

Local Transport Study

Randwick Junction and Housing Investigation Areas (HIAs)
Final Report



Prepared by: Stantec Australia Pty Ltd for Randwick City Council
on 21/01/2022
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EXECUTIVE SUMMARY

Randwick Local Transport Study

Randwick City Council (Council) commissioned Stantec Australia Pty Ltd (Stantec) to prepare a Local Transport Study ('Study') for six selected study areas in and around the CBD and South East Light Rail lines, in light of the proposed land use changes to these areas contained in the *Randwick Junction Town Centre Strategy* and *Randwick Comprehensive Planning Proposal*. Considered together, these documents relate to Randwick Junction and five 'Housing Investigation Areas' (HIA): West Randwick, Kensington North, Arthur Street, Magill Street and Kingsford South. The key purpose of the Study is to understand the impact of the proposed land use changes on the various transport networks (road, bus, light rail, cycling, walking etc.), and identify any gaps or constraints to be addressed by Council. Aligned with Council's *Integrated Transport Strategy*, the Study recognises Council's objective to develop a safe, efficient and sustainable multi-modal transport network that incentivises sustainable travel choices and reduces car dependency.

The key findings of the Study are as follows:

- Existing residents' travel choices vary across the study areas, dependent on the existing transport infrastructure and services nearby to them. As such, a tailored approach considering what is reasonably achievable should be applied to each study area individually.
- The proposed land use changes will increase the resident population, and as some of these new residents will prefer to drive, there will be an increase in traffic on the local road network. It is anticipated that this extra traffic is a modest increase on existing traffic volumes. At a strategic high-level, it is expected that this increase will not significantly worsen congestion.
- However, the Study identified a series of key intersections for which their performance should be investigated for improvement, as well as other intersections that lack recent traffic data and modelling results. These intersections should be further investigated and monitored.
- Additionally, traffic circulation within the Randwick Junction Town Centre should be further explored. Due to a number of one-way streets and restricted vehicle turning movements (e.g. 'Left Turn Only'), the existing road network guides a higher volume of cars onto Belmore Road than is preferable or congruent with Council's vision to improve the street's public domain and pedestrian experience.
- The existing light rail services, as well as the integrated local bus network implemented in Transport for NSW's *South East Sydney Bus Changes*, provide significant capacity as well as coverage to nearby local and strategic centres. However, it is recommended that Council advocates to Transport for NSW for the expedited delivery of the rapid bus routes proposed in the *South East Sydney Transport Strategy*. Providing these frequent and fast bus services is critical in adequately connecting Randwick Junction Town Centre and the five Housing Investigation Areas to the wider region.
- Pedestrian crossings are critical for improving walkability and ensuring pedestrian safety. To support the higher density residential living proposed in the *Planning Proposal*, the Study recommends new pedestrian crossings (i.e. refuge island, zebra crossing, signalised intersection) at key locations.
- Council's cycleway network in and around the study areas is largely underdeveloped, either through a lack of cycling infrastructure or an on-road mixed traffic cycling facility that is viewed as not sufficiently safe, and as such, the Study recommends the delivery of high-quality separated or off-road cycling infrastructure at several locations.

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- Transport for NSW's Principal Bicycle Network proposes a series of regional cycling routes through or near many of the study areas. Here, it is essential that Council works closely with Transport for NSW to better understand the opportunities and constraints of their delivery. The design of high-quality cycling infrastructure involves consideration of other road/footpath users (i.e. car drivers, buses, pedestrians) and potential road space re-allocation (e.g. loss of parking). Having a clearer picture of the road space constraints will enable Council and Transport for NSW to better plan for and deliver the future cycling network.
- The Study also examined the car and bicycle parking rates included in the *Randwick Development Control Plan 2013*, and what an application of these rates to the proposed land use changes would mean for car ownership, traffic generation and transport mode choice. A continuation of the existing rates would not provide sufficient parking for cyclists, while maintaining each study area's existing level of private car use. The Study recommends an amendment to these rates, applying specifically to new developments within the study areas.
- To support the Study's recommendations and Council's achievement of its vision, the Study also provides tailored mode share targets for each study area. Categorised into 'moderate' and 'do maximum' future scenarios, these targets will enable Council to directly monitor the impact of its investment in the recommended interventions.

