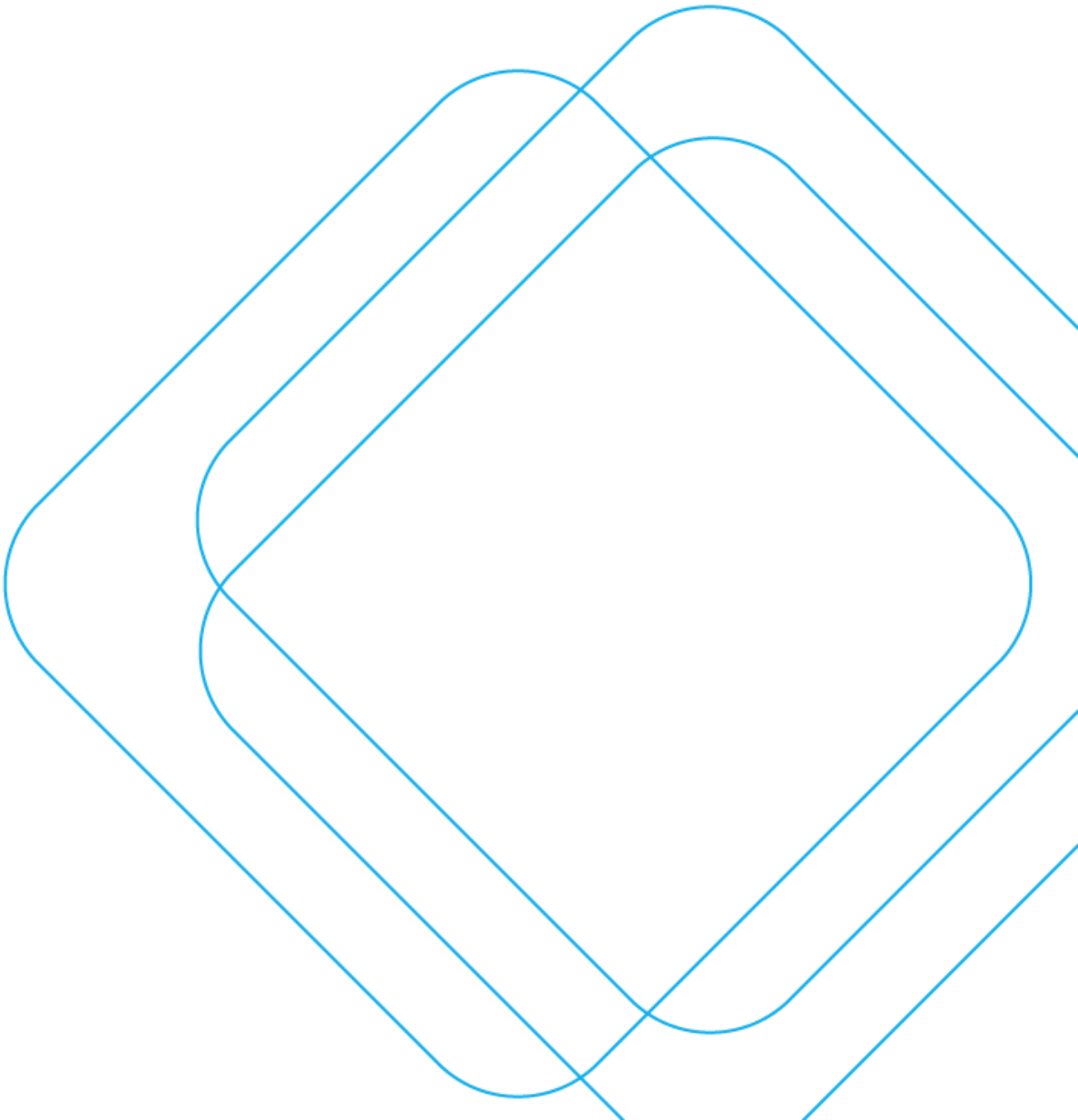
SCT Consulting

EDGECLIFF COMMERCIAL CENTRE TRANSPORT STUDY

Prepared for Woollahra Municipal Council

22 MARCH 2024

SCT Consulting acknowledges the traditional owners of the lands on which we work.
We pay our respects to Elders past, present and emerging.



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Contents

Executive Summary

Background and introduction

SCT Consulting has been engaged by Woollahra Municipal Council (WMC) to undertake a transport study to support a review of existing planning controls for the Edgecliff Commercial Centre (ECC). The objectives of the study include a need to:

– Undertake background research to inform the strategic context of the proposal.

– Obtain an understanding of the existing traffic and transport conditions within the ECC.

– Identify the potential traffic and transport implications from additional mixed residential and non-residential development in selective parts of the ECC.

– Determine the trip generation and trip distribution to understand likely implications of the potential development.

– Determine any public and active transport measures and sustainable travel initiatives for the development.

– Identify measures to encourage increased liveability (connectivity) in association with people living in, visiting and working in the ECC.

Existing conditions

The ECC is currently a combination of MU1 Mixed Use and E1 Local Centre zones located at the heart of Edgecliff. The ECC sits on the state road, New South Head Road, which serves as a link between Sydney CBD, the Cross City Tunnel and the eastern suburbs. The Commercial Core is the focal point of the ECC, providing a valuable connection to the Sydney Trains network and destinations across Sydney.

The 2016 Journey to Work data was analysed to determine the current travel behaviour during peak travel periods in the ECC. For the mode share analysis, 2021 Journey to Work data was not used due to the impacts of the COVID-19 pandemic. For the Sydney Greater Metropolitan Area, a total of 67 per cent, 11 per cent and four per cent use private vehicle, train and walk respectively to get to work. By comparison, the public transport mode share for Edgecliff is 44 per cent, by far the most dominant mode of transport. This is reflective of the close walking distance to Edgecliff Train Station.

The major access to the ECC from the Sydney Metropolitan area is via New South Head Road which runs in the middle of and through the ECC. New South Head Road is the only State Road controlled and maintained by Roads and Maritime Services (RMS), in the vicinity of the ECC. All other roads within the vicinity of the ECC are local roads, under the control of WMC, with the main local roads providing access to the ECC being New Beach Road, Glenmore Road, Mona Road, Darling Point Road, New McLean Street and Ocean Avenue / Ocean Street.

Intersection performance analysis indicates that the road network currently operates at satisfactory conditions, as indicated by the LoS C or better for all intersections for all analysed time periods. However, during the weekday PM peak hour the New South Head / Glenmore Road / Mona Road intersection operates near capacity with an overall DoS of 0.95. This is caused by the performance of the Mona Road approach which operates at a LoS F and with a DoS of 0.95. During the weekend peak hour, the Ocean Street / Ocean Avenue / New South Head Road intersection currently operates at capacity, with a DoS of 1.00.

The existing cycling routes serving the ECC are generally perpendicular to New South Head Road. Most of these perpendicular routes are constrained by challenging grades of up to 10 per cent. There are no east-west road corridors except for New South Head Road, resulting in no alternative east-west cycle options. New South Head Road is a challenging road environment that precludes all but the most experienced riders.

The ECC is generally well-serviced by pedestrian footpaths, with New South Head Road and surrounding local roads being provided with footpaths on both sides. However, some of the pedestrian footpaths have uneven pavers and do not provide ease of access for those with mobility issues, including parents with prams, the elderly or people with disabilities. Pedestrian access to the ECC is restricted by the railway line and New South Head Road, which run along the southern boundary and middle of the ECC, respectively.

The ECC has limited pedestrian crossing opportunities in a north-south direction from both sides at the intersections of New South Head Road / New Beach Road and New South Head Road / Darling Point Road / New McLean Street. There is currently a zebra crossing on the slip lane at the north-western corner of the New South Head Road / New Beach Road intersection, just west of the signalised pedestrian crossing across New Beach Road.

Potential Growth

The WMC has prepared a potential development scenario based on the proposed amendment to the development controls. When compared to the current built form, the proposed amendments could facilitate an uplift of:

- 4,325 square metres of commercial floor space
- 43 square metres of retail floor space
- 49,325 square metres of residential floor space, providing an additional 493 parking spaces .

Impacts of potential development

Overall, the potential development supports best practice transit-oriented development principles, by providing increased residential and employment density in proximity to existing transport infrastructure. The town centre has access to the public transport system via train and bus, which provides connections to surrounding sub-regional centres and to the City throughout the day.

Based on the adopted trip generation rates of the respective land uses, the proposed increase in development yield at the ECC would generate a total of **117** additional vehicular trips during the weekday AM peak hour and **55** additional vehicular trips during the weekday PM peak hour. The estimated additional weekend vehicle trips will be **40** trips per peak hour. Most of these trips are related to the residential component of the potential development.

The future active and public transport road network is expected to be able to cater for the additional active and public transport trips generated by the potential future development. However, the WMC Active Transport Plan (2023) outlines a number of proposed strategy and infrastructure improvements which would further improve pedestrian and cycling amenity in the ECC.

Road network analysis showed that performance of the local road network would continue to operate at acceptable levels with the trips generated by the potential development uplift added to the road network.

In the AM peak hour, the greatest impact on the road network performance is forecast to be at the New South Head Road / Ocean Street / Ocean Avenue and the New South Head Road / Darling Point Road / New McLean Streets intersections, which will operate with a LoS C and LoS B compared to a LoS B and LoS A in the existing scenario. The forecast DoS of 0.98 in the AM peak hour for the New South Head Road / Ocean Street / Ocean Avenue intersection is reflective of the approaches from Ocean Street South and New South Head East, which are both forecast to operate near capacity.

Overall, the New South Head Road / New Beach Road and the New South Head Road / Glenmore Road / Mona Road intersections will continue to perform satisfactory for all time periods, with the added development trips in all peak hours, indicating that these sites would satisfactorily cater for the increased traffic demands.

Recommended traffic and transport strategies

Based on the analysis undertaken to develop the Edgecliff Commercial Centre Transport Study, strategic policy directions and proposed solutions are recommended for WMC to drive a successful outcome for the potential development. These would help control the level of private vehicle traffic generation of the proposed (and other future developments) in the area and include:

– Review current maximum and minimum parking provision rates and parking multipliers within Part E ‘General Controls for all Development’ of the Woollahra Development Control Plan (2015), in view of considering a reduction, particularly for residential uses.

– Ensure travel plans are effectively delivered by development proponents.

– Investigate the use of car share schemes in conjunction with certain residences not being eligible for access to residential parking permit schemes.

– Amend the Woollahra DCP 2015 to require the allocation of one on-site car space for shared vehicles to offset 10 on-site parking spaces in new developments.

– Prepare a pedestrian wayfinding strategy to improve pedestrian amenity for the ECC and surrounding areas.

– Cap parking for the Commercial Core in the ECC to be no more than currently provided.

– Monitor public transport, to make informed decisions about the success of strategies and transport needs within the LGA.

In addition, several infrastructure improvements are recommended to improve the road network for all modes of transport. These include pedestrian safety improvements at pedestrian crossings and improving pedestrian amenity at key walking routes to within and to and from the ECC.

Conclusion

The Edgecliff Commercial Centre Transport Study has focused on the assessment of a potential development scenario and the subsequent traffic and transport impacts for the ECC. The assessment has found that:

– Existing active and public transport infrastructure within and around the ECC is suitable to cater for the increase in population caused by potential growth within the centre, however, further steps can be taken to increase active transport as a viable mode. These steps are both strategy and infrastructure based and are partly recommended as part of the WMC Active Transport Plan (2023).

– The ECC local road network will be able to successfully cater for the proposed expansion. However, the network performance analysis suggests that further demands on the Ocean Street South and New South Head East approaches of the New South Head Road / Ocean Street / Ocean Avenue intersection cannot be accommodated beyond the trips generated by the potential development.

1.0 Introduction

1.1 Background

Woollahra Municipal Council (WMC) is proposing to amend its current planning controls for the Edgecliff Commercial Centre (ECC). SCT Consulting has been engaged by WMC to prepare a Transport Study that assesses the transport impacts and needs of the proposed planning controls for the ECC, based on the preferred development option. The outputs will be used to inform Council's Final Edgecliff Commercial Centre Planning and Urban Design Strategy.

A transport study which assessed the exhibited built form and development yields as previously presented in the ECC Planning and Urban Design Strategy, was prepared in August 2019 by SCT Consulting. WMC has since amended its exhibited built form and development yields, and as a result, the previous ECC Transport Study Final Report (August 2019) needs to be updated (this report), to reflect the amended plans.

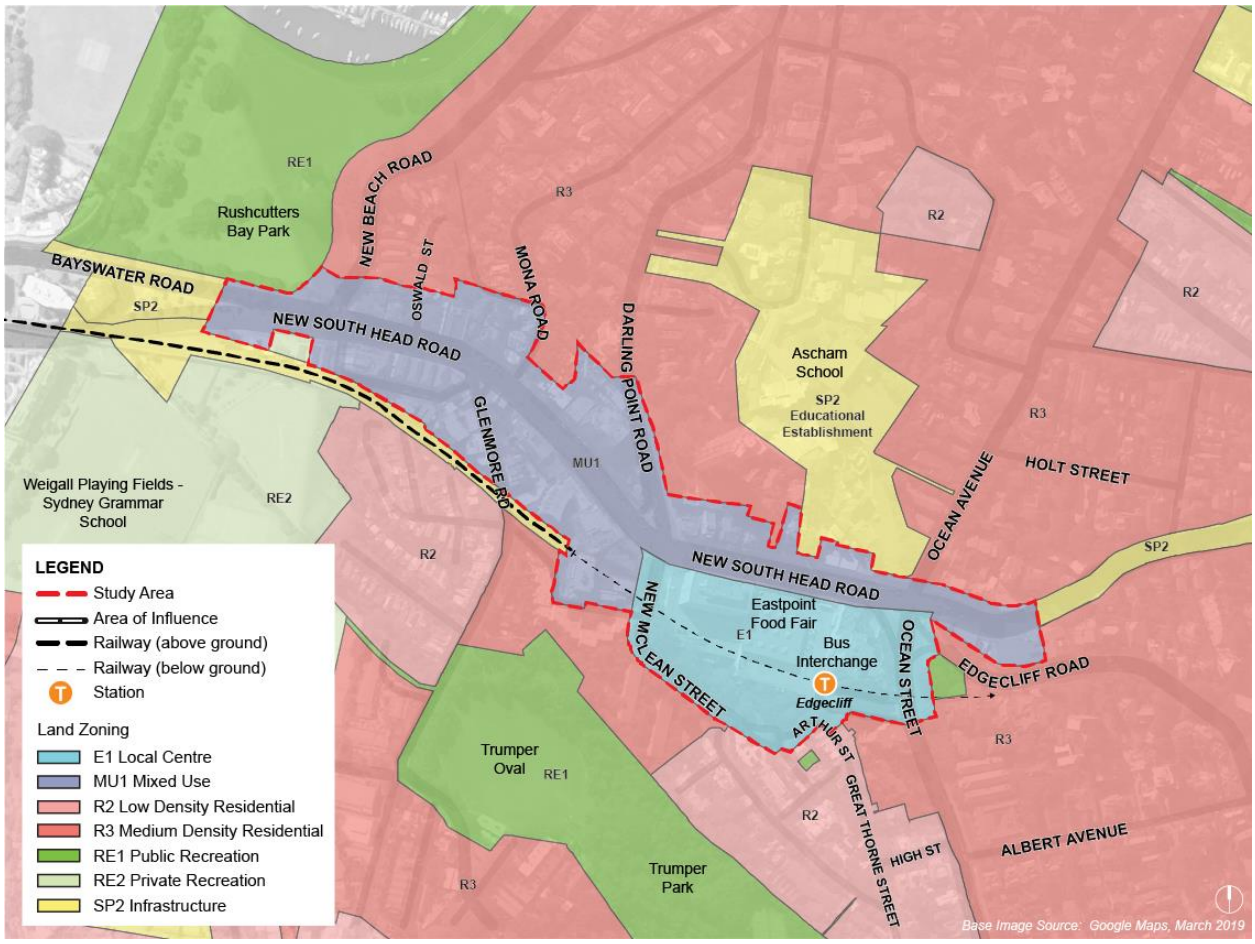
The ECC is currently a combination of MU1 Mixed Use and E1 Local Centre zones located at the heart of Edgecliff. The ECC's Commercial Core (between New McLean Street and Ocean Street) includes two large developments:

– The 'Edgecliff Centre' office building at 203-233 New South Head Road.

– The 'Eastpoint Centre' at 235-285 New South Head Road, which incorporates a shopping centre, residential tower, Edgecliff Train Station and a bus interchange.

The ECC sits on the state road, New South Head Road, which serves as a link between Sydney CBD, the Cross City Tunnel and the eastern suburbs. The Commercial Core is the focal point of the ECC, providing a valuable connection to the Sydney Trains network and destinations across Sydney. The ECC study area is shown in **Figure 1-1**.

Figure 1-1 The Edgecliff Commercial Centre and surrounding areas



1.2 Objectives

At the completion of the study the following objectives will have been achieved:

- Background research to inform the strategic context of the proposal.
- Obtain an understanding of the existing traffic and transport conditions within the ECC.
- Identify the potential traffic and transport implications from additional mixed residential and non-residential development in selective parts of the ECC.
- Trip generation and trip distribution to understand likely implications of the potential development.
- Public and active transport measures and sustainable travel initiatives for the potential development.
- Identify measures to encourage increased liveability (connectivity) in association with people living in, visiting and working in the ECC.

1.3 Report Structure

This report has been structured into the following sections:

- **Section 2** provides an overview of the strategic context of the ECC and a summary of the review of all relevant background documents.
- **Section 3** provides an overview of the existing conditions for all transport modes, an overview of the ECC and a description of the existing transport demographics in the area.
- **Section 4** describes the potential development option and the proposed change in yield for the ECC.
- **Section 5** presents the increase in trip generation and likely trip distribution because of the potential development yield.
- **Section 6** describes the likely traffic and transport impact on all modes of transport because of the potential development yield.
- **Section 7** proposes future potential traffic and transport solutions for the ECC, such as policy changes and required infrastructure upgrades.
- **Section 8** summarises the report and proposes the next steps to be undertaken because of the outcome of the report.
- **Appendix A** provides intersection performance results for base network operation.
- **Appendix B** provides a summary of potential development yields.
- **Appendix C** provides the intersection performance with the potential development.

2.0 Strategic context

Several relevant planning documents have been reviewed to provide background context for guiding the development of the concept plan and traffic and transport initiatives.

2.1 The Future Transport Strategy – Our vision for transport in NSW

The Future Transport Strategy sets out the NSW Government's vision for transport in a growing and changing state. The Strategy will guide the community on strategic directions for future planning, investment, delivery and operations and has been developed in consultation across the NSW Government. It also sets the strategic direction for Transport to achieve world-leading mobility for customers, communities, businesses, and our people. The Future Transport Strategy replaces the 'Future Transport 2056: Shaping the Future' document, which was published in 2018.

In summary, the Transport Strategy aims to:

- **Improve transport solutions for the customer** – this involves stronger investment in public transport, walking and cycling networks, offering convenient alternatives to driving and building a sustainable transport system.
- **Moving towards net zero emissions** – this involves encouraging the uptake of electric buses, cars, trucks and trains – and eventually ships and planes – and considering climate change impacts in all decision-making.
- **Enhancing liveability for customers and communities** – this involves working with local communities to create safer, greener and more liveable 15-minute neighbourhoods across NSW, where wider footpaths, cycle lanes, street trees, pedestrian crossings and lower speeds will improve access to nearby shops and services.
- **Releasing the potential of our infrastructure** – this involves reallocating road space to more efficient modes of transport like buses, walking, cycling and micro-mobility devices.
- **Building for resilience and economic growth** – A resilient and reliable transport system will support freight and passenger journeys and successful places. Transport networks will contribute to the overall resilience of our places and communities.

The Strategy specifically outlines actions about network planning and master planning. It states that Transport NSW will work closely across the government on guidelines to facilitate better network planning and master planning, with an emphasis on improving design quality and promoting public and active transport in new neighbourhoods. Specific actions relevant to the site include:

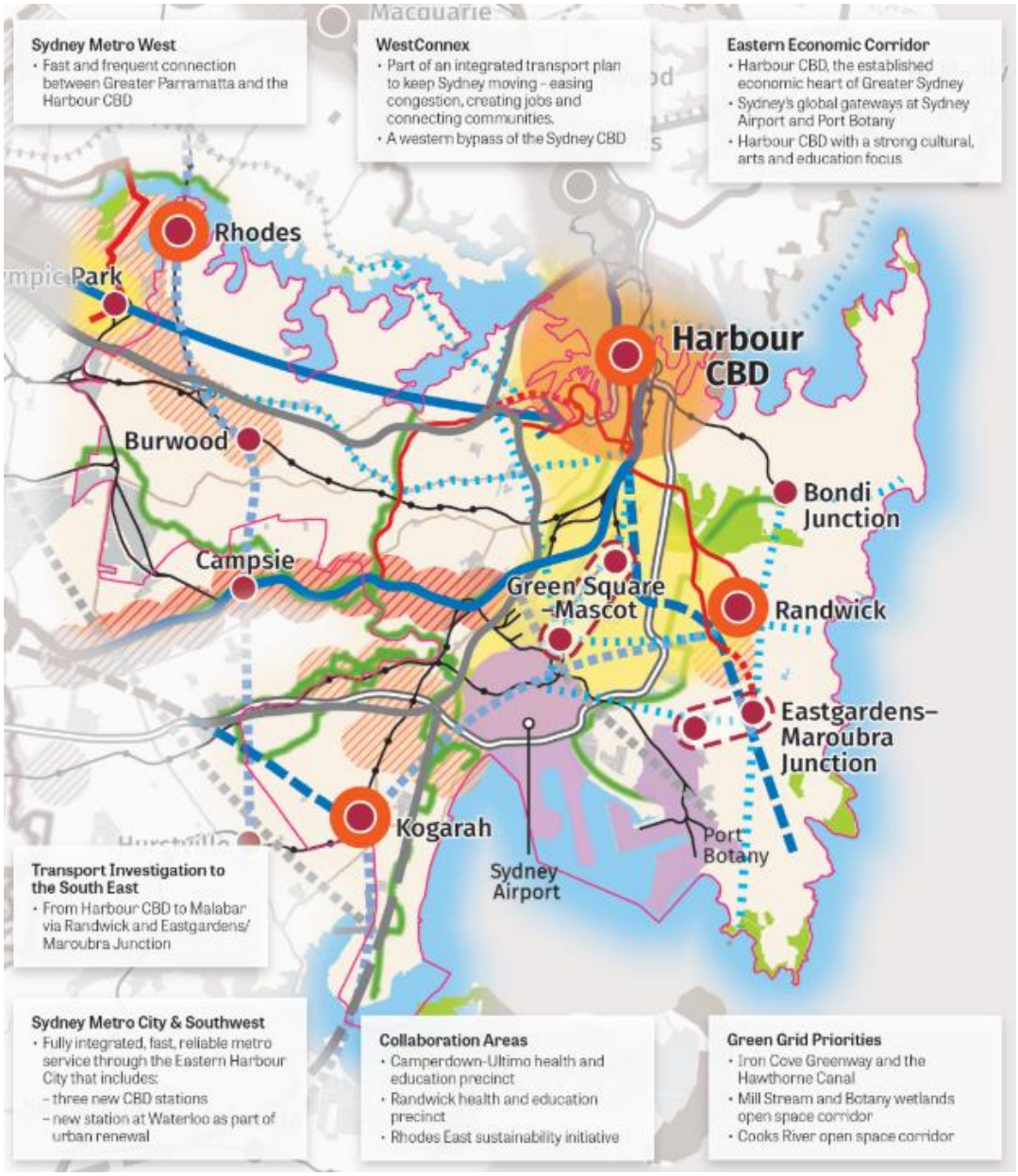
- Explore reforms to policies leading to public transport networks being in place at the time of settlement of new areas of housing and / or jobs.
- Prepare best practice guidelines for network planning for new areas.
- Prioritise regular, timetabled bus services in preference to site-specific shuttle bus services.

Implication for the ECC: The Strategy emphasises the importance of planning and providing active and public transport for new developments and bringing this in as part of any master planning process. Sitting on a major road corridor with significant traffic as well as a significant place, New South Head Road has place as well as movement objectives. Any infrastructure changes need to balance the often-competing design requirements between movement and place.

2.2 Eastern City District Plan

The Eastern City District Plan (March 2018) (the District Plan) provides a vision for the Eastern City District (as presented in **Figure 2-1**) to become more innovative and globally competitive. It looks to enhance the District' lifestyle and environmental assets. This will in part be achieved by aligning growth with infrastructure, including transport, and delivering sustainable and adaptable solutions. The District Plan projects a population growth of 325,000 people and demand for an additional 157,500 dwellings in the next 20 years.

Figure 2-1 The Eastern City District Plan



Source: Eastern City District Plan (Greater Sydney Commission, March 2018)

The District Plan informs local strategic planning statements and local environmental plans, the assessment of planning proposals as well as community strategic plans and policies. The District Plan also assists Councils to plan for and support growth and change and align their local planning strategies to place-based outcomes. It guides the decisions of State agencies and informs the private sector and the wider community of approaches to manage for growth and change. Community engagement on the District Plan has contributed to a plan for growth that reflects local values and aspirations, in a way that balances regional and local considerations.

The vision for Greater Sydney is one where people can access jobs and services in their nearest metropolitan and strategic centre. The 30-minute city is a long-term aspiration that will guide decision-making on locations for new transport, housing, jobs, tertiary education, hospitals and other amenities. It means that they will be planned for metropolitan and strategic centres and more people will have public transport access to their closest metropolitan or strategic centre within 30 minutes. This will enable more efficient access to workplaces, services and community facilities.

Implication for the ECC: Development in WMC's area needs to deliver access to a strategic centre within 30 minutes. Edgecliff is well-positioned to achieve this, being fifteen minutes from the city.

2.3 Greater Sydney Services Infrastructure Plan (2018)

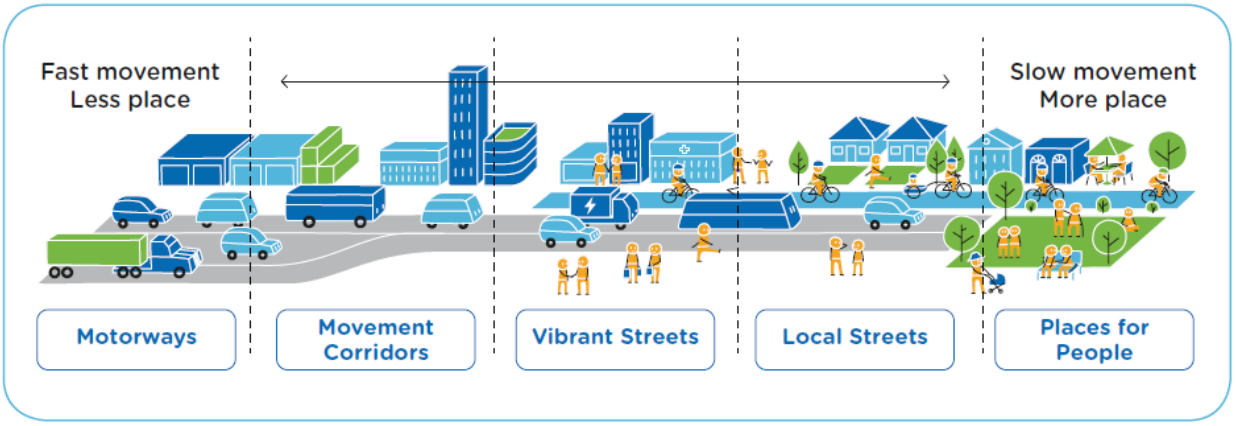
2.3.1 The movement and place framework

The Greater Sydney Services and Infrastructure Plan (2018) is a 40-year plan for transport in Sydney. It is designed to support the land use vision for Sydney. The current Greater Sydney Infrastructure Plan builds on the previous Future Strategy 2056 - Shaping the Future document (now replaced by the Future Transport Strategy), and the Plan is now being reviewed to align with the updated Future Transport Strategy.

Building on the state-wide transport outcomes identified in the Future Transport Strategy 2056, the Plan establishes the specific outcomes transport customers in Greater Sydney can expect and identifies the policy, service and infrastructure initiatives to achieve these.

To support the liveability, productivity and sustainability of places for the transport network, a Movement and Place Framework was developed, as presented in **Figure 2-2**. The Framework acknowledges that transport networks have different functions and roles and serve as both a destination and to move people and goods. The Movement and Place Framework will enable us to plan, design and operate the transport network to meet these different needs by providing greater transparency, supporting collaboration between those responsible for land use, transport and roads while also encouraging input from the community. Through the framework we will be able to design a future network that is better used and supports the safe, efficient and reliable movement of goods and the need for liveability of places along it.

Figure 2-2 Different movement environments under the Movement and Place Framework



Source: Greater Sydney Services and Infrastructure Plan (Transport for NSW, April 2018)

Implication for the ECC: Sitting on a major road corridor with significant traffic as well as a significant place, New South Head Road has place as well as movement objectives. Any infrastructure changes need to balance the often-competing design requirements between movement and place.

2.3.2 Future Transport network

The future transport network vision, as presented in the Greater Sydney Services Infrastructure Plan (shown in **Figure 2-3** and **Figure 2-4**), and the implications the implementation these visions would have for the ECC and surroundings, are described in the following sections.

City-shaping network

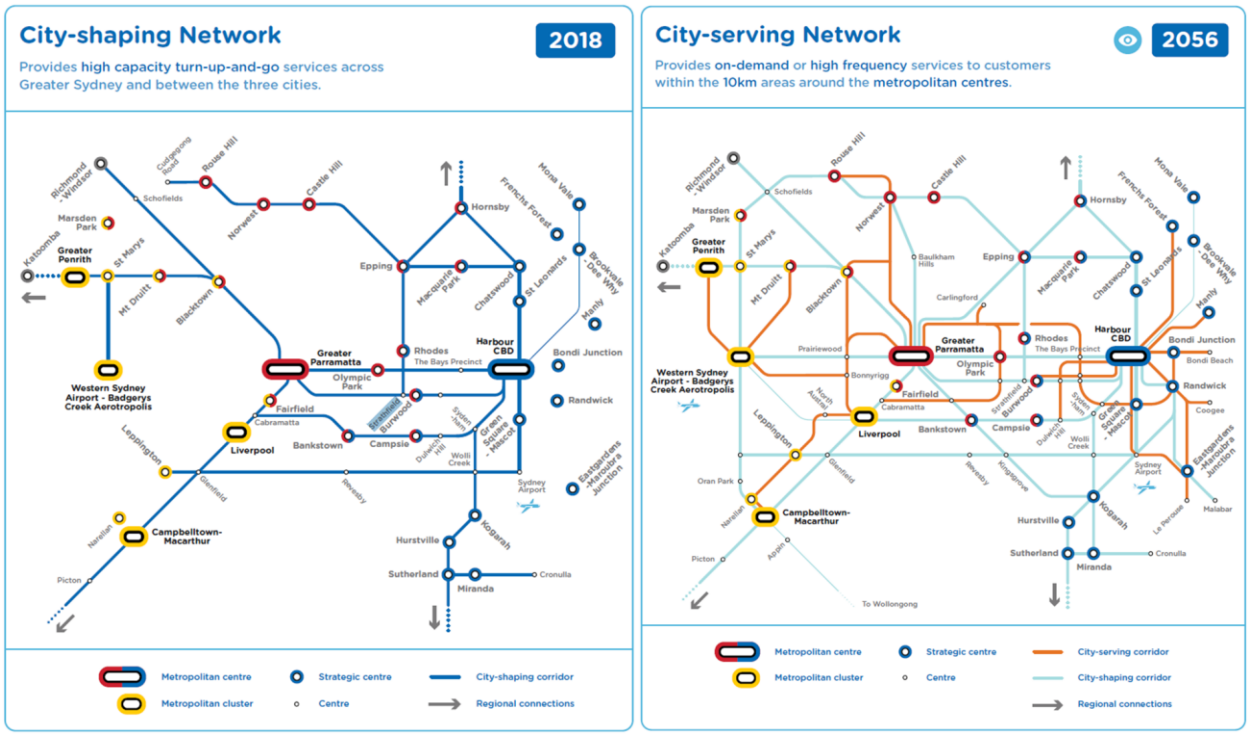
The city-shaping network includes higher speed and volume linkages between future cities and centres. The function of this network is to enable people living in any of the three cities to access their nearest metropolitan centre within 30 minutes and to be able to travel efficiently between these metropolitan centres.

As Greater Sydney transitions to a metropolis of three cities, the city-shaping network will need to expand to provide improved access to and between each metropolitan city/centre, particularly Greater Parramatta and centres in the metropolitan cluster in the Western Parkland City.

City-serving network

The city-serving network will provide high-frequency services within a ~10km radii of the three metropolitan cities/centres. This will support access within some of the densest land use in Greater Sydney where demand for travel is most concentrated. As these inner urban areas in each of the three cities develop and become denser, the government will investigate the prioritisation of on-street public transport services and invest in higher frequency services.

Figure 2-3 Greater Sydney and 2056 transport network vision



Source: Greater Sydney Services and Infrastructure Plan (Transport for NSW, April 2018)

Implication for the ECC: Edgecliff enjoys a key location between the Harbour CBD and eastern strategic centre of Bondi Junction and is part of city-serving networks that would bring the ECC into reach of Greater Sydney and all three cities by high frequency and high-capacity public transport links.

Bicycle Network

Building on the existing network, the immediate focus with regards to future bicycle transport links, is to work with local Councils to deliver committed Priority Cycleway projects, to address key missing links around the Harbour CBD, Greater Parramatta, Greater Penrith, Blacktown and Liverpool (such as the Nepean River Green Bridge and Inner West Greenway). Council partnership programs are delivering local bicycle infrastructure, and bicycle parking is also being rolled out at interchanges.

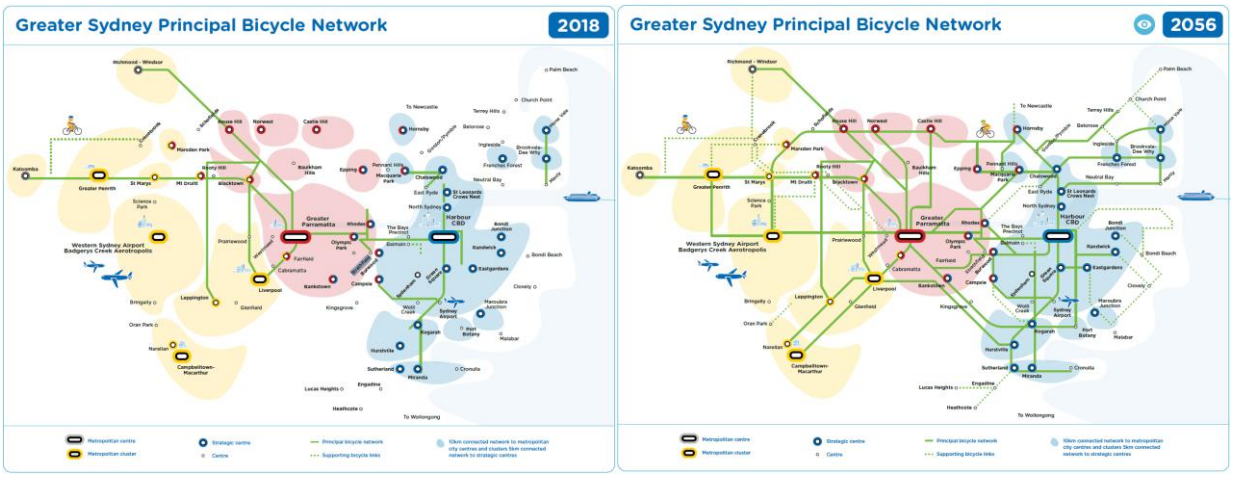
By 2056:

– Walking and cycling network coverage will be improved by using state held corridors for public transport, pipelines, waterways, crown land and service easements for bicycle network infrastructure.

– All strategic centres will have connected walking and cycling networks, including strategic centres across the Western Parkland City.

