for coordinated transport planning, advocating a clear, people-first approach that prioritises walking, cycling, public, and shared transport to reduce reliance on private vehicles. The strategy also focuses on improving transport accessibility and convenience, particularly for disadvantaged groups such as seniors, young people, people with disabilities, and non-drivers, recognising the importance of inclusive mobility as the population grows and ages. Overall, the ITS is designed to enhance quality of life and access to opportunities for all residents.



CITY OF RYDE BICYCLE STRATEGY AND ACTION PLAN 2022 – 2030

The Bicycle Strategy and Action Plan (2022 – 2030) contains initiatives aimed at marking *“City of Ryde the place to be for cycling, by creating an environment where everyone who chooses to ride can do so from their front door, workplace and/or education facility”*. The Strategy and Action Plan provides guidance on improving cycling connectivity, accessibility and inclusivity. It promotes cycling as an sustainable alternative to driving which complements the ITS 2025.



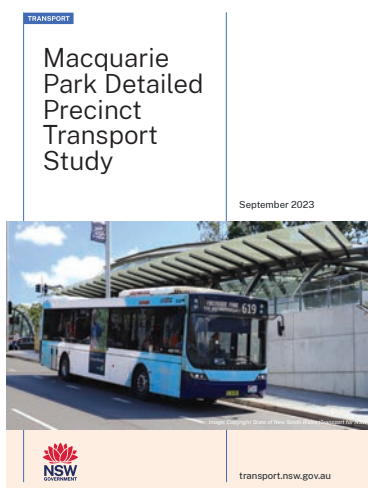
DEPARTMENT OF PLANNING, HOUSING AND INFRASTRUCTURE (DPHI) MACQUARIE PARK CORRIDOR INFRASTRUCTURE DELIVERY PLAN

DPHI's Infrastructure Delivery Plan outlines the delivery mechanisms, funding sources and land requirements to facilitate future infrastructure that will accelerate growth in Macquarie Park. The plan provides a roadmap on how the NSW Government has and will continue to invest in essential health, education, transport, and recreation infrastructure to address both future needs and existing service backlogs.



DEPARTMENT OF PLANNING, HOUSING AND INFRASTRUCTURE (DPHI) MACQUARIE PARK CORRIDOR INFRASTRUCTURE DELIVERY PLAN

DPHI's Design Guide aims to supplement City of Ryde Local Environmental Plan 2014 (LEP 2014) and Development Control Plan 2014 (RDCP 2014) on planning controls that shape future development within Macquarie Park. It is based on five (5) design themes being, '*Design with Country, Green Macquarie Park, Connected Neighbourhoods, Create Critical Mass and Grow Sustainably*'.



TRANSPORT FOR NSW'S (TfNSW) MACQUARIE PARK DETAILED PRECINCT TRANSPORT STUDY

This study was commissioned by TfNSW to determine future transport infrastructure required to support growth within Macquarie Park as part of the Stage 2 (TOD) rezoning proposal. The study places emphasis on a cohesive, phased approach to infrastructure delivery to prevent car-dependence and to ensure transport keeps pace with growth that is consistent with TfNSW's '*Movement and Place*' framework and '*Vision and Validate*' model.

3

EXISTING TRANSPORT CONDITIONS



3.1

Road Description

The function and classification of the public street network servicing the study area, with respect to the *Roads Act 1993* and Transport for NSW's *Design of Roads and Streets Manual (DORAS)*, is described below:

The Hills (M2) Motorway primarily runs east/west, facilitating connectivity between the CBD and the northwest Sydney Metropolitan Area via Macquarie Park. The M2 Motorway also connects the Westlink (M7) in the west and the Pacific Motorway (M1) in the east. Traffic flow on the M2 Motorway is governed by a signposted speed limit of 100 km/h.

Lane Cove Road is a State Road under the care and control of Transport for NSW. It performs a 'Principal Arterial' function, facilitating connectivity between Mona Vale in the north and Blakehurst in the south. In Macquarie Park, Lane Cove Road generally provides three (3) through lanes of traffic in each direction separated by a central median. There is a northbound bus lane on Lane Cove Road between Epping Road and Waterloo Road. The pavement widens to accommodate exclusive turning lanes at its intersections with Fontenoy Road, M2 Motorway, Talavera Road, Waterloo Road and Epping Road, which operates under traffic signal control. Traffic flow on Lane Cove Road is governed by a signposted speed limit of 70 km/h.

Talavera Road is a Regional Road, performing a 'Connector Avenue' function, which links Christie Road in the west with Lane Cove Road in the east. Talavera Road curves to the north at its western extremity, transitioning into Busaco Road, which terminates in a cul-de-sac at its northern end. Talavera Road, between Lane Cove Road and Khartoum Road, provides an undivided carriageway comprising a general traffic lane and a kerbside parking lane in each direction. The kerbside parking lane facilitates paid parking between

9.00am to 3.00pm, which is outside of peak commuter periods. This enables the kerbside lane to service through traffic during peak commuter periods, which assists with access to, from and within Macquarie Park. Traffic flow on Lane Cove Road is governed by a signposted speed limit of 50km/h.

Waterloo Road is defined as a Local Road, which provides a 'Connector Avenue' function between Herring Road/University Avenue in the west and Wicks Road/Halifax Street in the east. Within the study area, Waterloo Road forms a signalised intersection with Lane Cove Road and intersects with Khartoum Road under roundabout control. Waterloo Road provides two (2) through lanes of traffic in each direction, separated by a central median. Two (2) general right turn traffic lanes, a dedicated bus right turn lane and left turn slip lane are provided on approach to its intersection with Lane Cove Road. Traffic flow on Waterloo Road is governed by a signposted speed limit of 50 km/h.

Fontenoy Road is a local road that performs a 'Connector Street' function. It has an east/west alignment, intersecting with Lane Cove Road under traffic signals at its eastern extremity. Fontenoy Road intersects with Khartoum Road under a single lane roundabout at its western end. Fontenoy Road forms a T-junction with Tuckwell Place approximately 200m west of Lane Cove Road, under major/minor priority control, with Tuckwell Place forming the minor route.

Fontenoy Road facilitates one through lane of traffic in each direction in conjunction with parallel parking along both kerb alignments. It provides direct access to abutting residential properties and Tuckwell Park and Fontenoy Park. Traffic flow on Fontenoy Road is governed by a signposted speed limit of 50 km/h.

Khartoum Road has a north/south alignment, linking Fontenory Road in the north and Waterloo Road in the south, intersecting with both under roundabout control. Further north, Khartoum Road transitions into Carlisle Close, which terminates in a cul-de-sac. Khartoum Road intersects with Talavera Road under traffic signal control and with Banfield Road under 'GIVE WAY' control, with Khartoum Road forming the priority route.

Khartoum Road provides an 'Urban Centre Street' function that facilitates direct access to several major commercial/retail land uses within the heart of Macquarie Park. Khartoum Road accommodates one through lane of traffic in each direction in conjunction with parallel parking along both kerb alignments. '12P' ticketed parking is provided along both sides of Khartoum Road between the M2 Motorway bridge and Waterloo Road. Traffic flow on Khartoum Road is governed by a signposted speed limit of 50 km/h.

Dirrabari Road is currently built between the eastern boundary of no. 63 – 71 Waterloo Road and the western boundary of 35 – 41 Waterloo Road. It is an east/west road that forms part of the 'fine grain' road network within Macquarie Park.

Dirrabari Road provides an 11m wide carriageway within a 20m road reserve, in accordance with Council's Macquarie Park Corridor Public Domain Technical Manual. It is intended to provide a 'Connector Street' function that links Lane Cove Road with Talavera Road in the future.

Harvest Street forms part of the 'fine grain' road network within Macquarie Park. It provides a road reservation of 14.5m comprising 2 x 3m wide traffic lanes, a 2.5m parking lane, a 3.5m wide footpath and a 2.5m wide footpath, in accordance with Council's Macquarie Park Corridor Public Domain Technical Manual.

Harvest Street runs north/south connecting Dirrabari Road in the north with Waterloo Road in the south. Traffic flow is restricted to left in/left out at its junction with Waterloo Road by virtue of the raised central median with fencing on Waterloo Road. Harvest Street performs a 'Yield Street' function adjoining Catherine Hamlin Park at its western boundary and commercial land uses along its eastern boundary.