1. INTRODUCTION

1.1. Introduction and Scope

1.1.1. Objectives of Study

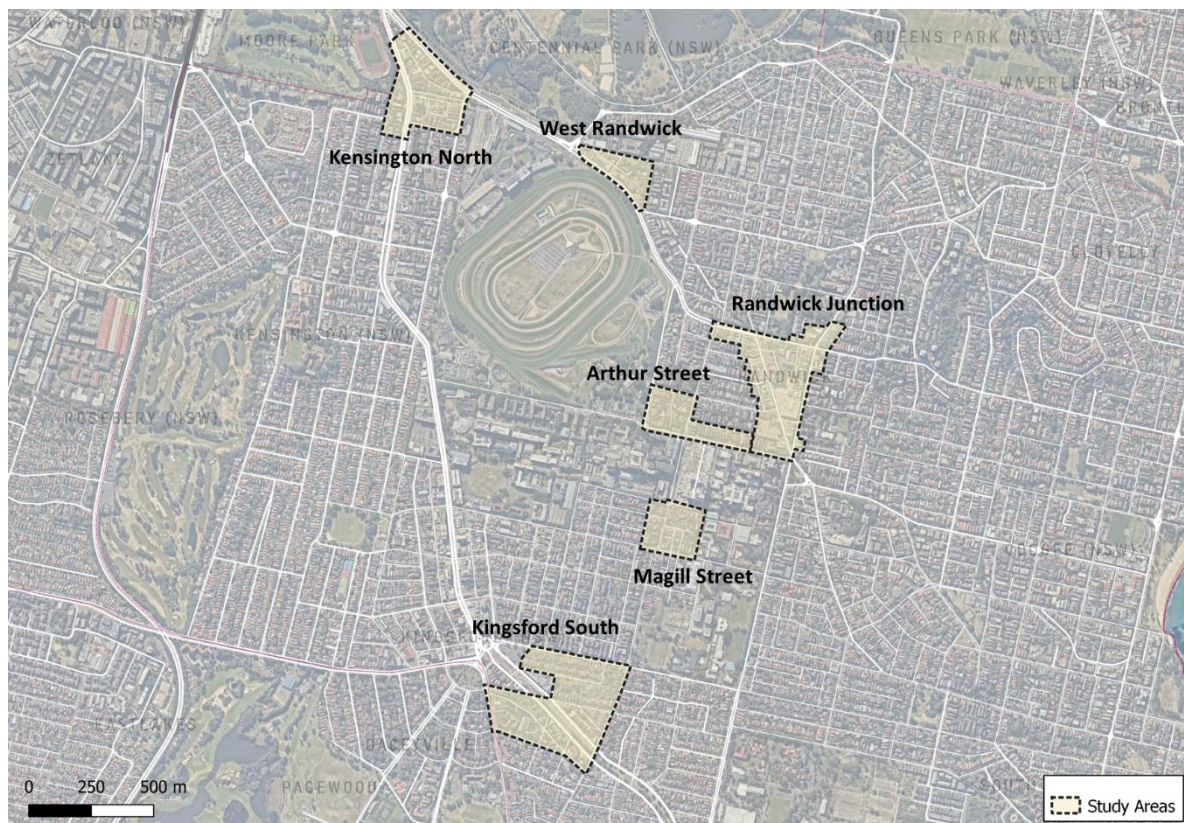
The objectives of this Local Transport Study (LTS) are as follows:

- Conduct a background review of the existing strategic framework with a focus on the identified study areas.
- Consider the proposed changes to *Randwick LEP 2012* and investigate the impact the proposed increase in residential density and commercial floorspace and other proposed changes will have on the local transport network.
- Apply the principles outlined in the *Local Strategic Planning Statement*, *Housing Strategy* and *Integrated Transport Strategy* to the Randwick Junction Town Centre and five Housing Investigation Areas (HIAs) and provide recommendations to reduce car dependency, prioritise pedestrians and promote active transport in and around these areas.

1.2. Study Areas

Figure 1.1 depicts the Randwick Junction Town Centre and the five HIAs that form the focus of this LTS.

Figure 1.1: Study Areas



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1.3. Methodology

This section outlines the methodology of the transport analysis for the Randwick Junction Town Centre (RJTC) study area and each of the five Housing Investigation Areas (HIAs).

1.3.1. Existing Travel Patterns

Method of Travel to Work

Utilising the 'Method of Travel to Work' data in the 2016 ABS Census, the report examines existing mode share. Having aggregated the data for the individual mesh blocks within each study area, a baseline mode share provides critical data on how residents are travelling to work. It should be noted that the Census was held before the completion of the CBD and South East Light Rail, and as such, there is no existing light rail mode share.

This section then applies the existing mode share to the forecast net increase in peak hour 'journey to work' trips, functioning as a proxy to understand the demand on the transport network as the baseline impact of the proposed planning controls. Using the same methodology as the *Kensington and Kingsford Planning Strategy* (Arup, 2017), the following assumptions have been made for the calculations:

- 2.2 residents per new dwelling
- 68 per cent of residents are employed
- 35 per cent of employed residents travel in the peak 1-hour period

To make the analysis more robust, traffic generation estimates for the proposed development have been sourced from Transport for NSW's *Guide to Traffic Generating Developments 2002* and *Technical Direction: Updated Traffic Surveys* (TDT2013/04a). These are widely accepted industry documents containing traffic generation rates.

For this method, the number of net new car spaces is calculated based on existing Development Control Plan (DCP) parking rates (see Chapter 10), assuming the typical apartment composition of 30 per cent as one-bedroom dwellings, 50 per cent as two-bedroom dwellings and 20 per cent as three-bedroom dwellings. Then the Sydney average AM peak (1 hour) trip generation rate of 0.15 trips per car space is applied, calculating the forecast traffic generation (vehicles per AM peak hour) for each study area. Considering the proposed expansion of commercial space in the Randwick Junction Town Centre, the trips generated by this land use were also calculated, using the *commercial premises* rate of 2 trips per 100m² Gross Floor Area (GFA).

Car Ownership

Recognising the pattern between car ownership and mode choice, 2016 ABS Census data was also used to understand the existing rates of car ownership for dwellings in RJTC and each HIA. Both the car ownership and method of travel to work data are later used as 'Do Nothing' benchmarks and form the foundation of the target-setting process.