Further investment in connections to strategic centres and in the Principal Bicycle Network will support walking or cycling being the most convenient option for short trips, improving health outcomes, safety and convenience for customers as well as boosting the productivity, liveability and sustainability of Greater Sydney. **Figure 2-4** shows the current / committed Greater Sydney Bicycle Network alongside the envisioned 2056 Bicycle Network. As seen, an extended future bicycle network from the Harbour CBD to Eastgardens and Randwick, as well as supporting bicycle links between the Harbour CBD and Bondi beach, are proposed by 2056 in proximity of the site.

Figure 2-4 Current / committed and 2056 Greater Sydney Principal Bicycle Network



Source: Greater Sydney Services and Infrastructure Plan (Transport for NSW, April 2018)

Implication for the ECC: The bicycle network in Edgecliff should support connectivity to the Greater Sydney Principal Bicycle Network and Edgecliff Train Station.

2.4 Woollahra Local Strategic Planning Statement (2020)

The Woollahra Local Strategic Planning Statement (LSPS) was prepared in March 2020 and sets out a 20-year land use vision and planning priorities for the future of the LGA to:

– Manage future growth, new technology and changing community needs

– Conserve heritage, villages, local character and environment of the area

– Ensure resilience and sustainability despite challenges such as climate change

– Identify areas for further detailed strategic planning

– Link the plans to the implementation of the NSW Government's strategic plans

The vision for the LGA's future outlined in the LSPS states that 'placemaking and collaboration ensure that our lifestyle, quality of life, heritage, neighbourhood social cohesion and healthy natural setting are sustainable for generations to come'. Particularly related to transport, the vision outlines that 'we work to provide safe, high-quality walking and cycling links that facilitate short trips to local destinations. These include local centres, public transport services, jobs, schools, health services, local open space, our foreshore and the Greater Sydney Green Grid'.

The LSPS states that in 2016 there were 19,974 jobs located in the Woollahra LGA. This is an increase of 11.8 per cent from the 2011 Census result of 17,859 jobs, with local centres being the primary employment locations.

The LGA's future structure plan shown in **Figure 2-5** highlights Edgecliff as a key local centre with proximity to key connections to jobs and destinations via train or ferry, proposed off-road cycleways, the Manly to Bondi Walk and local harbourside beaches (as seen in **Figure 2-6**).

Figure 2-5 The Woollahra Municipal Council's Future Structure Plan

Source: The Woollahra Municipal Council LSPS (March 2020)

A total of 14 planning priorities are outlined in the LSPS, under 'Infrastructure and collaboration', 'Liveability', 'Productivity' and 'Sustainability'. Those relating to transport (as illustrated in **Figure 2-6**) for the area are summarised below:

– Infrastructure and collaboration - Support walking or cycling as the most convenient option for short, everyday trips up to 2km, by measures including improvements to public infrastructure, community facilities, open spaces, walking paths, cycleways and the public domain.

- Planning priority 1 - Planning for integrated land use and transport for a healthy, sustainable, connected community and a 30-minute city. Relevant actions include:
  - Action 5: Work with neighbouring councils and government agencies to deliver safe active transport links, particularly cycling and walking paths and supporting infrastructure. Examples include end of trip facilities, shade and wider footpaths. These links should connect our community to local centres where they can access local jobs, services, retail and entertainment.
  - Action 6: Work with our community and government agencies to increase the role of Edgecliff as a key transport interchange in our area.
  - Action 8: Continue to encourage use of active transport modes and prioritise expansion of active transport connections.
  - Action 10: Promote increased walkability, pedestrian safety and permeability across our area, through initiatives such as the Greater Sydney Green Grid and the Bondi to Manly Walk.
  - Action 12: Continue to support and promote use of shared vehicles and electric vehicles in development, on-street and in Council car parks.
- Planning Priority 2 - Planning for a community supported by infrastructure that fosters health, creativity, cultural activities, and social connections. Relevant actions include:
  - Action 15: Continue to work with applicants for development consent to ensure that new developments which involve additional dwellings and / or commercial floorspace are subject to appropriate development levies or contributions. This may include improvements to public infrastructure, community facilities, open spaces, walking paths, cycleways and the public domain.

Figure 2-6 Transport connections around the Woollahra LGA

Implication for the ECC: The LSPS highlights the importance of improving sustainable transport options and supporting walking or cycling as the most convenient option for short, everyday trips up to 2km. This will be done by measures including improvements to public infrastructure, community facilities, open spaces, walking paths, cycleways and the public domain.

2.5 Woollahra 2030 Plan – Our community, our place, our plan

The Woollahra 2030 Plan (WMC, June 2018) is a strategic document which focuses on the long-term vision for the Woollahra local government area (LGA). It identifies current goals and challenges, presents strategies to deliver these goals and has a key focus on ensuring a sustainable future for the LGA. One of the key themes 'quality places and spaces' in particular relates to transport and reflects on the importance of making Woollahra liveable and convenient. Three of the key measures for this theme, relating to transport, are outlined in **Table 2-1**.

Table 2-1 Quality Places and Spaces Goal – Measures and Targets

Measure	Target
Increase in bike paths	– 30km integrated network of bike paths by 2025 – 2.4km of new off-road cycleways by 2020
Condition of civil infrastructure	– 98% of Civil Infrastructure rated at Condition rating 1, 2 or 3 (IPR Manual)
Renewal of civil infrastructure	– 100% of Civil Infrastructure rated at Condition rating 4 or below (IPR Manual) scheduled for renewal with 24 months

Source: The Woollahra 2030 Plan – Our community, our place, our plan (Woollahra Municipal Council, 2018)

The key transport strategies to be implemented to achieve these goals by 2030 are outlined in **Table 2-2.**

Table 2-2 Woollahra 2030 Plan Transport Strategies

Strategy Number	Strategy
5.2	Provide and maintain safe, clean, serviceable public infrastructure including roads, footpaths, bicycle facilities, parks, open space, stormwater drains and seawalls.
5.7	Renew and upgrade ageing infrastructure including roads, footpaths, stormwater drains and seawalls.
6.1	Facilitate an improved network of accessible and safe alternate transport options.
6.2	Improve the management of on-street and off-street public parking.
6.3	Promote provision of better, more integrated public and community transport.
6.4	Reduce traffic congestion, noise and speeding.

Source: The Woollahra 2030 Plan – Our community, our place, our plan (Woollahra Municipal Council, 2018)

Implication for the ECC: Develop the ECC as a major transport hub that provides sustainable means of transport, promoting walking, cycling and public transport. Car parking controls should be managed to encourage people's switch to public transport and mitigate road congestion.

2.6 Environmental Sustainability Action Plan 2013 – 2025

WMC developed the Environmental Sustainability Action Plan (ESAP) for the years 2013-2025, to document their targets and commitments in relation to their key priority areas. These key priority areas are energy and emissions, water, biodiversity, waste and transport. The key future goals and actions for transport in the document are:

– 30km of roads within the LGA have designated bike lanes by 2025

– 2.4km of new off-road cycleways by 2020

– 100 per cent of the cars offered in carshare programs are fuel-efficient vehicles by 2017

– Community Engagement, by supporting schools, residents are WMC staff to adopt sustainable transport behaviours.

The current goal is for 30 kilometres of roads within the LGA to have designated bike lanes by 2025, and the implementation of 2.4km of new off-road cycleways by 2020. This is supported by the implementation of the WMC's 2009 Bike Strategy (which is planned to be replaced by the Woollahra Active Transport Plan (**Section 2.7**).

Implication for the ECC: Additional cycle facilities should be considered.

2.7 The Woollahra Active Transport Plan (2023)

The Woollahra Active Transport Plan (December 2023) will guide Council's investment and design decisions for the area's walking and cycling networks. It has a timescale of 10-15 years and will be reviewed after 5 years. The plan replaces the Woollahra Bicycle Strategy 2009, of which many elements of the 2009 strategy have been delivered, and looks to the future with a comprehensive, ambitious plan that covers both walking and cycling.

The main objectives of the Plan are to:

1. Deliver **attractive, vibrant and safe walking locations** for pedestrians, especially in our centres and around our schools.
2. Develop, design and deliver a network of **continuous, connected walkways and cycleways** for the whole of Woollahra, focussed on our centres, including links to the City of Sydney and to Waverley.
3. Contribute to Transport for NSW's vision of zero deaths and serious injuries on the road network by **making our roads safer for pedestrians and cyclists**.
4. **Improve the pedestrian accessibility, inclusivity and amenity** of our greatest natural assets including parks and reserves, the harbour and the ocean front.
5. **Maintain and improve the existing integrated walks** that link with adjacent Councils including the Bondi to Manly Walk and others and acknowledges the existing walking networks.

The Plan outlines clear targets for walking and cycling in the LGA, including:

– To at least **double the number of people who cycle to work from 1% to 2%**. This is ambitious, given the very hilly topography – but can be achieved with the right investments in the right places.

– To **increase the number of short walking journeys by at least 30%**. This would represent a major shift from driving to walking for short trips, taking car journeys off our roads, and reducing congestion.

– To see a **year-on-year decrease in road accidents** involving pedestrians and cyclists, serious injuries cut in half, and zero deaths. This would represent a major step towards Transport for NSW's goal of zero deaths and serious injuries by 2056.

– To **ensure equitable access by promoting integrated planning** across all active transport projects to improve accessibility including universal design principles.

Some findings from the report include that:

– Woollahra's residents choose to walk about as often as the average Greater Sydney resident, with 31 per cent of all journeys are undertaken on foot for both areas. Despite Woollahra's inner-urban character and prime harbourside location, the walking mode share is below the Greater Sydney average and the neighbouring LGAs of Waverley (50 per cent) and the City of Sydney (63 per cent), where much greater numbers of residents choose to walk. This suggests Woollahra's walking infrastructure is not attractive enough to encourage many residents to walk for many local journey purposes.

– Overall, the data shows that walking and cycling are not yet the natural mode of choice for many Woollahra residents. Combined, they account for around 13 per cent of all commuting journeys, and less than 35 per cent of all journeys.

– Although Woollahra already has some great walking infrastructure, there is more that can be done to make the centres and key destinations more walkable.

– Lack of separation between cyclists and pedestrians on busy paths, which can make pedestrians feel unsafe.

– A need for more and safer crossings which protect pedestrians from fast-moving car traffic.

– Uneven footpaths and trip hazards such as tree roots, which can make walking harder for those who are not as steady on their feet or use mobility aids.

– A lack of continuity, with cycleways often ending abruptly at busy intersections.

– High vehicle speeds and volumes can make even experienced cyclists feel uncomfortable and unsafe.

Several high-, medium-, and low-priority walking and cycling projects were proposed in the Plan. These have been considered for the proposed active transport improvements for the ECC area as part of this study.

Implication for the ECC: The Active Transport Plan highlights the importance of improved active transport in the ECC in the future. It recommends physical infrastructure improvements as well as soft measures to encourage a shift towards both cycling and walking. It sets out a target to double the number of cycle trips (from 1 per cent to 2 per cent) and to increase the number of short walking trips by at least 30 per cent.

2.8 Woollahra Development Control Plan 2015

The Woollahra Development Control Plan 2015 (DCP) provides objectives, controls and design criteria to achieve desirable development outcomes in line with WMC's vision for the LGA. The following guidance is highly relevant to the potential development of the ECC:

– Benchmarking of parking generation rates

– Integration of retail and commercial uses with housing for New South Head Road

– Improving pedestrian connections for the Commercial Core

Implication for the ECC: The subsequent sections contain the minimum design requirements currently enforced by WMC. These requirements can be changed as part of the LEP amendment process.

2.8.1 Parking requirements

The DCP outlines guidance and controls for the provision of parking in new development. This includes maximum rates for residential development and minimum parking generation rates for non-residential development. Other requirements related to parking are also identified such as bicycle and motorcycle parking. A non-compliance parking provision maybe allowed based on the satisfaction that the development will:

– Minimise and manage the impact of traffic generation;

– Reasonably reduce the on-street parking demand;

– Consider the existing context capacity.

Residential Car Parking

The parking rates outlined in **Table 2-3** are maximum standards for high density residential development defined in the DCP. Justification must be presented if either more or fewer parking spaces are designed.

Table 2-3 Residential Parking Rates

Performance Criteria	Performance Measures
Mixed use development (residential component) Spaces based on number of bedrooms per dwelling	1-bedroom or studio – 0.5 space 2-bedroom unit – 1 space 3-bedroom unit – 1.5 spaces Visitor parking – 0.2 space

Source: The Woollahra DCP Chapter E1 Parking and Access, 2016

Non-residential Car parking

The parking provision for non-residential development needs to be consistent with the desired future character for the centre and are set out as minimum requirement in **Table 2-4**.

Table 2-4 Non - Residential Parking Rates

Performance Criteria	Performance Measures^
The base parking generation rates are calculated per 100 sqm of gross floor area of a development	Business premises – 2.5 spaces Office premises – 2.5 spaces Retail – 3.3 spaces Food and drink premises – 7 spaces Supermarkets – 3.5 spaces

^Where a land use fits into a group term but is also separately defined as a sub-term, the parking generation rate for the sub-term should be applied.
Source: The Woollahra DCP Chapter E1 Parking and Access, 2016

A parking multiplier of 0.6 can be adopted for Edgecliff Commercial Core E1 Zone and New South Head Road Edgecliff commercial corridor MU1 Zone, which will take account of the availability of public transport and planning strategy that WMC is pursuing.

Bicycle Parking

The provision of bicycle parking must adhere to the minimum parking rates in **Table 2-5**.

Table 2-5 Bicycle Parking Rates

Land use	Performance Measures	
	Residents/ Employees	Customers/ Visitors
Residential accommodation	1 per dwelling	1 per 10 dwellings
Office / business premises	1 per 150 sqm GFA	1 per 400 sqm GFA
Shop, restaurant or cafe	1 per 250 sqm GFA	2 + 1 per 100 sqm over 100 sqm GFA
Shopping centre	1 per 200 sqm GFA	1 per 1,000 sqm GFA

Source: The Woollahra DCP Chapter E1 Parking and Access, 2016

Additional controls include:

– One secure locker is required for each bicycle parking space.

– One shower and change cubicle is provided for between 5 and up to 10 bicycle parking spaces, two for 11-20 bicycle parking spaces and one additional shower and cubicle for each additional 10 bicycle parking spaces.

– A charging point is provided for every five bicycle parking spaces for electric bicycles.

Motorcycle parking rates

The development should accommodate a minimum of 1 motorcycle parking space per 10 car spaces for all land use. The motorcycle parking areas need to be located close to the pedestrian access of the development.

Variations to the parking generation rates

When a mixed-use development is introduced, possible reduction on parking rates for car parking, bicycle parking and motorcycle parking may be considered by WMC due to overlapping parking demand by land use or complementary usage of the parking space with different peak period.

Other parking related controls

Further parking-related controls in the DCP are summarised in **Table 2-6**.

Table 2-6 Other Parking Related Controls in the DCP

Control	Provision	Notes / Location
Car share	– On- site car share may be permitted at the discretion of Council. – A car share parking space has the potential to replace a maximum of 4 regular car parking spaces. – Car share spaces must be placed in publicly accessible locations within the development.	
Tandem parking	Residential development allows tandem parking when two spaces are allocated to a single dwelling whereas tandem parking for non-residential development should be allocated for employee use only to satisfy long term parking demand.	Generally not preferred by Council
Small car parking spaces	Number of small car parking spaces should not exceed 5% of the overall parking spaces and follow the dimension set out in Australian Standard AS/NZS 2890.1 Off-street car parking.	
Off-street loading and servicing facilities	– Generally, a minimum of one loading bay is required for retail such as supermarket, food and drink over 50 seats etc. – Loading bays and service areas should operate independently of other parking areas and should ensure the loading and unloading operations entirely within site boundary.	Variation of loading bays depends on the scale and type of use, having particular regard to the anticipated volume and frequency of deliveries
Mechanical parking	– The installation of mechanical parking structure such as car lifts and car stackers should comply with national standards. – Waiting bays should be designed to avoid impacting on the driveway, footway or roadway.	Generally, not desirable unless considered in exceptional cases

Source: The Woollahra DCP Chapter E1 Parking and Access, 2016

2.8.2 Improving connections

The Commercial Core (referred to as the Edgecliff Centre in the DCP) is part of the ECC. The centre contains the Edgecliff Train Station and a bus Interchange. As has been identified in the Woollahra DCP Chapter D4, there is a need to enhance pedestrian links across the centre, and through the centre to the bus interchange and train station to provide an attractive and comfortable pedestrian environment. The connections to the ECC and surrounding residential land will increase activity and convenience. This includes:

– providing north-south thoroughfares and improving links between retailing spaces and public transport facilities

– integrating access to public car parking areas from different buildings

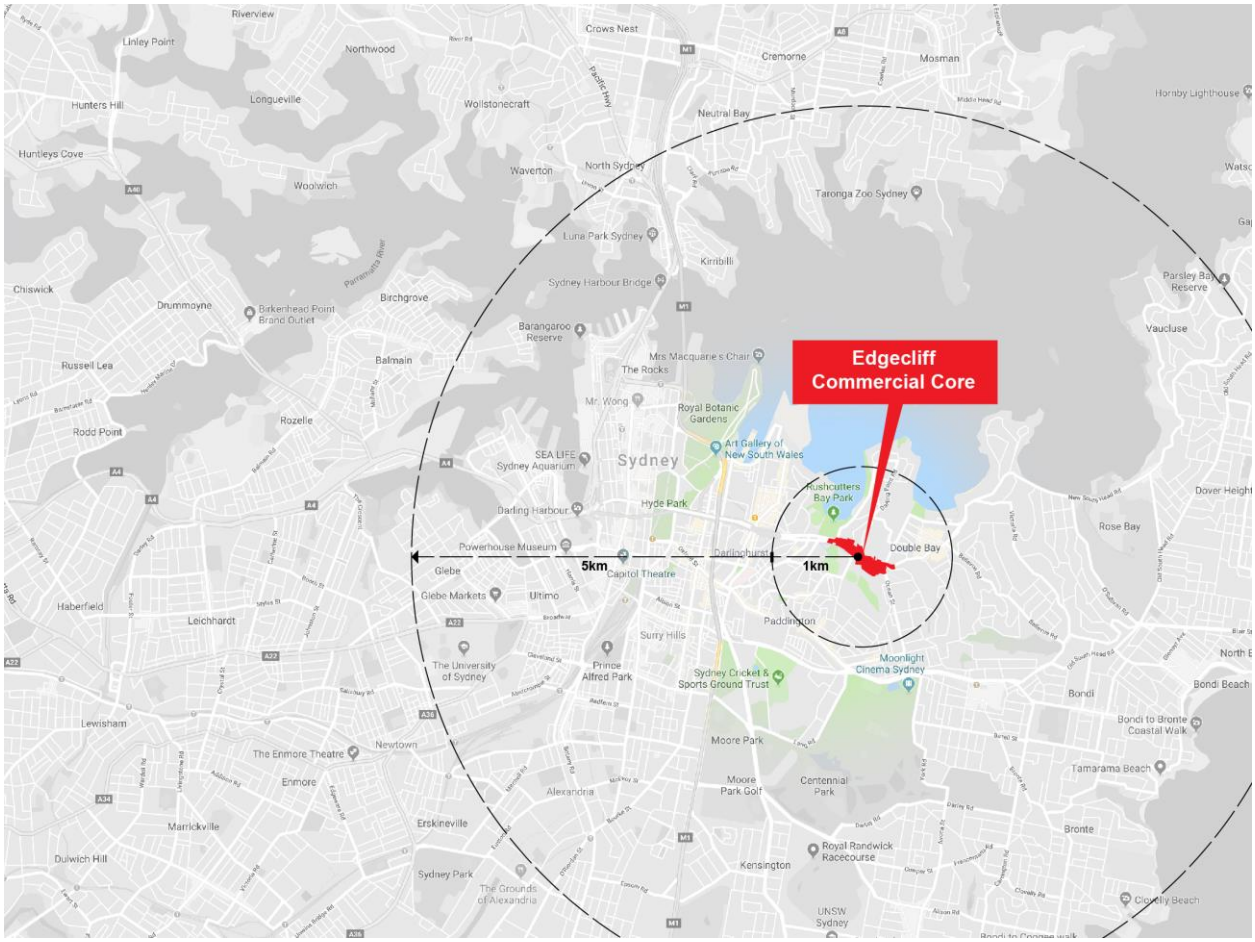
– designing and constructing of awnings with sufficient depth for pedestrians.

3.0 Existing Conditions

3.1 The site

ECC is located approximately 4km east of Sydney CBD, whilst Bondi Junction is located approximately 3km to the south-east. The regional context of the site is shown in **Figure 3-1**.

Figure 3-1 The Edgecliff Commercial Centre in a regional context



Source: Sydway, modified by SCT Consulting; 2019

The existing zoning of the ECC is shown in **Figure 3-2**. The ECC is zoned as a combination of B4 Mixed Use and B2 Local Centre zones. The ECC sits on the state road, New South Head Road, which serves as a link between Sydney CBD, the Cross City Tunnel and the eastern suburbs.

The Commercial Core is the focal point of the ECC, providing a valuable connection to the Sydney Trains network and destinations across Sydney. The core is located between McLean Street and Ocean Street and includes two large developments:

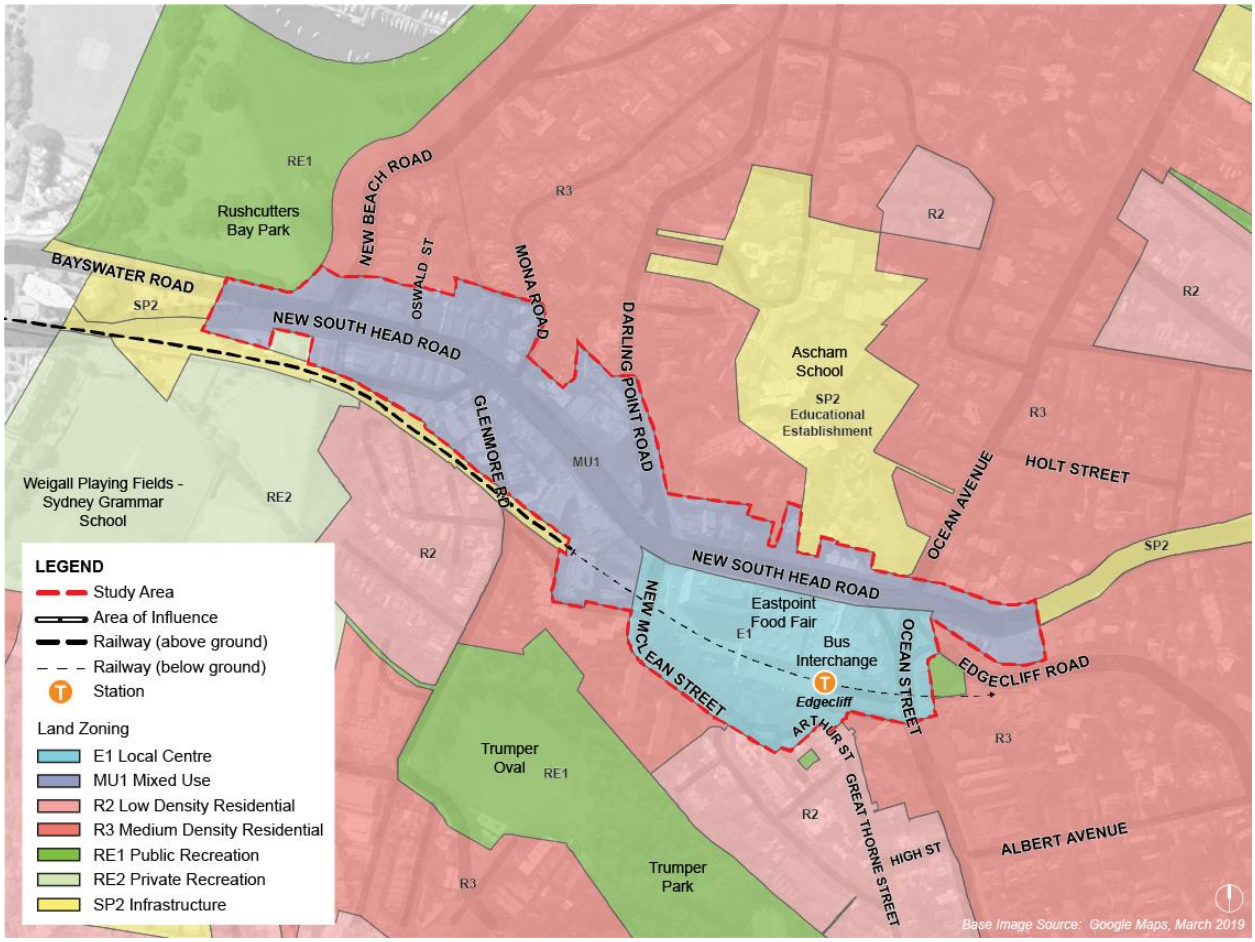
– The 'Edgecliff Centre' office building at 203-233 New South Head Road.

– The 'Eastpoint Centre' at 235-285 New South Head Road, which incorporates a shopping centre, residential tower, Edgecliff Train Station and a bus interchange.

The Commercial Core is the largest retail, business, office and residential development in Edgecliff and serves as a convenient place for people to meet, work, shop and use services. The core provides a good range of convenience retailing opportunities, including supermarkets and speciality stores and services to the surrounding residential suburbs including Edgecliff, Darling Point, Double Bay, Paddington, and Woollahra.

The Edgecliff Train Station provides train services to Greater Sydney and bus interchange, which is located above the Eastpoint Shopping Centre, provides and local and regional bus routes services.

Figure 3-2 The existing Edgecliff Commercial Centre Zoning



Source: NSW Legislation, modified by SCT Consulting; 2019

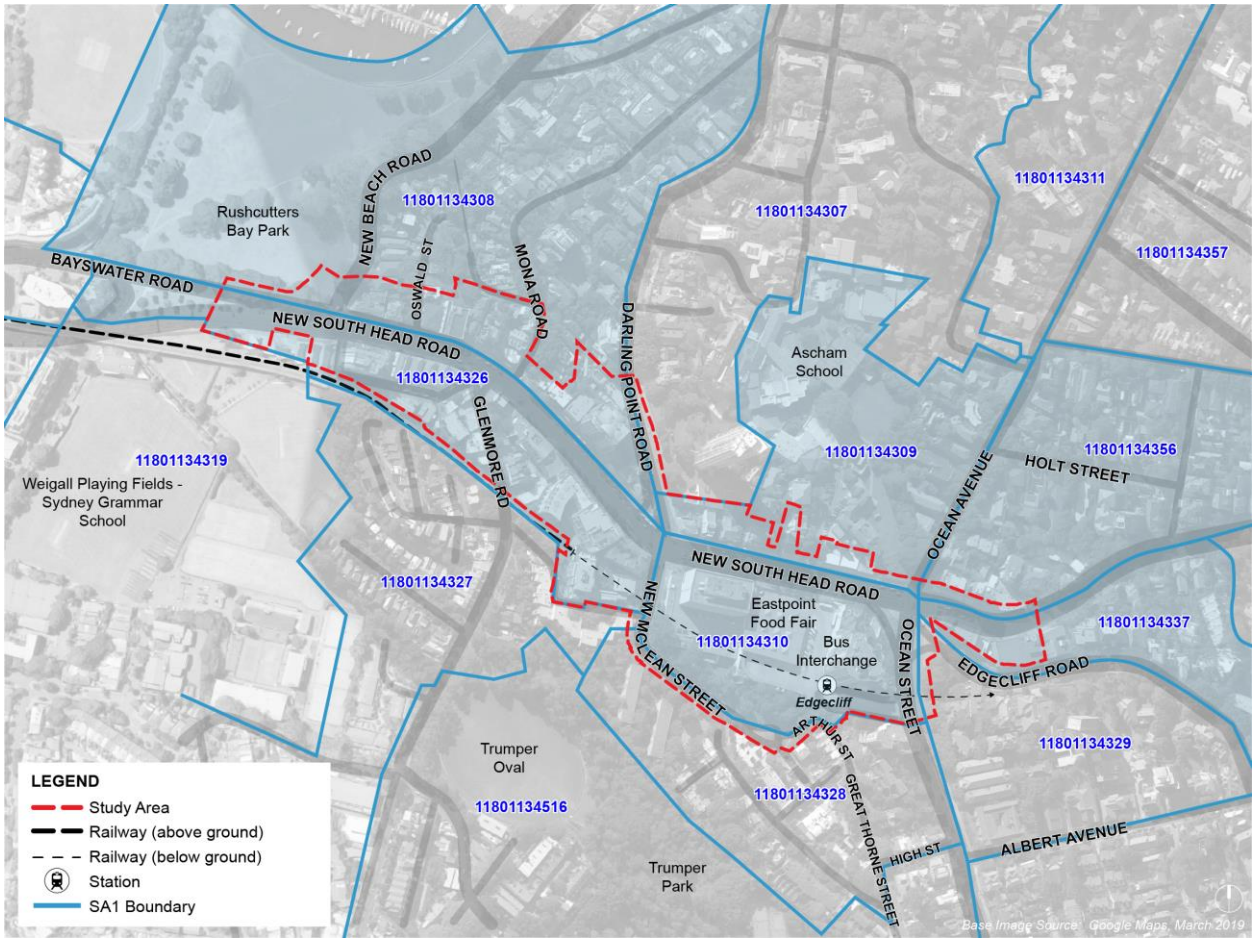
3.2 Travel behaviour

3.2.1 Journey to work data

The 2016 Journey to Work data was analysed to determine current travel behaviour and patterns to and from the ECC during peak travel periods. The smallest geographical area for which data is available currently is the Statistical Area 1 (SA1) and the areas used to analyse the method of travel to work is shown in **Figure 3-5** (including the SA1s for the ECC and the surrounding mixed use and retail developments). **Figure 3-4** shows a comparison of the primary departure mode split for residents travelling to work within the selected SA1s and the Sydney Greater Metropolitan Area (GMA).

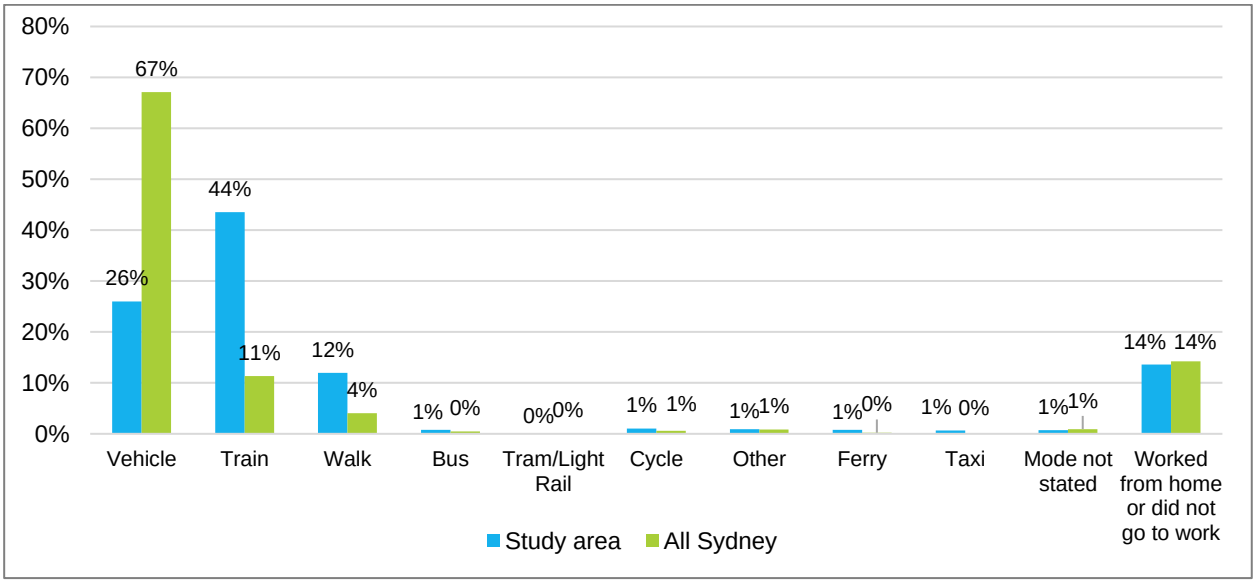
Journey to Work data presenting mode split is available for 2021; however, due to the potential influence of the COVID-19 pandemic on travel patterns, and particularly the number of patrons traveling on trains, the 2016 Journey to Work data has been used for the purpose of mode split analysis.

Figure 3-3 Edgecliff Community Centre SA1 Geographies



Source: Australian Bureau of Statistics, modified by SCT Consulting; 2019

Figure 3-4 Primary Travel Modes by Residents from ECC and all Sydney



Source: Australian Bureau of Statistics, modified by SCT Consulting; 2019

For the Sydney GMA, a total of 67 per cent, 11 per cent and four per cent use private vehicle, train and walk respectively to get to work. By comparison, the train mode share for Edgecliff is 44 per cent. This is by far the most dominant mode of transport. This is reflective of the close walking distance to Edgecliff Train Station, with the entirety of the analysed travel zones falling within a one-kilometre walking radius.

Analysis of Journey to Work Data for the statistical area of Double Bay – Darling Point from the 2021 Census[1] is provided in **Table 3-1**. The analysis shows that more than 40 per cent of people who work in the region live within the Eastern Suburbs.

In total, 74 per cent of the resident's journeys to work trips are to inner Sydney or the Eastern Suburbs (North). This concentration of residential and employment land uses encourages a higher proportion of walking trips as a mode, as discussed above. Should these trends continue, or be enhanced in the future, greater focus and investment on active transport as a key travel mode could be realised. An increased proportion of individuals working from home, following the COVID-19 pandemic, also has the potential to disrupt traditional travel patterns.

Table 3-1 Journey to Work Origin / Destination Data (Top 10) – To and from the Statistical Area Double Bay – Darling Point

Origin / Destination	From Double Bay – Darling Point SA (Destination)		To Double Bay – Darling Point SA (Origin)	
	Value	Percentage	Value	Percentage
Double Bay – Darling Point	1,112	43%	1,119	21%
Bellevue Hill	-	-	343	6%
Rose Bay – Vaucluse – Watsons Bay	58	2%	183	3%
Bondi Beach – North Bondi	-	-	176	3%
Potts Point – Woolloomooloo	-	-	164	3%
Bondi – Tamarama – Bronte	-	-	161	3%
Sydney (South) – Haymarket	152	6%	-	-
Dover Heights	-	-	149	3%
Surry Hills	141	5%	-	-
Paddington – Moore Park	73	3%	134	3%
North Sydney – Lavendar Bay	133	5%	-	-
Bondi Junction – Waverly	-	-	133	2%
Coogee - Clovelly	-	-	99	2%
Pyrmont	64	2%	-	-
Macquarie Park – Marsfield	63	2%	-	-
St Leonards – Naremburn	61	2%	-	-
Woollahra	52	2%	-	-
Total	**2,583**	**74%**	**5,355**	**50%**

Source: http://abs.gov.au/; 2017, modified by SCT Consulting; 2021

3.2.2 Household Travel Survey

The site sits within the statistical area 'Eastern Suburbs (North)' as defined by the Australian Bureau of Statistics within the 2018/2019 (pre-covid) Household Travel Survey.

For the purpose of this analysis, it has been assumed that Journey to Work data provides a suitable reflection of the travel characteristics during AM and PM peak hour periods, due to the high proportion of trips during this timeframe associated with journey to work trips.

Analysis of the 2018/2019 Household Travel Survey, which is reflective of travel characteristics of residents throughout an average weekday, indicates that over 50 per cent of trips made by residents of statistical area 'Eastern

[1] 2016 data not available at time of publication

Suburbs (North)' are likely to be associated with shopping, personal, business and social and recreational activities. Trips of this nature are likely to account for a high proportion of trips that are made on a Saturday peak.

On this basis, the Household Travel Survey for 'Eastern Suburbs (North)' is considered reflective of the trips likely to be made during the Saturday peak period and reflect typical travel characteristic and mode choice associated with these trips.

Table 3-2 and **Table 3-3** provide a summary of the purpose of travel and overall mode choice by residents of Eastern Suburbs (North) associated with these trip purposes compared against the Sydney average and the districts of Manly, Parramatta and Penrith.