Figure 2 – Road and Street Designation within Study Area based on DORAS

3.2 Active Transport Network

Figure 3 describes the current pedestrian and cyclist infrastructure supporting active transport travel within the study area. This includes public pedestrian and cycling facilities recently delivered by Council as part of the broader regional cycleway project linking Macquarie Park and West Ryde.



Figure 3 – Public Pedestrian and Bicycle Network within Study Area

The footpaths, shared paths and on-road cycleways shown in **Figure 3**, generally comply with the requirements established within the *Australian Standard Design for Access and Mobility Part 1: General Requirements for Access – New Building Work (AS1428.1)*, *Austroads Guide to Road Design Part 6A: Paths for Walking and Cycling* and *Council's Bicycle Action Plan 2022 – 2030*. These outcomes contribute to the safety and comfort associated with the use of these facilities.



3.3 Public Transport

3.3.1 BUS SERVICES



There are 11 public bus services within the study area. **Table 1** outlines the service frequency and operational routes associated with each bus service based on timetables from Transport for NSW's website, accessed at the time of writing this report.

TABLE 1 – PUBLIC BUS SERVICES WITHIN STUDY AREA

SERVICE NO.	OPERATIONAL ROUTES	SERVICE FREQUENCY
197	Mona Vale to Macquarie University via Gordon	Typically, 30 minutes during weekdays and 60 minutes on weekends.
292	Marsfield to City Erskine Street via Macquarie Park, Lane Cove North and Freeway	Typically, 10 to 15 minutes during peak periods, which extend 30 minutes during off-peak periods.
410	Macquarie Park to Hurstville	Typically, 10 to 15 minutes during peak periods, which extend 30 minutes during off-peak periods.
506	Macquarie University to City Domain via East Ryde	Typically, 15 minutes during peak periods, which extend 30 minutes during off-peak periods.
545	Parramatta to Macquarie Park via Telopea and Eastwood	Typically, 10 to 15 minutes during peak periods, which extend 30 minutes during off-peak periods.
550	Parramatta to Macquarie Park via Epping	Typically, 10 to 15 minutes during peak periods, which extend 30 minutes during off-peak periods.
562	Gordon to Macquarie University	Operates on Mondays to Fridays only. Typically, two (2) services at 90 minute intervals.
565	Chatswood to Macquarie University	Typically, 30 minutes during weekdays and 60 minutes on weekends
572	Turramurra to Macquarie University via South Turramurra and West Pymble	Typically, 30 minutes during weekdays and 60 minutes on weekends.
575	Hornsby to Macquarie University via Turramurra	Typically, 30 minutes during peak periods, which extend 60 minutes during off-peak periods.
611	Blacktown to Macquarie Park via M2 Motorway	Typically, 10 to 15 minutes during peak periods, which extend 30 minutes during off-peak periods.

Figure 4 depicts the indicative locations of existing bus stops accommodating the bus routes described in **Table 2**.



Figure 4 – Public Bus Network within Study Area

Transport for NSW's Bus Stop Urban Design Guideline states that ideally, buses should be stopping every 400m on local and suburban routes. This aligns with the *State Transit Bus Infrastructure Guide*, which recommends the maximum distance between adjacent bus stops to be 400m. The placement and spacing between existing bus stops within the study area generally conform to these design principles. Further, the location of these bus stops considers other key factors such as proximity to road crossings, interchanges, metro stations and other key destinations, visibility for bus drivers and waiting passengers and the surrounding road environment. The existing bus infrastructure assists with the efficiency and safety of bus operations within the study area.





3.3.2 METRO SERVICES



Macquarie Park station is situated at the south-eastern corner of the study area. It forms part of the Metro North West and Bankstown Line, which operates between Tallawong and Sydenham. Based on the timetable from Transport for NSW's website, accessed at the time of writing this report, services typically run every four (4) minutes during peak periods, which extends to 10 minutes during off-peak periods. **Figure 5** outlines the route of the Metro North West and Bankstown Line, which is an extract from Transport for NSW's website.

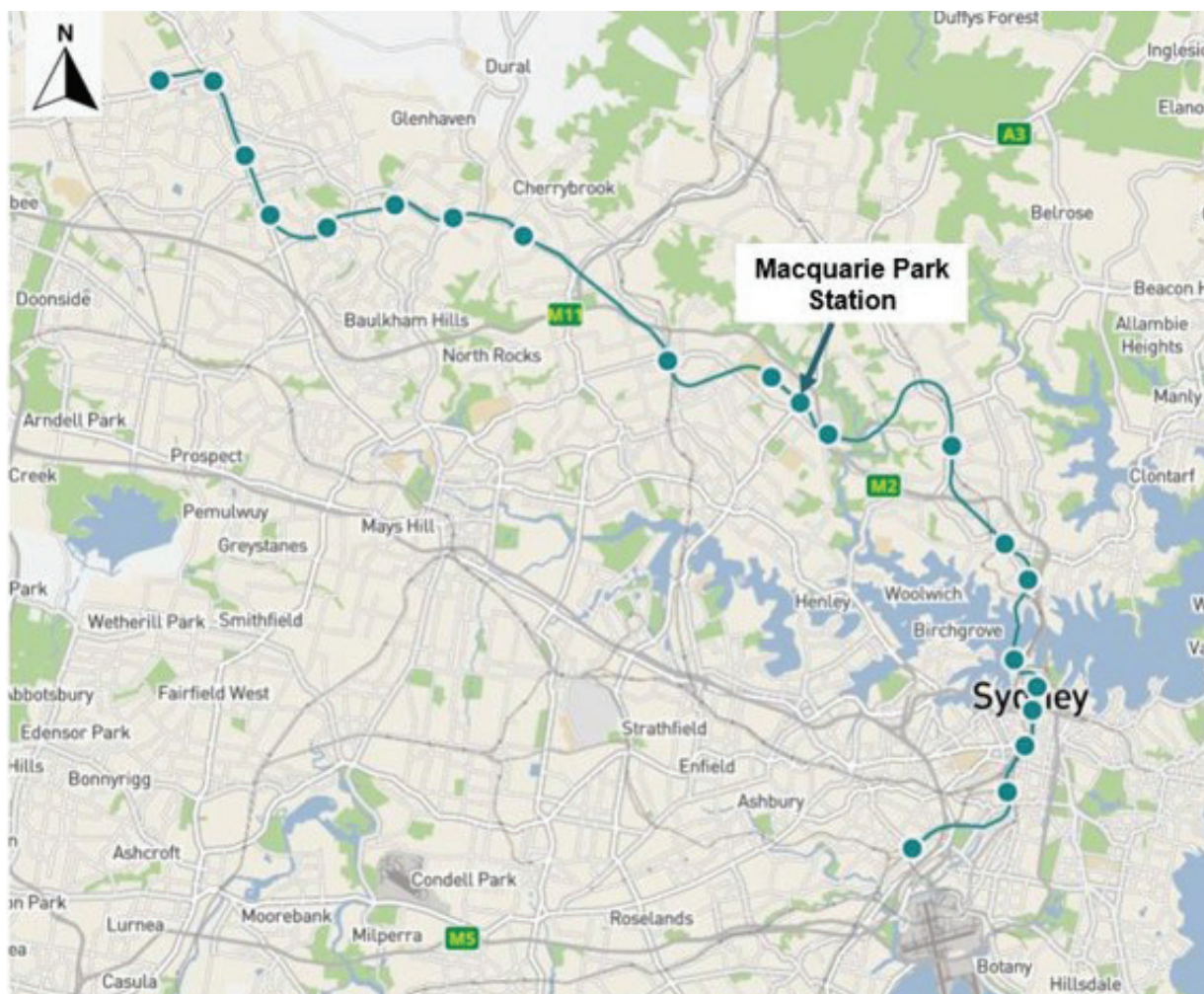


Figure 5 – Metro North West and Bankstown Line

3.4 EXISTING NETWORK PERFORMANCE

The current operational performance of the public road network within the study area has been assessed based on recent traffic volumes collected during weekday and weekend peak periods, multiple site inspections and transport modelling analysis using SIDRA. This network assessment comprises the following intersections:

Signalised Intersections

- Lane Cove Road and Fontenoy Road
- Lane Cove Road and the M2 Motorway
- Lane Cove Road and Talavera Road
- Lane Cove Road and Waterloo Road
- Talavera Road and Khartoum Road

Roundabout Intersections

- Waterloo Road and Khartoum Road
- Khartoum Road and Fontenoy Road

The SIDRA network model was developed in accordance with Transport for NSW's Transport Modelling Guidelines. The model has been calibrated and validated based on the following criteria in line with the Transport Modelling Guidelines and discussions with Transport for NSW:

- Variation between the modelled and observed 95th percentile queue length at each intersection does not exceed 10 vehicles; and
- The degree of saturation at each modelled intersection is aligned with observed conditions.