1.3.2. Existing and Future Transport

Road and Freight

Each study area transport assessment includes details of the State and Regional roads, as well as the designated B-double routes. To understand future traffic conditions, the two-hour AM peak volume capacity ratio (VCR) data contained in Sydney Traffic Forecasting Model (STFM) 2017 will be utilised, identifying streets forecasted for congestion (indicated with a VCR of 0.8 or above). Where possible, other secondary sources of traffic modelling will be used, including relevant analysis from the following documents:

- Randwick Town Centre Review – *Integrated Transport and Access Study* (Arup, 2017)
- Kensington and Kingsford Planning Strategy – *Stage 1 Transport Assessment* (Arup, 2017)
- Kensington and Kingsford Planning Strategy – *Stage 2 Transport Modelling Report* (Arup, 2017)
- SSDA *Traffic and Transport Assessments* for sites across the Randwick area:
 - Prince of Wales Hospital *Addition to approved Acute Services Building*, Prince of Wales Expansion Stage 1, and
 - Sydney Children's Hospital Stage 1 (Children's Comprehensive Cancer Centre).

Here, intersection performance is quantified in terms of the Level of Service (LOS), which is an index of the operational performance of traffic and is based on the average delay per vehicle. A = very good, while F = highly congested traffic conditions. It is generally desirable to aim at achieving a LOS C or better at all major road intersections.

After the review of the available information, the report will consider the forecasted traffic conditions alongside the proposed growth and trips generated by the uplift in each study area, identifying areas of concern for further investigation.

Public Transport

The public transport review looks at the existing CBD and South East Light Rail stops, the proposed South East Sydney bus network routes and stops, as well as the rapid bus routes proposed in the *South East Sydney Transport Strategy* (SESTS). The SESTS describes the new rapid bus lines as a “network of high frequency, on-road bus services benefitting from infrastructure that delivers vehicle priority and high quality stops, with signage and wayfinding.”

Similar to the Northern Beaches B-Line, the indicative frequencies for the rapid bus routes are every 3-4 minutes in the peak and up to 10 minutes in the off-peak period. As part of a larger network of thirty-nine rapid bus routes proposed across Greater Sydney, it is not yet clear when any particular route will come into service, yet the overall goal is to have all routes operational by 2056.

Here, the aim of analysing these proposed routes is to understand whether they will provide convenient access for existing and future RJTC and HIA residents to the key destinations in their nearby region. Further, the spatial distribution of bus stops will be analysed, ensuring adequate walking access to bus stops across each HIA, and any gaps or longer distances that would disincentivise bus travel as a mode. As the proposed South East Sydney bus changes (local network) are not yet final, frequencies for local routes are unavailable and as such cannot be incorporated into the analysis.

Active Transport

Walking

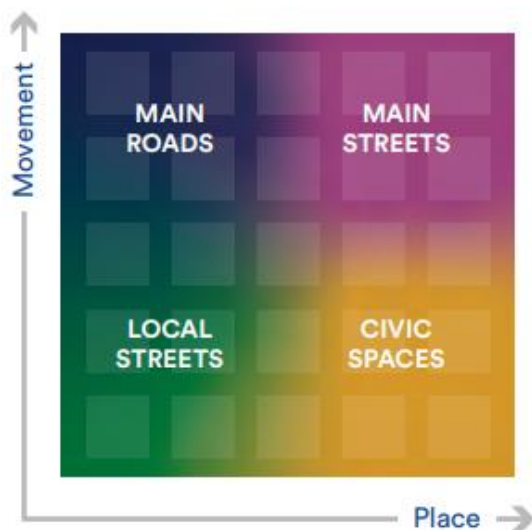
The active transport review is separated into two sections: the walking and cycling environments. First, the existing pedestrian condition shows each pedestrian crossing facility. Pedestrian crash data sourced from Transport for NSW's Centre for Road Safety (2015-2019) are also included to understand pedestrian desire lines (where people want to walk to and how they may do so), safety, and general comfort of walking. The review also addresses each street's existing and desired Movement and Place classification, understanding the nexus between movement and place-based functions.

Movement and Place

Our roads and streets are not just about the movement of vehicles, people and goods. They are equally places in their own right that support social activity, social cohesion, economic vitality, public spaces, ecological functions and community. For instance, our roads and streets have often been too focused on moving things and consequently neglected their Place qualities. Consequently, the balance is typically tipped too far towards Movement to the detriment of Place. Many streets that previously supported main street activities are now dominated by traffic movements.

Classification, as part of the cross-government Movement and Place process, involves characterising a given segment of a road or street for a specific project purpose, such as identifying priority areas or priority needs. It should focus on desired outcomes. When applied to existing conditions, the classification of a street is used to understand the gap between an existing state and the desired state. Figure 1.2 shows the four street environments mapped onto the Movement and Place axes, including 'Main Roads', 'Main Streets', 'Civic Spaces' and 'Local Streets'. All streets within each of the study areas were classified under the Movement and Place framework in the SESTS, and this LTS seeks to understand whether these street classifications align with the expected land use changes coming from the draft *Randwick Comprehensive Planning Proposal* and the draft *Randwick Junction Town Centre Strategy*.