There is a relatively consistent comparison regarding trip purpose between Eastern Suburbs (North) and Sydney. The main differences and within the social / recreation trip purpose which is higher in the Eastern Suburbs (North) area, compared to Sydney, with an overall percentage of total trips of 32.8 versus 25.3. The Eastern Suburbs (North) area also makes fewer education trips, five per cent, compared to Sydney at ten per cent.

When compared to the Manly, Parramatta and Penrith districts the primary differences noted are that the Eastern Suburbs (North) district has a greater percentage of social / recreational trips and a reduction in trips which are to serve a passenger.

Regarding mode share the Eastern Suburbs (North) area has a higher proportion of walk trips, 27.5 per cent, compared to Sydney with 17.9 per cent. This is attributable to the higher density of the eastern suburbs and associated urban design outcomes and is also reflected in the lower proportion of trips recorded in the Eastern Suburbs for the Vehicle (Driver) and Vehicle (Passenger) categories. This is also evidenced when comparing mode share within Manly, Parramatta and Penrith. The greater the density, as shown with Manly and Parramatta, the greater the proportion of walking trips and trips by public transport.

Table 3-2 Household Travel Survey – Residents within Eastern Suburbs (North) and Sydney: Trip purpose

Travel by purpose	Eastern Suburbs (North)	Sydney Region	Manly	Parramatta	Penrith
Commute	17.4%	17%	9.4%	24.1%	17.4%
Work related business	7.1%	6.3%	3.0%	4.1%	7.0%
Education / childcare	5.1%	10.0%	3.4%	9.8%	11.9%
Shopping	12.9%	15.4%	15.6%	13.4%	14.7%
Personal business	5.1%	5.5%	10%	3.2%	5.9%
Social / recreation	32.8%	25.3%	37.7%	24.5%	21.3%
Serve passenger	15.9%	18.2%	20.2%	19.0%	20.4%
Other	3.6%	2.2%	0.7%	1.9%	1.4%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Source: https://www.transport.nsw.gov.au/data-by-sa3 accessed 23/10/2023

Table 3-3 Household Travel Survey – Residents within Eastern Suburbs (North) and Sydney: Mode Choice

Mode	Eastern Suburbs (North)	Sydney Region	Manly	Parramatta	Penrith
Vehicle (Driver)	40.5%	47.4%	49.2%	42.7%	55.5%
Vehicle (Passenger)	17.0%	20.7%	17.9%	19.3%	28.0%
Train	5.5%	6.7%	0%	6.5%	3.7%
Bus	5.4%	5.7%	2.5%	7.4%	2.1%
Walk only	27.5%	17.6%	27.0%	20.9%	10.5%
Other	4.1%	2.0%	3.4%	3.2%	0.2%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Source: https://www.transport.nsw.gov.au/data-by-sa3 accessed 23/10/2023

3.3 Road network

3.3.1 Road classification

The major access to the ECC from the Sydney Metropolitan area is via New South Head Road which runs through the middle of the ECC. As indicated in **Figure 3-5**, New South Head Road is the only State Road (controlled and maintained by the RMS), in the vicinity of the ECC. All other roads within the vicinity of the ECC are Local Roads, under the control of WMC, with the main local roads providing access to the ECC being New Beach Road, Glenmore Road, Mona Road, Darling Point Road, New McLean Street and Ocean Avenue / Ocean Street.

The key intersections along New South Head Road within the ECC are as follows:

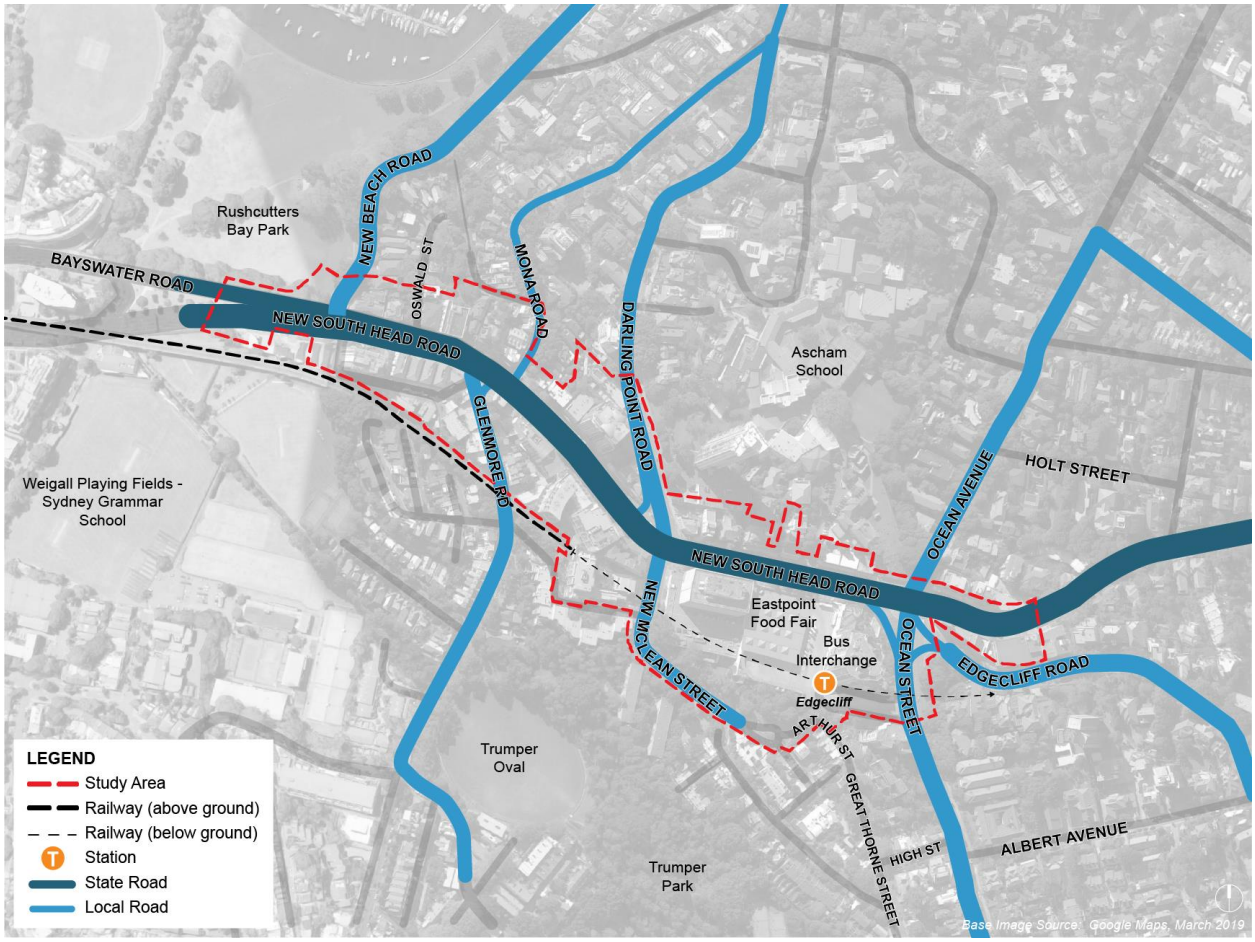
– New South Head Road / New Beach Road – signalised intersection, 370 metres west of the Edgecliff Centre

– New South Head Road / Glenmore Road/ Mona Road – signalised intersection, 220 metres to the west of the Edgecliff Centr

– New South Head Road / Darling Point Road/ New McLean Street– signalised intersection, directly west of the Edgecliff Centre

– New South Head Road/ Ocean Street / Ocean Avenue – signalised intersection, directly east of the Edgecliff Centre.

Figure 3-5 Road Classification in the vicinity of the ECC



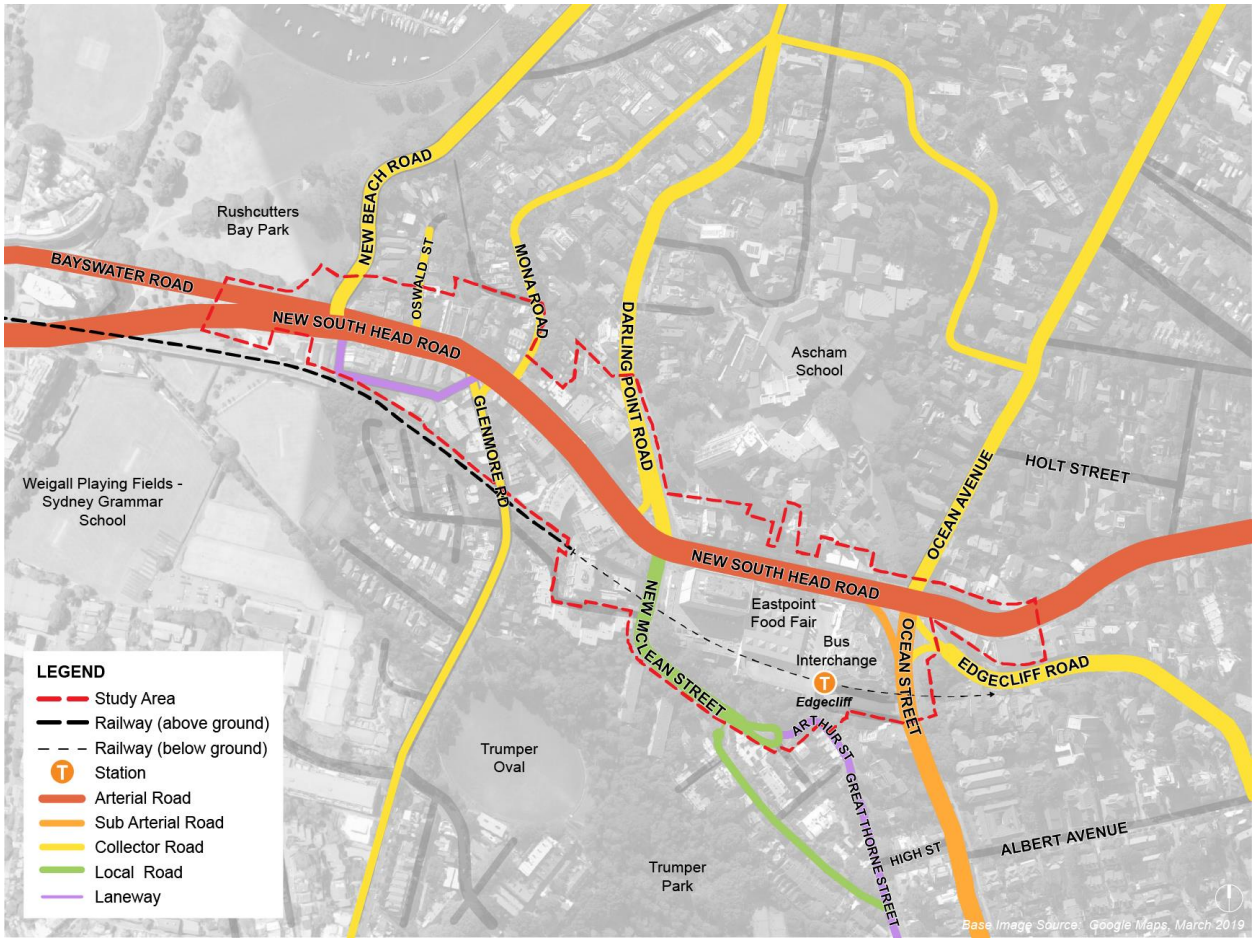
3.3.2 Functional hierarchy

The formal classification of the roads, as described above, outlines the ownership and authority of the road. However, the functional hierarchy describes the use and characteristics of a particular road. **Figure 3-6** outlines the road hierarchy in the vicinity of the ECC.

New South Head Road functions as an arterial road, configured as a dual carriageway. Ocean Street to the south of New South Head Road functions as a sub-arterial road. New South Head Road and Ocean Street combined serve as major traffic corridors which carry traffic generated outside the ECC.

New Beach Road, Mona Road, Darling Point Road and Ocean Avenue to the north of New South Head Road and Glenmore Road to the south of New South Head Road serve as collector roads, whilst all other roads are local roads.

Figure 3-6 Road Functional Hierarchy in the vicinity of the ECC



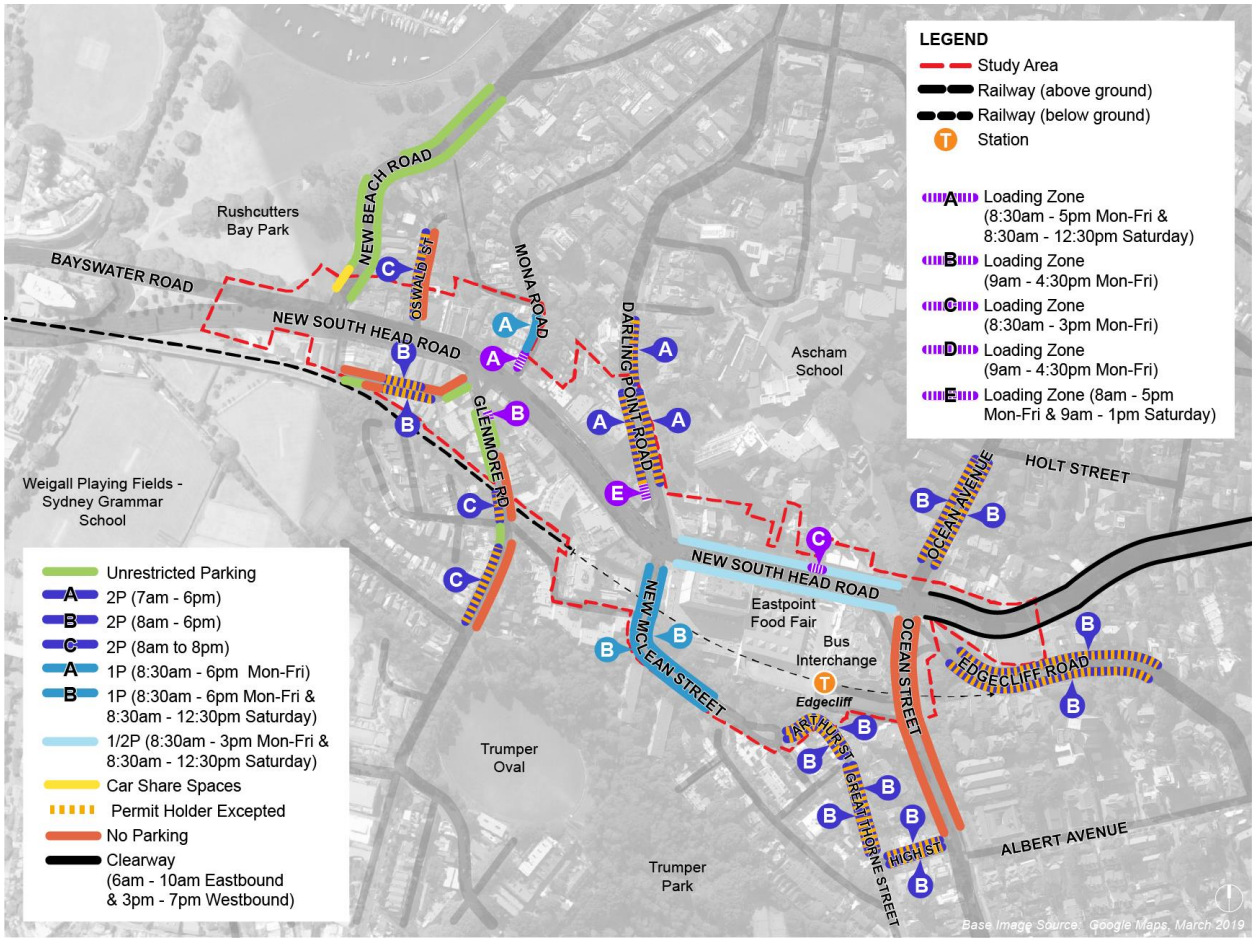
3.3.3 Access and car parking

Access to ECC can be made via the Ocean Street / New South Head Road intersection from the east and the New Beach Road / New South Head Road from the west. Access to the area is also gained via Mona Road, Darling Point Road and Ocean Avenue from the north and via New McLean Street and Glenmore Road from the south.

The Commercial Core developments can only be accessed by the public along the New McLean Street frontage, with a total of four car park accesses being present along this road. Car parking for tenants of the Commercial Core has separate or shared access from that for casual / shopping car parking and loading docks. A large portion of the properties along the ECC corridor can be accessed via New South Head Road only.

The *Edgecliff Commercial Centre Transport Assessment* (GTA Consultants, November 2017) presents the parking currently available within the ECC. This information, together with the updated parking as a result of the implementation of clearways in the area in 2018, has been summarised and presented in **Figure 3-7**.

Figure 3-7 Parking currently available within the Edgecliff Commercial Centre



Source: The Edgecliff Commercial Centre Transport Assessment (GTA Consultants, November 2017), modified by SCT Consulting; 2019

Car parking surveys undertaken for on-street parking during Thursdays and Saturdays within the ECC were presented in the *ECC Transport Assessment* report (GTA Consultants, November 2017). These surveys were undertaken prior to the Clearways being implemented in 2018.

From the surveys it was clear that with the exclusion of parking provisions within the ECC, car parking demand within publicly available on-street spaces remained consistent at 90 per cent for both the surveyed Thursday and Saturday, except for New South Head Road, where the on-street parking was observed to be fully occupied (which indicates that on-street parking has reached its practical capacity) during the Thursday. On the Saturday, New South Head Road experiences low to medium parking demand, which suggests a lower rate of parking generated by retail shopping along New South Head Road, as most of retail stores are closed during the weekend.

3.4 Road network performance

To assess the current operational performance of key intersections surrounding the ECC, traffic counts were undertaken during the weekday and AM and PM peak periods and during the Saturday AM, Midday and PM peak periods. On Thursday 9 September 2023, data was collected between 7am and 9am and between 3.30pm and 6.30pm and on Saturday 11 September 2023, data was collected between 8.30am and 1pm and between 3.30pm and 5.30pm. The surveys and performance analysis were undertaken at the following signalised intersections:

– New South Head Road / New Beach Road

– New South Head Road / Glenmore Road/ Mona Road

– New South Head/ Darling Point Road / New McLean Street Road

– New South Head Road / Ocean Street / Ocean Avenue.

An analysis of the traffic count data revealed that the following time periods were identified as the peak hours within the surveyed AM, PM and Saturday data sets:

– Weekday AM peak: From 7:15AM to 8:15AM

– Weekday PM peak: From 5:00PM to 6:00PM

– Saturday peak: From 12:00PM to 1:00PM

3.4.1 Intersection performance assessment

Operational performance is typically measured through an assessment of the throughput of vehicles across a traffic network, with average delay per vehicle used to assess the performance of an individual intersection. This is consistent with Roads and Maritime Service best practice and is industry standard for the assessment of intersection performance. The average delay per vehicle measure is linked to a Level of Service (LoS) index which characterises the intersection's operational performance. **Table 3-4** provides a summary of the LoS performance bands.

Table 3-4 Level of Service Index

Level of Service	Average Delay per Vehicles (sec/h)	Traffic Signals / Roundabout	Give Way / Stop Signs
A	Less than 14.5	Good operation	Good operation
B	14.5 to 28.4	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	28.5 to 42.4	Satisfactory	Satisfactory, but incident study required
D	42.5 to 56.4	Operating near capacity	Near capacity and incident study required
E	56.5 to 70.4	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.	At capacity, requires other control method
F	70.5 or greater	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.	At capacity, requires other control method

Source: Guide to Traffic Generating Developments; TfNSW; 2002

Degree of saturation is used to measure the capacity of an intersection. This is determined from the ratio of the volume of vehicles which pass through an intersection against the capacity provided by green time, if applicable, and number of traffic lanes available. i.e. vehicle / capacity = DoS. DoS has been used as the measure to define network capacity for this study and to determine whether the road network can cater for any potential development.

All sites assessed as part of the ECC Transport Study have been modelled in the software package SIDRA 9.1.

3.4.2 Existing intersection performance summary

The performance results of the DoS and LoS for the weekday AM and PM and weekend midday peak hours respectively are presented in in **Figure 3-8** to **Figure 3-10**, while detailed results are provided in **Appendix A**.

The weekday AM peak hour (7:15AM to 8:15AM) and PM peak hour (5:00PM to 6:00PM) modelled are outside of school pickup and drop off hours, and therefore not reflective of any congestion experienced on the network at these times. The AM and PM peak hour times modelled are however reflective of travel patterns of the future land uses of the potential development. Concerns raised by members of the public regarding congestion on New McLean Street during drop off and pick up at Ascham school (on 188 New South Head Road) would occur outside of the modelled peak hours.

Assessment of the existing AM, PM and weekend peak flows shows that analysed intersections currently operate at satisfactory conditions, as indicated by the overall LoS C or better for all intersections for all analysed time periods. However, during the weekday PM peak hour the New South Head / Glenmore Road / Mona Road intersection operates near capacity with an overall DoS of 0.95. This is caused by the performance of the Mona Road approach which operates at a LoS F and with a DoS of 0.95.

During the weekend peak hour, the Ocean Street / Ocean Avenue / New South Head Road intersection currently operates at capacity, with a DoS of 1.00, which is reflective of the western approach of New South Head Road (which has a DoS of 1.0). This indicates that there is limited spare capacity at this intersection during the weekend peak hour.

Figure 3-8 Existing AM Peak Hour 2023 Intersection Performance Summary

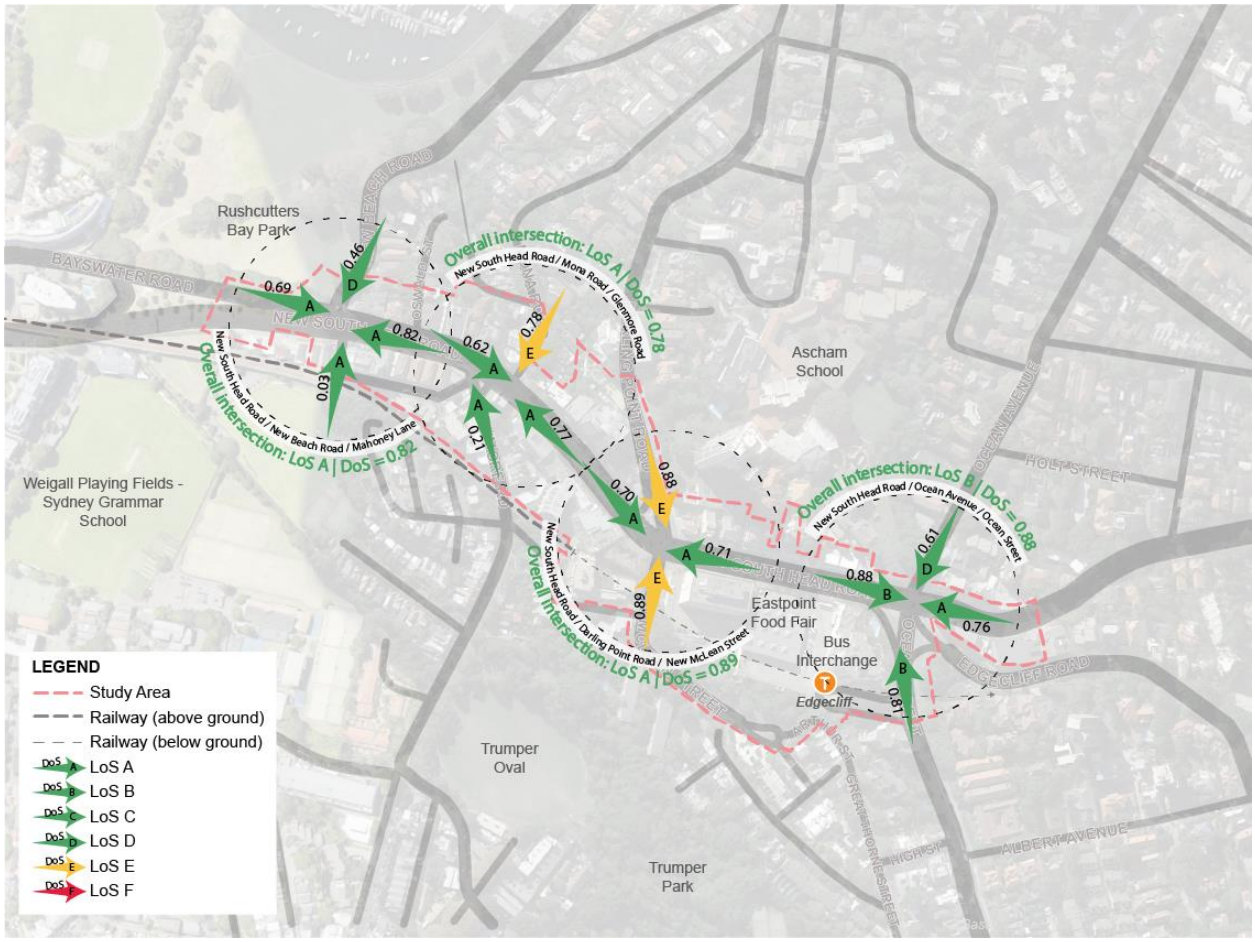


Figure 3-9 Existing PM Peak Hour 2023 Intersection Performance Summary

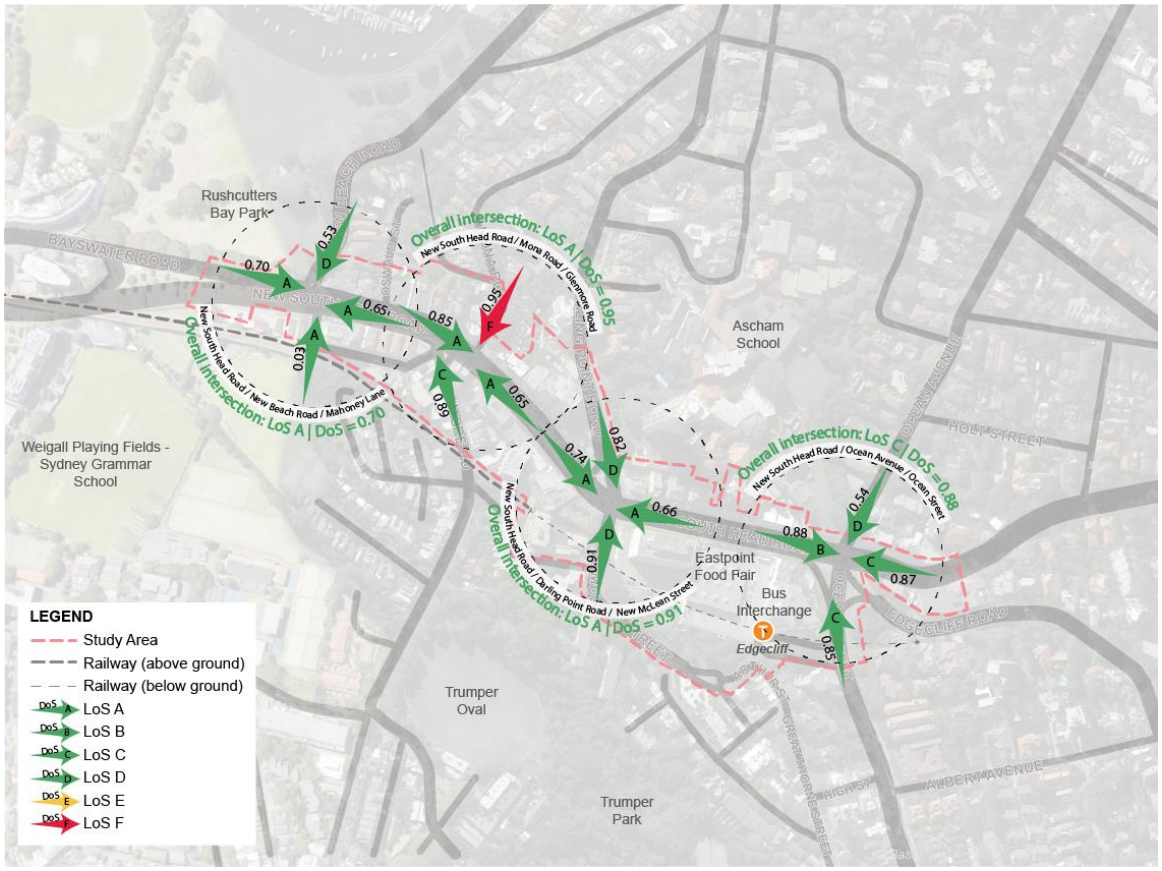
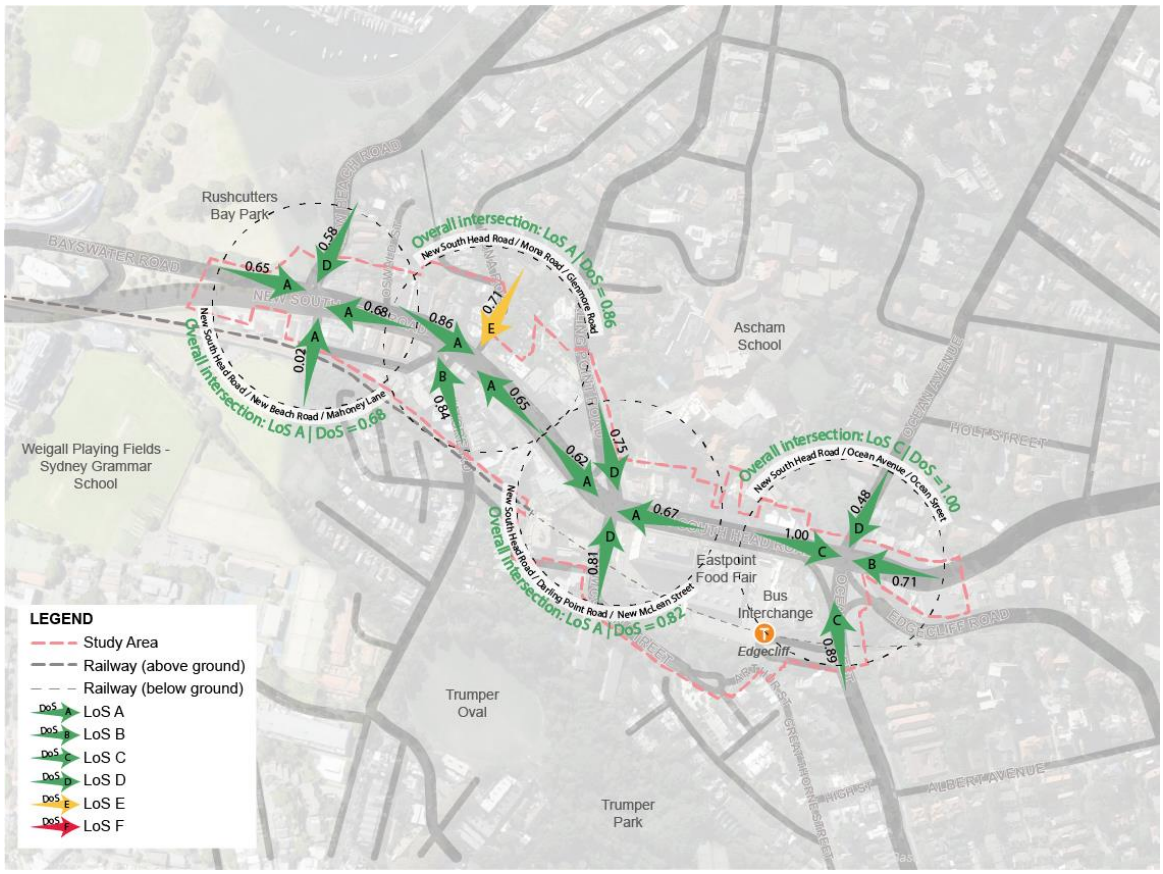


Figure 3-10 Existing Weekend Peak Hour 2023 Intersection Performance Summary



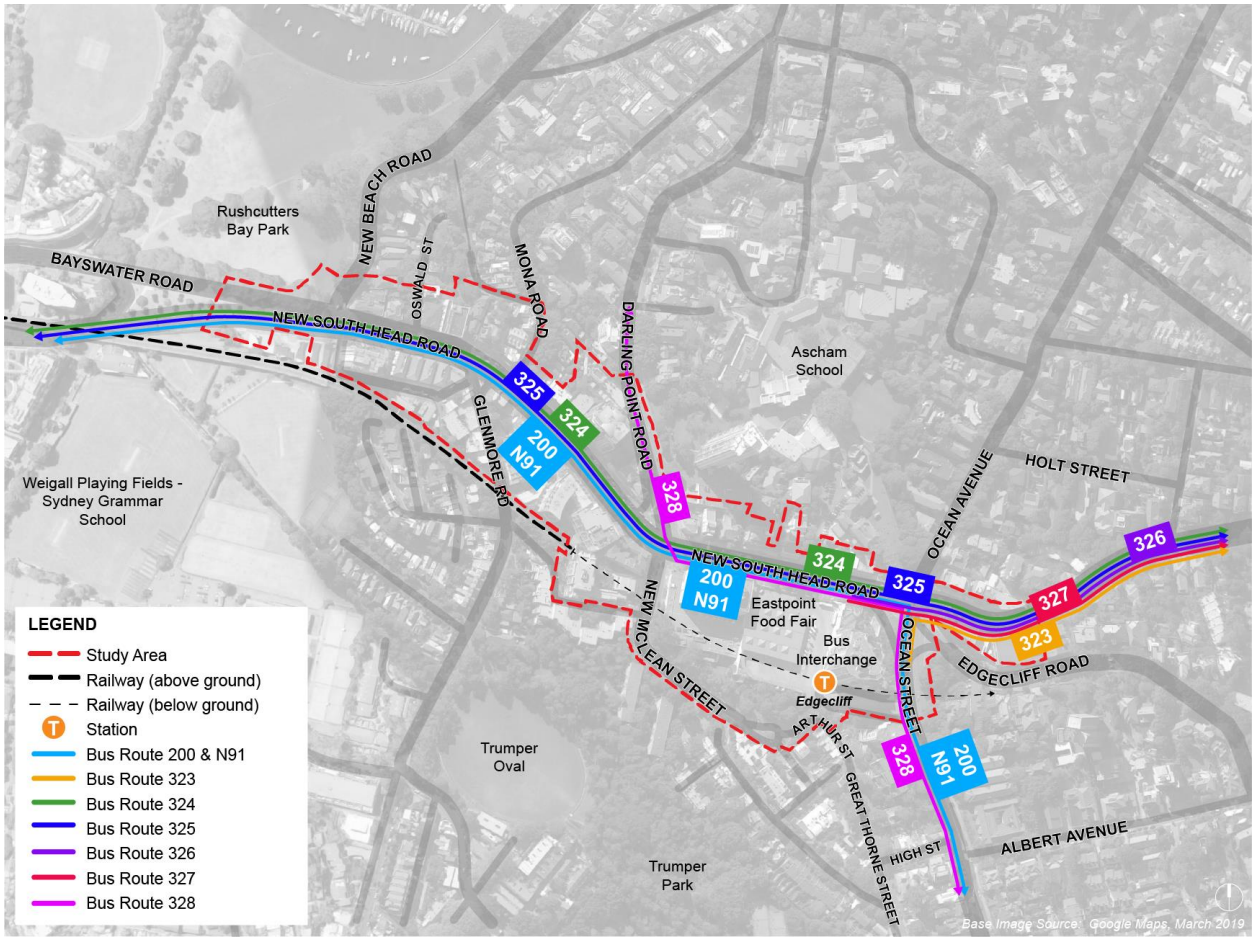
3.5 Public Transport

3.5.1 Bus

3.5.1.1 Services

The bus routes within the ECC study area are shown in **Figure 3-11**. Within the ECC, there are eight bus stops located outside of the Edgecliff station precinct and seven bus stops located within the station precinct, as outlined in **Table 3-5**, which also provides a summary of bus stops and associated services at these stops.