The 95th percentile queue length represents the queue length that is not exceeded for 95 percent of the assessment period, with exceedances occurring during the remaining 5 percent of the time. The degree of saturation is defined as the ratio of the vehicle arrival rate to the capacity of an approach over a specified period. The assessment or specified period is peak hour, which is typically where traffic demands, delay and congestion are the highest on the road network during the course of a day.

The degree of saturation for all modelled approaches during the three peak periods remains below 1, except for the southern approach of Lane Cove Road at its intersection with Waterloo Road, which is slightly higher than 1. This aligns with the observed conditions described above.

The key indicator for operational performance at intersections is the level of service (LoS), which is based on average vehicle delay. **Table 2** state the LoS grading scale, as defined within the latest industry standards such as Transport for NSW's Guide to *Transport Impact Assessment*, *Austrroads' Guide to Traffic Management Part 3: Transport Study and Analysis Methods* and *Transport for NSW's Transport Modelling Guidelines*.

**TABLE 2 – LEVEL OF SERVICE (LOS)
PERFORMANCE CRITERIA (ALL INTERSECTIONS)**

LOS	DELAY (SECONDS)
A	Delay ≤ 14.5
B	14.5 < Delay ≤ 28.5
C	28.5 < Delay ≤ 42.5
D	42.5 < Delay ≤ 56.5
E	56.5 < Delay ≤ 70.5
F	70.5 < Delay

LOS A represents the best operating conditions and user experience, characterised by free-flow traffic, while LOS F represents the poorest conditions, characterised by forced or breakdown flow and operating at a level that most users would consider unsatisfactory.

Figures 6, 7 and 8 summarises the current LoS (average vehicle delay – AVD), degree of saturation (DoS) and 95th percentile queue at all assessed intersections within the study area during weekday and weekend peak hour periods.

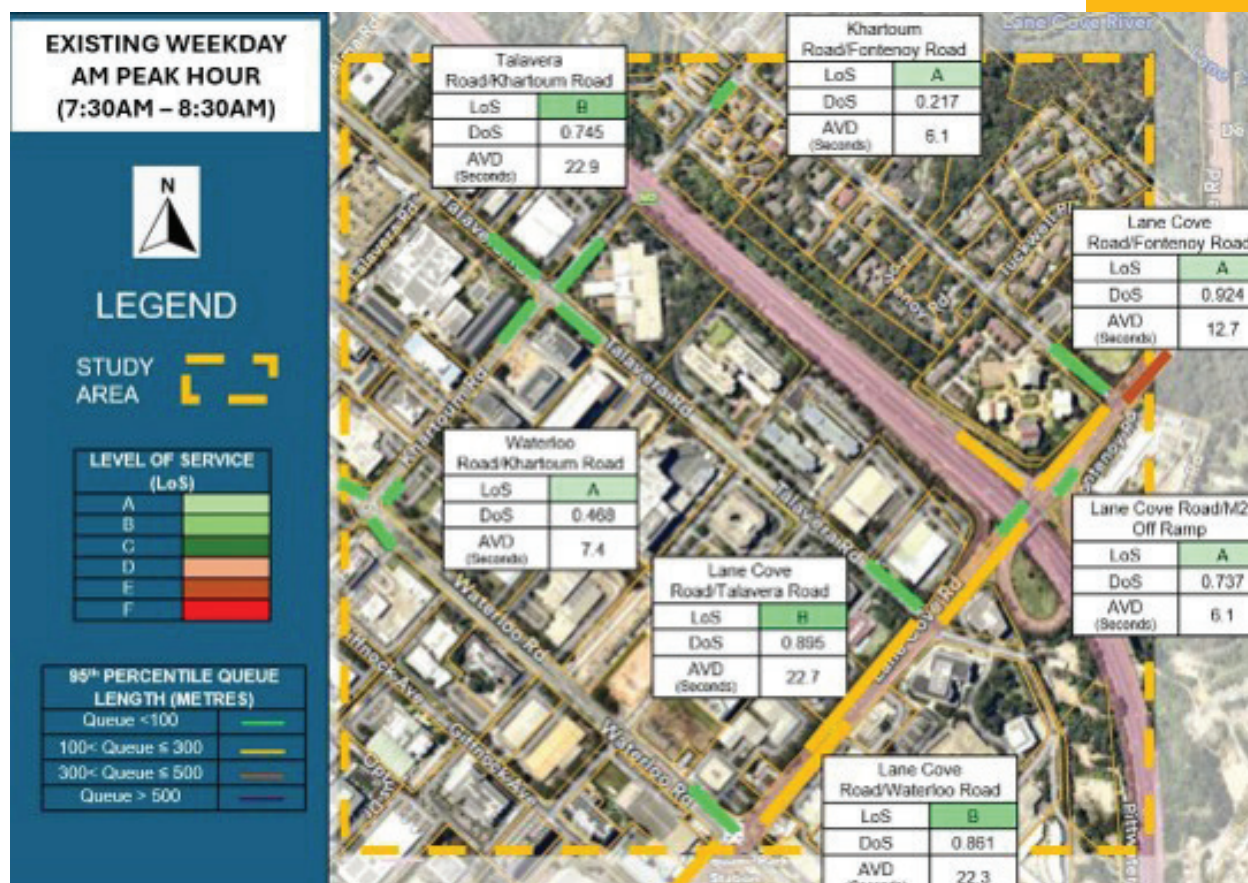


Figure 6 – Existing Traffic Conditions (Weekday AM Peak Hour)