Figure 1.2: Movement and Place – Four Street Environments



Cycling

The analysis of the existing cycling infrastructure and future planned cycleways (Transport for NSW's Principal Bicycle Network and Council's routes) demonstrate the current and expected cycling accessibility, and any remaining gaps or initiatives of high priority. The Principal Bicycle Network is the State Government's vision for a "connected metropolitan bicycle network [that] will enable people to travel safely between centres across Greater Sydney." A city-wide network has been developed, however each proposed route is subject to further investigation and refinement as more detailed assessments take place.

The location and severity of cycle crashes are also shown (2015-2019), sourced from Transport for NSW's Centre for Road Safety, for which the analysis compares crash clusters to the provision of safe infrastructure at those locations.

Parking

Existing parking development controls will be analysed, aiming to understand how the proposed planning controls would impact parking supply and behaviour in the future. As the parking rates set in the *Randwick Development Control Plan 2013* are applied consistently across the Randwick Local Government Area, the issue will be treated in its own section, rather than a sub-section in each study area.

1.3.3. Future Scenarios

Following a review of the existing travel patterns, as well as the existing and future transport networks, a series of mode share and car ownership targets are set for each study area. These targets are tailored to the specific existing and future transport context for each study area and are categorised into two scenarios: 'moderate' and 'do maximum'. The 'moderate' scenario reflects a modest increase in sustainable transport mode share, whereas the 'do maximum' scenario involves a significant shift away from the private vehicle and are informed by Council's strategic plans.

1.3.4. Recommendations

After the clear set of targets have been set for each study area, the Study outlines a series of recommendations that will foster the shift to a more sustainable travel future, in which a higher proportion and volume of residents choose walking, cycling and public transport for a greater number of trips. Encompassing the infrastructural, policy and behavioural domains, some recommendations apply to a particular study area, whereas others are more general and involve all of the study areas as a whole. It is intended that many of the recommendations be considered in Council's upcoming DCP review, whereas other interventions may be incorporated into other areas of Council's operations and infrastructure delivery.

2. STRATEGIC CONTEXT

2.1. Overview

The summary and the key policy implications of reviewed relevant strategic documents for the study area are shown in Figure 2.1. Collectively, the existing strategies aim to deliver some key goals:

- Deliver a rapid bus network and the Principal Bicycle Network
- Increase active and public transport mode share
- Reduce private car vehicle ownership and mode share
- Manage parking to balance convenience against reduced car reliance
- Encourage the uptake of electric and hybrid vehicles

A full table detailing each strategy is contained in Appendix A.

Figure 2.1: Strategic Alignment Diagram



Source: GTA Consultants

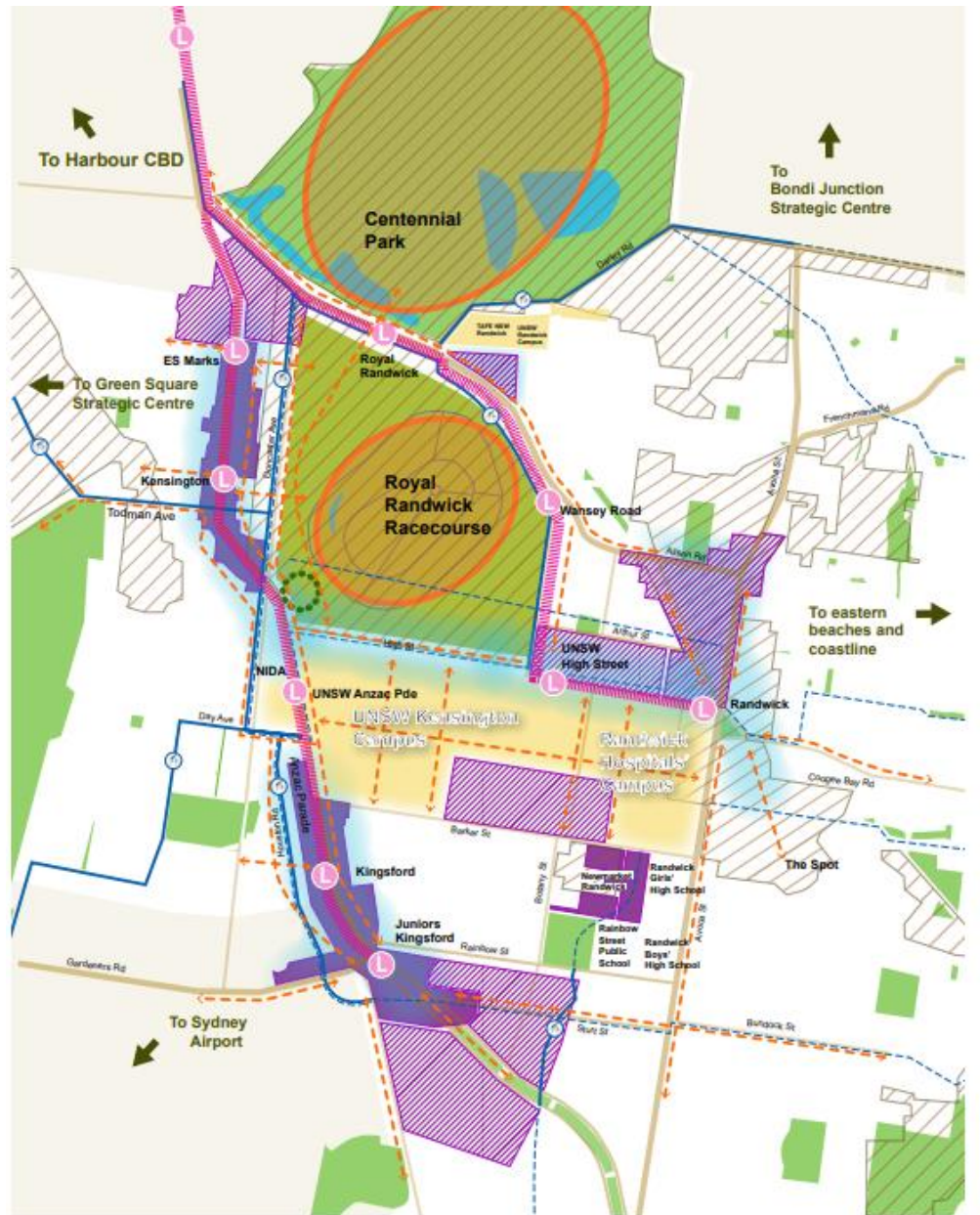
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An overall structure plan for Randwick Collaboration Area from the LSPS showing identified areas of growth is shown in Figure 2.2. These broadly correspond to this study's areas of investigation.