Figure 3-11 Surrounding Bus Network



Source: Transport for NSW, 2024

Table 3-5 The ECC bus stops and services

Stop ID	Location	Services
202755	New South Head Road (EB), west of New Beach Road	• Route 324: City <> Watsons Bay • Route 325: City <> Watsons Bay
202754	New South Head Road (WB), east of Mahoney Lane	• Route 324: City <> Watsons Bay • Route 325: City <> Watsons Bay
202756	New South Head Road (EB), east of Mona Road	• Route 324: City <> Watsons Bay • Route 325: City <> Watsons Bay
202753	New South Head Road (WB), east of Glenmore Road	• Route 324: City <> Watsons Bay • Route 325: City <> Watsons Bay • Route 328: Bondi Junction <> Darling Point
202752	Darling Point Road (SB), north of New South Head Road	• Route 328: Bondi Junction <> Darling Point
202723	Ocean Street (SB), south of Albert Street	• Route 200: Bondi Junction <> Gore Hill • Route 328: Bondi Junction <> Darling Point
202818	New South Head Road (EB), west of Henrietta Street	• Route 323: North Bondi <> Edgecliff via New South Head Road • Route 324: City <> Watsons Bay • Route 325: City <> Watsons Bay • Route 326: Bondi Junction <> Edgecliff via Bellevue Hill • Route 327: Bondi Junction <> Edgecliff via Bellevue Rd & Manning Rd
202835	New South Head Road (WB), opposite Henrietta Street	• Route 323: North Bondi <> Edgecliff via New South Head Road • Route 324: City <> Watsons Bay • Route 325: City <> Watsons Bay • Route 326: Bondi Junction <> Edgecliff via Bellevue Hill • Route 327: Bondi Junction <> Edgecliff via Bellevue Rd & Manning Rd • Route 328: Bondi Junction <> Darling Point
202713 202715 202716 202717 202718 202719 202720	Edgecliff Station Bus Stands	• Route N91: Macquarie Park <> Bondi Junction via City Town Hall • Route 323: North Bondi <> Edgecliff via New South Head Road • Route 324: City <> Watsons Bay • Route 325: City <> Watsons Bay • Route 328: Bondi Junction <> Darling Point

Source: Transport for NSW; 2024

During peak hour periods, bus stops within the ECC are offered a high frequency of services, within a 500m walking distance of the Edgecliff Station. Because of the proximity to the Edgecliff Station, interchange opportunities between bus and train are also easily available within the ECC.

During the AM peak period (from 7AM to 9AM), there are approximately 28 and 25 services travelling to and from Edgecliff, respectively. During the PM peak (3PM to 7PM), 70 services travel towards Edgecliff whilst 67 services travel in an outbound direction. The number of buses per hour that run to and from the ECC are outlined in **Table 3-6**.

Table 3-6 Bus Services per hour to and from the ECC

Time Period	Inbound (To Edgecliff)	Outbound (From Edgecliff)
	2023	
5AM – 7AM	9	10
7AM – 9AM	**28**	**25**
9AM – 3PM	82	102
3PM – 7PM	**70**	**67**
7PM – 9PM	27	24

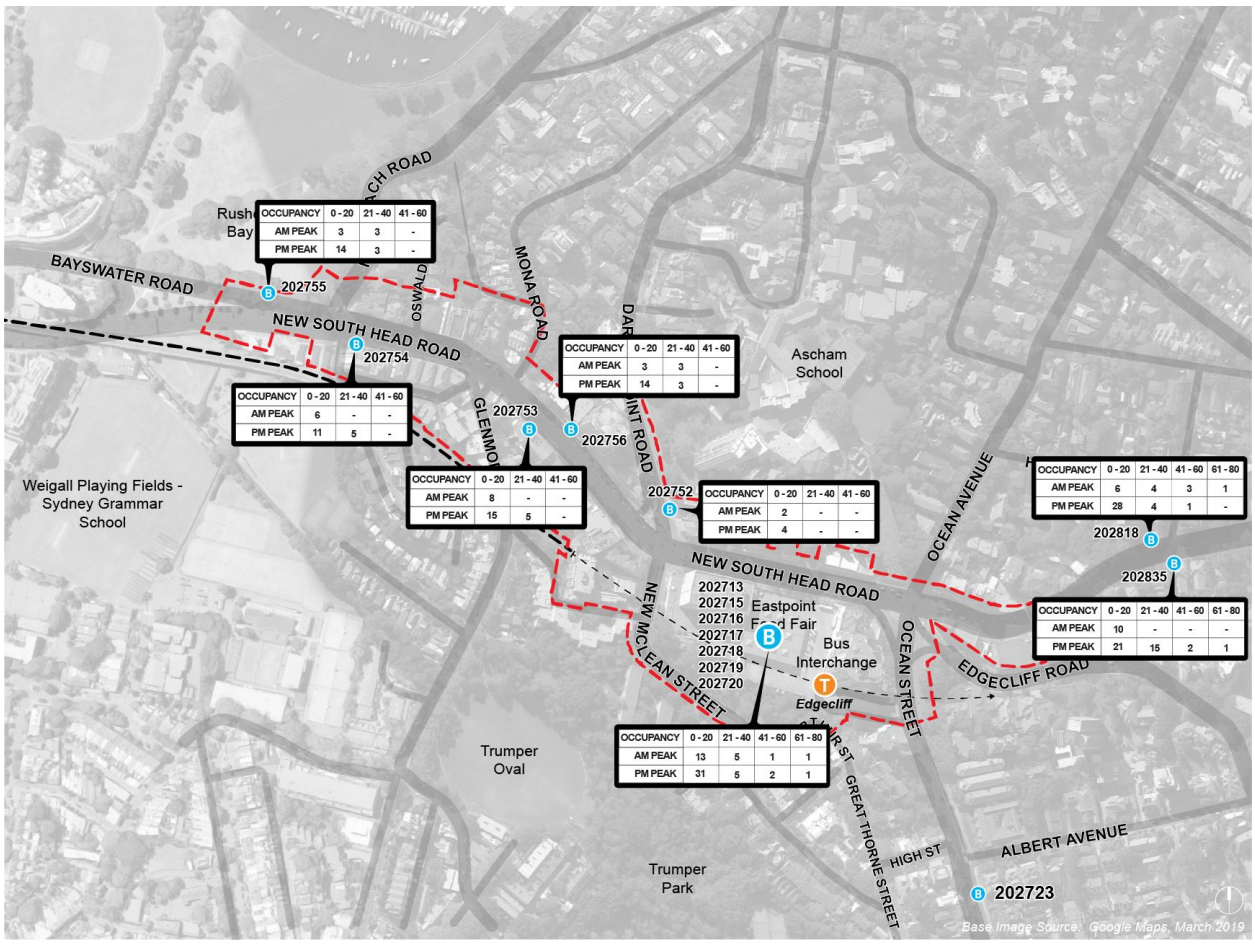
Source: Transport for NSW; 2024, modified by SCT Consulting; 2024

3.5.1.2 Capacity

Patronage data for the current bus services is not readily available from TfNSW and, as such has not been provided to inform this study. However, data to inform an overall summation of bus service capacities, based on their occupancy rates, is available.

Bus Opal Assignment Model (BOAM) information, obtained from TfNSW for 9 September 2023, indicates that during peak periods most services operate with spare capacity, as shown in **Figure 3-12**. Based on the average seating capacity of 45 seats and combined standing capacity of 60 passengers, only four and five bus services during the AM and PM peaks respectively, operate near capacity. One bus service during the AM peak hour and two services during the PM peak hour operate above capacity (with an occupancy rate of between 61 and 80 passengers).

Figure 3-12 Number of services and occupancy range over two-hour peak periods (9 September 2023)



Source: Transport for NSW; 2024

3.5.2

3.5.2 Train

3.5.2.1 Services

Edgecliff Station is located within the study area, on the T4 Eastern Suburbs and Illawarra Line and on the South Coast Line. These train lines provide direct access to Bondi Junction, the City, Sutherland and Wollongong, whilst also interconnecting to the wider Sydney Train network. It is an underground station which can be accessed via New South Head Road and New McLean Street. The majority of the ECC is located within an approximate distance of up to 500m catchment of the Edgecliff Station.

Trains travel to/from Edgecliff Station have a frequency of 15 inbound (to Central) and 18 services (to Bondi Junction) services during the AM peak hour period. During the PM peak, 18 outbound (to Bondi Junction) trains and 17 inbound (to Central) trains service the station. There are approximately seven train services per hour on Saturdays.

3.5.2.2 Capacity

Patronage data for Edgecliff Station is not readily available from TfNSW and, as such has not been used to inform this study. Overall patronage of the existing services, based on the maximum capacity of the line, can be compared based on occupancy of the services. The typical train seating capacity for services along the T4 – Eastern Suburbs and Illawarra Line is 840 passengers. Capacity is assessed against the following two measures:

– 100% load: A seat is available for each passenger

– 135% load: The benchmark beyond which passengers experience crowding and dwell times that can impact on on-time running.

Of the 30 trains recorded during the AM peak period the maximum occupancy of a peak inbound service, measured at Kings Cross based on TfNSW data, was in the range of 481-500 passengers indicating a large degree of spare capacity to operate future growth for individuals travelling to or from Edgecliff Station.

In the PM peak, peak load measurements were undertaken at Martin Place Station for the T4 line. During the 4-6PM time period a total of 30 trains were recorded, the maximum occupancy rate reported was 661-680 passengers. This suggests that there is sufficient capacity to cater for potential growth in the ECC.

3.5.3 Interchange function

Edgecliff Station is served by several bus services throughout the day, with most buses traveling to Bondi Junction and Watson Bay as final destinations. However, a number a bus services (traveling from North Bondi and Bondi Junction) also terminate at Edgecliff. Edgecliff Station is located on the T4 train line which provides frequent access to Bondi Junction, the City, Sutherland and Wollongong, whilst also interconnecting to the wider Sydney Train network.

The combination of terminating bus services at the bus interchange and Edgecliff Train Station's good access to frequent train services suggests that Edgecliff, while being serviced by frequent bus and train services as separate transport modes, also holds an important role as an interchange between the two modes.

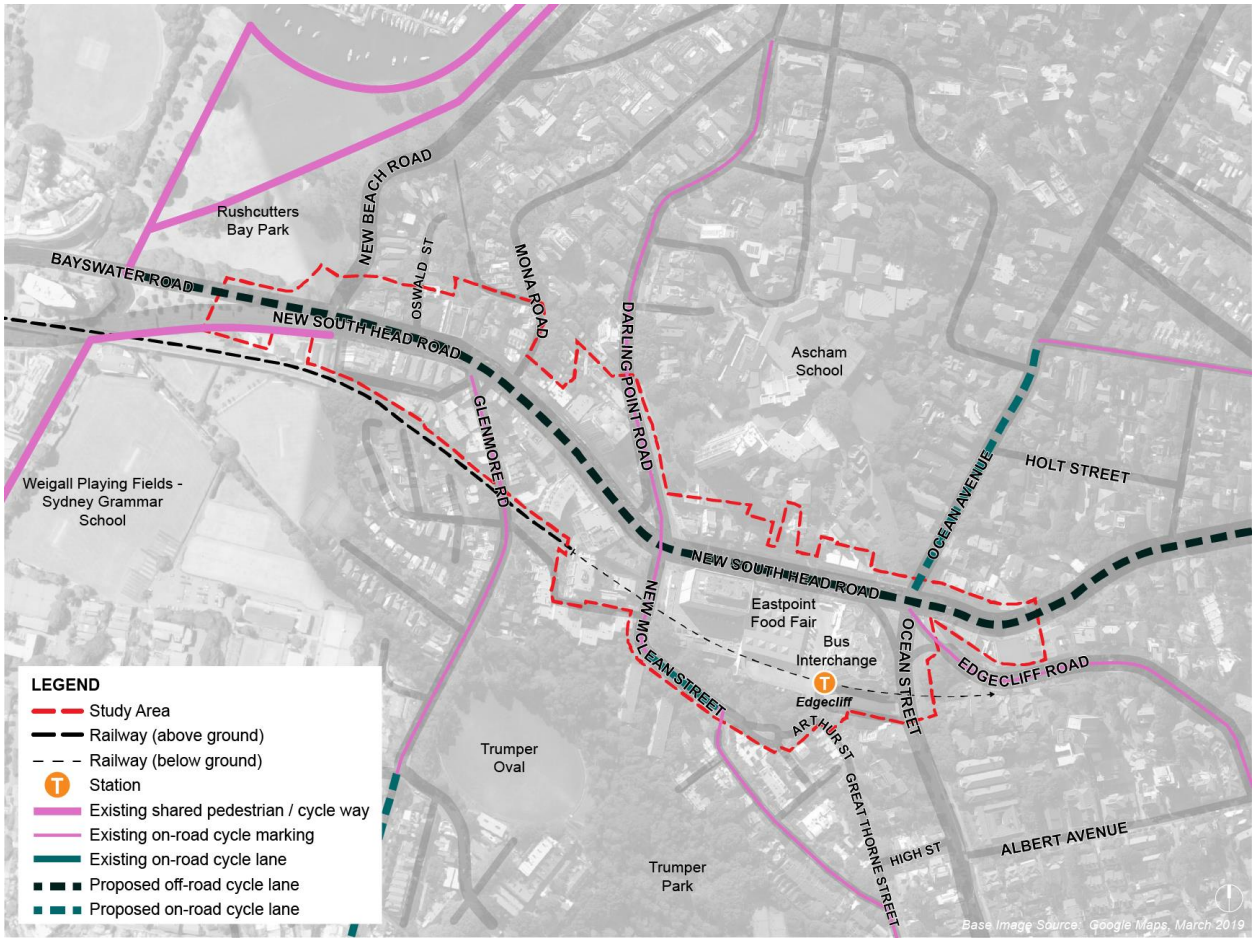
3.6 Active transport

3.6.1 Cycling

3.6.1.1 Infrastructure facilities

The existing cycling routes serving the ECC are generally perpendicular to New South Head Road. Most of these perpendicular routes are constrained by challenging grades of up to 10 per cent. There are no east-west road corridors except for New South Head Road, resulting in no alternative east-west cycle options. New South Head Road is a challenging road environment that precludes all but the most experienced riders. **Figure 3-13** shows the existing routes and those proposed in the Woollahra Active Transport Strategy, and subsequent planning by WMC.

Figure 3-13 Existing and proposed bicycle network



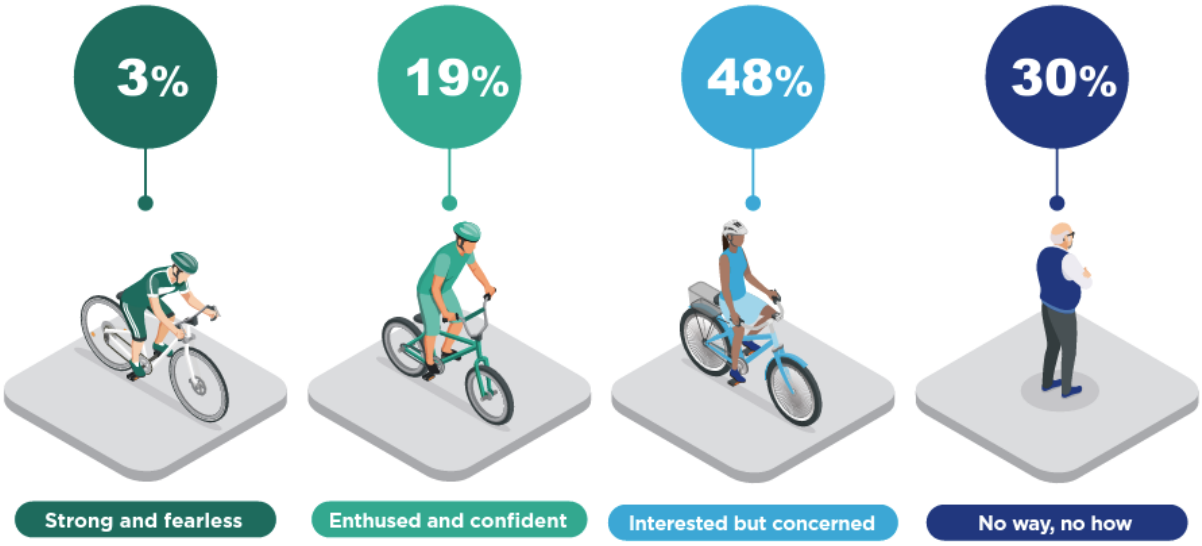
Source: The Woollahra Municipal Council Active Transport Plan (2023)

3.6.1.2 Existing Cycling Conditions

Cycling to and from the ECC is currently observed to be difficult and potentially unsafe due to a lack of dedicated cycling infrastructure and topographical constraints. Multiple roads with steep grades make it difficult for cyclists to ride uphill with limited protection for cyclists. This is in particular the case for some of the north-south routes north of New South Head Road, such as Darling Point Road and Ocean Street, as these roads both have steep gradients, making them a challenging environment for cyclists.

Research undertaken by TfNSW, detailed with the Cycleway Design Toolbox (2020) indicates that a focus should be placed on providing high-quality, safe and connected cycleways that cater to riders who are 'interested but concerned'. This group accounts for 48 per cent of potential riders. Research has indicated that over 70 per cent of potential customers would ride a bicycle if they had access to safe cycling routes. A breakdown of bicycle rider types is provided in **Figure 3-14**.

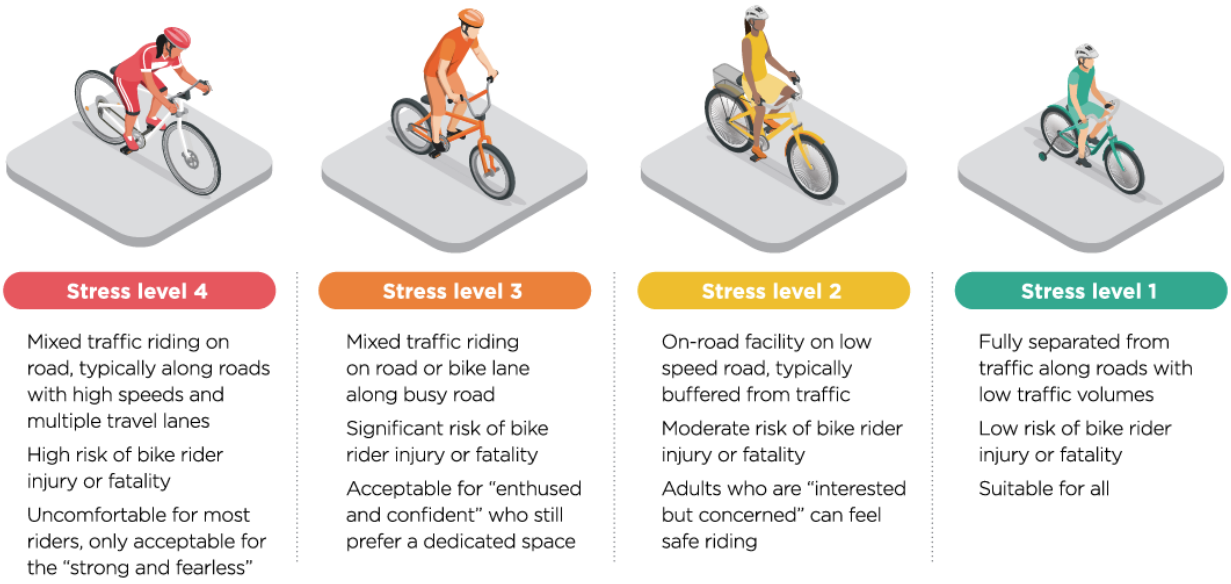
Figure 3-14 The four types of bicycle riders



Source: TfNSW, 2020

'Bicycle level of stress' is used as industry best practice for assessing the comfort and connectivity of cyclists. For a cycling network to attract users of all ages and abilities, including risk-averse riders, it is important to provide a low stress network. If correctly delivered a low stress connection is achieved between a rider's origin and destination that is within their riding comfort level. An overview of stress level ratings, and their supporting characteristics, is provided in **Figure 3-15**.

Figure 3-15 Stress level ratings and their characteristics



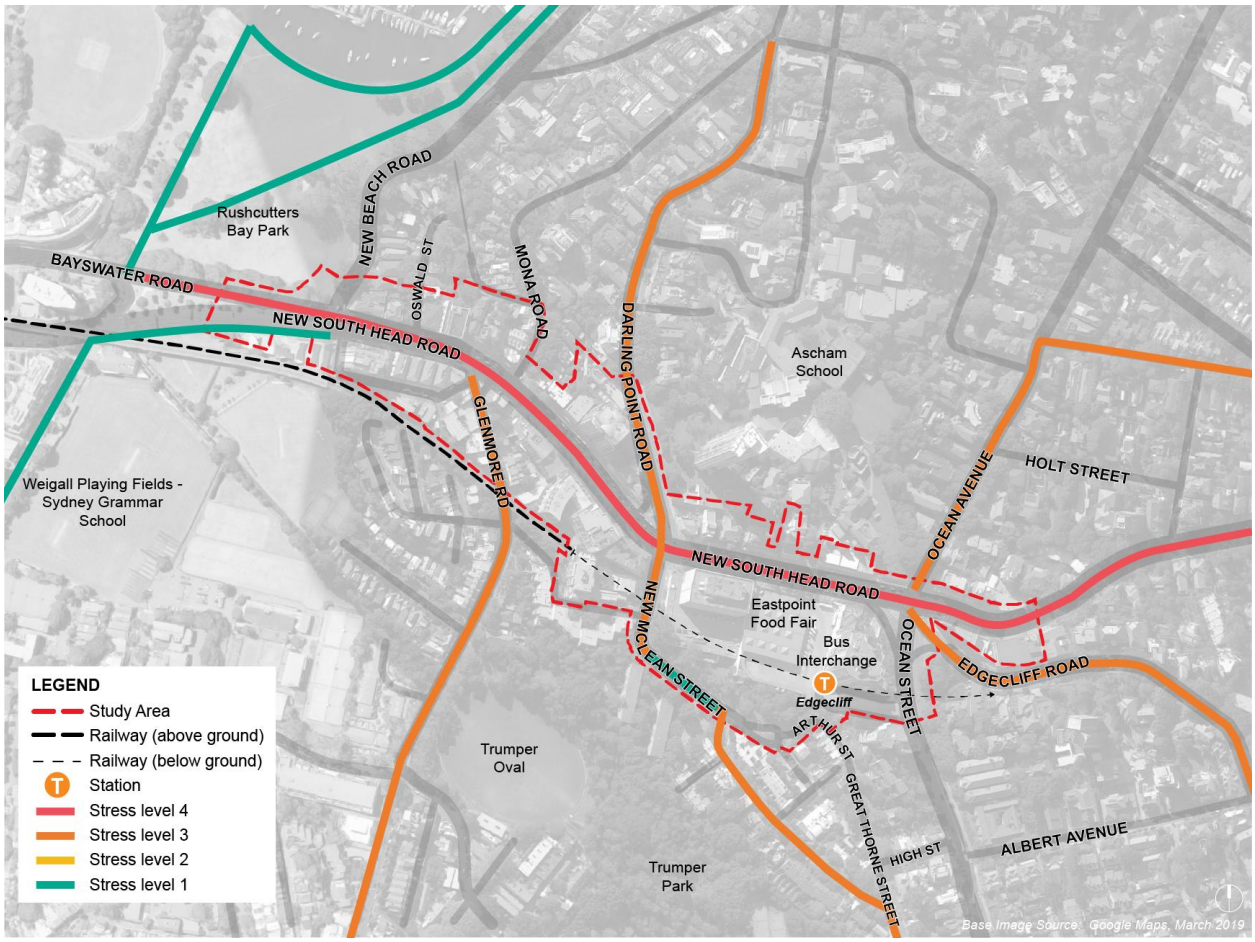
Source: TfNSW, 2020

The ECC and surrounding areas comprises of three cycleway classifications (as seen in **Figure 3-16**):

- Stress level 4: Mixed traffic lane on busy street where the designated cycleway is located on a major arterial road such as New South Head Road.
- Stress level 3: Where the on-road cycle way marking is located on a major road such as Ocean Avenue, Glenmore Road, Darling Point Road or New McLean Street.
- Stress level 1: An off-road cycleway through Rushcutters Bay Park.

There are currently no cycleways within the ECC where a stress level 2 rating is achieved.

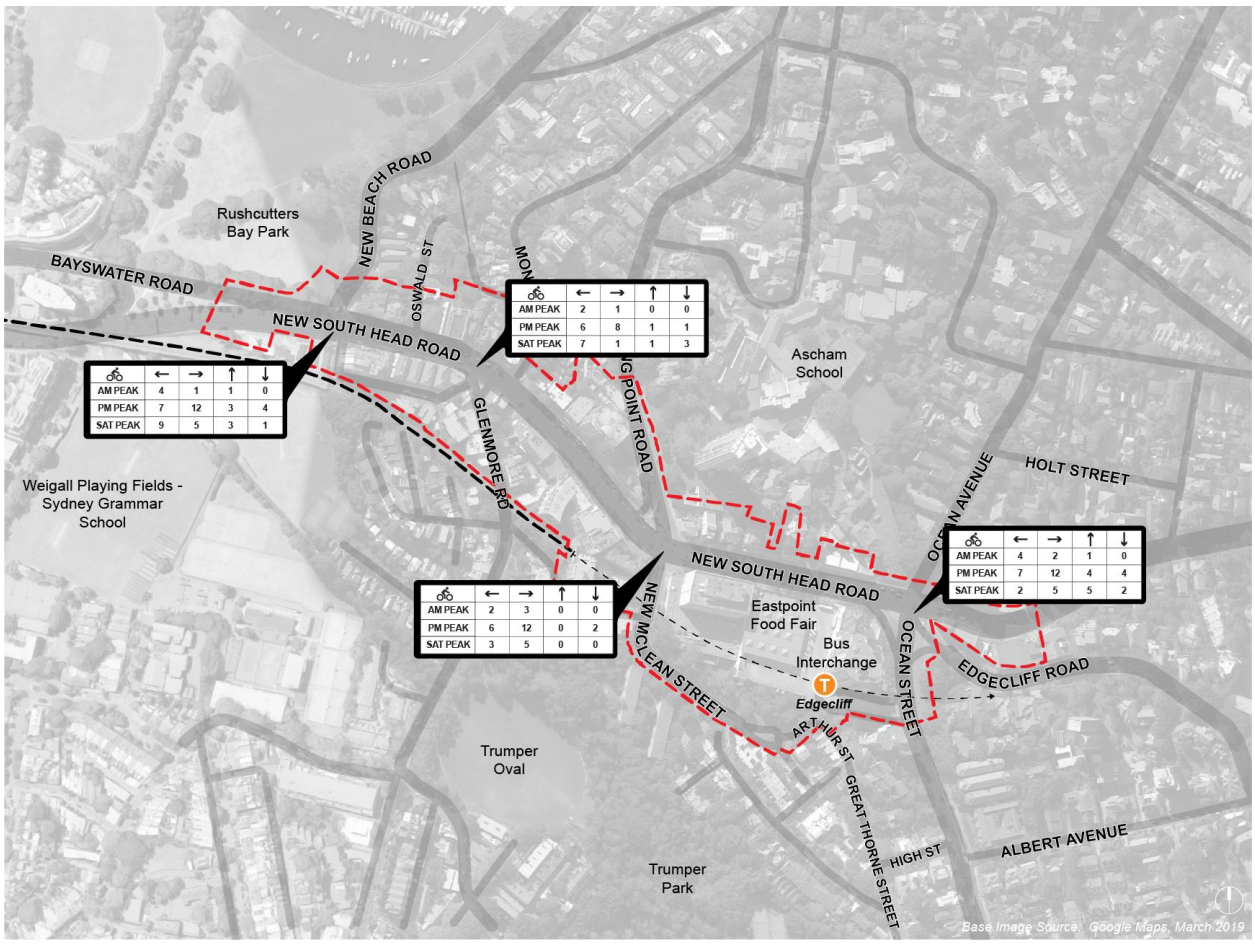
Figure 3-16 Cycle routes and their stress ranking within the ECC



3.6.1.3 Cycling volumes

Cyclist counts at key intersections within the ECC during the weekday and weekend peak hours (surveyed in September 2023) are summarised in **Figure 3-17**. These indicates indicated that most cycling movements occur in an eastbound or westbound direction, along New South Head Road. In a northbound and southbound direction, Ocean Road is the most frequently accessed road by cyclists in the ECC, followed by New Beach Road.

Figure 3-17 Cycle counts within the ECC



3.6.2 Walking

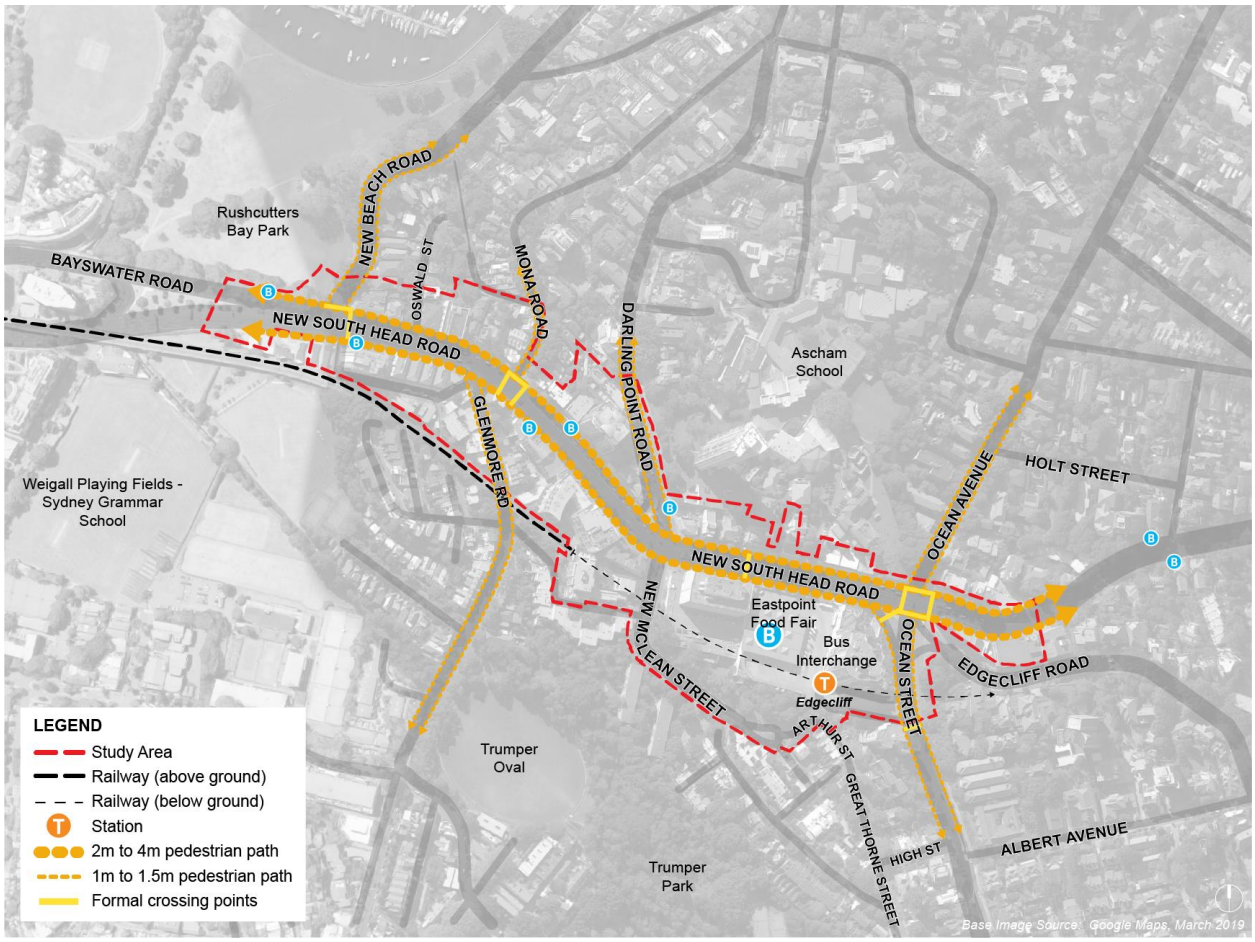
The ECC is generally well-serviced by pedestrian footpaths, with New South Head Road and surrounding local roads having footpaths on both sides. However, some of the pedestrian footpaths have uneven pavers and do not provide ease of access for those with mobility issues, including parents with prams, the elderly or people who are mobility impaired. Pedestrian access to the ECC is restricted by the railway line and the busy New South Head Road, which run along the southern boundary and middle of the ECC, respectively.

The ECC has limited pedestrian crossings in a north-south direction from both sides of intersections at New South Head Road / New Beach Road and New South Head Road / Darling Point Road / New McLean Street intersections. There is currently a zebra crossing on the slip lane at the north-western corner of the New South Head Road / New Beach Road intersection, just west of the signalised pedestrian crossing across New Beach Road.

The lack of north-south crossing at the New South Head Road / Darling Point Road / New McLean Street intersection results in an additional 220 metre walking distance to get from the northwest corner to the southwest corner of the intersection. In addition, the north-west corner of this intersection is steep with a narrow footpath along Darling Point Road which again could contribute to an unsafe environment for pedestrians using the footpath, and especially for passengers getting in and out of their car. The pedestrian crossing on the southern approach of this intersection (New McLean Street) has a bend in it, which can be unsafe for visually impaired pedestrians crossing, since it directs individuals towards the middle of New South Head Road.

The existing footpaths and formal crossing opportunities are presented in **Figure 3-18**.

Figure 3-18 Existing walking facilities around the ECC

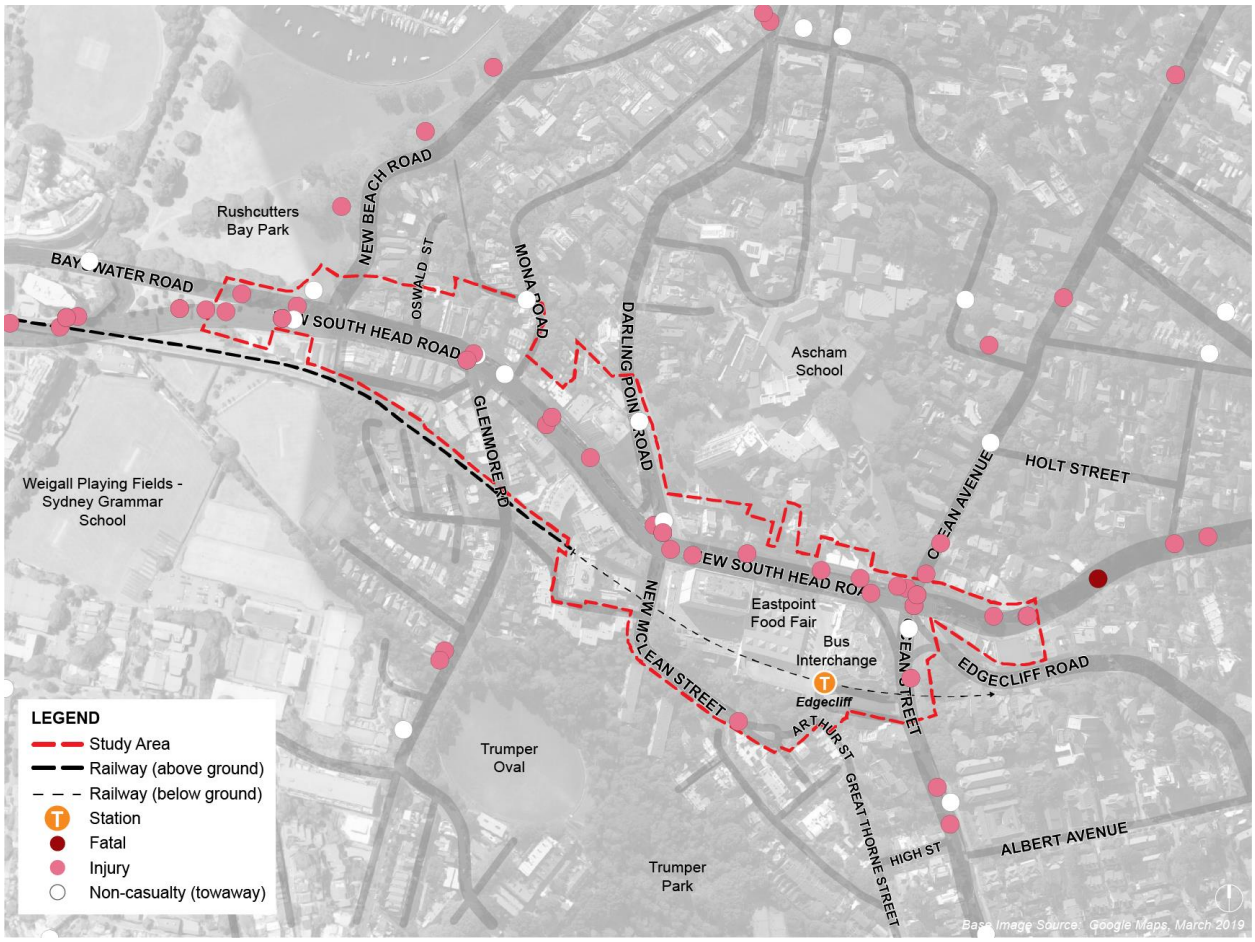


3.7 Crash Analysis

An analysis of the crash data for a five-year period (2017 to 2021) has been undertaken based on publicly available crash data sourced from Transport for NSW, for the ECC. The locations and severity of the crash data for the five-year period is shown in **Figure 3-19** and **Table 3-7**.