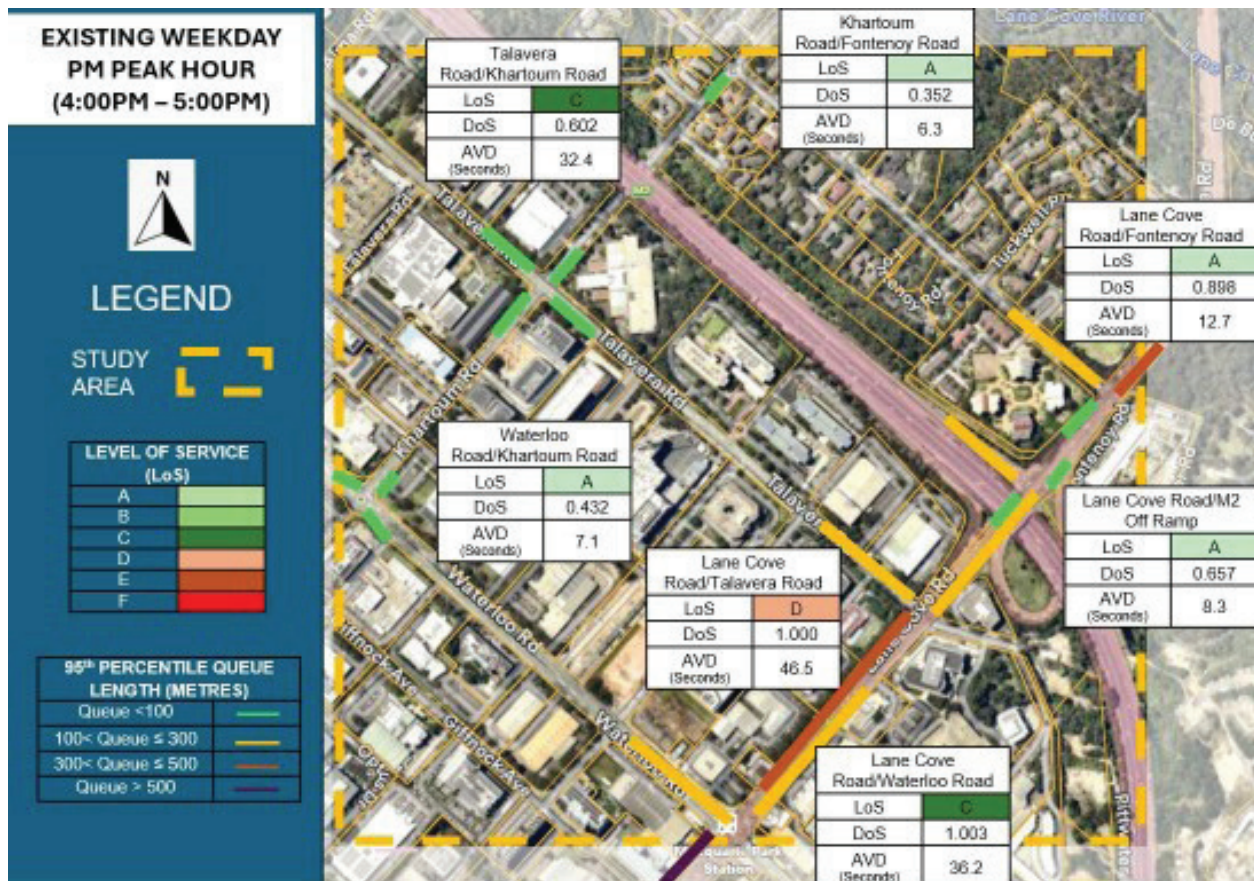


Figure 7 – Existing Traffic Conditions (Weekday PM Peak Hour)

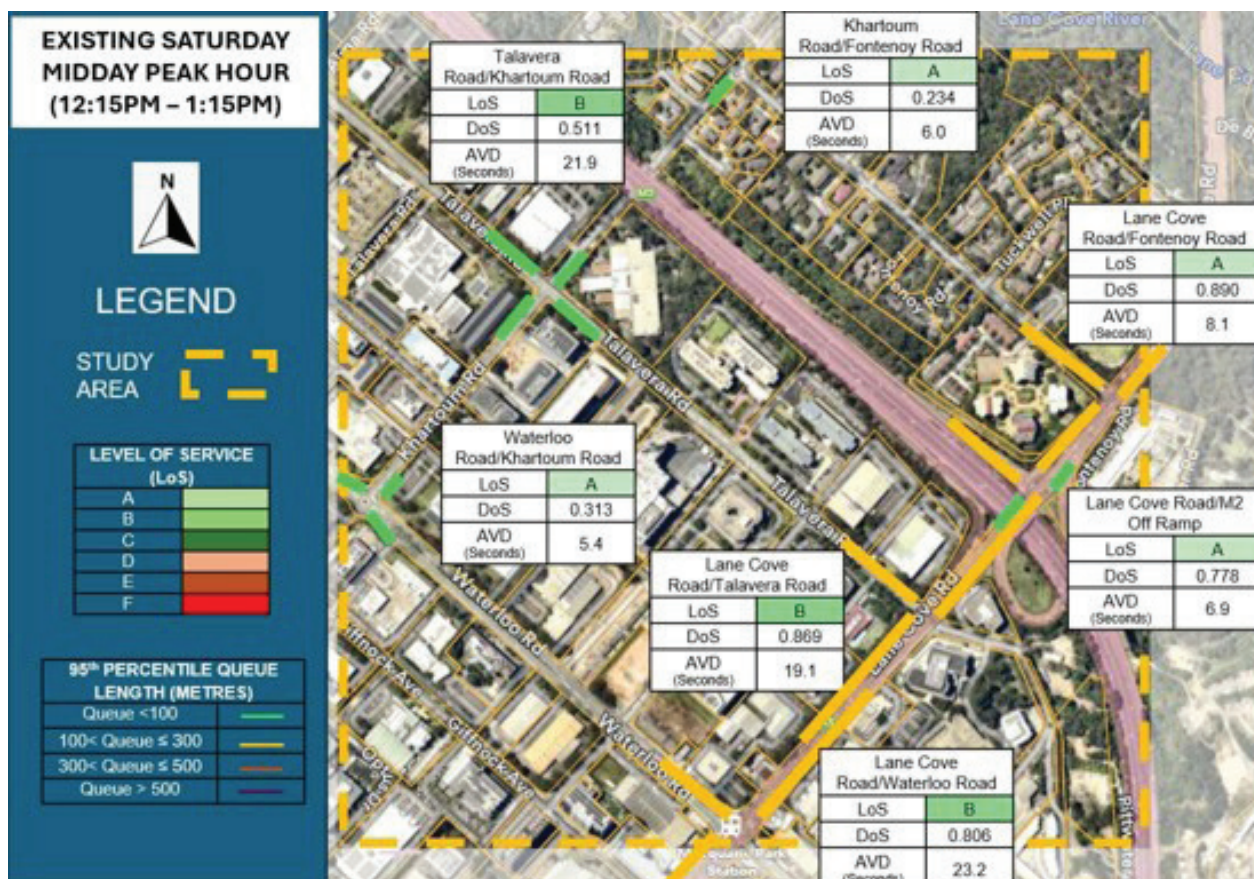


Figure 8 – Existing Traffic Conditions (Saturday Midday Peak Hour)



Figures 6, 7 and 8 indicates that all modelled intersections currently operate with a good or acceptable LoS. There is significant queuing on Lane Cove Road in both directions during weekday peak hour periods due to the high volumes of traffic demand within this arterial route. The congestion during the weekend peak hour period reduces on weekends and outside of weekday peak hours.

With the local road network, Fontenoy Road, which has been identified as a 'rat run' route, experiences moderate levels of congestion, particularly during the weekday afternoon peak hour period. At times, the eastbound vehicle queue extends beyond the car park entrance servicing Tuckwell Park. However, this congestion is temporary in nature, and observations have found vehicular access into and out of this car park via Fontenoy Road remains largely unaffected during peak hour periods. Notwithstanding this, Council have installed advisory "DO NOT QUEUE ACROSS INTERSECTION" signs and "KEEP CLEAR" pavement markings at the car park entrance to discourage obstruction by queued vehicles waiting to turn onto Lane Cove Road. **Figure 9** shows the location of the installed signs and pavement markings.

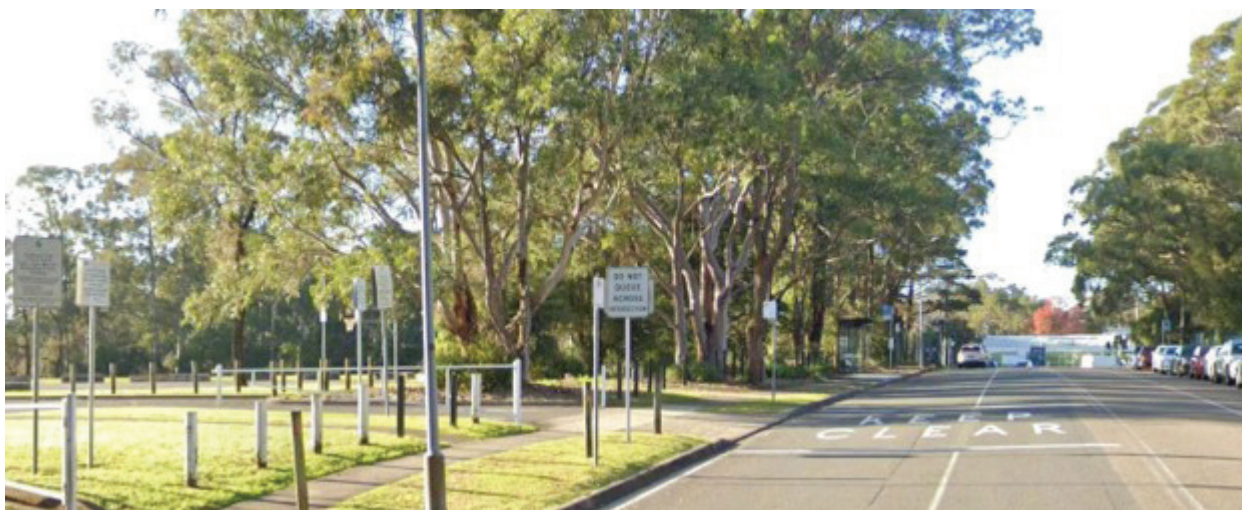


Figure 9 – "DO NOT QUEUE ACROSS INTERSECTION" signs and "KEEP CLEAR" pavement markings outside Fontenoy Park car park



FUTURE TRANSPORT CONDITIONS

4

4.1 Future 10-Year Network Performance

The integration of land use and transport has been a well-established concept in urban planning policy. At its core, the principle advocates for land uses that generate high levels of travel demand to be located in areas with convenient access to public transport. This accessibility is expected to encourage a greater modal share of public transport, thereby reducing reliance on private vehicles, while also providing the population density required to justify and sustain significant capital and ongoing investment in transport infrastructure. The concept of “integration” underscores the reciprocal relationship between the location of transport nodes and services and the form and intensity of surrounding development.