Figure 2.2: Randwick Collaboration Area Structure Plan



Inset: Randwick Collaboration Area Structure Plan



Source: Local Strategic Planning Statement, Vision 2020: Shaping Randwick's Future, Randwick City Council

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3. BACKGROUND

3.1. Overview

3.1.1. Planning Background

Draft Planning Proposal

The Draft *Randwick Comprehensive Planning Proposal* has been prepared to amend the *Randwick Local Environmental Plan 2012* (RLEP) to give effect to the Eastern City District Plan, Randwick Local Strategic Planning Statement (LSPS) and the Randwick Housing Strategy. Its specific objectives that relate to this study are as follows:

- Provide housing capacity to meet 6–10-year housing target of 4,300 additional new dwellings by 2026.
- Increase housing diversity and choice to support a growing and diverse population.
- Increase the provision of affordable housing to meet housing demands of very low, low and medium income households.

The five HIAs were identified based on their proximity to the light rail alignment and/or a town and strategic centre. The *Planning Proposal* notes that the study areas are “well serviced by public transport” and that the integration of “appropriate residential land uses” with transport infrastructure will support the goal of achieving a 30-minute city. While the study areas’ selection already considers the relatively high public transport accessibility at a macro-level, the objective of the Local Transport Study is to validate the capacity of the existing sustainable transport network at a finer scale, identify gaps and provide a series of recommendations to support the proposed growth while achieving Council’s sustainable transport goals.

Randwick Junction Town Centre Strategy

The *Randwick Junction Town Centre Strategy* (2020) sets out the vision, strategies and implementation actions to guide the sustainable growth and development of the Randwick Junction Town Centre (RJTC) over the next 15 years. Incorporating aspects of employment, heritage, sustainability and urban design, the Strategy also puts forth several key ideas impacting the centre’s local transport. Waratah Avenue, between Arthur Lane and Belmore Road, is proposed to become a public plaza, while Arthur Lane and Bell Lane are proposed to become activated shared zones. The Strategy also notes changes to built-form controls that would enable the development of additional capacity to accommodate commercial floorspace to meet future projected demand, as well as the identification of several opportunity sites for mid-rise mixed use development, increasing the residential population in the centre.

3.1.2. Summary of Proposed Changes

Table 3.1 shows the existing and estimated net new dwellings by 2036 for each of the study areas. The full suite of proposed changes to zoning, floor space ratio and building height maximums can be found in the Draft *Randwick Comprehensive Planning Proposal* and the Draft *Randwick Junction Town Centre Strategy*.

Table 3.1: Estimated New Dwellings By 2036

Study Area	Existing Dwellings	Estimated Net New Dwellings By 2036	Estimated Total Dwellings By 2036
Randwick Junction	– ^[1]	300	–
West Randwick	59	156	215
Kensington North	222	315	537
Arthur Street	168	474	642
Magill Street	90	228	318
Kingsford South	322	549	871

[1] Data not provided by Council.

Additionally, there is demand for between 10,000m² and 15,000m² of additional commercial floorspace in Randwick Junction. For the purposes of this study, these have been classified as a 'low' and 'high' scenario, respectively.