Over the analysed years, a total of 34 crashes occurred in the ECC, with most crashes occurring during 2019 (10 crashes occurred in this year). Of the crashes occurring over the five-year period within the area, there were no fatal crashes and seven serious injury crashes. These seven crashes all occurred along New South Head Road except for one crash that occurred on Ocean Street. Of the seven serious injury crashes, one crash involved a pedestrian. The largest number of crashes in the ECC occurred at or near the New South Head Road / Ocean Avenue intersection.

Figure 3-19 Crashes within the ECC (2017-2021)



Source: https://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/nsw.html?tabnsw=3, modified by SCT Consulting, 2023

Table 3-7 Severity of crashes within the ECC (2017 – 2021)

Crash severity	2017	2018	2019	2020	2021
Fatal	0	0	0	0	0
Serious injury	1	1	2	3	0
Moderate injury	1	5	5	0	1
Minor / Other injury	3	3	3	3	3

Source: https://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/nsw.html?tabnsw=3, 2023

3.8 Car Share

Within or in proximity to the overall ECC area, there are a total of five locations where residents have access to GoGet car share vehicles, as shown in **Table 3-8** and **Figure 3-20**. A total of 768 GoGet members currently are within 250m of at least one of these locations.

Data was obtained for the month of March 2021 and 2023 to determine underlying trends in car share usage within the area. Results indicated that car share usage has increased within the ECC over the past 24 months with the number of bookings, the overall hours booked and the average trip hour metrics. This dataset is however not considered large enough to form a representative sample and draw conclusions relating to car share usage in the ECC.

Table 3-8 Go Get Car Share Usage (March 2021 vs March 2023)

Bay Location	Number of bookings		Hours Booked		Average Trip Hours	
	March 2021	March 2023	March 2021	March 2023	March 2021	March 2023
Edgecliff Road, Edgecliff	15	45	66.5	172.5	4.43	3.83
315 New South Head Road (Essence Apartments), Edgecliff	26	30	108.5	218	4.17	7.27
New McLean Street, Edgecliff	42	36	166	220.5	3.95	6.13
New McLean Street near Arthur Street, Edgecliff	30	24	115	136.5	3.83	5.69
New Beach Road, Darlingpoint	17	23	43.5	79	2.56	3.43
Total	**130**	**158**	**499.5**	**826.5**	**3.79**	**5.27**

Source: GoGet Car Share; 2023

3.8.1 Benefits of Car Share

Benefits realisation of car share schemes, with respect to the City of Sydney Local Government Area, is documented within the Committee for Sydney document 'Carsharing: Sydney Snapshot' as follows:

- Each car share vehicle removes 10 private vehicles from the road network. Within the nearby Double Bay area research indicates that approximately 70 per cent of these vehicles would be parked on street. These factors can be considered in the application of ratios for car spaces within new dwellings.
- A reduction in vehicle kilometres travelled by approximately 2,000km per year for each user with corresponding increases in walking, riding a bicycle or using public transport. This has flow on impacts to the health of residents.
- Each car space in a multi-storey car park can cost between $30,000 - $70,000 to construct with apartment prices increasing in cost by $50,000 - $140,000 when a car space is provided. These cost savings are passed on to developers and unit owners alike.
- The current benefit that each car share vehicle provides is estimated at $59,673. This takes into consideration factors such as congestion, environmental factors such as emissions, opportunity cost of not owning a car space, management fees and community value of space.

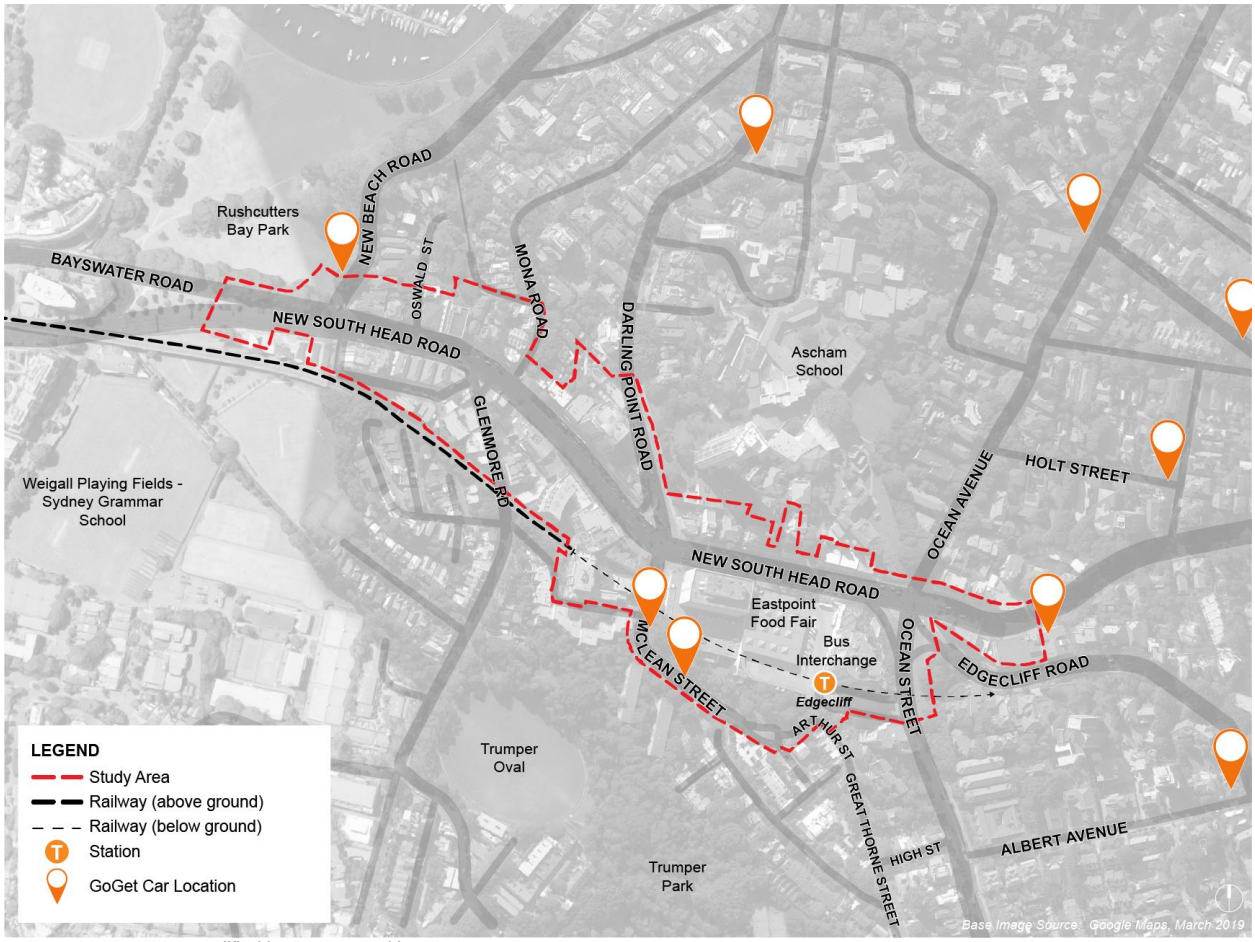
These statistics support the notion of using car share schemes, such as Go Get, to achieve reductions in private vehicle ownership. They also allow for action to be taken regarding parking provision and a review of existing parking controls.

3.8.2 Future Growth Patterns

Future patterns of growth are not possible to accurately predict based on the increasing emergence of technology in aiding workplace productivity and the propensity for staff to work remotely and the unknown workplace location of these individuals. However, factors such as attitudinal changes to public transport, increased public transport frequencies during peak times, and future employment growth within the WMC local area all have the potential to further improve the public and active transport mix for journey to work trips. This would reduce the impact of private vehicles on the local road network relative to existing usage rates.

Furthermore, the changing pattern of car ownership in future years has the potential to change both people's travel behaviour and the need for parking within residential buildings, commercial dwellings. Research indicates that as many as 200,000 Australians are currently using car share schemes with this potentially increasing to 1.5 million in the next 10 years.

Figure 3-20 GoGet Car Share parking locations



Source: GoGet, 2023, modified by SCT Consulting; 2023

4.0 Potential Development

4.1 Assessment scenario

To ascertain the impact of the potential additional development yield in the ECC the following peak periods were assessed:

– AM peak hour

– PM peak hour

– Weekend peak hour

4.2 Development yield

Table 4-1 and **Figure 4-1** provide an overview of the potential development scenario for the ECC and include proposed location and car parking provision for the proposed residential, commercial and retail land uses. At completion, the potential developments could result in an uplift of 559 parking spaces across all three land uses.

The development potential is based on the total future development compared to the existing development as a baseline.

A detailed breakdown of development yield for each individual site is summarised in **Appendix B**.

Table 4-1 The ECC Potential Development Yield

Yield	Residential		Commercial		Retail	
	Future	Uplift	Future	Uplift	Future	Uplift
GFA (m^2)	57,151	49,325	24,373	4,325	6,762	43
Parking	572	493	366	65	134	1

Source: WMC; February 2024

The preferred development option includes a reduction of the retail in the Commercial Core and provision of ground floor retail as part of shop top housing throughout the remainder of the precinct to increase the level of street activity.

Figure 4-1 The ECC Potential Development Scheme

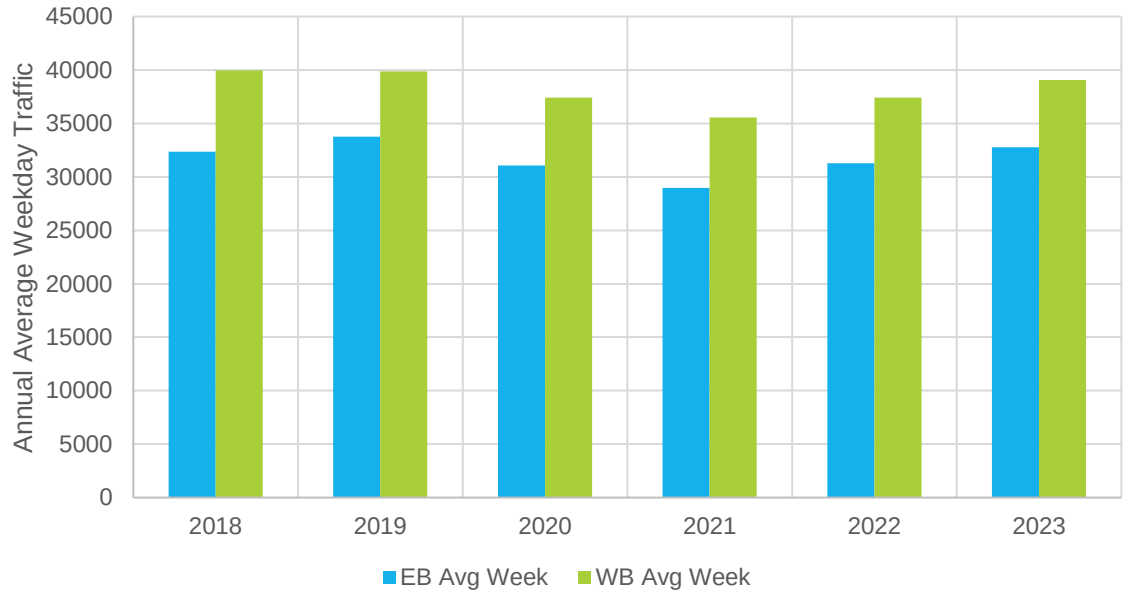
Source: WMC, February 2024

4.3 Background traffic

Historical data in terms of RMS annual average daily traffic count for New South Head Road count station 10011 was used to determine any background growth of the corridor, as seen in **Figure 4-2**. The data indicates that the weekly traffic has varied slightly between 2018 and 2023, with periods of growth and decline in traffic volumes on the corridor. This is typical of a corridor experiencing congestion, in that growth has plateaued.

Based on the slightly negative growth on the corridor from 2018 to 2023, zero background growth is assumed for the corridor for the future modelling scenario.

Figure 4-2 Annual average weekly traffic for New South Head Road (10011)



Source: SCT Consulting based on RMS AADT Data for station New South Head Road (10011), 2023

5.0 Trip generation and distribution

5.1 Vehicle trip generation

A trip generation review has been undertaken based on the proposed different land uses and indicative yield to:

– Understand likely weekday / weekend peak hour vehicular and person trip generation.

– Understand likely impacts on surrounding road network.

As described in **Section 4.2**, the potential developments in the ECC compromises of residential, retail and commercial land uses.

5.1.1 Residential

The potential uplift in residential use, based on the growth scenario, is 49,325 sqm, which is an increase from 7,826 sqm to 57,151 sqm. The location of the proposed increase in residential uses is within a short walk of the Edgecliff Train Station, which provides access to Sydney CBD within five minutes of train travel.

The average trip rate for high density residential flat dwellings that have good access to public transport services within Sydney urban areas, as published in the *Technical Direction 2013/04a, Guide to Traffic Generating Developments* (TDT 2013/04a), is identified as 0.15 and 0.12 trips per car space within the AM and PM peak hour periods respectively for weekdays. For the weekend peak hour, the highest trip rate (0.15 vehicles per parking space) has been adopted.

On this basis, the total residential trips generated will be 74 trips / AM peak hour, 59 trips per PM peak hour and 74 trips per weekend peak hour.

5.1.2 Retail

The total potential uplift in retail, based on the growth scenario, is 43 sqm, which is an increase from 6,719 sqm to 6,762 sqm. The average trip rates for retail precinct, with a total floor area in the area in the range of 10,000 and 20,000 sqm, is 7.6 trips / 100sqm during the PM peak and 6.6 trips / Saturday peak respectively, based on the TfNSW guidelines for shopping centres. This would apply to the shopping centre in the ECC, which is proposed to decrease by 921 sqm.

Cafes and specialty shops are however ancillary in nature and often form part of the customer journey to a shopping centre rather than being the sole purpose. Trip generation is mostly associated with staff movements rather than customers. The trip generation for the café and specialty shops in the AM peak hour is proposed to be 1.55 trips / 100 sqm GLFA, the average of the AM peak traffic generation of all urban shopping centres in *TDT 2013/04a Appendix F3*. The AM peak was selected, as it represents a time when there are few customers and staff are arriving for work. As such, it reflects that majority of visitors to the shops will be arriving for other purposes, so that the traffic generation is comprised mainly of staff arrivals. This rate was also adopted for the PM peak, and for the AM peak hour for the shopping centre.

On this basis, the total retail trips generated will be 0 trips / AM peak hour, -41 trips per PM peak hour and -34 trips per weekend peak hour. The number of total trips generated by the retail component will decrease due to the decrease in the shopping centre floor space.

5.1.3 Commercial

The total potential uplift for commercial uses, based on the growth scenario, is 4,325 sqm, which is an increase from 20,048 sqm to 24,373 sqm.

The TDT 2013/04a describes vehicular trip rates for commercial developments where traffic surveys were undertaken for developments that are close to public transport (as shown in **Table 5-1**). Included in TDT 2013/04a were surveys at North Sydney, Chatswood, Macquarie Park and Parramatta, which are similar in terms of scale of development and proximity to the train stations.

Table 5-1 Peak hour vehicle trip generation per 100sqm of similar office sites – weekday

Surveyed location	North Sydney	Chatswood	Macquarie Park	Parramatta	Average
AM peak hour trips	52	105	119	185	115
PM peak hour trips	44	86	106	166	100
AM trip rate	0.17	1.03	2.07	0.69	0.99
PM trip rate	0.14	0.84	1.84	0.61	0.86

Source: RMS, Technical Direction 2013/14

The average peak hour trip rates per 100 sqm for the surveyed locations were estimated to be 0.99 and 0.86 trips during the AM and PM network peak hour respectively. On this basis, the estimated vehicle trips for the additional commercial land use will be 43 and 37 for AM peak and PM peak, respectively. The vehicle trip generation of office space is assumed to be zero on the weekends.

5.1.4 Total vehicle trips

Based on the adopted trip generation rates of the respective land uses, the proposed increase in development yield at the ECC would generate a total of **117** additional vehicular trips during the AM peak hour and **55** additional vehicular trips during PM peak hour for a weekday. The estimated additional weekend vehicle trips will be **40** trips per peak hour in total.

A summary of the weekday and weekend park hour trip generation rates used is shown in **Table 5-2**.

Table 5-2: Weekday and weekend peak hour vehicle trip generation rate assumptions

Proposed activity	Gross Floor Area	Yield	Vehicle trip generation rate		
			WD AM	WD PM	WE Peak
Residential	+49,325 sqm	493 parking spaces	0.15	0.12	0.15
Shopping centre	-921 sqm	-690 sqm GLFA	1.55	7.6	6.6
Shop top retail	+964 sqm	+723 sqm GLFA	1.55	1.55	1.55
Commercial	+4,325 sqm GFA		0.99	0.86	0
		Total trips:	**117**	**55**	**40**

Source: TDT 2013/04a and SJB, compiled by SCT Consulting, 2024. WD = Weekday, WE = Weekend

5.2 Person trip generation

Surveys at several locations were chosen from the TDT 2013/04a for person trip generation estimation. The average peak hour person trip rates were estimated to be 0.66 and 0.56 trips per 100sqm during the AM and PM network peak hour respectively for similar high-density residential areas. Saturday peak hour will see a trip rate up to 1.17 per 100sqm.

Referring to TDT 2013/04a for similar shopping centres, average peak hour trip rates were 3.11 and 7.6 person-trips per 100sqm during the AM and PM network peak hour respectively. Weekend PM person trips is estimated to be 12.23 person-trips per 100sqm during the peak hour.

Similar to vehicle trip rates, the sites outlined in **Table 5-3** have been used to obtain the possible person trip rate assumptions for office blocks. Based on these, it is estimated that the person trip rate will be 1.9 and 1.64 per 100sqm during the AM and PM peak hour respectively.

Table 5-3 Peak hour person trip generation per 100sqm of similar office sites

Item	North Sydney	Chatswood	Macquarie Park	Parramatta	Average
AM peak trips	394	249	142	387	293
PM peak trips	338	205	126	349	255
AM trip rate	1.3	2.44	2.47	1.43	1.90
PM trip rate	1.1	2.01	2.19	1.29	1.64

Source: Roads and Maritime, Technical Direction 2013/14

Person trip generation for the project was estimated as shown in **Table 5-4**, based on the peak hour trip generation rates estimated previously. As seen, the uplift is expected to generate a total of 187, 215 and 389 non-car person trips in the AM, PM and weekend peak hours respectively.

Table 5-4 Peak hour person trip generation for the ECC

Activity	Gross Floor Area	Yield	Person trip rates^		
			WD AM	WD PM	WE Peak
Residential	+49,325 sqm	36,981 sqm	0.66	0.56	1.17
Shopping centre	-921 sqm	-690 sqm GLFA	3.11	7.6	12.23
Shop top retail	+964 sqm	+723 sqm GLFA	3.11	7.6	12.23
Commercial	+4,325 sqm GFA		1.90	1.64	-
Total			**339 trips**	**309 trips**	**482 trips**
Less persons in cars			140	66	48
Total non-car trips			**187 trips**	**215 trips**	**389 trips**

Source: SCT Consulting, 2024. WD = Weekday, WE = Weekend
^Assuming the car occupancy for the vehicle trip generation is 1.2 person / vehicles. Weekday AM Peak trip generation = 117*1.2 = 140 persons and PM Peak trip generation = 55*1.2 = 66 persons. Weekend peak trip generation= = 40*1.2 = 48 persons.

5.3 Public and active transport demand

Given its location directly adjacent to the Edgecliff Train Station and peak hour travel purposes, most of the non-car trips outlined in **Section 5.2** will be using surrounding public transport services, some will be to other businesses, and some would be walking or cycling from trip origins. Hence, it is estimated the preferred development option is forecast to generate approximately 187, 215 and 389 person-trips during the AM, PM and weekend peak hours respectively. These trips would be associated with public transport (mainly train), walking only or cycling trips. The number public and active transport trips is further described in **Sections 6.1** and **6.2**.

5.4 Traffic distribution

The traffic distribution of future trips in the ECC is based on the Journey to Work data presented in **Section 3.2.1** and the inbound-outbound proportions that will be used for each of the land uses are presented in **Table 5-5**. With commercial and retail uses largely expected to be generating staff trips by vehicle only, the balance is expected to be majority in in the weekday AM peak and majority out in the PM peak. The weekend peak is more balanced.

Table 5-5 Inbound and outbound split to and from the ECC

Origin/destination	Weekday AM	Weekday PM	Weekend Peak
Residential trips % in	20%	80%	50%
Residential trips % out	80%	20%	50%
Retail trips % in	80%	20%	50%
Retail trips % out	20%	80%	50%
Commercial trips % in	80%	20%	-
Commercial trips % out	20%	80%	-

Source: SCT Consulting, 2024

6.0 Transport and Traffic Impact Assessment

This section evaluates the impacts of the preferred development options on the transport network for all modes of transport.

6.1 Public transport impacts

The potential residents and employees resulting from the potential development option will be located within a 500m walking distance to the Edgecliff Train Station, which will continue to provide direct access to Bondi Junction, Sydney CBD, Sutherland and Wollongong, as well as connecting to the wider Sydney Trains network.

The excellent access to train services and bus services (which provide frequent access to Sydney CBD, Chatswood, Bondi Junction, Watsons Bay, Vaucluse and Macquarie Park) will facilitate public transport as the primary means of travel.

As described in **Section 3.2.1**, the Journey to Work travel mode data indicates that during the peak hour period public transport trips account for approximately 45 per cent of all trips. Train trips account for 44 per cent of these trips, whilst bus trips account for only one per cent of jtw trips.

Household travel data indicates that approximately six per cent of all trips are undertaken by train, while five per cent of all trips throughout the day are undertaken by bus. With further densification of the centre and an appropriate suite of infrastructure, services and policy, the preference for public transport will continue to grow.

As described in **Section 5.2**, the peak hour person trip generation (excluding people in cars) of the potential development is expected to generate approximately 187, 215 and 389 person-trips during the AM, PM and weekend peak hours respectively. Given its location directly adjacent to the Edgecliff Station, most of these trips will be associated with train and bus customers as well as walking / cycling to or from the origins of their trips.

Based on the Journey to Work data mode split, **Table 6-1** provides a summary of the number of additional train and bus trips that are likely to be generated by the potential development of the ECC, during the weekday AM and PM peak hours. For the weekend peak hour, the household travel survey data mode split has been used to determine the public transport demand.

Table 6-1 Public transport trip generation

Origin/destination	Weekday AM	Weekday PM	Weekend Peak
Train	104	120	56
Bus	12	13	55

Source: SCT Consulting; 2024

There are over 20 bus services per hour in the peak travel demand direction during AM and PM peak hour periods, so at full development demand, this would equate to less than one additional passengers per bus service. As most services are not at full capacity (**Section 3.5.1**), it is anticipated that the bus network can cater for this increase in demand.

As detailed in **Section 3.5.2**, the Sydney Train Network is expected to have capacity to cater for the potential increase in travel demand.

6.2 Active transport impacts

As described in **Section 5.2**, the peak hour person trip generation (excluding people in cars) of the potential development is expected to generate approximately 187, 215 and 389 person-trips during the AM, PM and weekend peak hours respectively. Given its location directly adjacent to the Edgecliff Station, most of these trips will be associated with train and bus customers as well as walking only / cycling to or from the origins of their trips.

Based on the Journey to Work data mode split, **Table 6-2** provides a summary of the number of additional walk only and cycle trips that are likely to be generated by the potential development of the ECC, during the weekday AM and PM peak hours. Because the household travel survey data does not specify cycling mode share, this information has not been provided for the weekend peak period.

Table 6-2 Walk only / cycle trip generation

Origin/destination	Weekday AM	Weekday PM	Weekend Peak
Walk only	69	80	278
Cycling	2	2	N/A

Source: SCT Consulting; 2024

Under the potential future development of the town centre and based on current Journey to Work and household survey data, it is forecast that an additional 69, 80 and 278 walking trips would be realised in the AM, PM and weekend peak hour respectively. Only a small proportion would be cycling trips. However, the WMC Active Transport Plan (2023) sets out a target of increasing the number of cycling trips to two per cent, which would increase cycle trips in the ECC in the future.

The current ECC street network has sufficient capacity to cater for the expected increase in active transport demand, but some improvements to the pedestrian / cycling amenity and to active transport infrastructure would benefit an increase in active transport demand. The broader question, of how pedestrian and cycling amenity can be fostered and increased within the ECC, is discussed within **Section 7.2**.

6.3 Parking impacts

Most of the on-street parking facilities were at or near capacity during site visits, and it is not likely that significant on-street parking could be made available.

Additional parking demands will arise from the different types of uses, with different types of spaces demanded:

– Residential: residential and visitor spaces to be satisfied off-street, within the apartment block strata title

– Shopping centre and commercial: spaces to be satisfied by remaining capacity in the ‘Edgecliff Centre’ car park

– Shop top retail: spaces to be satisfied by the ‘Edgecliff Centre’ car park and any off-street parking available within building.

Based on the dominance of public transport as the preferred mode of transport, parking demands are largely able to be satisfied by virtue of alternative options for transport. Rather than driving to the centre, visitors will likely walk, cycle or use public transport. Much of the retail will also be serviced by linked trips.

As the centre’s car park is priced, this will also assist in management of demand to be consistent with the available capacity.

6.4 Road network impacts

Intersection modelling was undertaken to assess the operational performance of the four key intersections analysed for the existing scenario, to determine the impact of the potential development on the surrounding road network. A summary of the overall intersection LoS and DoS with all developments by 2033 AM, PM and weekend peak periods are provided in **Figure 6-1** to **Figure 6-3**, while detailed intersection performance summaries are provided in **Appendix C**. The results show the modelled impact of the potential development without the introduction of any road infrastructure improvements.

The weekday AM peak hour (7:15AM to 8:15AM) and PM peak hour (5:00PM to 6:00PM) modelled are outside of school pickup and drop off hours, and therefore not reflective of any congestion experienced on the network at these times. The AM and PM peak hour times modelled are however reflective of travel patterns of the future land uses of the potential development. Concerns raised by members of the public regarding congestion on New McLean Street during drop off and pick up at Ascham school (on 188 New South Head Road) would occur outside of the modelled peak hours.

The analysis showed that performance of the local road network would continue to operate at an acceptable level of performance with the trips generated by the potential development uplift added to the road network. In the AM peak hour, the greatest impact on the road network performance is forecast to be at the New South Head Road / Ocean Street / Ocean Avenue and the New South Head Road / Darling Point Road / New McLean Streets intersections, which will operate with a LoS C and LoS B compared to a LoS B and LoS A in the existing scenario.

The forecast DoS of 0.98 in the AM peak hour for the New South Head Road / Ocean Street / Ocean Avenue intersection is reflective of the approaches from Ocean Street South and New South Head East, which are both

forecast to operate near capacity. This suggests that further demands on these two approaches cannot be accommodated beyond the trips generated by the potential development.

Overall, the New South Head Road / New Beach Road and the New South Head Road / Glenmore Road / Mona Road intersections will continue to perform satisfactory for all time periods, with the added development trips in all peak hours. As for the existing scenario however, the Mona Road approach will continue to operate with a LoS F in the PM peak hour, with the added development trips. During the weekend peak hour, the Ocean Street / Ocean Avenue / New South Head Road intersection will continue to operate at capacity, with a DoS of 1.00, which is reflective of the western approach of New South Head Road (which has a DoS of 1.0).

Figure 6-1 AM Peak Hour Intersection performance with potential development

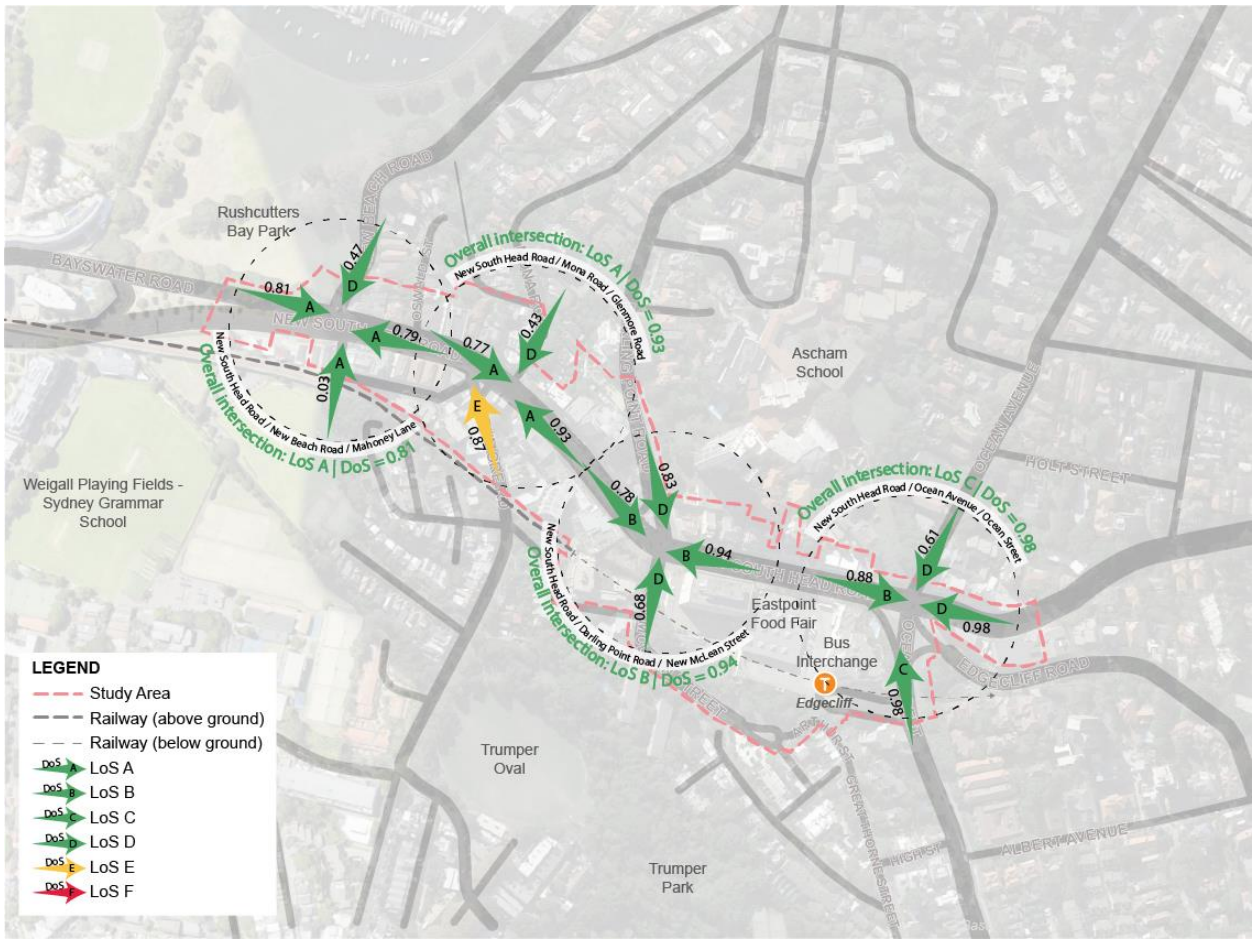


Figure 6-2 PM Peak Hour Intersection performance with potential development

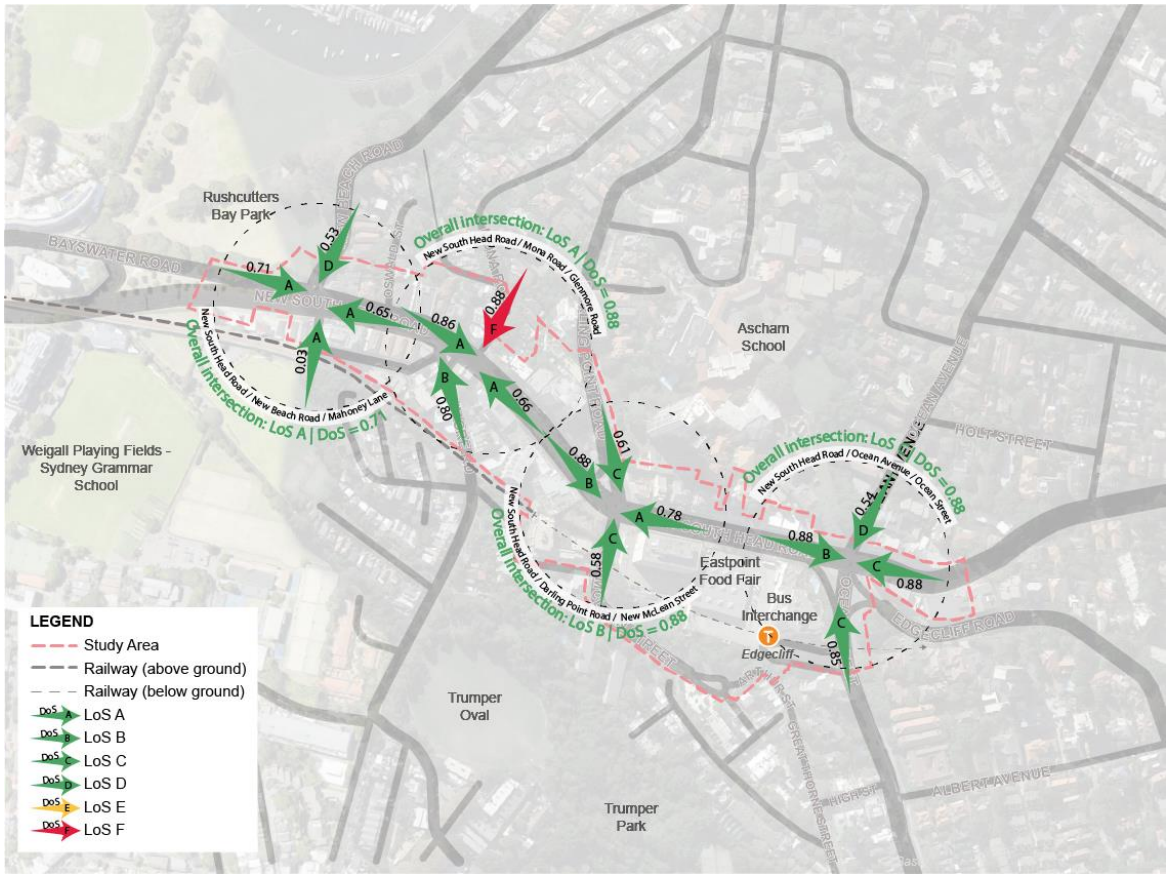
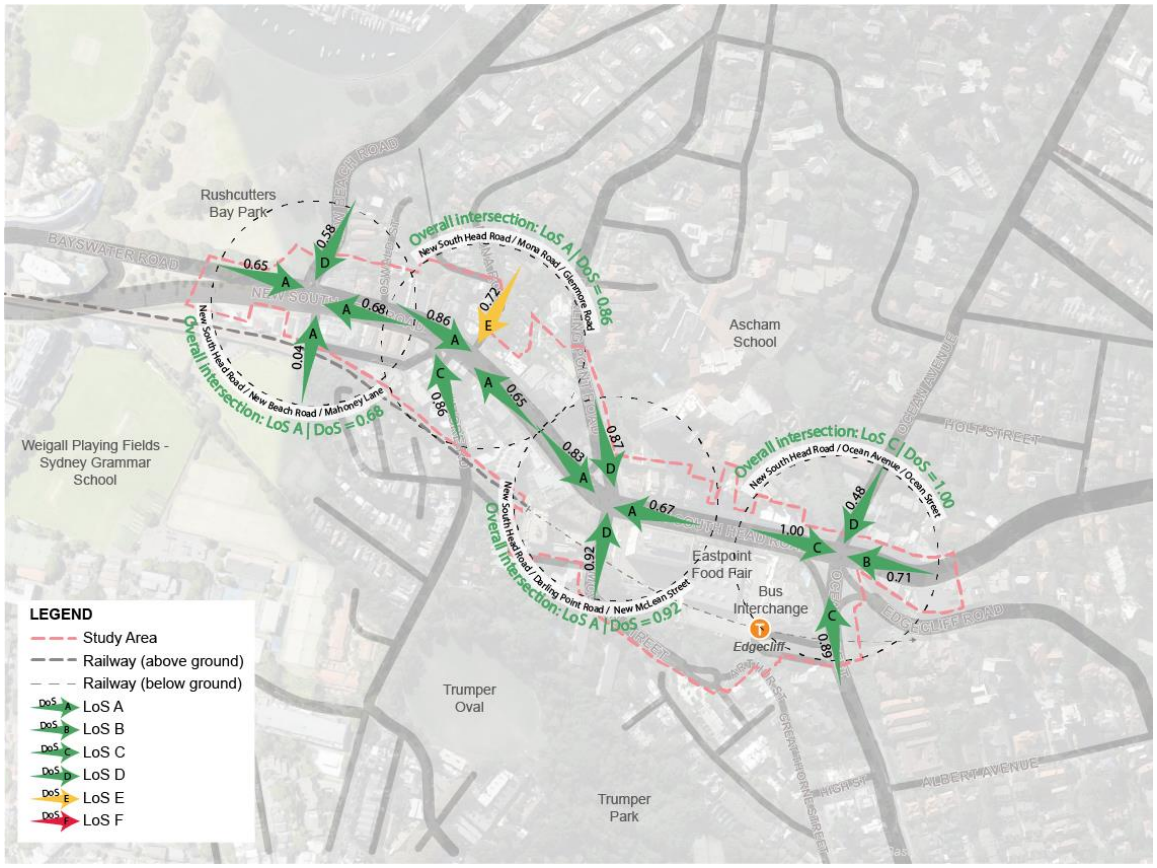


Figure 6-3 Weekend Peak Hour Intersection performance with potential development



7.0 Potential Traffic and Transport Solutions

7.1 Strategic policy

From the traffic and transport impact assessment undertaken, the impact of the potential development will be an increased number of trips across all modes of transport. Proposed infrastructure improvements to cater for the increase in trips have been recommended in **Section 7.2** of this report.