The integration of land use and transport has been a longstanding feature of metropolitan planning policy, emerging in response to growing concerns about the increasing dependence on private vehicle use and its associated social and environmental sustainability impacts. The recent introduction of the *Transport Oriented Development (TOD) Program, Low and Mid-Rise Housing Policy and update to the State Environmental Planning Policy (Housing) 2021* underscores the NSW’s State Government’s commitment to these principles in on-going land use and transport planning.

The rezoning proposal for Macquarie Park, adopted by the NSW State Government in late 2024, establishes the long-term vision and identifies infrastructure required to support future population, housing, and economic growth in Macquarie Park. **Table 3** sets out the key transport and place objectives for Macquarie Park, identified in the detailed precinct transport study, which formed part of the approved rezoning proposal.

TABLE 3 – DESIRED PLACE AND TRANSPORT OUTCOMES

	PLACE	TRANSPORT
OUTCOME 1	<i>A growing home to world-class businesses, innovation, research and education, Macquarie Park is competitive and resilient, with a stronger role within Greater Sydney's and Australia's economies.</i>	<i>Enable economic activity through efficient and sustainable goods movement and optimising existing infrastructure.</i>
OUTCOME 2	<i>It a place for people, characterised by its connectivity and the unique setting of Wallumedegal Country – a place of rivers and fertile wetlands with a deep history of learning, trade and culture.</i>	<i>Enable successful places for people that connect to Wallumedegal Country, and put the community at the centre, through adaptable transport planning and transport services.</i>
OUTCOME 3	<i>It is a place where people go to share ideas; a place that fosters creativity through interconnected relationships between people, businesses, places of education and a renewed connection to Country.</i>	<i>Provide multi-modal end-to-end journeys that are equitable, sustainable, accessible and safe.</i>



Council has obtained Strategic Traffic Forecast Model (STFM) growth projections from Transport NSW for key roads in the study area to assess future transport conditions, evaluate the benefits and configuration of proposed transport infrastructure identified in recent studies, and determine any additional transport civil works required to achieve the objectives set out in **Table 3**.

The Strategic Traffic Forecast Model (STFM) is a large-scale transport planning tool that accounts for population and employment growth. It is used for high-level assessments of major infrastructure proposals, transport strategies, and policy decisions. STFM generates future-year traffic forecasts, allowing the estimation of traffic growth relative to the baseline conditions to develop projections of future traffic patterns. Based on the STFM data, the cumulative traffic growth within the study area over the next 10 years is between 17 percent to 37 percent.

Consideration has also been given to changes in trip distribution resulting from road network modifications associated with Transport for NSW's Macquarie Park Precinct and Bus Interchange (MPPBI) project. It is understood that this project will convert the southbound general traffic lanes on Herring Road between Talavera Road and Waterloo Road into dedicated bus lanes. Further, the northbound carriageway within this section of Herring Road is proposed to be reduced from two general traffic lanes to one.

Figures 10, 11 and 12 highlights the projected future 10-year (base) peak hour LoS (average vehicle delay – AVD), degree of saturation (DoS) and 95th percentile queue at all assessed intersections within the study area.

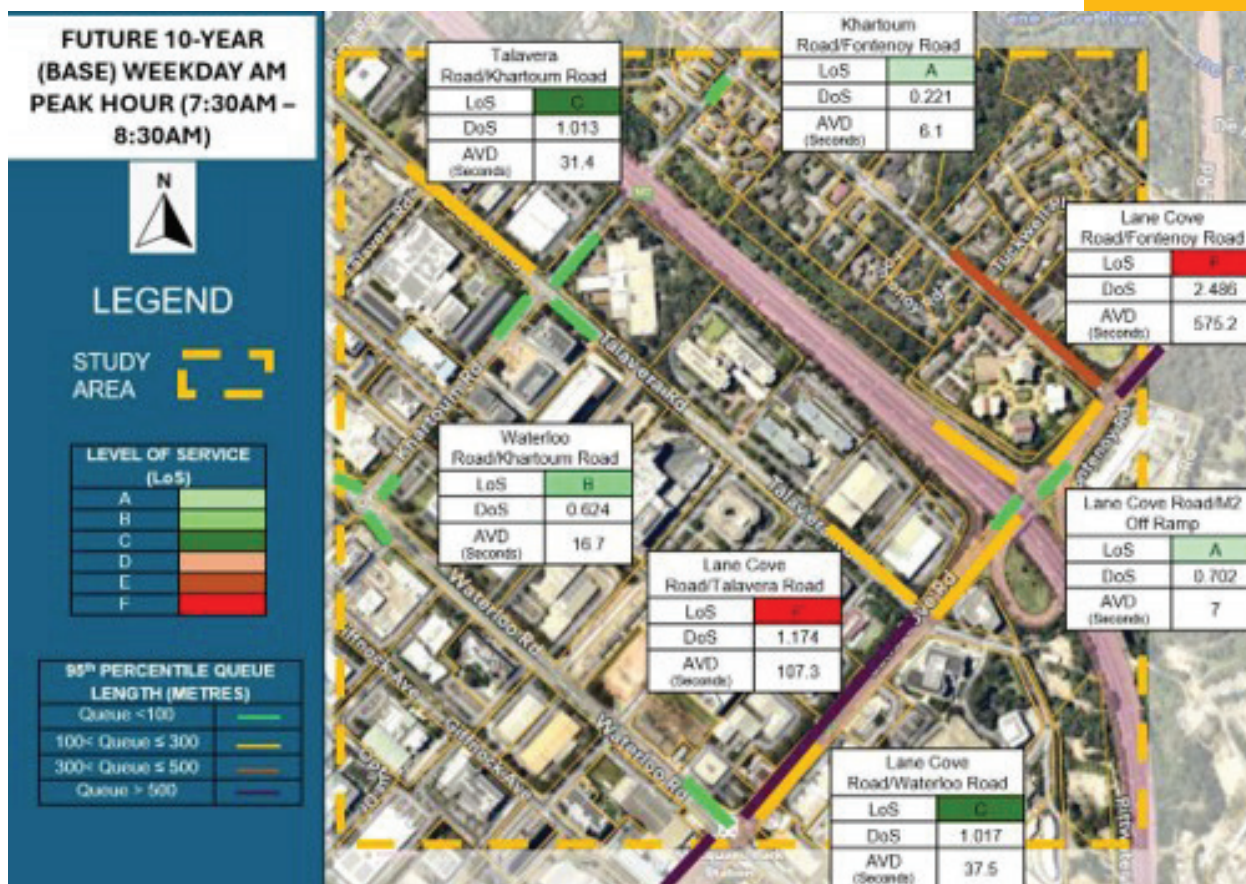


Figure 10 – Projected Future 10-Year Traffic Conditions (Weekday AM Peak Hour – No Interventions)