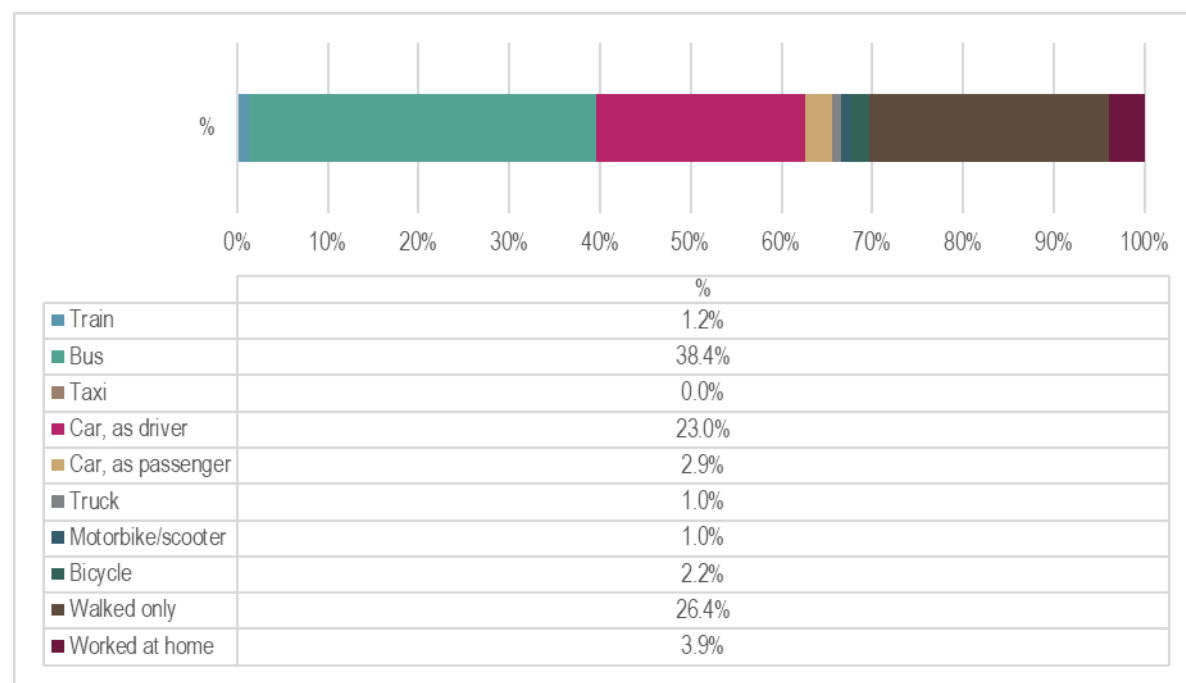
4. RANDWICK JUNCTION

4.1. Existing Travel Patterns

4.1.1. Method of Travel to Work

Figure 4.1 shows the 'Method of Travel to Work' mode share results for residents living in the Randwick Junction Town Centre in 2016. Relative to the other study areas in this Local Transport Study, Randwick Junction has the highest public transport mode share (39.6 per cent).

Figure 4.1: Randwick Junction – Method of Travel to Work



After considering the estimated net increase of 300 dwellings and other land use changes included in the *Randwick Junction Town Centre Strategy*, Table 4.1 shows the forecast increase in 'journey to work' trips by mode for the 'Do Nothing' scenario, assuming that the existing mode share does not change (as per the method described in Section 1.3.1).

Table 4.1: Randwick Junction – Employed Residents' Anticipated Peak Hour Travel

Peak Hour Net Trip Increase	Number
Public Transport	+62
Active Transport	+45
Private Vehicle	+44

Using the *Guide to Traffic Generating Developments* as an additional method, the estimated net new resident car spaces of 360 (under existing DCP controls) by 2036 results in a forecast AM peak hour traffic generation of 54 additional vehicles. For the proposed uplift in commercial land use, a rate of 2 peak hour vehicle trips per 100m² commercial floorspace means 200 additional peak hour trips in the low scenario (10,000m²) and 300 trips in the high scenario (15,000m²).

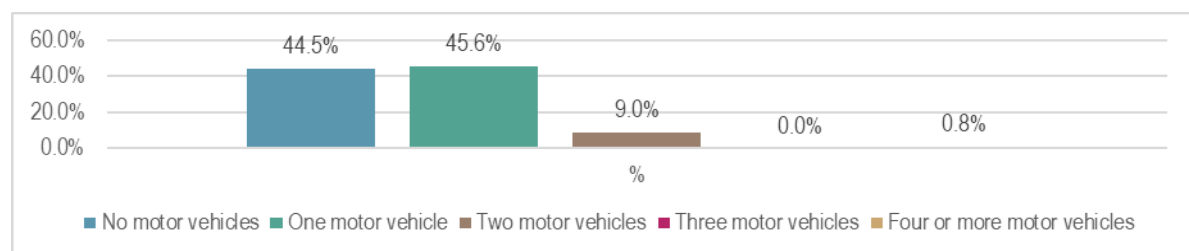
Table 4.2: Randwick Junction – Additional Commercial Peak Hour Trip Generation

Scenario	Additional Floorspace	Additional Trips
Low Scenario	10,000m ²	+200
High Scenario	15,000m ²	+300

4.1.2. Car Ownership

Figure 4.2 shows the 'Number of Motor Vehicles by Household' for dwellings in the Randwick Junction Town Centre in 2016. Relative to the other study areas, Randwick Junction has the lowest rate of vehicle ownership.