Whilst this assessment has shown that the network can cater for the potential development uplift, the increased trip generation is an important consideration in the place and precinct outcomes for the area. Sustainable transport and Travel Demand Management (TDM) strategies involve the application of policies, objectives, measures and targets to influence travel behaviour, to encourage uptake of sustainable forms of transport, i.e. non-car modes, wherever possible and to reduce the need to travel and hence reduce overall transport and travel demand and the impacts of new development.

Based on the analysis undertaken to develop the Edgecliff Commercial Centre Transport Study, strategic policy directions and proposed solutions are recommended for WMC to drive a successful outcome for the potential development. These directions, as described below, would help control the level of private vehicle traffic generation of the proposed, and other future developments, in the area.

7.1.1 Reduce existing parking controls

Current maximum parking provision rates and parking multipliers within Part E 'General Controls for all Development' of the Woollahra DCP 2015 should be evaluated in view of considering a reduction in parking requirements, particularly for residential uses. Given the proximity of the ECC to excellent public transport options, there is room to further reduce the maximum rates set out in the DCP, in particular for studios and one to two-bedroom units, which currently has a rate of 0.5 parking spaces per unit.

Recommendation:

– Current maximum and minimum parking provision rates and parking multipliers within Part E 'General Controls for all Development' of the Woollahra Development Control Plan (2015) should be evaluated in view of considering a reduction, particularly for residential uses.

– Consider the inclusion of mandatory car share space(s) within developments above a determined threshold. The inclusion of car share spaces under this threshold could be promoted through a reduction in overall parking spaces required for the development.

– Use of priced on-street parking could support local businesses by increasing the level of vacancy of on-street spaces by encouraging higher turnover and allowing customers to find a parking space without driving around the area.

– Cap parking for the Commercial Core of the ECC to be no more than currently provided. It is critical that the development in the Commercial Core not be provided with any additional parking. The largest traffic generators in the area are the shopping centres, commercial and retail, all of which rely on the Commercial Centre's car parks. A comparison, for example of North Sydney with other centre traffic generation rates shows that some centres have significantly lower trip generation. These centres also have lower parking rates. Capping the parking to existing levels is therefore expected to have a significant difference to the trip generation and absorb trips that are beyond the network capacity.

7.1.2 Introduce travel plan program

As shown in **Section 3.2**, approximately three quarters of trips from the ECC are made to either Sydney city, which has excellent public transport links and restricted parking options, or to within the Eastern Suburbs (North). This suggests that most employees living in the ECC could use either public transport or active transport options to travel to work. A Travel Plan program has the potential to further educate the individuals who currently drive to work (from a nearby location) on alternate modes of travel to their destination. It could also encourage greater flexibility in working hours to spread the demand placed on the arterial and local road network.

This would be achieved by ensuring that travel plans are completed as part of the development application process and have follow-up evaluation post-occupancy.

Recommendation: Ensure travel plans are effectively delivered by development proponents.

7.1.3 Support additional car share

The provision of additional car share (Go Get) spaces on street within WMC, as well as dedicated parking provision within new developments and WMC car parks, will reduce car ownership and on-street parking demand.

Currently there are 768 Go Get members within 250m of a Go Get vehicle in the ECC study area. Go Get has room to expand as the current car provision rate is less than the desired target of 30 members per vehicle. The Go Get 2016 member survey of the nearby Double Bay area identified that 62.5 per cent owned one or more cars before joining Go Get, now 62.5 per cent do not own a car with 37.5 per cent owning only one car. Furthermore, 72.65 per cent of people indicated that if they were looking to buy or rent an apartment the availability of a car share vehicle would result in them favouring those apartments over others (29.25 per cent) or consider it somewhat favourable (43.4 per cent). These statistics demonstrate the benefit of car share vehicles in lowering car ownership rates.

When coupled with new developments, car share reduces the need for individuals to purchase a vehicle and, as highlighted in **Section 3.8**, provides significant benefits to the area in which they operate. City of Sydney Council statistics indicate that one car share vehicle can remove up to 10 local vehicles that would compete for on street parking.

Recommendation:

– Amend the Woollahra DCP 2015 to require the allocation of one on-site car space for shared vehicles to offset 10 on-site parking spaces in new developments.

– Investigate the use of car share schemes in conjunction with certain residences not being eligible for access to residential parking permit schemes.

7.1.4 Introduce a pedestrian wayfinding strategy

The development of a consistent pedestrian wayfinding system for pedestrians would aid the delivery of a more legible public domain that encourages people to walk with comfort and confidence around the ECC. The strategy would be used as a guiding document to inform future design development for WMC's pedestrian wayfinding system. The introduction of a wayfinding strategy is in line with the WMC Active Transport Plan (2023), which recommends enhancing wayfinding for pedestrians to encourage people to walk with comfort and confidence around the ECC.

Recommendation: Prepare a pedestrian wayfinding strategy for the ECC, in line with the WMC Active Transport Plan (2023) recommendations.

7.1.5 Monitor public transport patronage

Data sources regarding public transport patronage are increasing thanks to advances in technology and data reliability from the Opal ticketing system. Through regular monitoring of public transport conditions, the WMC will be able to make informed decisions about the success of strategies and have informed discussions with Transport for NSW (TfNSW) regarding transport needs within their LGA.

Recommendation:

– Undertake regular monitoring of public transport conditions, to make informed decisions about the success of strategies and transport needs within the LGA.

– Lobby TfNSW to continue reviewing rail service demand, providing additional capacity as demands increase on the T4 Bondi Junction to Waterfall or Cronulla Line.

7.2 Infrastructure improvements

In addition to the strategic policy directions proposed in **Section 7.1**, various infrastructure improvements are recommended to benefit the road network operation within the ECC, for all modes of transport. Although no infrastructure improvements are recommended because of outcome of the intersection performance assessment, several improvements are recommended to improve the road network for all transport modes. These are outlined in **Figure 7-1**, **Figure 7-2** and **Figure 7-3** respectively and are for further consideration and assessment, and subject to detailed design, by WMC.

7.2.1 Road infrastructure

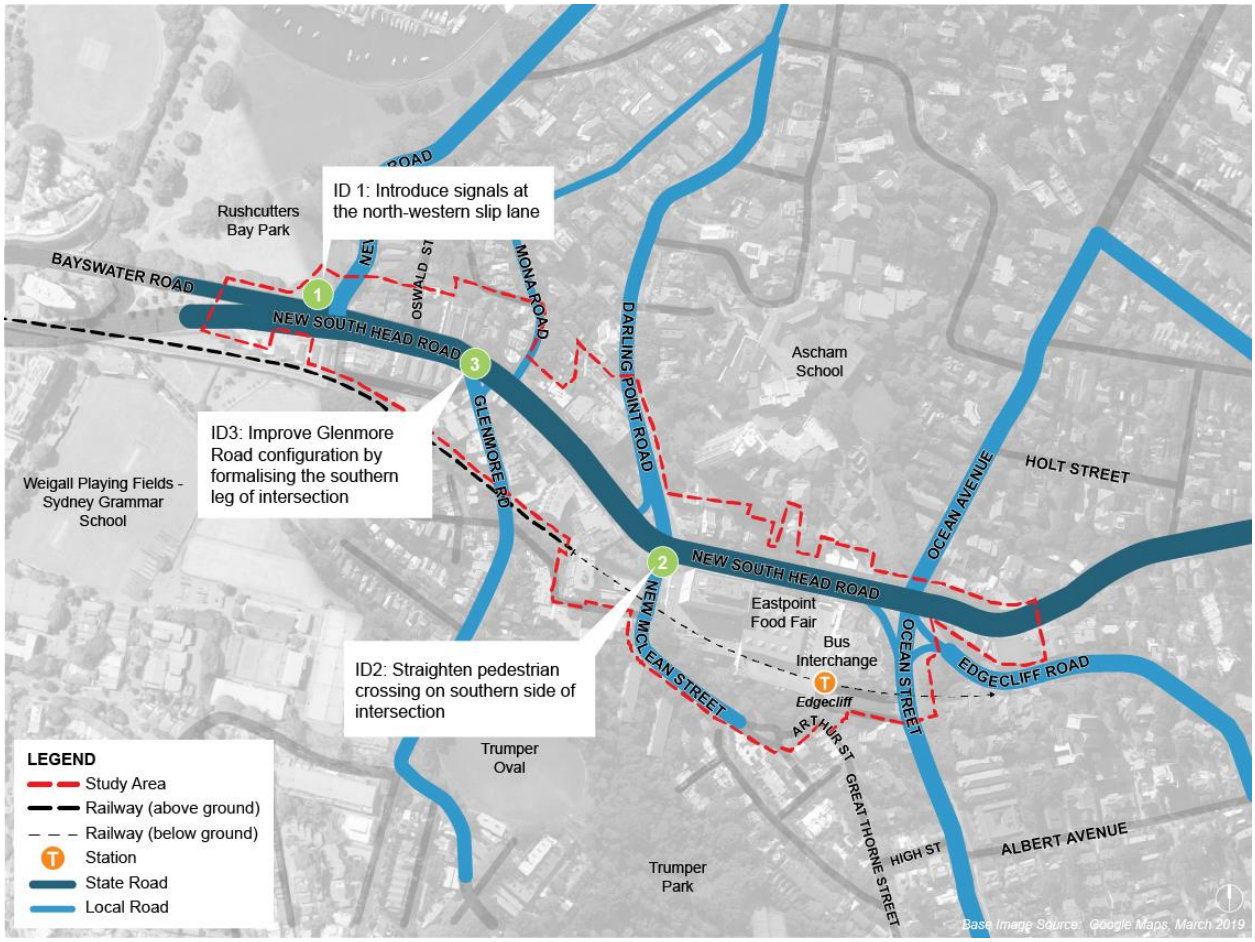
Recommendation: Consider the following road infrastructure improvements (subject to further detailed design):

– ID 1: Introduce signals at the slip lane at the north-western corner of the New South Head Road / New Beach Road intersection, to continue the existing signalised crossing across New Beach Road and further improve safety for pedestrians crossing the slip lane.

– ID 2: Straighten the pedestrian crossing on the southern side of the New South Head Road / Darling Point Road / New McLean Street intersection (across New McLean Street) to improve safety for pedestrians crossing the road, in particular visually impaired pedestrians.

– ID 3: Improve Glenmore Road configuration for pedestrian safety by formalising the pedestrian crossing at the southern leg (subject to warrants).

Figure 7-1 Proposed road infrastructure improvements in the ECC



7.2.2 Cycling infrastructure

Recommendation: Consider the following cycling infrastructure improvements (subject to further detailed design):

The WMC Active Transport Plan (2023) outlines key infrastructure upgrades to support cycling across the Woollahra LGA. Within the ECC study area, it is suggested to provide:

– ID 4: a one way on-road cycle lane along Ocean Avenue in a southbound direction.

– ID 5: a shared cycle and vehicle lane along Ocean Avenue in a northbound direction.

– ID 6: a shared cycle and vehicle road treatment along Reddy Street.

– ID 7: a new 3m bi-directional cycleway towards the kerb edge and pedestrian footpath, activated along building frontage between Ocean Street and Glenmore Road.

– ID 8: a 3m bi-directional cycleway under Rushcutters Bay rail viaduct.

– ID 9: a bi-directional cycleway with segregated kerb edge along eastern side of Edgecliff Road between New South Head Road and Queen Street.

– 10: a shared cycle and pedestrian zones at all corners of the New South Head Road / Ocean Road / Ocean Avenue intersection and on the New McLean Street leg of the intersection with New South Head Road.

– ID 11: shared signalised pedestrian and cycle crossings at the southern, eastern and western legs of the New South Head Road / Ocean Road / Ocean Avenue intersection.

– ID 12: a shared cycle and pedestrian activated area between Glenmore Road and New Beach Road and at the New McLean Street intersection.

– ID 13: new kerb ramps and give way sign for cyclists heading from shared zone to carriageway along Ocean Avenue.

– ID 14: Introduce alternative surface treatments at roundabouts and intersections along Ocean Avenue north of New South Head Road.

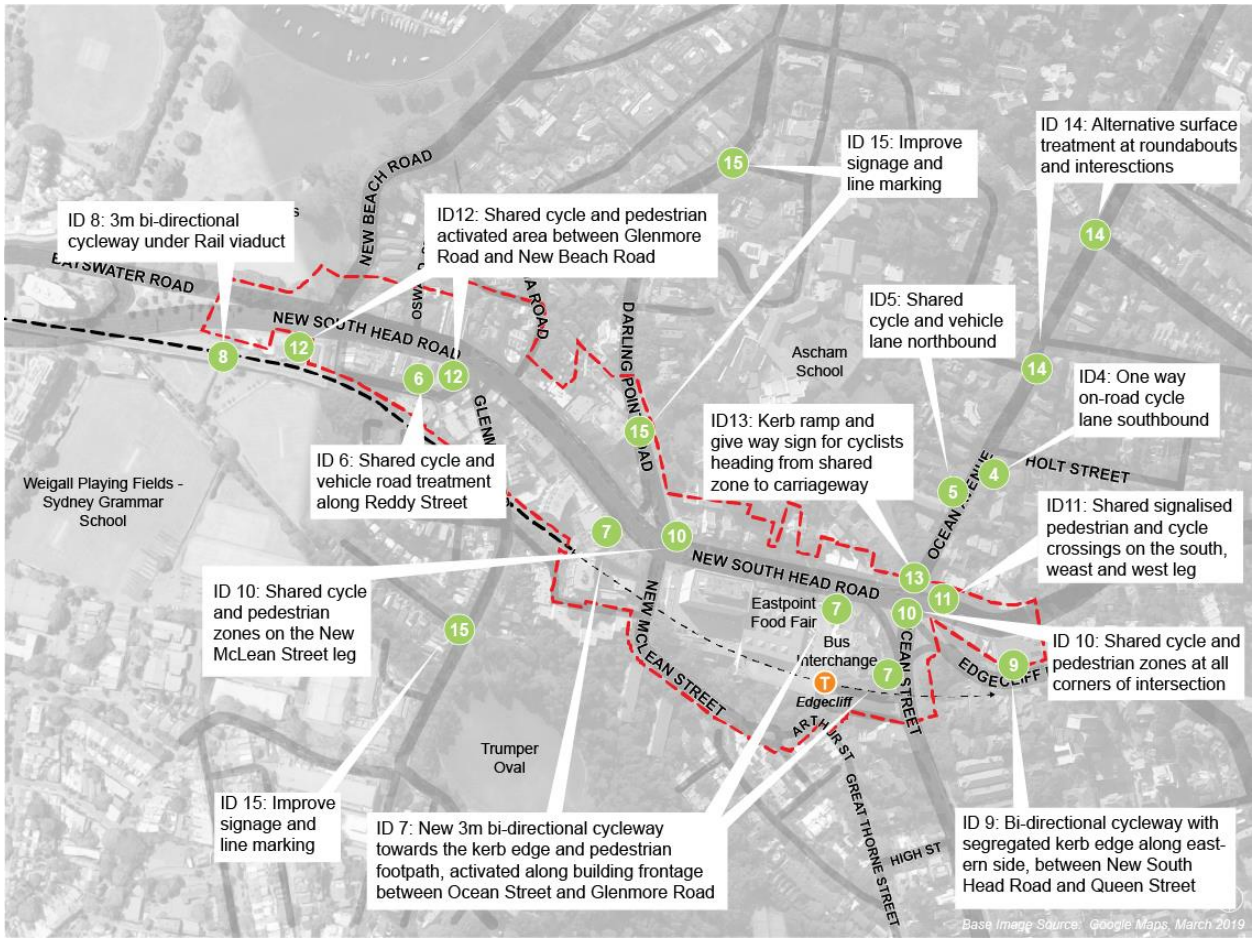
Beyond the items listed in the WMC Active Transport Plan the following is suggested to enhance cycling outcomes within and in proximity to the ECC:

– ID15: Refresh and improve signage and linemarking at intersections of local roads, as this will (particularly at roundabouts) improve driver awareness of cyclists in the area.

As described in **Section 3.6.1**, the proposed cycling facilities in the ECC indicate a desire to facilitate an off-street cycleway along New South Head Road to deliver east-west connectivity. This proposal represents a challenge as there is not sufficient width to deliver a dedicated off-street facility without reducing the carriageway width of New South Head Road, and such a proposal is challenging as it is unlikely to be supported by road users. The alternative is an off-road shared path facility (as indicated by ID 12). With the number of pedestrians generated by ECC, the train station and bus interchange, coupled with gradient issues, a shared path could however create safety hazards for pedestrians. There are also no alternative east-west corridors due to the dense land uses in surrounding areas and lack of east-west roads.

Recommendation: An engineering review be conducted to compare the safety and desirability of a shared cycle path compared with the current provision of on road cycling infrastructure.

Figure 7-2 Proposed cycling transport network enhancements in the ECC



7.2.3 Walking infrastructure

Recommendation: Consider the following walking infrastructure improvements (subject to further detailed design):

– ID 1: Introduce signals at the slip lane at the north-western corner of the New South Head Road / New Beach Road intersection, to continue the existing signalised crossing across New Beach Road and further improve safety for pedestrians crossing the slip lane.

– ID 2: Straighten the pedestrian crossing on the southern side of the New South Head Road / Darling Point Road / New McLean Street intersection (across New McLean Street) to improve safety for pedestrians crossing the road, in particular visually impaired pedestrians.

– ID 3: Improve Glenmore Road configuration for pedestrian safety by formalising the pedestrian crossing at the southern leg (subject to warrants).

The WMC Active Transport Plan (2023) outlines specific key infrastructure upgrades to support walking across the Woollahra LGA. Within the ECC study area, it is suggested to provide:

– 10: a shared cycle and pedestrian zones at all corners of the New South Head Road / Ocean Road / Ocean Avenue intersection and on the New McLean Street leg of the intersection with New South Head Road.

– ID 11: shared signalised pedestrian and cycle crossings at the southern, eastern and western legs of the New South Head Road / Ocean Road / Ocean Avenue intersection.

– ID 12: a shared cycle and pedestrian activated area between Glenmore Road and New Beach Road.

– ID 13: new kerb ramps and give way sign for cyclists heading from shared zone to carriageway along Ocean Avenue.

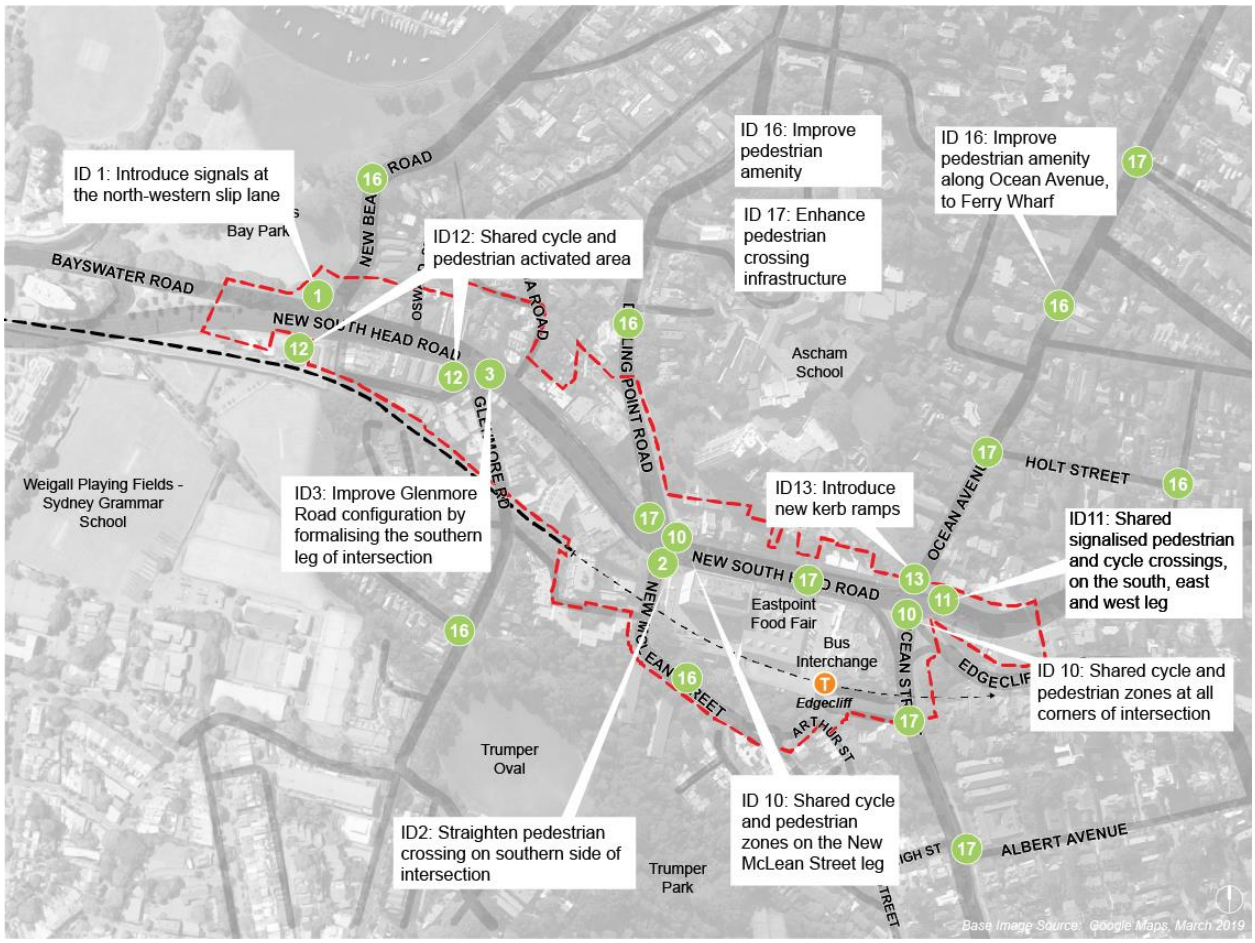
In addition to the Active Transport Plan infrastructure upgrades, it is also recommended that the built form encourages pedestrian activation in the area, as many of the roads are currently unpleasant to walk on.

It is also proposed to enhance safety and walking potential through enhanced infrastructure within, and in proximity to the ECC by delivering:

– ID16: improved pedestrian amenity along key walking routes (through enhanced wayfinding for pedestrians and speed limit reviews).

– ID 17: enhanced pedestrian crossing infrastructure along key walking routes (pending warrants assessment) to increase safety and encourage more people to walk instead of drive.

Figure 7-3 Proposed walking transport network enhancements in the ECC



8.0 Summary and Next Steps

8.1 Summary

ECC is currently characterised by a highly public-transport oriented population, with a diversity of existing uses and good transport access, enabling trips to Sydney CBD within 15 minutes.

With spare capacity in the bus and rail network, the centre is ideally located for intensification. Increase in mixed use development within walking distance from the station could support activation of the centre while delivering to the GSC dwelling targets in an area that will have minimal impact on the transport network. The transport assessment has focused on the identification of potential impacts and found that:

– Existing public transport servicing the ECC has sufficient capacity to meet increased travel demand associated with the potential full development scheme.

– Existing active transport infrastructure within and around the ECC is suitable to cater for the increase in trip generation resulting from the potential development uplift. However, greater emphasis, through policy and infrastructure, can be made to support an increase in active transport as a travel mode. A key starting point is the implementation of walking and cycling schemes, for the ECC, identified within the WMC Active Transport Plan (2023).

– The local road network can cater for the potential increase in development. However, several infrastructure improvements are recommended to improve the road network for all modes of transport. These include improvements at pedestrian crossings and improving pedestrian and cycling amenity at key walking and cycling routes to within and to and from the ECC.

Various policies and strategic directions are available for WMC to further enhance the precinct outcomes. It is recommended that WMC consider implementing these policies / strategies to absorb any impact on the transport network. These policies / strategies include:

– Review current maximum parking provision rates and parking multipliers within Part E ‘General Controls for all Development’ of the Woollahra Development Control Plan (2015), in view of considering a reduction, particularly for residential uses.

– Ensure travel plans are effectively delivered by development proponents.

– Investigate the use of car share schemes in conjunction with certain residences not being eligible for access to residential parking permit schemes.

– Amend the Woollahra DCP 2015 to require the allocation of one on-site car space for shared vehicles to offset 10 on-site parking spaces in new developments.

– Prepare a pedestrian wayfinding strategy to improve pedestrian amenity for the ECC and surrounding areas.

– Cap parking for the Commercial Core in the ECC to be no more than currently provided.

– Monitor public transport, to make informed decisions about the success of strategies and transport needs within the LGA.

With these interventions, the proposed development supports the strategic policy objectives of WMC and the NSW Government transport agencies.

8.2 Next Steps

Following review of the Edgecliff Commercial Centre Transport Study documentation the following next steps are recommended for action by WMC:

– Progress and implement the various strategic policies / solutions identified within **Section 7.1** to foster reduced private vehicle trip generation within the ECC.

– Evaluate, through the strategic design stage of the project development (where applicable), the installation of physical infrastructure, as outlined in **Section 7.2**.

APPENDIX A

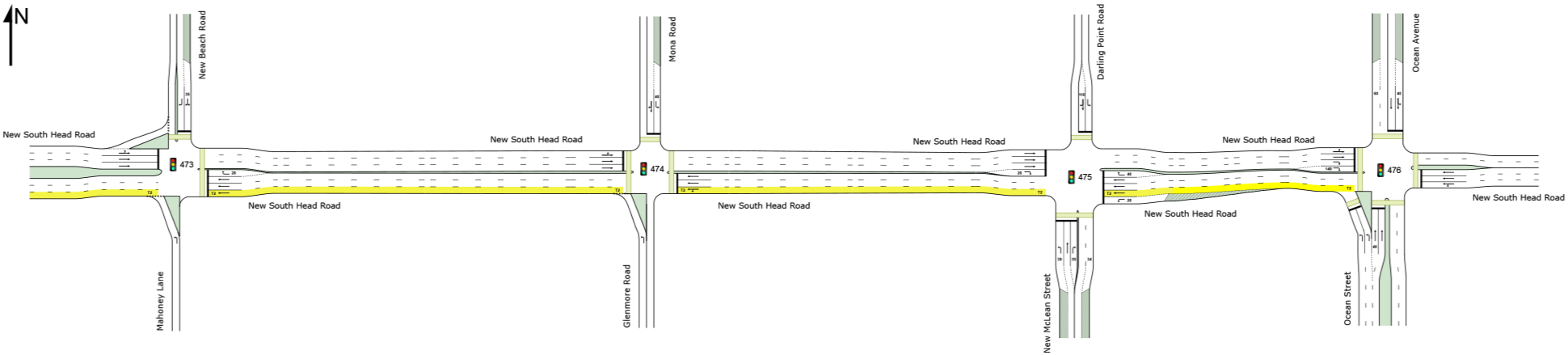
INTERSECTION PERFORMANCE – EXISTING CONDITIONS

NETWORK LAYOUT

Network: N101 [Thursday AM (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
476	NA	New South Head Road/ Ocean Avenue/ Ocean Street - Thurs AM - Copy
475	NA	New South Head Road/ Darling Point Road/ New McLean Street - Thurs AM
474	NA	New South Head Road/ Mona Road/ Glenmore Road - Thurs AM
473	NA	New South Head Road/ New Beach Road/ Mahoney Lane - Thurs AM

Organisation: SCT CONSULTING PTY LTD | Licence: NETWORK / FLOATING | Created: Tuesday, 5 March 2024 2:43:24 PM
Project: S:\Projects\SCT_00090_Edgecliff Commercial Centre Study\3. Technical Work Area\1. Network Optimisation\SIDRA Updated Transport Study 2023\SIDRA 2023 Transport Study\2023 Base.sip9

MOVEMENT SUMMARY

Site: 476 [New South Head Road/ Ocean Avenue/ Ocean Street - Thurs AM - Copy (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday AM (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing AM
730am - 830am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ocean Street															
1	L2	All MCs	922	2.2	922	2.2	0.699	18.6	LOS B	14.4	103.6	0.55	0.71	0.55	34.6
2	T1	All MCs	339	2.1	339	2.1	0.810	45.7	LOS D	13.6	96.8	0.92	0.80	0.95	29.0
Approach			1261	2.1	1261	2.1	0.810	25.9	LOS B	14.4	103.6	0.65	0.73	0.66	32.0
East: New South Head Road															
4	L2	All MCs	164	2.4	164	2.4	0.758	26.7	LOS B	20.9	149.6	0.69	0.75	0.69	41.7
5	T1	All MCs	1775	3.0	1775	3.0	0.758	10.5	LOS A	20.9	149.6	0.51	0.64	0.51	44.2
Approach			1939	3.0	1939	3.0	0.758	11.9	LOS A	20.9	149.6	0.53	0.65	0.53	43.8
North: Ocean Avenue															
7	L2	All MCs	36	5.9	36	5.9	* 0.610	74.2	LOS F	3.3	24.2	1.00	0.80	1.09	24.9
8	T1	All MCs	195	2.2	195	2.2	0.610	52.1	LOS D	9.9	70.6	0.98	0.80	0.99	27.0
Approach			231	2.7	231	2.7	0.610	55.5	LOS D	9.9	70.6	0.99	0.80	1.01	26.6
West: New South Head Road															
10	L2	All MCs	184	6.3	184	6.3	* 0.833	34.5	LOS C	26.5	196.5	0.70	0.69	0.73	32.2
11	T1	All MCs	1581	6.9	1581	6.9	0.833	2.6	LOS A	26.5	196.5	0.30	0.27	0.31	46.4
12	R2	All MCs	480	5.6	480	5.6	* 0.876	56.0	LOS D	14.9	107.5	1.00	0.95	1.16	23.1
Approach			2245	6.5	2245	6.5	0.876	16.6	LOS B	26.5	196.5	0.48	0.45	0.52	37.1
All Vehicles			5676	4.2	5676	4.2	0.876	18.6	LOS B	26.5	196.5	0.56	0.60	0.58	36.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ocean Street											
P1	Full	53	14.0	LOS B	0.1	0.1	0.48	0.48	29.4	20.0	0.68
P1S	Slip/ Bypass	353	14.2	LOS B	0.6	0.6	0.49	0.49	29.6	20.0	0.68

East: New South Head Road										
P2 Full	119	41.9	LOS E	0.3	0.3	0.84	0.84	57.3	20.0	0.35
North: Ocean Avenue										
P3 Full	112	4.3	LOS A	0.1	0.1	0.27	0.27	19.7	20.0	1.02
West: New South Head Road										
P4 Full	168	42.0	LOS E	0.5	0.5	0.84	0.84	57.3	20.0	0.35
All Pedestrians	804	22.7	LOS C	0.6	0.6	0.58	0.58	38.1	20.0	0.52

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 475 [New South Head Road/ Darling Point Road/ New McLean Street - Thurs AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday AM (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing AM
730am - 830am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New McLean Street															
1	L2	All MCs	89	5.9	89	5.9	0.216	44.7	LOS D	4.2	31.2	0.85	0.75	0.85	12.9
2	T1	All MCs	29	3.6	29	3.6	0.174	55.9	LOS D	1.6	11.9	0.96	0.70	0.96	24.2
3	R2	All MCs	75	4.2	75	4.2	* 0.892	78.1	LOS F	5.0	36.5	1.00	0.98	1.48	8.5
Approach			194	4.9	194	4.9	0.892	59.3	LOS E	5.0	36.5	0.92	0.83	1.11	13.2
East: New South Head Road															
4	L2	All MCs	1	0.0	1	0.0	0.001	21.5	LOS B	0.0	0.2	0.58	0.55	0.58	26.6
5	T1	All MCs	2642	2.9	2642	2.9	* 0.706	0.5	LOS A	3.3	23.6	0.07	0.07	0.07	39.1
6	R2	All MCs	68	0.0	68	0.0	0.410	65.1	LOS E	4.1	28.8	1.00	0.78	1.00	21.3
Approach			2712	2.8	2712	2.8	0.706	2.1	LOS A	4.1	28.8	0.09	0.08	0.09	36.8
North: Darling Point Road															
7	L2	All MCs	117	6.3	117	6.3	0.286	45.7	LOS D	5.7	41.7	0.86	0.77	0.86	22.5
8	T1	All MCs	22	0.0	22	0.0	0.881	69.6	LOS E	5.9	41.9	1.00	1.00	1.45	20.2
9	R2	All MCs	65	1.6	65	1.6	0.881	78.7	LOS F	5.9	41.9	1.00	1.00	1.45	16.5
Approach			204	4.1	204	4.1	0.881	58.8	LOS E	5.9	41.9	0.92	0.87	1.11	19.9
West: New South Head Road															
11	T1	All MCs	2118	6.5	2118	6.5	0.621	6.3	LOS A	10.3	76.1	0.27	0.50	0.27	42.1
12	R2	All MCs	88	5.7	88	5.7	* 0.697	66.8	LOS E	5.3	38.6	1.00	0.82	1.10	16.1
Approach			2206	6.5	2206	6.5	0.697	8.7	LOS A	10.3	76.1	0.30	0.51	0.30	37.6
All Vehicles			5315	4.5	5315	4.5	0.892	9.1	LOS A	10.3	76.1	0.24	0.32	0.26	32.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: New McLean Street											
P1	Full	162	6.4	LOS A	0.2	0.2	0.33	0.33	21.8	20.0	0.92