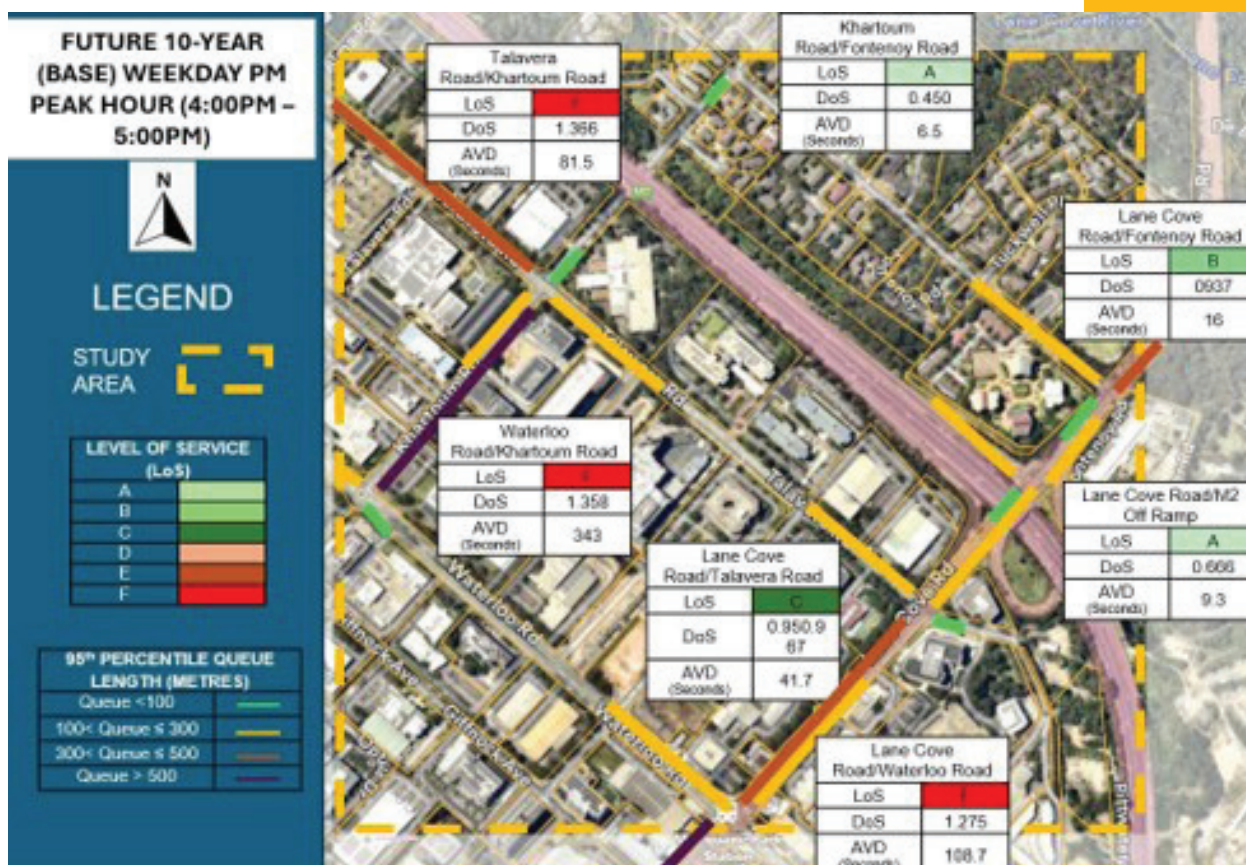


Figure 11 – Projected Future 10-Year Traffic Conditions (Weekday PM Peak Hour – No Interventions)

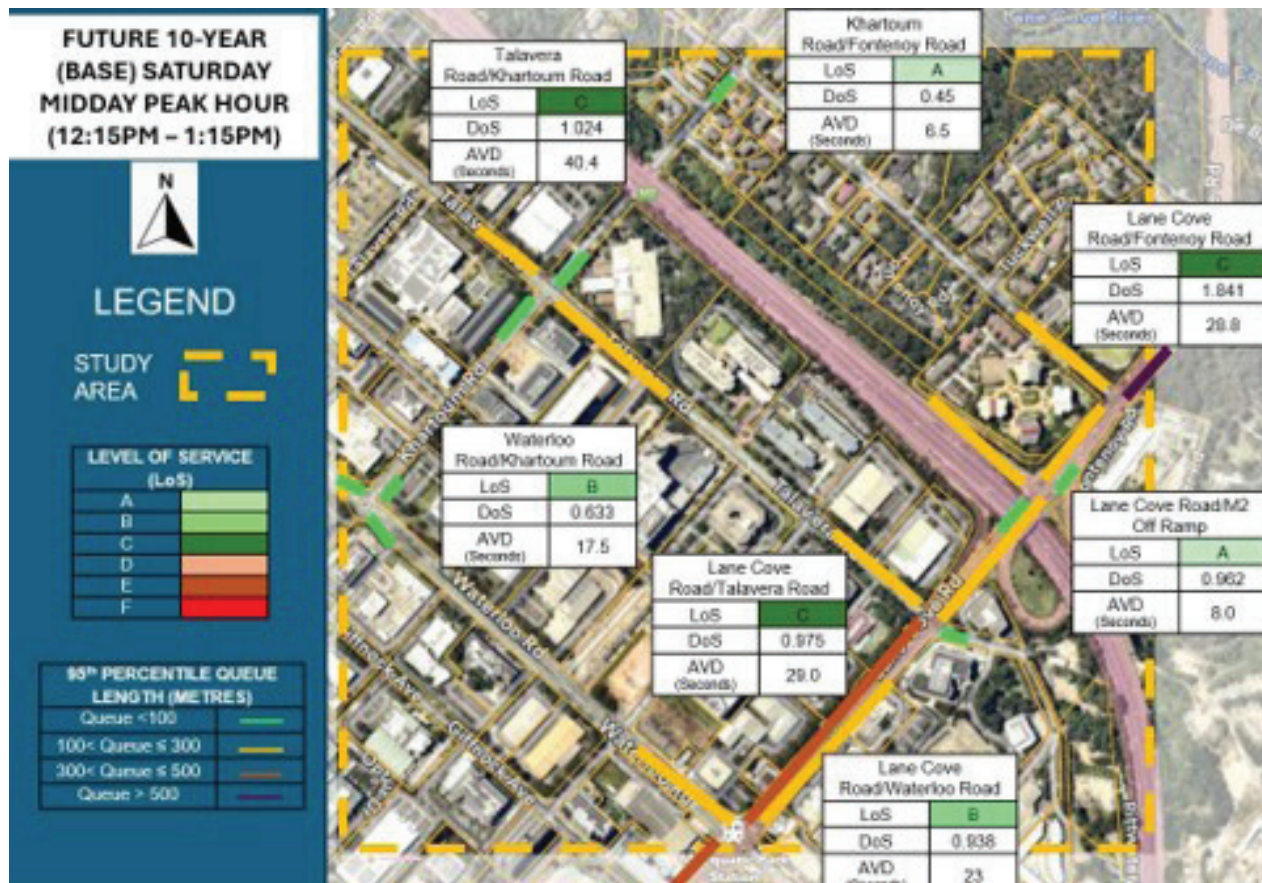


Figure 12 – Projected Future 10-Year Traffic Conditions (Saturday Midday Peak Hour – No Interventions)

Figures 10, 11 and 12 indicates that the LoS at several intersections will deteriorate over the next 10 years. In particular, the operational performance at the following intersections are anticipated to reduce to a LoS 'F' in the next 10 years:

- Lane Cove Road and Fontenoy Road (Weekday morning peak hour period)
- Lane Cove Road and Talavera Road – (Weekday morning peak hour period)
- Lane Cove Road and Waterloo Road – (Weekday afternoon peak hour period)
- Talavera Road and Khartoum Road – (Weekday afternoon peak hour period)
- Waterloo Road and Khartoum Road – (Weekday afternoon peak hour period)

The modelling analysis suggests that capacity constraints along the Lane Cove Road will be insufficient to accommodate the increased demand forecasted for the study area. During weekday peak hour periods, motorists are expected to experience significant delays at the above mentioned intersections, with queues on Lane Cove Road stretching from Fontenoy Road to Lady Game Drive and from Waterloo Road to Coxs Road. Khartoum Road's intersections with Talavera Road and Waterloo Road have been identified as 'pinch points', resulting in eastbound queues extending from Talavera Road onto Herring Road and southbound queues extending from Waterloo Road to Talavera Road.

Congestion on Fontenoy Road is also projected to increase during peak periods, with queues occasionally extending up to and past Tuckwell Place. This can affect vehicles turning into and out of Tuckwell Place via Fontenoy Road.

4.2 Potential and Planned Future Transport Treatments

Several infrastructure measures were tested to ameliorate the future transport impacts highlighted in Section 4.1 of this report. These measures, described in **Table 4**, support multimodal journeys, which accommodate different road users, travelling to, from and within Macquarie Park.