Figure 4.2: Randwick Junction – Car Ownership



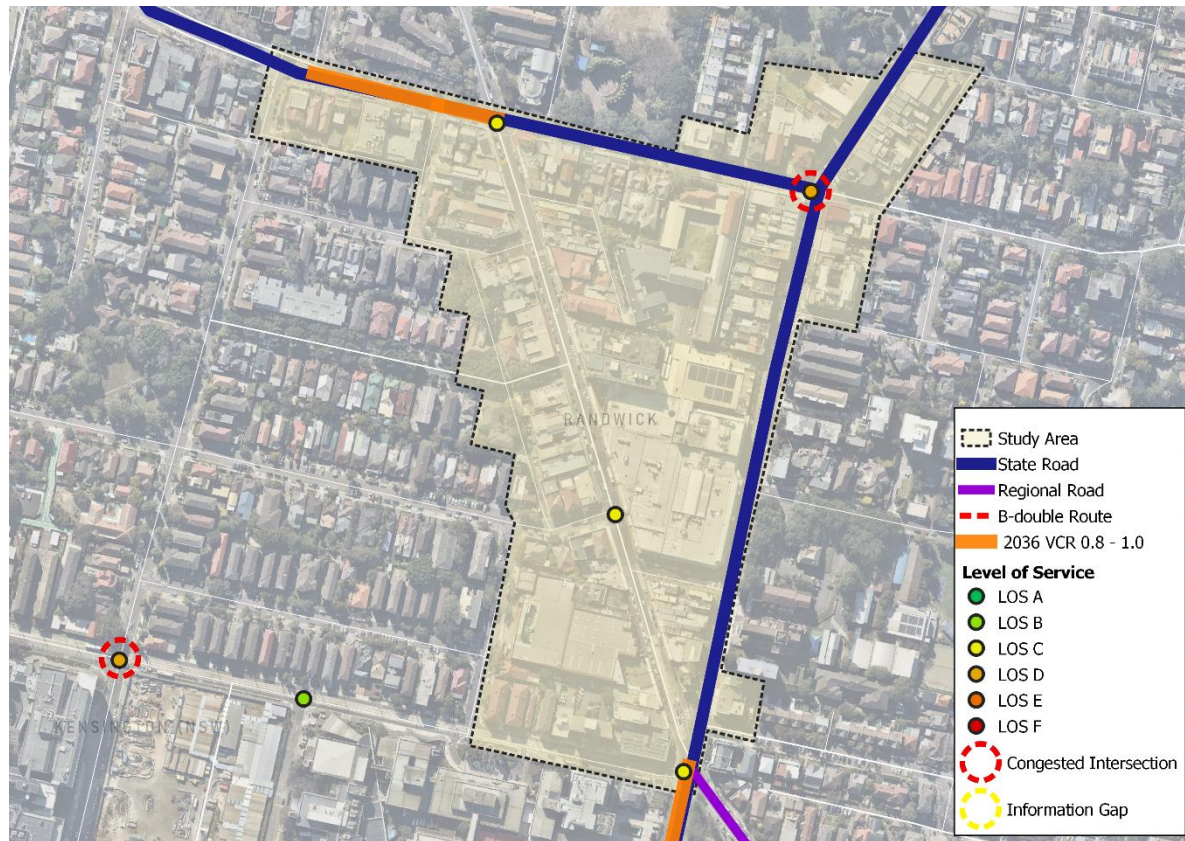
4.2. Existing and Future Transport Network

4.2.1. Road and Freight

Existing and Future Congestion

Figure 4.3 shows the road network in the Randwick Junction Town Centre. Both Alison Road and Avoca Street are classified as state roads, while Belmore Road and Coogee Bay Road are classified as regional roads to the south-east of the study area. There are no designated B-double routes. The map also shows segments of the road network forecasted for congestion (i.e. a VCR of 0.8 or above) in the two-hour AM peak for the year 2036, based on the 2017 STFM (refer to 1.3 – Methodology).

Figure 4.3: Randwick Junction – Road Network and Traffic Performance



Evaluation on Adequacy and Capacity to Support Residential Growth

Referring to the *Randwick Campus Redevelopment Transport Assessment* (Arup, 2018), SIDRA intersection modelling (a software package for intersection capacity analysis) of existing conditions showed that the Alison Road/Avoca Street intersection performed at a Level of Service C in the AM peak and Level of Service D in the PM peak. It noted that in the afternoon peak, eastbound traffic on Alison Road had queues extending as far back as 260 metres, past the Alison Road/Belmore Road intersection, meaning that this traffic demand could result in high traffic congestion.

The STFM model assumes a net decrease in trips in the PM two-hour peak on Alison Road by 2036 (1,371 vehicles), compared to 2017 (1,408 vehicles), and this decrease in traffic volumes is consistent with the decades-long trend of negative volume growth on key roads in the Randwick area, as stated in Aurecon's *Traffic and Transport Assessment* (2013). Nonetheless, improvements to the Alison Road/Avoca Street intersection should still be investigated. Further, intersections on Belmore Road are operating at Level of Service C and should be monitored to ensure that there is no further decrease in the Level of Service.

In the 'Do Nothing' scenario, 44 to 54 private vehicle trips are added in the peak hour journey to work traffic. While not a negligible increase, this figure is sufficiently low as to not adversely impact the traffic condition on its own.