North: Darling Point Road										
P3 Full	102	6.4	LOS A	0.1	0.1	0.33	0.33	21.7	20.0	0.92
All Pedestrians	264	6.4	LOS A	0.2	0.2	0.33	0.33	21.8	20.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 474 [New South Head Road/ Mona Road/ Glenmore Road - Thurs AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenmore Road															
1	L2	All MCs	307	2.4	307	2.4	0.210	5.1	LOS A	3.3	23.9	0.25	0.51	0.25	35.0
Approach			307	2.4	307	2.4	0.210	5.1	LOS A	3.3	23.9	0.25	0.51	0.25	35.0
East: New South Head Road															
4	L2	All MCs	101	1.0	101	1.0	0.652	8.5	LOS A	14.6	104.5	0.31	0.33	0.31	41.3
5	T1	All MCs	2682	3.0	2682	3.0	* 0.768	2.6	LOS A	14.6	104.5	0.29	0.28	0.29	49.3
Approach			2783	2.9	2783	2.9	0.768	2.8	LOS A	14.6	104.5	0.29	0.28	0.29	48.4
North: Mona Road															
7	L2	All MCs	13	8.3	13	8.3	0.052	59.5	LOS E	0.6	4.8	0.89	0.68	0.89	20.6
8	T1	All MCs	25	4.2	25	4.2	* 0.778	63.7	LOS E	12.1	87.1	1.00	0.91	1.14	24.2
9	R2	All MCs	174	3.6	174	3.6	0.778	69.0	LOS E	12.1	87.1	1.00	0.91	1.14	18.8
Approach			212	4.0	212	4.0	0.778	67.8	LOS E	12.1	87.1	0.99	0.90	1.12	19.7
West: New South Head Road															
10	L2	All MCs	217	3.9	217	3.9	0.620	9.1	LOS A	11.8	86.8	0.28	0.37	0.28	46.2
11	T1	All MCs	2252	6.2	2252	6.2	0.620	1.9	LOS A	11.8	86.8	0.22	0.23	0.22	49.7
Approach			2468	6.0	2468	6.0	0.620	2.6	LOS A	11.8	86.8	0.22	0.25	0.22	48.7
All Vehicles			5771	4.3	5771	4.3	0.778	5.2	LOS A	14.6	104.5	0.28	0.30	0.29	42.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	26	54.2	LOS E	0.1	0.1	0.95	0.95	69.6	20.0	0.29
North: Mona Road											
P3	Full	78	6.0	LOS A	0.1	0.1	0.32	0.32	21.4	20.0	0.93
West: New South Head Road											
P4	Full	33	54.2	LOS E	0.1	0.1	0.95	0.95	70.9	20.0	0.28

All Pedestrians	137	26.8	LOS C	0.1	0.1	0.59	0.59	42.5	20.0	0.47

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 473 [New South Head Road/ New Beach Road/ Mahoney Lane - Thurs AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday AM (Network Folder: General)]

NA
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mahoney Lane															
1	L2	All MCs	9	11.1	9	11.1	0.033	5.5	LOS A	0.1	0.7	0.27	0.50	0.27	45.1
Approach			9	11.1	9	11.1	0.033	5.5	LOS A	0.1	0.7	0.27	0.50	0.27	45.1
East: New South Head Road															
5	T1	All MCs	3112	2.9	3112	2.9	* 0.821	1.0	LOS A	10.5	75.1	0.17	0.16	0.17	58.6
6	R2	All MCs	33	6.5	33	6.5	0.234	10.3	LOS A	0.4	3.2	0.24	0.63	0.24	42.2
Approach			3144	3.0	3144	3.0	0.821	1.1	LOS A	10.5	75.1	0.17	0.16	0.17	58.4
North: New Beach Road															
7	L2	All MCs	27	3.8	27	3.8	0.459	49.6	LOS D	7.1	50.2	0.95	0.79	0.95	20.4
9	R2	All MCs	233	0.5	233	0.5	* 0.459	55.2	LOS D	7.1	50.2	0.95	0.79	0.95	29.4
Approach			260	0.8	260	0.8	0.459	54.6	LOS D	7.1	50.2	0.95	0.79	0.95	28.7
West: New South Head Road															
10	L2	All MCs	164	4.5	164	4.5	0.688	5.9	LOS A	8.8	64.4	0.20	0.28	0.20	51.4
11	T1	All MCs	2437	6.1	2437	6.1	0.688	2.0	LOS A	10.8	79.3	0.22	0.23	0.22	56.0
Approach			2601	6.0	2601	6.0	0.688	2.3	LOS A	10.8	79.3	0.22	0.24	0.22	55.4
All Vehicles			6015	4.2	6015	4.2	0.821	3.9	LOS A	10.8	79.3	0.22	0.22	0.23	53.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	80	41.8	LOS E	0.2	0.2	0.84	0.84	57.2	20.0	0.35
North: New Beach Road											
P3	Full	111	5.4	LOS A	0.1	0.1	0.30	0.30	20.8	20.0	0.96
All Pedestrians		191	20.7	LOS C	0.2	0.2	0.53	0.53	36.1	20.0	0.55

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

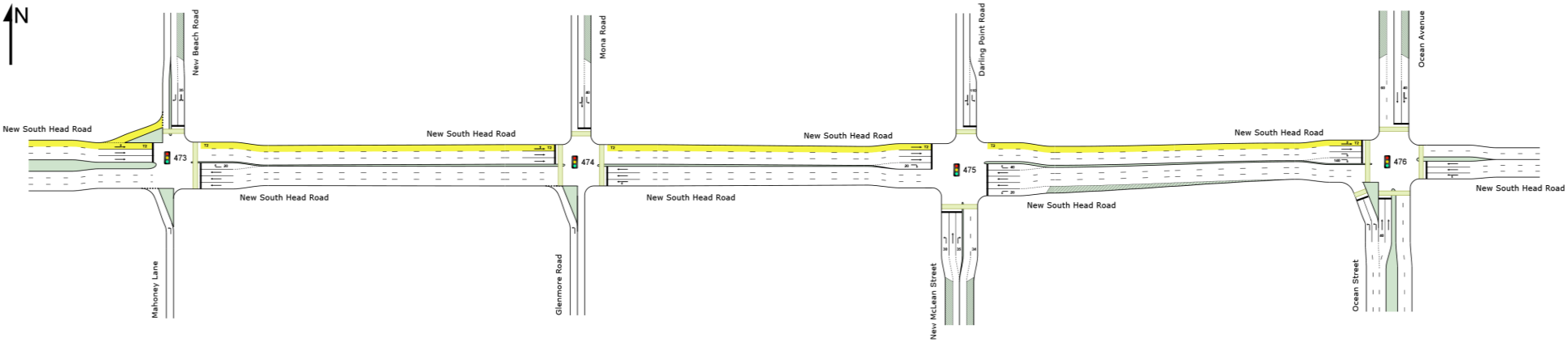
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

NETWORK LAYOUT

Network: N101 [Thursday PM (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
476	NA	New South Head Road/ Ocean Avenue/ Ocean Street - Thurs PM - Copy
475	NA	New South Head Road/ Darling Point Road/ New McLean Street - Thurs PM
474	NA	New South Head Road/ Mona Road/ Glenmore Road - Thurs PM
473	NA	New South Head Road/ New Beach Road/ Mahoney Lane - Thurs PM

Organisation: SCT CONSULTING PTY LTD | Licence: NETWORK / FLOATING | Created: Tuesday, 5 March 2024 2:48:17 PM
Project: S:\Projects\SCT_00090_Edgecliff Commercial Centre Study\3. Technical Work Area\1. Network Optimisation\SIDRA Updated Transport Study 2023\SIDRA 2023 Transport Study\2023 Base.sip9

MOVEMENT SUMMARY

Site: 476 [New South Head Road/ Ocean Avenue/ Ocean Street - Thurs PM - Copy (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday PM (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing PM
530pm - 630pm
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ocean Street															
1	L2	All MCs	877	1.9	877	1.9	0.544	24.5	LOS B	15.1	108.2	0.62	0.74	0.62	31.8
2	T1	All MCs	285	0.0	285	0.0	*0.851	59.9	LOS E	12.7	88.9	0.98	0.90	1.12	26.2
Approach			1162	1.5	1162	1.5	0.851	33.1	LOS C	15.1	108.2	0.71	0.78	0.74	29.3
East: New South Head Road															
4	L2	All MCs	222	0.0	222	0.0	*0.873	55.8	LOS D	28.7	202.7	0.98	0.95	1.11	31.8
5	T1	All MCs	1604	1.9	1604	1.9	0.873	34.4	LOS C	36.8	261.9	0.93	0.93	1.02	28.1
Approach			1826	1.7	1826	1.7	0.873	37.0	LOS C	36.8	261.9	0.94	0.93	1.03	28.8
North: Ocean Avenue															
7	L2	All MCs	17	0.0	17	0.0	0.543	60.9	LOS E	6.5	45.3	0.97	0.77	0.97	27.6
8	T1	All MCs	225	0.0	225	0.0	0.543	52.2	LOS D	7.0	49.0	0.96	0.77	0.96	27.1
Approach			242	0.0	242	0.0	0.543	52.8	LOS D	7.0	49.0	0.96	0.77	0.96	27.1
West: New South Head Road															
10	L2	All MCs	134	0.8	134	0.8	0.708	58.4	LOS E	23.6	166.1	0.73	0.68	0.73	30.7
11	T1	All MCs	1479	0.6	1479	0.6	0.708	2.8	LOS A	23.6	166.1	0.28	0.26	0.28	45.4
12	R2	All MCs	858	1.8	858	1.8	*0.878	50.2	LOS D	26.4	185.5	1.00	0.97	1.15	24.3
Approach			2471	1.0	2471	1.0	0.878	22.3	LOS B	26.4	186.6	0.55	0.53	0.60	34.2
All Vehicles			5701	1.3	5701	1.3	0.878	30.5	LOS C	36.8	261.9	0.73	0.72	0.79	31.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ocean Street											
P1	Full	53	19.3	LOS B	0.1	0.1	0.57	0.57	34.7	20.0	0.58
P1S	Slip/ Bypass	321	19.5	LOS B	0.6	0.6	0.57	0.57	34.9	20.0	0.57
East: New South Head Road											

P2 Full	78	45.2	LOS E	0.2	0.2	0.87	0.87	60.6	20.0	0.33
North: Ocean Avenue										
P3 Full	123	3.3	LOS A	0.1	0.1	0.23	0.23	18.7	20.0	1.07
West: New South Head Road										
P4 Full	192	45.4	LOS E	0.6	0.6	0.87	0.87	60.8	20.0	0.33
All Pedestrians	766	26.0	LOS C	0.6	0.6	0.62	0.62	41.4	20.0	0.48

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 475 [New South Head Road/ Darling Point Road/ New McLean Street - Thurs PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday PM (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing PM
1730pm - 1830pm
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New McLean Street															
1	L2	All MCs	158	0.6	158	0.6	0.322	37.7	LOS C	6.7	47.4	0.77	0.75	0.77	14.6
2	T1	All MCs	69	0.0	69	0.0	0.313	51.3	LOS D	3.7	25.8	0.93	0.71	0.93	25.3
3	R2	All MCs	106	0.9	106	0.9	* 0.907	74.9	LOS F	7.1	50.0	1.00	1.00	1.39	8.8
Approach			333	0.6	333	0.6	0.907	52.4	LOS D	7.1	50.0	0.88	0.82	1.00	15.4
East: New South Head Road															
4	L2	All MCs	1	0.0	1	0.0	0.001	22.4	LOS B	0.0	0.2	0.50	0.53	0.50	26.2
5	T1	All MCs	2361	2.1	2361	2.1	* 0.661	0.5	LOS A	2.6	18.4	0.06	0.06	0.06	39.1
6	R2	All MCs	53	0.0	53	0.0	0.289	57.0	LOS E	2.9	20.1	0.94	0.74	0.94	22.8
Approach			2415	2.0	2415	2.0	0.661	1.7	LOS A	2.9	20.1	0.08	0.07	0.08	37.3
North: Darling Point Road															
7	L2	All MCs	109	2.8	109	2.8	0.228	36.9	LOS C	4.5	32.1	0.74	0.73	0.74	25.1
8	T1	All MCs	36	0.0	36	0.0	0.817	60.6	LOS E	5.7	40.3	1.00	0.91	1.24	21.7
9	R2	All MCs	53	1.9	53	1.9	0.817	72.9	LOS F	5.7	40.3	1.00	0.91	1.24	17.8
Approach			198	2.0	198	2.0	0.817	50.9	LOS D	5.7	40.3	0.86	0.81	0.97	22.0
West: New South Head Road															
11	T1	All MCs	2090	1.1	2090	1.1	0.628	8.9	LOS A	13.7	96.7	0.36	0.55	0.36	38.3
12	R2	All MCs	94	1.1	94	1.1	* 0.742	68.9	LOS E	5.6	39.8	1.00	0.84	1.14	16.1
Approach			2184	1.1	2184	1.1	0.742	11.5	LOS A	13.7	96.7	0.38	0.56	0.39	34.5
All Vehicles			5130	1.5	5130	1.5	0.907	11.1	LOS A	13.7	96.7	0.29	0.36	0.31	31.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: New McLean Street											
P1	Full	312	7.8	LOS A	0.4	0.4	0.36	0.36	23.2	20.0	0.86

North: Darling Point Road										
P3 Full	180	7.8	LOS A	0.2	0.2	0.36	0.36	23.1	20.0	0.86
All Pedestrians	492	7.8	LOS A	0.4	0.4	0.36	0.36	23.2	20.0	0.86

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 474 [New South Head Road/ Mona Road/ Glenmore Road - Thurs PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenmore Road															
1	L2	All MCs	233	1.4	233	1.4	0.885	36.3	LOS C	9.4	66.6	0.46	0.97	0.76	20.0
Approach			233	1.4	233	1.4	0.885	36.3	LOS C	9.4	66.6	0.46	0.97	0.76	20.0
East: New South Head Road															
4	L2	All MCs	111	0.0	111	0.0	0.654	7.1	LOS A	8.5	60.4	0.19	0.23	0.19	42.4
5	T1	All MCs	2485	2.1	2485	2.1	0.654	1.6	LOS A	8.5	60.8	0.19	0.19	0.19	52.5
Approach			2596	2.0	2596	2.0	0.654	1.8	LOS A	8.5	60.8	0.19	0.19	0.19	51.1
North: Mona Road															
7	L2	All MCs	19	0.0	19	0.0	0.059	60.4	LOS E	0.9	6.1	0.81	0.68	0.81	22.4
8	T1	All MCs	26	0.0	26	0.0	* 0.951	87.4	LOS F	17.0	119.3	1.00	1.07	1.39	21.9
9	R2	All MCs	216	0.0	216	0.0	0.951	90.6	LOS F	17.0	119.3	1.00	1.07	1.39	16.5
Approach			261	0.0	261	0.0	0.951	88.1	LOS F	17.0	119.3	0.99	1.04	1.35	17.5
West: New South Head Road															
10	L2	All MCs	184	0.6	184	0.6	0.848	58.8	LOS E	10.8	75.7	0.97	0.91	1.18	23.1
11	T1	All MCs	2218	1.1	2218	1.1	* 0.848	0.5	LOS A	10.8	75.7	0.13	0.10	0.13	57.1
Approach			2402	1.1	2402	1.1	0.848	4.9	LOS A	10.8	75.7	0.19	0.16	0.21	42.6
All Vehicles			5492	1.5	5492	1.5	0.951	8.8	LOS A	17.0	119.3	0.24	0.25	0.28	36.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	53	37.7	LOS D	0.1	0.1	0.79	0.79	53.1	20.0	0.38
North: Mona Road											
P3	Full	79	5.1	LOS A	0.1	0.1	0.29	0.29	20.5	20.0	0.98
West: New South Head Road											
P4	Full	108	37.8	LOS D	0.3	0.3	0.80	0.80	53.2	20.0	0.38

All Pedestrians	240	27.0	LOS C	0.3	0.3	0.63	0.63	42.4	20.0	0.47

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 473 [New South Head Road/ New Beach Road/ Mahoney Lane - Thurs PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday PM (Network Folder: General)]

NA
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mahoney Lane															
1	L2	All MCs	7	0.0	7	0.0	0.029	3.3	LOS A	0.0	0.0	0.02	0.41	0.02	47.5
Approach			7	0.0	7	0.0	0.029	3.3	LOS A	0.0	0.0	0.02	0.41	0.02	47.5
East: New South Head Road															
5	T1	All MCs	2889	1.8	2889	1.8	0.648	0.3	LOS A	3.0	21.5	0.06	0.06	0.06	59.6
6	R2	All MCs	53	6.0	53	6.0	* 0.347	16.8	LOS B	1.5	10.7	0.48	0.70	0.48	37.8
Approach			2942	1.9	2942	1.9	0.648	0.6	LOS A	3.0	21.5	0.07	0.07	0.07	58.9
North: New Beach Road															
7	L2	All MCs	47	0.0	47	0.0	0.528	47.9	LOS D	7.8	55.1	0.94	0.79	0.94	20.8
9	R2	All MCs	240	0.4	240	0.4	* 0.528	53.8	LOS D	7.8	55.1	0.94	0.79	0.94	29.9
Approach			287	0.4	287	0.4	0.528	52.8	LOS D	7.8	55.1	0.94	0.79	0.94	28.7
West: New South Head Road															
10	L2	All MCs	164	0.0	164	0.0	0.701	7.7	LOS A	17.0	119.7	0.41	0.45	0.41	48.9
11	T1	All MCs	2474	1.1	2474	1.1	* 0.701	3.1	LOS A	17.0	119.7	0.28	0.28	0.28	54.4
Approach			2638	1.1	2638	1.1	0.701	3.4	LOS A	17.0	119.7	0.29	0.29	0.29	53.7
All Vehicles			5875	1.4	5875	1.4	0.701	4.4	LOS A	17.0	119.7	0.21	0.20	0.21	53.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	53	42.6	LOS E	0.2	0.2	0.84	0.84	58.0	20.0	0.34
North: New Beach Road											
P3	Full	53	5.4	LOS A	0.1	0.1	0.30	0.30	20.8	20.0	0.96
All Pedestrians		105	24.0	LOS C	0.2	0.2	0.57	0.57	39.4	20.0	0.51

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.

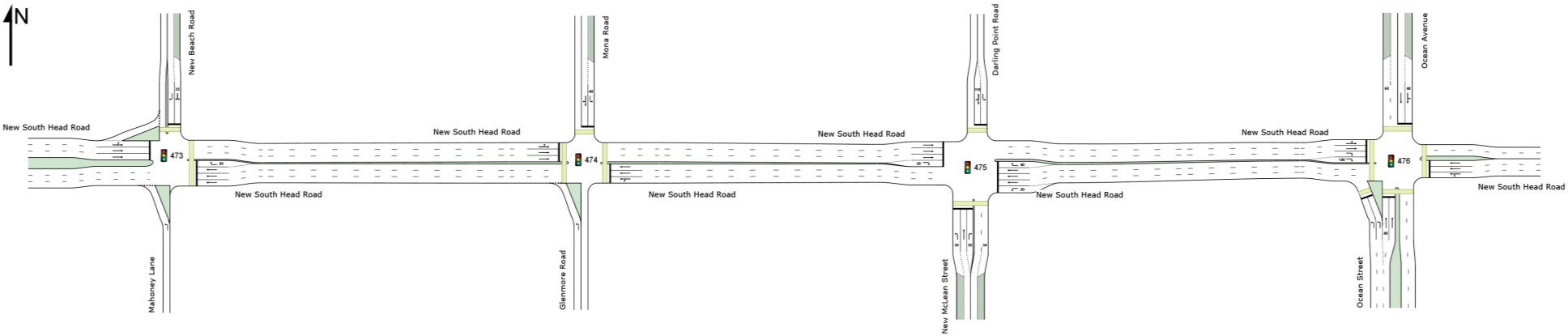
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

NETWORK LAYOUT

Network: N101 [Saturday Midday (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
476	NA	New South Head Road/ Ocean Avenue/ Ocean Street - Sat Midday - Copy
475	NA	New South Head Road/ Darling Point Road/ New McLean Street - Sat Midday
474	NA	New South Head Road/ Mona Road/ Glenmore Road - Sat Midday
473	NA	New South Head Road/ New Beach Road/ Mahoney Lane - Sat Midday

Organisation: SCT CONSULTING PTY LTD | Licence: NETWORK / FLOATING | Created: Tuesday, 5 March 2024 2:50:09 PM
Project: S:\Projects\SCT_00090_Edgecliff Commercial Centre Study\3. Technical Work Area\1. Network Optimisation\SIDRA Updated Transport Study 2023\SIDRA 2023 Transport Study\2023 Base.sip9

MOVEMENT SUMMARY

Site: 476 [New South Head Road/ Ocean Avenue/ Ocean Street - Sat Midday - Copy (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Saturday Midday (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing AM
9am - 10am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ocean Street															
1	L2	All MCs	966	0.9	966	0.9	0.669	32.3	LOS C	20.8	147.0	0.75	0.79	0.75	29.2
2	T1	All MCs	377	0.0	377	0.0	* 0.888	58.7	LOS E	17.2	120.4	0.97	0.93	1.13	28.6
Approach			1343	0.6	1343	0.6	0.888	39.7	LOS C	20.8	147.0	0.81	0.83	0.86	28.9
East: New South Head Road															
4	L2	All MCs	196	0.0	196	0.0	0.711	25.8	LOS B	23.2	164.4	0.74	0.72	0.74	40.8
5	T1	All MCs	1583	2.2	1583	2.2	0.711	18.4	LOS B	23.6	168.2	0.73	0.67	0.73	37.4
Approach			1779	2.0	1779	2.0	0.711	19.2	LOS B	23.6	168.2	0.73	0.68	0.73	38.0
North: Ocean Avenue															
7	L2	All MCs	22	0.0	22	0.0	0.482	64.4	LOS E	5.7	40.3	0.95	0.76	0.95	29.9
8	T1	All MCs	224	0.5	224	0.5	0.482	48.1	LOS D	7.4	52.3	0.93	0.75	0.93	30.0
Approach			246	0.4	246	0.4	0.482	49.6	LOS D	7.4	52.3	0.94	0.75	0.94	30.0
West: New South Head Road															
10	L2	All MCs	142	1.5	142	1.5	* 0.727	33.1	LOS C	18.3	128.9	0.55	0.56	0.55	41.8
11	T1	All MCs	1463	0.9	1463	0.9	0.727	1.9	LOS A	18.3	128.9	0.23	0.23	0.23	55.1
12	R2	All MCs	721	1.2	721	1.2	* 1.010	86.3	LOS F	28.4	199.4	1.00	1.12	1.46	19.2
Approach			2326	1.0	2326	1.0	1.010	30.0	LOS C	28.4	200.1	0.49	0.53	0.63	34.5
All Vehicles			5695	1.2	5695	1.2	1.010	29.7	LOS C	28.4	200.1	0.66	0.65	0.73	33.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ocean Street											
P1	Full	53	16.6	LOS B	0.1	0.1	0.53	0.53	32.0	20.0	0.63
P1S	Slip/	53	16.6	LOS B	0.1	0.1	0.53	0.53	32.0	20.0	0.63

	Bypass										
East: New South Head Road											
P2	Full	53	41.8	LOS E	0.1	0.1	0.84	0.84	57.1	20.0	0.35
North: Ocean Avenue											
P3	Full	53	4.3	LOS A	0.0	0.0	0.27	0.27	19.7	20.0	1.02
West: New South Head Road											
P4	Full	53	41.8	LOS E	0.1	0.1	0.84	0.84	57.1	20.0	0.35
All Pedestrians		263	24.2	LOS C	0.1	0.1	0.60	0.60	39.6	20.0	0.51

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 475 [New South Head Road/ Darling Point Road/ New McLean Street - Sat Midday (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Saturday Midday (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing AM
9am -10am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New McLean Street															
1	L2	All MCs	168	0.0	168	0.0	0.322	35.9	LOS C	7.0	48.9	0.75	0.75	0.75	15.1
2	T1	All MCs	79	0.0	79	0.0	0.295	47.8	LOS D	4.0	28.3	0.90	0.70	0.90	26.2
3	R2	All MCs	126	1.6	126	1.6	* 0.818	67.1	LOS E	7.9	55.9	1.00	0.92	1.20	9.7
Approach			373	0.5	373	0.5	0.818	49.0	LOS D	7.9	55.9	0.87	0.80	0.93	16.2
East: New South Head Road															
4	L2	All MCs	1	0.0	1	0.0	0.001	20.6	LOS B	0.0	0.2	0.43	0.59	0.43	30.7
5	T1	All MCs	2344	1.8	2344	1.8	* 0.673	0.5	LOS A	2.6	18.8	0.06	0.06	0.06	57.9
6	R2	All MCs	73	0.0	73	0.0	0.436	61.5	LOS E	4.1	28.8	0.97	0.76	0.97	23.3
Approach			2418	1.7	2418	1.7	0.673	2.4	LOS A	4.1	28.8	0.09	0.08	0.09	51.2
North: Darling Point Road															
7	L2	All MCs	84	1.3	84	1.3	0.164	34.5	LOS C	3.3	23.0	0.70	0.71	0.70	25.9
8	T1	All MCs	40	0.0	40	0.0	0.751	55.6	LOS D	6.3	44.0	1.00	0.87	1.14	22.6
9	R2	All MCs	62	0.0	62	0.0	0.751	67.5	LOS E	6.3	44.0	1.00	0.87	1.14	18.7
Approach			186	0.6	186	0.6	0.751	50.0	LOS D	6.3	44.0	0.86	0.80	0.94	22.4
West: New South Head Road															
11	T1	All MCs	2009	1.1	2009	1.1	0.620	7.6	LOS A	14.4	101.8	0.39	0.35	0.39	41.4
12	R2	All MCs	87	0.0	87	0.0	* 0.546	67.8	LOS E	5.0	35.2	0.98	0.77	0.98	16.5
Approach			2096	1.0	2096	1.0	0.620	10.1	LOS A	14.4	101.8	0.41	0.37	0.41	37.1
All Vehicles			5074	1.3	5074	1.3	0.818	10.7	LOS A	14.4	101.8	0.31	0.28	0.32	35.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: New McLean Street											

P1 Full	183	8.5	LOS A	0.2	0.2	0.38	0.38	23.9	20.0	0.84
North: Darling Point Road										
P3 Full	189	8.5	LOS A	0.2	0.2	0.38	0.38	23.9	20.0	0.84
All Pedestrians	373	8.5	LOS A	0.2	0.2	0.38	0.38	23.9	20.0	0.84

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 474 [New South Head Road/ Mona Road/ Glenmore Road - Sat Midday (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Saturday Midday (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenmore Road															
1	L2	All MCs	225	0.5	225	0.5	0.840	24.5	LOS B	5.9	41.3	0.26	0.82	0.48	23.9
Approach			225	0.5	225	0.5	0.840	24.5	LOS B	5.9	41.3	0.26	0.82	0.48	23.9
East: New South Head Road															
4	L2	All MCs	122	0.0	122	0.0	0.648	7.1	LOS A	8.3	59.0	0.18	0.24	0.18	42.3
5	T1	All MCs	2457	1.7	2457	1.7	0.648	1.6	LOS A	8.4	59.4	0.18	0.19	0.18	52.4
Approach			2579	1.6	2579	1.6	0.648	1.9	LOS A	8.4	59.4	0.18	0.19	0.18	51.0
North: Mona Road															
7	L2	All MCs	19	0.0	19	0.0	0.057	52.5	LOS D	0.8	5.9	0.79	0.68	0.79	22.7
8	T1	All MCs	19	0.0	19	0.0	0.711	57.4	LOS E	12.5	87.7	0.97	0.84	1.01	26.0
9	R2	All MCs	205	0.5	205	0.5	0.711	60.6	LOS E	12.5	87.7	0.97	0.84	1.01	20.7
Approach			243	0.4	243	0.4	0.711	59.7	LOS E	12.5	87.7	0.96	0.83	0.99	21.4
West: New South Head Road															
10	L2	All MCs	149	1.4	149	1.4	* 0.856	70.2	LOS E	10.1	71.6	1.00	0.94	1.23	21.7
11	T1	All MCs	2251	1.1	2251	1.1	* 0.856	0.8	LOS A	10.1	71.6	0.14	0.13	0.14	54.9
Approach			2400	1.1	2400	1.1	0.856	5.1	LOS A	10.1	71.6	0.19	0.18	0.21	42.3
All Vehicles			5447	1.3	5447	1.3	0.856	6.8	LOS A	12.5	87.7	0.23	0.24	0.24	39.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	32	37.7	LOS D	0.1	0.1	0.79	0.79	53.0	20.0	0.38
North: Mona Road											
P3	Full	123	5.1	LOS A	0.1	0.1	0.29	0.29	20.5	20.0	0.97
West: New South Head Road											
P4	Full	42	37.7	LOS D	0.1	0.1	0.79	0.79	53.1	20.0	0.38

All Pedestrians	197	17.3	LOS B	0.1	0.1	0.48	0.48	32.7	20.0	0.61

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 473 [New South Head Road/ New Beach Road/ Mahoney Lane - Sat Midday (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Saturday Midday (Network Folder: General)]

NA
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mahoney Lane															
1	L2	All MCs	7	0.0	7	0.0	0.023	3.3	LOS A	0.0	0.0	0.02	0.41	0.02	47.5
Approach			7	0.0	7	0.0	0.023	3.3	LOS A	0.0	0.0	0.02	0.41	0.02	47.5
East: New South Head Road															
5	T1	All MCs	2832	1.5	2832	1.5	* 0.677	0.4	LOS A	3.6	25.5	0.07	0.07	0.07	59.4
6	R2	All MCs	58	3.4	58	3.4	0.320	12.9	LOS A	1.2	8.7	0.37	0.67	0.37	40.2
Approach			2890	1.5	2890	1.5	0.677	0.7	LOS A	3.6	25.5	0.08	0.08	0.08	58.8
North: New Beach Road															
7	L2	All MCs	56	0.0	56	0.0	0.577	47.9	LOS D	8.0	56.2	0.95	0.80	0.95	20.4
9	R2	All MCs	226	0.9	226	0.9	* 0.577	56.6	LOS E	8.0	56.2	0.96	0.79	0.96	29.3
Approach			282	0.7	282	0.7	0.577	54.9	LOS D	8.0	56.2	0.96	0.80	0.96	28.0
West: New South Head Road															
10	L2	All MCs	185	0.0	185	0.0	0.647	7.8	LOS A	15.6	110.2	0.41	0.47	0.41	48.3
11	T1	All MCs	2226	1.1	2226	1.1	0.647	3.5	LOS A	15.6	110.2	0.28	0.28	0.28	53.8
Approach			2411	1.0	2411	1.0	0.647	3.8	LOS A	15.6	110.2	0.29	0.29	0.29	52.9
All Vehicles			5590	1.3	5590	1.3	0.677	4.8	LOS A	15.6	110.2	0.21	0.21	0.21	52.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	71	44.3	LOS E	0.2	0.2	0.86	0.86	59.7	20.0	0.33
North: New Beach Road											
P3	Full	118	5.7	LOS A	0.1	0.1	0.31	0.31	21.1	20.0	0.95
All Pedestrians		188	20.2	LOS C	0.2	0.2	0.52	0.52	35.6	20.0	0.56

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

APPENDIX B

SITE DEVELOPMENT YIELDS

Figure B1 The ECC Development Sites Layout

Source: WMC, 2024

Table B1 The ECC Development Yields

Site ID	Residential (GFA, m2)		Commercial (GFA, m2)		Retail (GFA, m2)	
	Future	Uplift	Future	Uplift	Future	Uplift
A	2292	2292	119	-2455	725	725
AA, AB	650	650	322	322	198	-198
B	7523	2847	3600	3600	412	-399
C	3519	3519	1488	-1795	782	189
D	2966	2966	1627	-479	623	623
E	2703	1960	0	-1202	311	11
F	5872	5433	2542	1576	327	185
G	5275	3307	0	-197	491	-172
H	26351	26351	14675	4955	2893	-921
Total	**57151**	**49325**	**24373**	**4325**	**6762**	**43**

Source: WMC, 2024

APPENDIX C

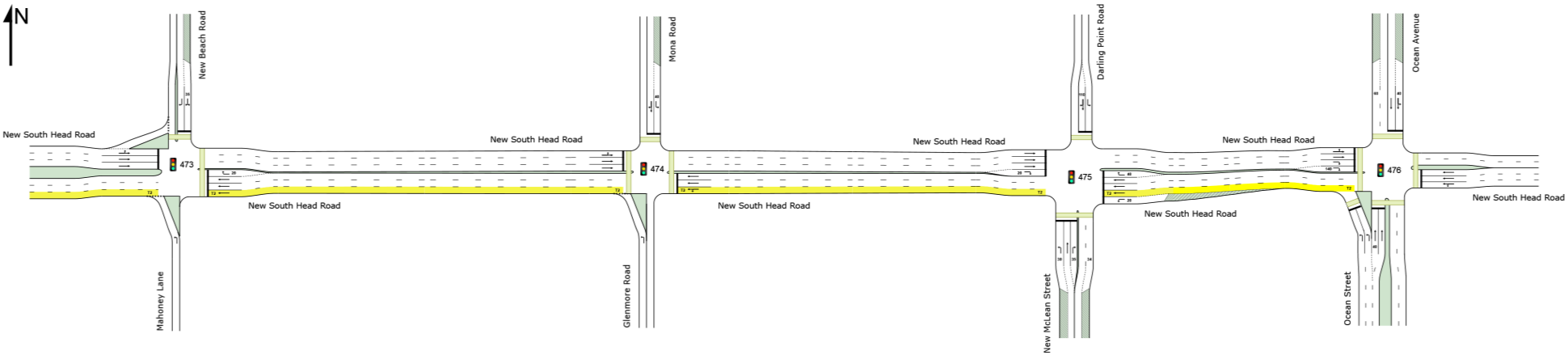
INTERSECTION PERFORMANCE – WITH PROPOSED DEVELOPMENT

NETWORK LAYOUT

Network: N101 [Thursday AM (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
476	NA	New South Head Road/ Ocean Avenue/ Ocean Street - Thurs AM - Copy
475	NA	New South Head Road/ Darling Point Road/ New McLean Street - Thurs AM
474	NA	New South Head Road/ Mona Road/ Glenmore Road - Thurs AM
473	NA	New South Head Road/ New Beach Road/ Mahoney Lane - Thurs AM

Organisation: SCT CONSULTING PTY LTD | Licence: NETWORK / FLOATING | Created: Tuesday, 5 March 2024 2:55:18 PM
Project: S:\Projects\SCT_00090_Edgecliff Commercial Centre Study\3. Technical Work Area\1. Network Optimisation\SIDRA Updated Transport Study 2023\SIDRA 2023 Transport Study\2023 With Uplift Dev_DL.sip9