TABLE 4 – RECOMMENDED MULTIMODAL TREATMENT (PART 1)

NO.	NAME/TYPE	PLANNED OR PROPOSED TRANSPORT INFRASTRUCTURE	BENEFITS
1	Traffic signals at the junction of Waterloo Road and Road 16.	New traffic signals at the future junction of Waterloo Road and Road 16. Dedicated left and right turning lanes are to be provided at the Road 16 approach. New signalised crossings are planned across Waterloo Road and Road 16. This project is being delivered by the developer of the Macquarie Square development in accordance with the development consent (Council Reference: LDA2018/0172).	New crossing facilities will support safe and convenient pedestrian and cyclist movements across Waterloo Road and Road 16. The traffic signals will punctuate traffic flow on Waterloo Road, facilitating safe and efficient ingress and egress movements to and from Macquarie Park's fine grain street network.
2	Replacing the roundabout at the intersection of Waterloo Road and Khartoum Road with traffic signals.	New traffic signals, which include a left turn slip lane and a dedicated right turn lane at the Waterloo Road approaches to accommodate turning movements into Khartoum Road. Two (2) right turning lanes and a combined shared/through traffic lane is proposed at the northern Khartoum Road approach. New signalised crossings are proposed on Waterloo Road and Khartoum Road. Council has allocated funding under its 2026/27 Operational Plan to conduct investigations and design work for this intersection treatment, which is currently in progress.	This measure is expected to alleviate future congestion at a critical local road intersection at the centre of Macquarie Park, improving accessibility to major businesses in the area.
3	Continuous Bus Lanes on Waterloo Road between Lane Cove Road and Khartoum Road.	The preferred arrangement involves a continuous bus lane and two (2) through general traffic lanes in both directions on Waterloo Road between Lane Cove Road and Khartoum Road. Consideration should also be given to wider off-road pathways along both sides of Waterloo Road.	Optimise bus services within Macquarie Park while enhancing amenity, safety, and comfort for pedestrians and micromobility users.
4	Dedicated northbound bus lane on Khartoum Road between Waterloo Road and Fontenoy Road.	Convert the northbound general traffic lane on Khartoum Road between Waterloo Road and Fontenoy Road into a dedicated full time bus lane. The western road verge along this section of Khartoum Road could potentially be widened to accommodate an expanded off-road pedestrian path. Further, the existing on-road cycleway could be upgraded through the removal of the current parking lane, enabling the provision of a wider cycle lane and a raised median to enhance separation between cyclists and buses.	Reduce journey times for people using buses to travel to and from Macquarie Park. Further, this measure is expected to discourage use of Fontenoy Road, as a rat run, thereby reducing congestion on Fontenoy Road at its intersection with Lane Cove Road. It is noted that a driver of any vehicle is permitted to use a bus lane to travel within 100m to leave or enter a road under Clause 158 of the Road Rules. This measure is, therefore, not anticipated to affect access to neighbouring properties.

TABLE 4 – RECOMMENDED MULTIMODAL TREATMENT (PART 1)

NO.	NAME/TYPE	PLANNED OR PROPOSED TRANSPORT INFRASTRUCTURE	BENEFITS
5	Traffic signals at Khartoum Road and Banfield Road, including extension of Banfield Road to connect with Lane Cove Road.	New traffic signals, which include signalised crossings across both Khartoum Road and Banfield Road. Future extensions of Banfield Road to Lane Cove Road is proposed to operate under a priority controlled left in/left out arrangement, with Lane Cove Road forming the dominant route. Consideration should also be given to appropriate on-road cycling facilities on Banfield Road.	Increased route options and connectivity for pedestrians and micromobility users. Further, a new Local Road connection with Lane Cove Road is expected to help with alleviating congestion on the State Road corridor.
6	Removal of slip lane at the south-western corner of the intersection of Lane Cove Road and Waterloo Road.	Closure of the left turn slip lane accommodating traffic turning left from Lane Cove Road onto Waterloo Road. A new turning lane is to be provided to facilitate this movement. The left turn slip lane at the north-western corner of the intersection of Lane Cove Road and Waterloo Road is to remain unchanged.	Improve safety and convenience in a high pedestrian activity area near Macquarie Park Metro Station. Retaining the left turn slip lane at the north-western corner of the intersection of Lane Cove Road and Waterloo Road is to minimise impact to vehicles (including buses) exiting the precinct via Lane Cove Road.
7	Upgrade of Talavera Road and Khartoum Road intersection.	Proposed treatment includes the provision of a dual right turning lane at the western Talavera Road approach and extending the length of the right turn bay at the eastern Talavera Road approach. The measure also involves the removal of on-street parking along the eastern side of Khartoum Road between Talavera Road and Banfield Road. The extension of the right turn bay at the eastern intersection approach is to be delivered by the developer of 40 – 52 Talavera Road in accordance with their development consent (Council Reference: LDA2020/0315).	Increase capacity at an identified pinch point, which will also improve journey times for bus services travelling along both Talavera Road and Khartoum Road.
8	<i>Disability Discrimination Act (DDA)</i> compliant bus infrastructure.	Upgrade existing public bus facilities (e.g. bus stops, bus shelters, etc.) within the study area to comply with DDA requirements, where appropriate.	Enable roadside bus infrastructure to better accommodate vulnerable road users, which will support increased bus patronage, thereby reducing congestion in Macquarie Park.
9	Raised Pedestrian (Wombat) Crossings on Coolinga Street, Harvest Street and Road 16 near Waterloo Road.	Convert the existing at-grade (zebra) pedestrian crossings on Harvest Street and Road 1 between Waterloo Road and Dirrabari Road into raised Pedestrian (wombat) Crossings. Provision of a new raised Pedestrian (wombat) crossing on Coolinga Street at Waterloo Road.	Enhance pedestrian accessibility, safety and connectivity to key destinations such as Catherine Hamlin Park and Macquarie Park metro station.
10	Active transport bridge or underpass across Lane Cove Road near Fontenoy Road.	Potential provision of a grade-separated bridge or underpass across Lane Cove Road near Fontenoy Road to facilitate pedestrian and cyclist movements. This measure should be considered as part of any future redevelopment of the Eden Gardens site, which is a catalytic development in the area.	Lower risk of conflict between pedestrians, cyclists and motorists. Reduce congestion and improve journey times for all road users travelling on Lane Cove Road.

The above infrastructure measures are anticipated to help accommodate the future transport needs of residents, workers, and visitors travelling to, from and within Macquarie Park. Several of these measures build upon initiatives identified in strategic documents that form the approved TOD rezoning proposal for Macquarie Park. These works are therefore expected to support the future movement and place outcomes envisaged for Macquarie Park as part of the rezoning proposal. The works are also expected to contribute to improved transport outcomes, economic vitality and social inclusion, in line with Council's strategic vision for Macquarie Park.

Figure 13 depicts the indicative locations of the recommendations outlined in **Table 4**.

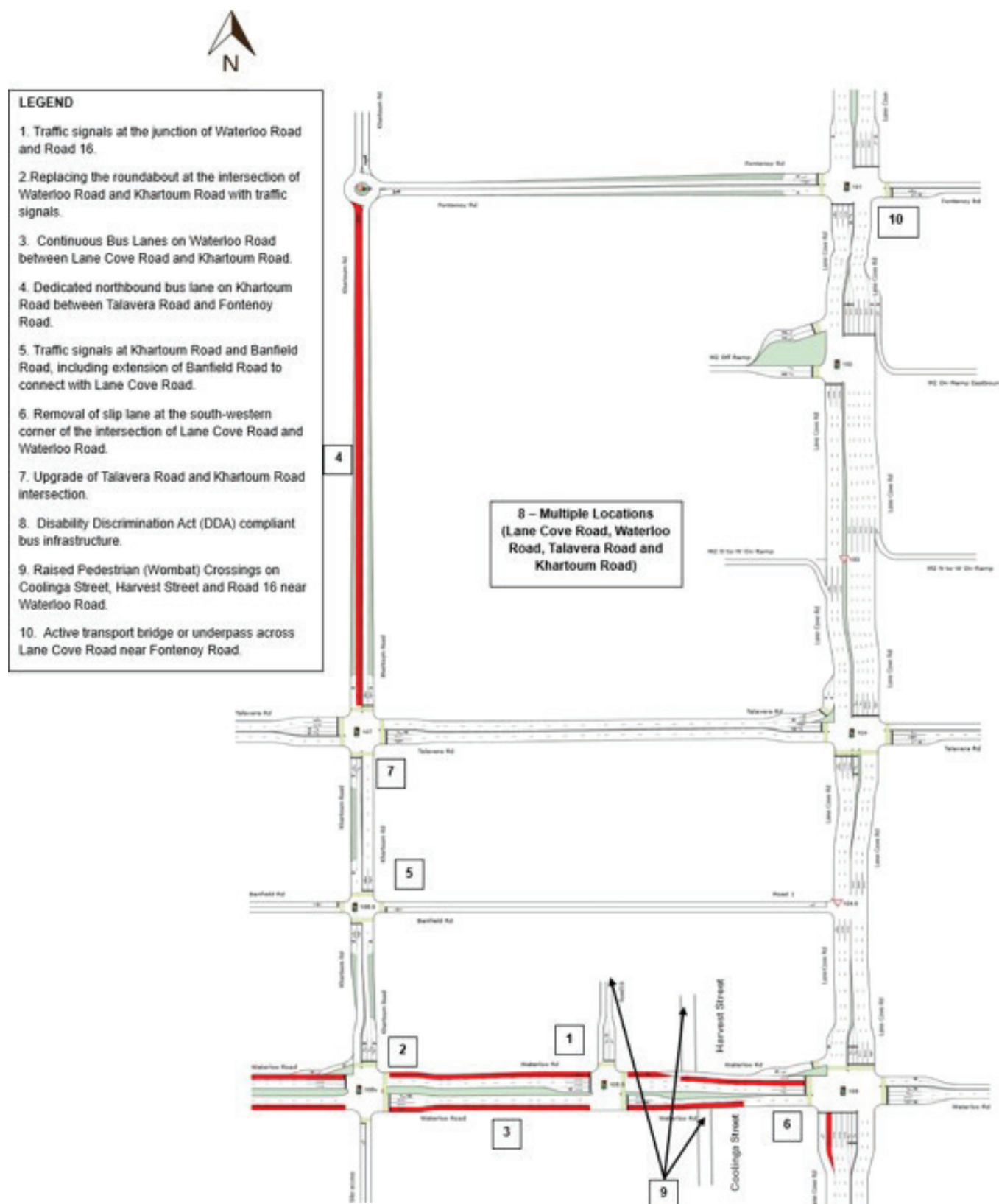


Figure 13 – Indicative Locations of Potential Multimodal Treatments

All infrastructure recommendations, with the exception of Item 1 (traffic signals at the Waterloo Road/Road 16 intersection), will require further investigation, including consideration of funding availability and approvals from relevant authorities, to determine their feasibility. **Figure 14** provide a comparison of the LoS outcomes between future 10-year base and intervention (mitigation) scenarios.

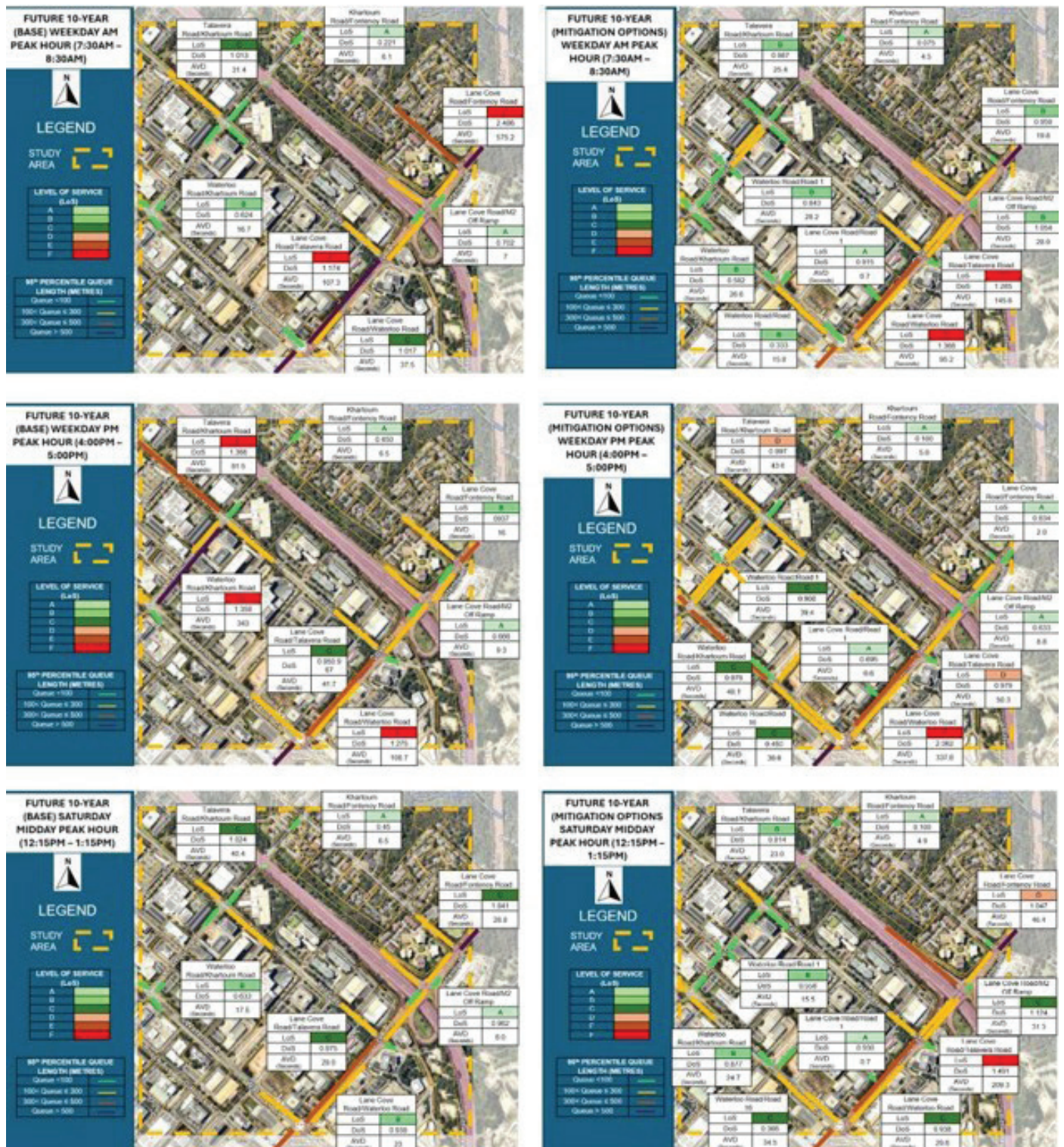


Figure 13 – 10-Year Base vs 10-Year (Mitigation Options) LoS Comparison.



CONCLUSION

5

This report provides an assessment of the likely future transport-related impacts within the Fontenory Road precinct with respect to surrounding land use and changes in the population profile. Based on this assessment, the following conclusions can now be drawn:



The road network forming the study area currently operates good level of service during the peak operational periods, despite some congestion along Lane Cove Road.



Based on Transport for NSW's Strategic Traffic Forecasting Model, traffic demand is expected to increase by approximately 17–37 percent over the next 10 years as Macquarie Park continues to accommodate significant employment and residential growth. Without intervention, several strategically important intersections are forecast to experience unacceptable levels of congestion during weekday peak periods, particularly along the Lane Cove Road corridor and at the Talavera Road, Waterloo Road and Khartoum Road intersections. Congestion on Fontenory Road is also expected to increase, affecting local accessibility and reducing network efficiency.



Several multimodal transport improvements have been identified that balance the needs of motorists, public transport users, pedestrians and cyclists, which can be considered to address these future challenges. These measures include intersection upgrades, traffic signal improvements, bus priority initiatives, active transport infrastructure, accessibility upgrades and strategic network enhancements that together will improve network capacity, reliability and safety while supporting greater mode choice.



Many of these recommended initiatives align with transport infrastructure already identified through the Macquarie Park Transport Oriented Development (TOD) program and other strategic planning documents. These initiatives will require further investigation, detailed design, funding commitments and collaboration between Council, Transport for NSW, the Department of Planning, Housing and Infrastructure and other key stakeholders to determine feasibility.

The conclusions and recommendations presented in this study provide a practical and evidence-based framework to support the continued growth of Macquarie Park while maintaining an efficient, safe and connected transport network. They will help ensure the Fontenory Road Precinct continues to support the movement of people and goods while delivering improved accessibility, economic productivity and enhanced place outcomes for residents, workers and visitors.



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