MOVEMENT SUMMARY

Site: 476 [New South Head Road/ Ocean Avenue/ Ocean Street - Thurs AM - Copy (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Thursday AM (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing AM
730am - 830am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ocean Street															
1	L2	All MCs	924	2.2	924	2.2	* 0.977	39.1	LOS C	30.8	221.4	0.94	0.98	1.15	24.8
2	T1	All MCs	339	2.1	339	2.1	0.810	45.1	LOS D	13.6	96.8	0.92	0.80	0.95	29.0
Approach			1263	2.1	1263	2.1	0.977	40.7	LOS C	30.8	221.4	0.93	0.93	1.10	26.2
East: New South Head Road															
4	L2	All MCs	164	2.4	164	2.4	0.979	60.4	LOS E	40.6	291.2	1.00	1.12	1.30	30.5
5	T1	All MCs	1784	3.0	1784	3.0	* 0.979	41.7	LOS C	50.0	359.3	0.98	1.10	1.25	25.5
Approach			1948	3.0	1948	3.0	0.979	43.3	LOS D	50.0	359.3	0.98	1.10	1.25	26.1
North: Ocean Avenue															
7	L2	All MCs	36	5.9	36	5.9	0.610	74.2	LOS F	3.3	24.2	1.00	0.80	1.09	24.9
8	T1	All MCs	195	2.2	195	2.2	0.610	52.1	LOS D	9.9	70.6	0.98	0.80	0.99	27.0
Approach			231	2.7	231	2.7	0.610	55.5	LOS D	9.9	70.6	0.99	0.80	1.01	26.6
West: New South Head Road															
10	L2	All MCs	184	6.3	184	6.3	0.839	35.1	LOS C	27.3	201.8	0.71	0.70	0.74	32.1
11	T1	All MCs	1596	6.8	1596	6.8	0.839	2.7	LOS A	27.3	201.8	0.31	0.28	0.31	46.4
12	R2	All MCs	483	5.6	483	5.6	0.882	56.4	LOS D	15.1	109.7	1.00	0.95	1.17	23.0
Approach			2263	6.5	2263	6.5	0.882	16.8	LOS B	27.3	201.8	0.49	0.46	0.53	37.0
All Vehicles			5705	4.2	5705	4.2	0.979	32.7	LOS C	50.0	359.3	0.77	0.80	0.92	30.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ocean Street											
P1	Full	53	14.0	LOS B	0.1	0.1	0.48	0.48	29.4	20.0	0.68
P1S	Slip/ Bypass	353	14.2	LOS B	0.6	0.6	0.49	0.49	29.6	20.0	0.68

East: New South Head Road										
P2 Full	119	41.9	LOS E	0.3	0.3	0.84	0.84	57.3	20.0	0.35
North: Ocean Avenue										
P3 Full	112	4.3	LOS A	0.1	0.1	0.27	0.27	19.7	20.0	1.02
West: New South Head Road										
P4 Full	168	42.0	LOS E	0.5	0.5	0.84	0.84	57.3	20.0	0.35
All Pedestrians	804	22.7	LOS C	0.6	0.6	0.58	0.58	38.1	20.0	0.52

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 475 [New South Head Road/ Darling Point Road/ New McLean Street - Thurs AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Thursday AM (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing AM
730am - 830am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New McLean Street															
1	L2	All MCs	132	4.0	132	4.0	0.204	33.3	LOS C	5.3	38.3	0.73	0.74	0.73	16.2
2	T1	All MCs	31	3.4	31	3.4	0.132	51.2	LOS D	1.6	11.7	0.92	0.68	0.92	25.4
3	R2	All MCs	87	3.6	87	3.6	0.684	68.2	LOS E	5.4	38.8	1.00	0.84	1.11	9.6
Approach			249	3.8	249	3.8	0.684	47.7	LOS D	5.4	38.8	0.85	0.77	0.89	15.0
East: New South Head Road															
4	L2	All MCs	17	0.0	17	0.0	0.021	40.0	LOS C	0.5	3.7	0.58	0.66	0.58	28.8
5	T1	All MCs	2639	2.9	2639	2.9	* 0.939	24.2	LOS B	40.1	287.8	0.64	0.68	0.76	22.2
6	R2	All MCs	67	0.0	67	0.0	0.202	57.5	LOS E	3.6	25.2	0.94	0.76	0.94	23.9
Approach			2723	2.8	2723	2.8	0.939	25.1	LOS B	40.1	287.8	0.65	0.69	0.76	18.9
North: Darling Point Road															
7	L2	All MCs	120	6.1	120	6.1	0.191	33.1	LOS C	4.8	35.4	0.73	0.74	0.73	26.6
8	T1	All MCs	37	0.0	37	0.0	0.831	63.1	LOS E	7.0	49.3	1.00	0.96	1.30	21.6
9	R2	All MCs	71	1.5	71	1.5	* 0.831	74.4	LOS F	7.0	49.3	1.00	0.96	1.30	17.6
Approach			227	3.7	227	3.7	0.831	50.8	LOS D	7.0	49.3	0.86	0.84	1.00	22.2
West: New South Head Road															
11	T1	All MCs	2118	6.5	2118	6.5	0.782	20.1	LOS B	27.3	201.7	0.68	0.73	0.68	27.6
12	R2	All MCs	113	4.4	113	4.4	* 0.778	72.3	LOS F	6.5	47.0	0.95	0.87	1.12	17.4
Approach			2231	6.4	2231	6.4	0.782	22.8	LOS B	27.3	201.7	0.69	0.74	0.70	22.5
All Vehicles			5431	4.4	5431	4.4	0.939	26.3	LOS B	40.1	287.8	0.68	0.72	0.75	20.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: New McLean Street											
P1	Full	162	12.2	LOS B	0.3	0.3	0.45	0.45	27.6	20.0	0.72

North: Darling Point Road										
P3 Full	102	12.2	LOS B	0.2	0.2	0.45	0.45	27.6	20.0	0.72
All Pedestrians	264	12.2	LOS B	0.3	0.3	0.45	0.45	27.6	20.0	0.72

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 474 [New South Head Road/ Mona Road/ Glenmore Road - Thurs AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Thursday AM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenmore Road															
1	L2	All MCs	313	2.4	313	2.4	0.870	65.8	LOS E	19.2	137.1	1.00	1.23	1.26	14.3
Approach			313	2.4	313	2.4	0.870	65.8	LOS E	19.2	137.1	1.00	1.23	1.26	14.3
East: New South Head Road															
4	L2	All MCs	97	1.1	97	1.1	0.786	9.0	LOS A	18.1	129.6	0.37	0.38	0.37	41.0
5	T1	All MCs	2732	2.9	2732	2.9	* 0.925	6.5	LOS A	31.7	227.1	0.34	0.36	0.38	39.3
Approach			2828	2.9	2828	2.9	0.925	6.6	LOS A	31.7	227.1	0.34	0.36	0.38	39.4
North: Mona Road															
7	L2	All MCs	14	7.7	14	7.7	0.032	40.3	LOS C	0.6	4.4	0.77	0.67	0.77	24.2
8	T1	All MCs	26	4.0	26	4.0	* 0.430	39.3	LOS C	9.8	70.8	0.88	0.79	0.88	28.3
9	R2	All MCs	175	3.6	175	3.6	0.430	44.4	LOS D	9.8	70.8	0.88	0.79	0.88	23.1
Approach			215	3.9	215	3.9	0.430	43.5	LOS D	9.8	70.8	0.87	0.78	0.87	24.0
West: New South Head Road															
10	L2	All MCs	211	4.0	211	4.0	0.766	18.8	LOS B	28.0	205.1	0.66	0.66	0.66	39.9
11	T1	All MCs	2269	6.2	2269	6.2	0.766	9.9	LOS A	28.2	207.8	0.62	0.59	0.62	31.6
Approach			2480	6.0	2480	6.0	0.766	10.6	LOS A	28.2	207.8	0.63	0.60	0.63	33.3
All Vehicles			5836	4.2	5836	4.2	0.925	12.8	LOS A	31.7	227.1	0.52	0.52	0.55	30.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	26	43.4	LOS E	0.1	0.1	0.85	0.85	58.8	20.0	0.34
North: Mona Road											
P3	Full	78	11.3	LOS B	0.1	0.1	0.43	0.43	26.7	20.0	0.75
West: New South Head Road											
P4	Full	33	43.4	LOS E	0.1	0.1	0.85	0.85	60.1	20.0	0.33

All Pedestrians	137	25.1	LOS C	0.1	0.1	0.61	0.61	40.8	20.0	0.49

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 473 [New South Head Road/ New Beach Road/ Mahoney Lane - Thurs AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [Thursday AM (Network Folder: General)]

NA
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mahoney Lane															
1	L2	All MCs	9	11.1	9	11.1	0.033	5.2	LOS A	0.1	0.6	0.25	0.49	0.25	45.4
Approach			9	11.1	9	11.1	0.033	5.2	LOS A	0.1	0.6	0.25	0.49	0.25	45.4
East: New South Head Road															
5	T1	All MCs	3167	2.9	3167	2.9	0.788	0.5	LOS A	6.0	43.3	0.10	0.10	0.10	59.3
6	R2	All MCs	33	6.5	33	6.5	* 0.240	14.2	LOS A	0.7	5.1	0.37	0.66	0.37	39.4
Approach			3200	2.9	3200	2.9	0.788	0.6	LOS A	6.0	43.3	0.11	0.10	0.11	59.0
North: New Beach Road															
7	L2	All MCs	27	3.8	27	3.8	0.469	49.8	LOS D	7.0	49.4	0.95	0.79	0.95	20.3
9	R2	All MCs	233	0.5	233	0.5	* 0.469	55.3	LOS D	7.1	50.2	0.95	0.79	0.95	29.4
Approach			260	0.8	260	0.8	0.469	54.7	LOS D	7.1	50.2	0.95	0.79	0.95	28.7
West: New South Head Road															
10	L2	All MCs	164	4.5	164	4.5	0.811	6.1	LOS A	13.5	98.9	0.30	0.36	0.30	51.1
11	T1	All MCs	2463	6.0	2463	6.0	* 0.811	2.5	LOS A	16.4	120.6	0.33	0.33	0.33	55.2
Approach			2627	5.9	2627	5.9	0.811	2.7	LOS A	16.4	120.6	0.33	0.33	0.33	54.7
All Vehicles			6097	4.1	6097	4.1	0.811	3.8	LOS A	16.4	120.6	0.24	0.23	0.24	53.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	80	41.8	LOS E	0.2	0.2	0.84	0.84	57.2	20.0	0.35
North: New Beach Road											
P3	Full	111	5.4	LOS A	0.1	0.1	0.30	0.30	20.8	20.0	0.96
All Pedestrians		191	20.7	LOS C	0.2	0.2	0.53	0.53	36.1	20.0	0.55

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

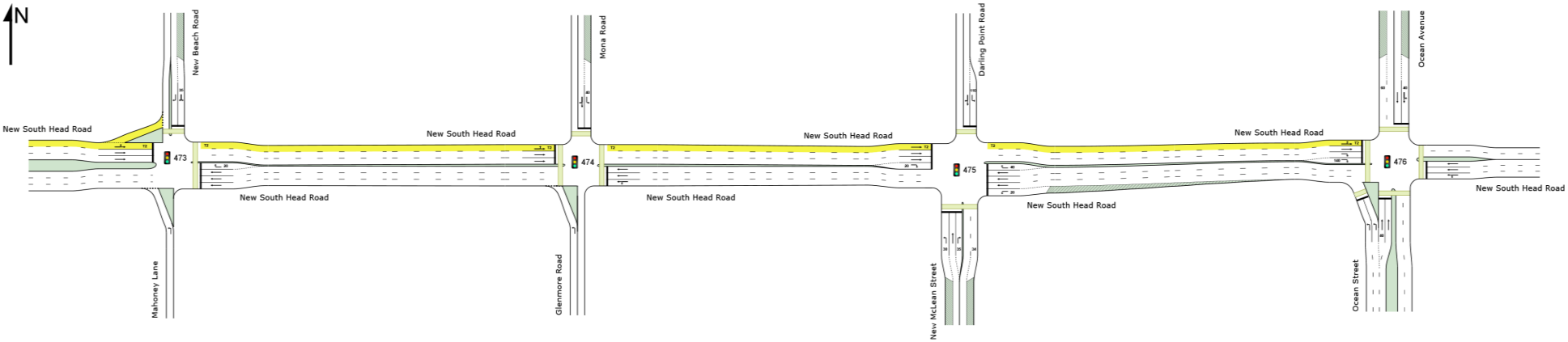
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

NETWORK LAYOUT

Network: N101 [Thursday PM (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
476	NA	New South Head Road/ Ocean Avenue/ Ocean Street - Thurs PM - Copy
475	NA	New South Head Road/ Darling Point Road/ New McLean Street - Thurs PM
474	NA	New South Head Road/ Mona Road/ Glenmore Road - Thurs PM
473	NA	New South Head Road/ New Beach Road/ Mahoney Lane - Thurs PM

Organisation: SCT CONSULTING PTY LTD | Licence: NETWORK / FLOATING | Created: Tuesday, 5 March 2024 2:55:55 PM
Project: S:\Projects\SCT_00090_Edgecliff Commercial Centre Study\3. Technical Work Area\1. Network Optimisation\SIDRA Updated Transport Study 2023\SIDRA 2023 Transport Study\2023 With Uplift Dev_DL.sip9

MOVEMENT SUMMARY

Site: 476 [New South Head Road/ Ocean Avenue/ Ocean Street - Thurs PM - Copy (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday PM (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing PM
530pm - 630pm
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ocean Street															
1	L2	All MCs	878	1.9	878	1.9	0.544	24.5	LOS B	15.1	108.5	0.62	0.74	0.62	31.8
2	T1	All MCs	285	0.0	285	0.0	*0.851	59.9	LOS E	12.7	88.9	0.98	0.90	1.12	26.2
Approach			1163	1.5	1163	1.5	0.851	33.2	LOS C	15.1	108.5	0.71	0.78	0.74	29.3
East: New South Head Road															
4	L2	All MCs	222	0.0	222	0.0	*0.876	56.3	LOS D	29.0	204.8	0.98	0.95	1.11	31.7
5	T1	All MCs	1612	1.9	1612	1.9	0.876	34.8	LOS C	37.3	265.0	0.94	0.93	1.03	27.9
Approach			1834	1.7	1834	1.7	0.876	37.4	LOS C	37.3	265.0	0.94	0.93	1.04	28.6
North: Ocean Avenue															
7	L2	All MCs	17	0.0	17	0.0	0.543	60.9	LOS E	6.5	45.3	0.97	0.77	0.97	27.6
8	T1	All MCs	225	0.0	225	0.0	0.543	52.2	LOS D	7.0	49.0	0.96	0.77	0.96	27.1
Approach			242	0.0	242	0.0	0.543	52.8	LOS D	7.0	49.0	0.96	0.77	0.96	27.1
West: New South Head Road															
10	L2	All MCs	134	0.8	134	0.8	0.710	58.6	LOS E	23.7	166.9	0.73	0.69	0.73	30.7
11	T1	All MCs	1483	0.6	1483	0.6	0.710	2.8	LOS A	23.7	166.9	0.28	0.26	0.28	45.5
12	R2	All MCs	858	1.8	858	1.8	*0.878	50.2	LOS D	26.4	185.5	1.00	0.97	1.15	24.3
Approach			2475	1.0	2475	1.0	0.878	22.2	LOS B	26.4	186.6	0.55	0.53	0.60	34.3
All Vehicles			5714	1.3	5714	1.3	0.878	30.6	LOS C	37.3	265.0	0.73	0.72	0.79	31.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ocean Street											
P1	Full	53	19.3	LOS B	0.1	0.1	0.57	0.57	34.7	20.0	0.58
P1S	Slip/ Bypass	321	19.5	LOS B	0.6	0.6	0.57	0.57	34.9	20.0	0.57
East: New South Head Road											

P2 Full	78	45.2	LOS E	0.2	0.2	0.87	0.87	60.6	20.0	0.33
North: Ocean Avenue										
P3 Full	123	3.3	LOS A	0.1	0.1	0.23	0.23	18.7	20.0	1.07
West: New South Head Road										
P4 Full	192	45.4	LOS E	0.6	0.6	0.87	0.87	60.8	20.0	0.33
All Pedestrians	766	26.0	LOS C	0.6	0.6	0.62	0.62	41.4	20.0	0.48

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 475 [New South Head Road/ Darling Point Road/ New McLean Street - Thurs PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday PM (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing PM
1730pm - 1830pm
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New McLean Street															
1	L2	All MCs	181	0.6	181	0.6	0.275	28.9	LOS C	6.5	45.5	0.65	0.73	0.65	17.6
2	T1	All MCs	73	0.0	73	0.0	0.232	44.2	LOS D	3.6	25.0	0.86	0.67	0.86	27.3
3	R2	All MCs	113	0.9	113	0.9	0.577	58.4	LOS E	6.4	45.2	0.97	0.79	0.97	10.8
Approach			368	0.5	368	0.5	0.577	41.0	LOS C	6.5	45.5	0.79	0.74	0.79	18.1
East: New South Head Road															
4	L2	All MCs	5	0.0	5	0.0	0.008	35.1	LOS C	0.2	1.2	0.60	0.63	0.60	26.1
5	T1	All MCs	2362	2.1	2362	2.1	* 0.781	6.0	LOS A	15.1	107.9	0.35	0.32	0.35	34.1
6	R2	All MCs	64	0.0	64	0.0	0.249	52.7	LOS D	3.3	22.9	0.89	0.74	0.89	24.5
Approach			2432	2.0	2432	2.0	0.781	7.3	LOS A	15.1	107.9	0.37	0.33	0.37	33.0
North: Darling Point Road															
7	L2	All MCs	112	2.7	112	2.7	0.174	27.5	LOS B	3.7	26.7	0.60	0.70	0.60	28.9
8	T1	All MCs	42	0.0	42	0.0	0.614	50.1	LOS D	6.0	42.1	0.98	0.80	1.00	24.2
9	R2	All MCs	61	1.6	61	1.6	* 0.614	61.9	LOS E	6.0	42.1	0.98	0.80	1.00	20.1
Approach			216	1.9	216	1.9	0.614	41.7	LOS C	6.0	42.1	0.78	0.75	0.80	24.8
West: New South Head Road															
11	T1	All MCs	2080	1.1	2080	1.1	0.741	19.1	LOS B	25.0	176.7	0.64	0.71	0.64	28.2
12	R2	All MCs	109	0.9	109	0.9	* 0.882	82.8	LOS F	6.9	48.9	1.00	0.94	1.35	15.4
Approach			2189	1.1	2189	1.1	0.882	22.2	LOS B	25.0	176.7	0.65	0.72	0.67	26.2
All Vehicles			5204	1.5	5204	1.5	0.882	17.4	LOS B	25.0	176.7	0.53	0.54	0.54	27.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: New McLean Street											
P1	Full	312	12.3	LOS B	0.5	0.5	0.46	0.46	27.7	20.0	0.72

North: Darling Point Road										
P3 Full	180	12.2	LOS B	0.3	0.3	0.45	0.45	27.6	20.0	0.72
All Pedestrians	492	12.3	LOS B	0.5	0.5	0.45	0.45	27.7	20.0	0.72

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 474 [New South Head Road/ Mona Road/ Glenmore Road - Thurs PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday PM (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenmore Road															
1	L2	All MCs	220	1.4	220	1.4	0.799	17.7	LOS B	4.5	32.2	0.23	0.77	0.39	26.9
Approach			220	1.4	220	1.4	0.799	17.7	LOS B	4.5	32.2	0.23	0.77	0.39	26.9
East: New South Head Road															
4	L2	All MCs	114	0.0	114	0.0	0.661	7.2	LOS A	8.8	62.2	0.19	0.24	0.19	42.7
5	T1	All MCs	2513	2.1	2513	2.1	0.661	1.6	LOS A	8.8	62.7	0.19	0.20	0.19	52.4
Approach			2626	2.0	2626	2.0	0.661	1.9	LOS A	8.8	62.7	0.19	0.20	0.19	51.1
North: Mona Road															
7	L2	All MCs	17	0.0	17	0.0	0.053	56.6	LOS E	0.8	5.4	0.80	0.68	0.80	22.4
8	T1	All MCs	24	0.0	24	0.0	* 0.879	72.3	LOS F	14.3	100.2	1.00	0.97	1.23	23.8
9	R2	All MCs	201	0.0	201	0.0	0.879	75.5	LOS F	14.3	100.2	1.00	0.97	1.23	18.3
Approach			242	0.0	242	0.0	0.879	73.8	LOS F	14.3	100.2	0.99	0.95	1.20	19.3
West: New South Head Road															
10	L2	All MCs	184	0.6	184	0.6	0.855	61.0	LOS E	11.1	78.0	0.98	0.92	1.19	22.8
11	T1	All MCs	2238	1.1	2238	1.1	* 0.855	0.7	LOS A	11.1	78.0	0.14	0.13	0.14	56.3
Approach			2422	1.1	2422	1.1	0.855	5.3	LOS A	11.1	78.0	0.20	0.19	0.22	42.1
All Vehicles			5511	1.5	5511	1.5	0.879	7.1	LOS A	14.3	100.2	0.23	0.25	0.25	39.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	53	37.7	LOS D	0.1	0.1	0.79	0.79	53.1	20.0	0.38
North: Mona Road											
P3	Full	79	5.1	LOS A	0.1	0.1	0.29	0.29	20.5	20.0	0.98
West: New South Head Road											
P4	Full	108	37.8	LOS D	0.3	0.3	0.80	0.80	53.2	20.0	0.38

All Pedestrians	240	27.0	LOS C	0.3	0.3	0.63	0.63	42.4	20.0	0.47

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 473 [New South Head Road/ New Beach Road/ Mahoney Lane - Thurs PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Thursday PM (Network Folder: General)]

NA
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mahoney Lane															
1	L2	All MCs	7	0.0	7	0.0	0.029	3.3	LOS A	0.0	0.0	0.02	0.41	0.02	47.5
Approach			7	0.0	7	0.0	0.029	3.3	LOS A	0.0	0.0	0.02	0.41	0.02	47.5
East: New South Head Road															
5	T1	All MCs	2900	1.8	2900	1.8	0.650	0.3	LOS A	3.1	21.7	0.06	0.06	0.06	59.6
6	R2	All MCs	53	6.0	53	6.0	* 0.351	18.2	LOS B	1.6	11.5	0.51	0.71	0.51	37.1
Approach			2953	1.9	2953	1.9	0.650	0.6	LOS A	3.1	21.7	0.07	0.07	0.07	58.9
North: New Beach Road															
7	L2	All MCs	47	0.0	47	0.0	0.528	47.9	LOS D	7.8	55.1	0.94	0.79	0.94	20.8
9	R2	All MCs	240	0.4	240	0.4	* 0.528	53.8	LOS D	7.8	55.1	0.94	0.79	0.94	29.9
Approach			287	0.4	287	0.4	0.528	52.8	LOS D	7.8	55.1	0.94	0.79	0.94	28.7
West: New South Head Road															
10	L2	All MCs	164	0.0	164	0.0	0.709	8.6	LOS A	19.2	135.5	0.46	0.50	0.46	48.1
11	T1	All MCs	2496	1.1	2496	1.1	* 0.709	3.5	LOS A	19.2	135.5	0.30	0.30	0.30	53.8
Approach			2660	1.1	2660	1.1	0.709	3.8	LOS A	19.2	135.5	0.31	0.31	0.31	53.1
All Vehicles			5907	1.4	5907	1.4	0.709	4.6	LOS A	19.2	135.5	0.22	0.21	0.22	52.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	53	42.6	LOS E	0.2	0.2	0.84	0.84	58.0	20.0	0.34
North: New Beach Road											
P3	Full	53	5.4	LOS A	0.1	0.1	0.30	0.30	20.8	20.0	0.96
All Pedestrians		105	24.0	LOS C	0.2	0.2	0.57	0.57	39.4	20.0	0.51

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.

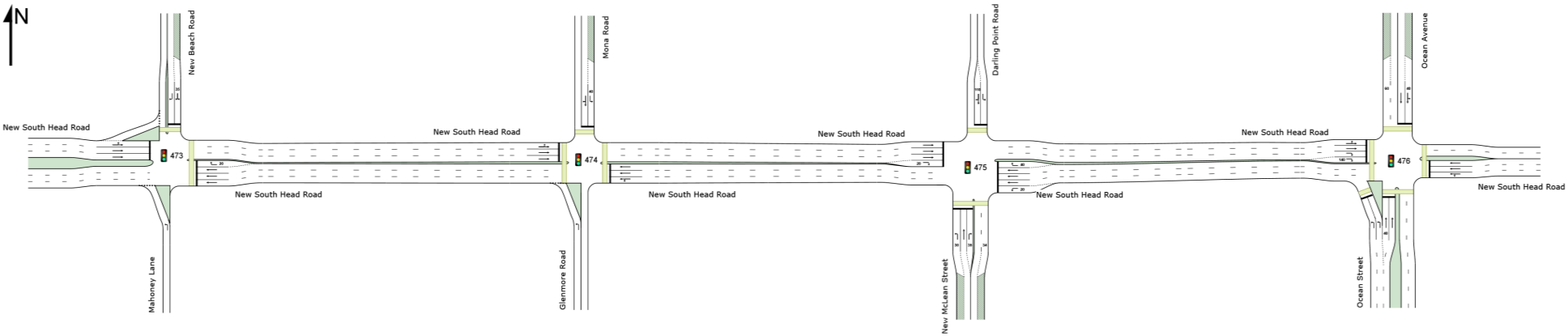
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

NETWORK LAYOUT

Network: N101 [Saturday Midday (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
476	NA	New South Head Road/ Ocean Avenue/ Ocean Street - Sat Midday - Copy
475	NA	New South Head Road/ Darling Point Road/ New McLean Street - Sat Midday
474	NA	New South Head Road/ Mona Road/ Glenmore Road - Sat Midday
473	NA	New South Head Road/ New Beach Road/ Mahoney Lane - Sat Midday

Organisation: SCT CONSULTING PTY LTD | Licence: NETWORK / FLOATING | Created: Tuesday, 5 March 2024 2:56:09 PM
Project: S:\Projects\SCT_00090_Edgecliff Commercial Centre Study\3. Technical Work Area\1. Network Optimisation\SIDRA Updated Transport Study 2023\SIDRA 2023 Transport Study\2023 With Uplift Dev_DL.sip9

MOVEMENT SUMMARY

Site: 476 [New South Head Road/ Ocean Avenue/ Ocean Street - Sat Midday - Copy (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Saturday Midday (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing AM
9am - 10am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ocean Street															
1	L2	All MCs	967	0.9	967	0.9	0.669	32.3	LOS C	20.8	147.3	0.75	0.79	0.75	29.2
2	T1	All MCs	377	0.0	377	0.0	* 0.888	58.7	LOS E	17.2	120.4	0.97	0.93	1.13	28.6
Approach			1344	0.6	1344	0.6	0.888	39.7	LOS C	20.8	147.3	0.81	0.83	0.86	28.9
East: New South Head Road															
4	L2	All MCs	196	0.0	196	0.0	0.712	25.9	LOS B	23.3	164.9	0.74	0.72	0.74	40.8
5	T1	All MCs	1586	2.2	1586	2.2	0.712	18.4	LOS B	23.7	168.8	0.73	0.67	0.73	37.4
Approach			1782	1.9	1782	1.9	0.712	19.2	LOS B	23.7	168.8	0.74	0.68	0.74	38.0
North: Ocean Avenue															
7	L2	All MCs	22	0.0	22	0.0	0.482	64.4	LOS E	5.7	40.3	0.95	0.76	0.95	29.9
8	T1	All MCs	224	0.5	224	0.5	0.482	48.1	LOS D	7.4	52.3	0.93	0.75	0.93	30.0
Approach			246	0.4	246	0.4	0.482	49.6	LOS D	7.4	52.3	0.94	0.75	0.94	30.0
West: New South Head Road															
10	L2	All MCs	142	1.5	142	1.5	* 0.728	33.2	LOS C	18.3	129.5	0.55	0.56	0.55	41.8
11	T1	All MCs	1466	0.9	1466	0.9	0.728	1.9	LOS A	18.3	129.5	0.23	0.23	0.23	55.1
12	R2	All MCs	724	1.2	724	1.2	* 1.015	88.8	LOS F	28.8	202.2	1.00	1.13	1.47	18.9
Approach			2333	1.0	2333	1.0	1.015	30.8	LOS C	28.8	202.9	0.49	0.53	0.64	34.1
All Vehicles			5705	1.2	5705	1.2	1.015	30.1	LOS C	28.8	202.9	0.66	0.66	0.73	33.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ocean Street											
P1	Full	53	16.6	LOS B	0.1	0.1	0.53	0.53	32.0	20.0	0.63
P1S	Slip/	53	16.6	LOS B	0.1	0.1	0.53	0.53	32.0	20.0	0.63

	Bypass										
East: New South Head Road											
P2	Full	53	41.8	LOS E	0.1	0.1	0.84	0.84	57.1	20.0	0.35
North: Ocean Avenue											
P3	Full	53	4.3	LOS A	0.0	0.0	0.27	0.27	19.7	20.0	1.02
West: New South Head Road											
P4	Full	53	41.8	LOS E	0.1	0.1	0.84	0.84	57.1	20.0	0.35
All Pedestrians		263	24.2	LOS C	0.1	0.1	0.60	0.60	39.6	20.0	0.51

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 475 [New South Head Road/ Darling Point Road/ New McLean Street - Sat Midday (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Saturday Midday (Network Folder: General)]

N103470
Edgecliff Commercial Centre - Existing AM
9am -10am
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: New McLean Street															
1	L2	All MCs	182	0.0	182	0.0	0.351	37.4	LOS C	7.7	53.9	0.77	0.76	0.77	14.9
2	T1	All MCs	82	0.0	82	0.0	0.307	48.6	LOS D	4.2	29.6	0.90	0.70	0.90	26.2
3	R2	All MCs	126	1.6	126	1.6	* 0.923	75.7	LOS F	8.5	60.4	1.00	1.03	1.41	8.8
Approach			390	0.5	390	0.5	0.923	52.1	LOS D	8.5	60.4	0.87	0.83	1.00	15.7
East: New South Head Road															
4	L2	All MCs	2	0.0	2	0.0	0.003	20.0	LOS B	0.0	0.3	0.43	0.60	0.43	31.2
5	T1	All MCs	2345	1.8	2345	1.8	* 0.673	0.5	LOS A	2.6	18.8	0.06	0.06	0.06	57.9
6	R2	All MCs	76	0.0	76	0.0	0.455	61.6	LOS E	4.3	30.1	0.97	0.76	0.97	23.3
Approach			2423	1.7	2423	1.7	0.673	2.4	LOS A	4.3	30.1	0.09	0.08	0.09	50.9
North: Darling Point Road															
7	L2	All MCs	86	1.2	86	1.2	0.168	34.7	LOS C	3.4	23.7	0.70	0.71	0.70	25.9
8	T1	All MCs	43	0.0	43	0.0	0.874	61.8	LOS E	7.3	51.1	1.00	0.98	1.33	21.5
9	R2	All MCs	67	0.0	67	0.0	0.874	75.2	LOS F	7.3	51.1	1.00	0.98	1.33	17.6
Approach			197	0.5	197	0.5	0.874	54.5	LOS D	7.3	51.1	0.87	0.86	1.05	21.4
West: New South Head Road															
11	T1	All MCs	2010	1.1	2010	1.1	0.622	7.6	LOS A	14.5	102.4	0.39	0.36	0.39	41.4
12	R2	All MCs	94	0.0	94	0.0	* 0.832	74.1	LOS F	5.9	41.4	1.00	0.90	1.26	15.4
Approach			2104	1.0	2104	1.0	0.832	10.6	LOS A	14.5	102.4	0.42	0.38	0.43	36.4
All Vehicles			5115	1.3	5115	1.3	0.923	11.6	LOS A	14.5	102.4	0.32	0.29	0.34	34.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: New McLean Street											

P1 Full	183	8.5	LOS A	0.2	0.2	0.38	0.38	23.9	20.0	0.84
North: Darling Point Road										
P3 Full	189	8.5	LOS A	0.2	0.2	0.38	0.38	23.9	20.0	0.84
All Pedestrians	373	8.5	LOS A	0.2	0.2	0.38	0.38	23.9	20.0	0.84

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 474 [New South Head Road/ Mona Road/ Glenmore Road - Sat Midday (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Saturday Midday (Network Folder: General)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Glenmore Road															
1	L2	All MCs	231	0.5	231	0.5	0.864	30.3	LOS C	7.1	50.0	0.31	0.88	0.56	21.9
Approach			231	0.5	231	0.5	0.864	30.3	LOS C	7.1	50.0	0.31	0.88	0.56	21.9
East: New South Head Road															
4	L2	All MCs	125	0.0	125	0.0	0.649	7.1	LOS A	8.4	59.2	0.18	0.24	0.18	42.6
5	T1	All MCs	2458	1.7	2458	1.7	0.649	1.6	LOS A	8.4	59.7	0.18	0.19	0.18	52.4
Approach			2583	1.6	2583	1.6	0.649	1.9	LOS A	8.4	59.7	0.18	0.19	0.18	51.0
North: Mona Road															
7	L2	All MCs	20	0.0	20	0.0	0.060	53.2	LOS D	0.9	6.3	0.80	0.68	0.80	22.7
8	T1	All MCs	20	0.0	20	0.0	* 0.718	58.0	LOS E	12.6	88.9	0.97	0.84	1.02	26.2
9	R2	All MCs	206	0.5	206	0.5	0.718	61.3	LOS E	12.6	88.9	0.97	0.84	1.02	20.7
Approach			246	0.4	246	0.4	0.718	60.4	LOS E	12.6	88.9	0.96	0.83	1.00	21.4
West: New South Head Road															
10	L2	All MCs	151	1.4	151	1.4	0.864	56.8	LOS E	8.5	60.1	0.94	0.91	1.19	23.6
11	T1	All MCs	2262	1.1	2262	1.1	* 0.864	1.2	LOS A	9.2	65.2	0.14	0.14	0.15	54.2
Approach			2413	1.1	2413	1.1	0.864	4.7	LOS A	9.2	65.2	0.19	0.19	0.22	43.3
All Vehicles			5473	1.3	5473	1.3	0.864	6.9	LOS A	12.6	88.9	0.23	0.25	0.25	39.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	32	37.7	LOS D	0.1	0.1	0.79	0.79	53.0	20.0	0.38
North: Mona Road											
P3	Full	123	5.1	LOS A	0.1	0.1	0.29	0.29	20.5	20.0	0.97
West: New South Head Road											
P4	Full	42	37.7	LOS D	0.1	0.1	0.79	0.79	53.1	20.0	0.38

All Pedestrians	197	17.3	LOS B	0.1	0.1	0.48	0.48	32.7	20.0	0.61

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 473 [New South Head Road/ New Beach Road/ Mahoney Lane - Sat Midday (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Network: N101 [Saturday Midday (Network Folder: General)]

NA
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mahoney Lane															
1	L2	All MCs	12	0.0	12	0.0	0.037	4.8	LOS A	0.0	0.3	0.10	0.50	0.10	48.2
Approach			12	0.0	12	0.0	0.037	4.8	LOS A	0.0	0.3	0.10	0.50	0.10	48.2
East: New South Head Road															
5	T1	All MCs	2848	1.5	2848	1.5	* 0.681	0.4	LOS A	3.3	23.2	0.07	0.06	0.07	59.5
6	R2	All MCs	58	3.4	58	3.4	0.321	12.9	LOS A	1.2	8.7	0.37	0.67	0.37	40.2
Approach			2906	1.5	2906	1.5	0.681	0.6	LOS A	3.3	23.2	0.07	0.07	0.07	58.9
North: New Beach Road															
7	L2	All MCs	56	0.0	56	0.0	0.577	47.9	LOS D	8.0	56.2	0.95	0.80	0.95	20.4
9	R2	All MCs	226	0.9	226	0.9	* 0.577	56.6	LOS E	8.0	56.2	0.96	0.79	0.96	29.3
Approach			282	0.7	282	0.7	0.577	54.9	LOS D	8.0	56.2	0.96	0.80	0.96	28.0
West: New South Head Road															
10	L2	All MCs	185	0.0	185	0.0	0.651	7.8	LOS A	15.9	111.8	0.42	0.47	0.42	48.2
11	T1	All MCs	2239	1.1	2239	1.1	0.651	3.6	LOS A	15.9	111.8	0.28	0.28	0.28	53.7
Approach			2424	1.0	2424	1.0	0.651	3.9	LOS A	15.9	111.8	0.29	0.30	0.29	52.9
All Vehicles			5624	1.2	5624	1.2	0.681	4.8	LOS A	15.9	111.8	0.21	0.21	0.21	52.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: New South Head Road											
P2	Full	71	44.3	LOS E	0.2	0.2	0.86	0.86	59.7	20.0	0.33
North: New Beach Road											
P3	Full	118	5.7	LOS A	0.1	0.1	0.31	0.31	21.1	20.0	0.95
All Pedestrians		188	20.2	LOS C	0.2	0.2	0.52	0.52	35.6	20.0	0.56

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Thoughtful Transport Solutions

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