Evaluation on Adequacy and Capacity to Support Commercial Growth

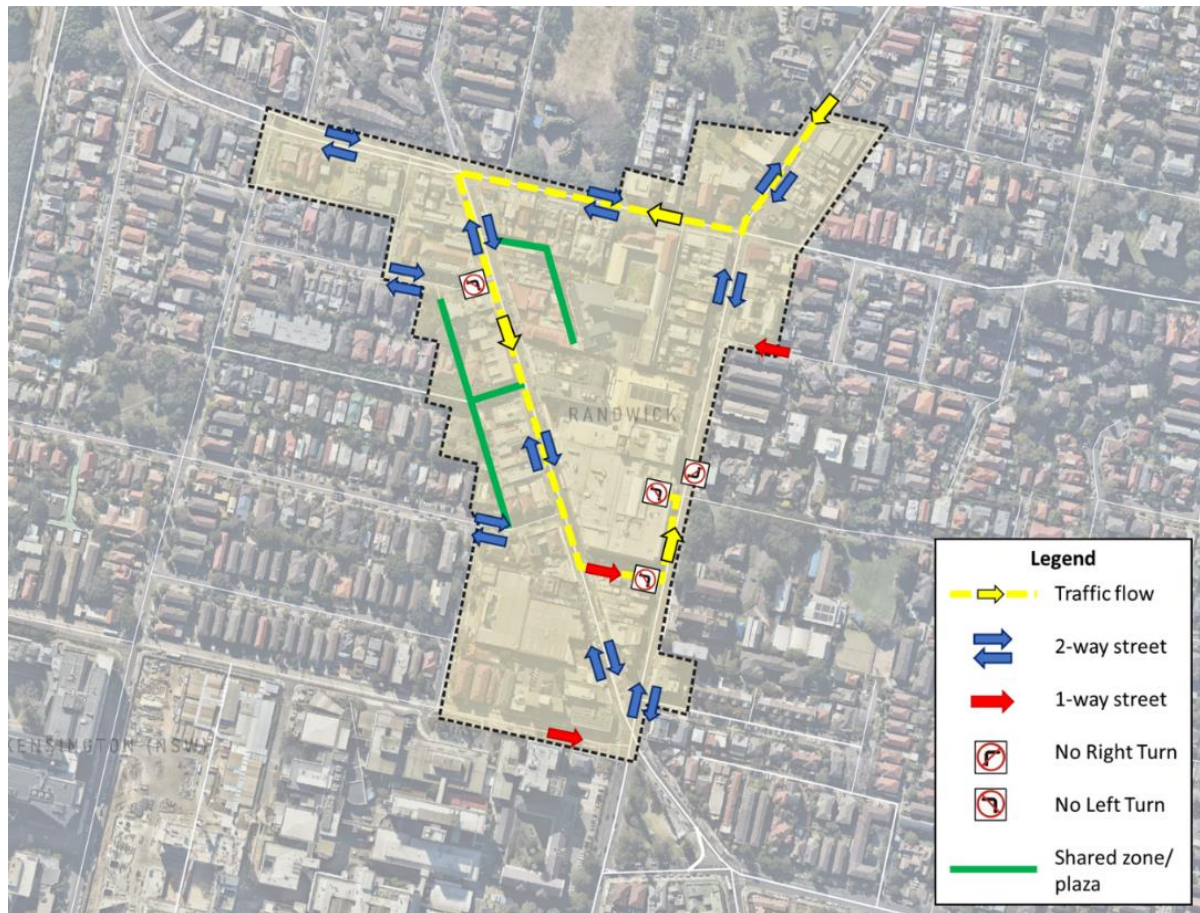
An increase of 200-300 trips generated by the proposed commercial floorspace uplift would increase the traffic volumes in Randwick Junction, but not to a detrimental effect. The commercial peak hour trip generation of 200-300 vehicle trips will also likely occur outside of the AM and PM peak periods (e.g. visitors to shops and services) so there is less risk of a cumulative effect of adverse traffic conditions arising from the Randwick Junction proposal.

Utilising the STFM forecast trips, VCR and road capacity, 300 additional peak hour trips would increase the average VCR (across Belmore Road and Avoca Street in both directions) by 0.04, from 0.44 to 0.48. This would likely result in a nine per cent increase in traffic volumes, yet there is sufficient capacity available on the road network. The added trips would increase traffic, but not to a point of congestion, as a VCR under 0.60 is generally considered to be stable free flowing traffic conditions. It should be noted that this analysis is at a strategic high-level and would need validation via more detailed modelling at a later date, especially if future road space reallocation occurs to provide more space for non-car modes, or traffic circulation significantly changes through other interventions, such as signals at the Royal Randwick car park on Avoca Street (see next paragraph for more detail).

Existing Vehicle Circulation

Another issue observed through the desktop analysis of Randwick Junction was vehicle circulation. Due to a series of one-way streets and restricted turning movements, particular vehicle trips can involve a detour that places more traffic on Belmore Road. For example, Figure 4.4 shows that for vehicles heading southbound on Avoca Street, with the Royal Randwick car park as their destination, are required to turn at Alison Road and then Belmore Road. They then turn left into the one-way Short Street, before turning left again onto Avoca Street and then into the car park. This circuitous route is made necessary by the road median buffer preventing right turns into the car park entrance for vehicles heading southbound on Avoca Street. The *Randwick Junction Integrated Transport and Access Study* (Arup, 2017) identified that approximately 17 per cent of vehicle movements are “circulating via Belmore Road in order to access the car park on Avoca Street.”

Figure 4.4: Randwick Junction – Vehicle Circulation Issue



Evaluation on Adequacy and Capacity to Support Growth

Long-term, this pattern of vehicle circulation is not appropriate for Randwick Junction growth as a village town centre. Noting the *Randwick Junction Town Centre Strategy*'s comment that Belmore Road "is dominated by vehicular traffic, making it noisy and unpleasant", it would be preferable for pedestrians and the vibrancy of Belmore Road to allow vehicles to stay on Avoca Street, before turning right at a signalised intersection at the car park. Delivering this intervention would require co-ordination with Transport for NSW, as Avoca Street is a State Road. Despite this added difficulty, it is an option that should be further investigated. Preparation of a detailed proposal will enable Council to effectively lobby to Transport for NSW, progressing the concept closer to delivery.

4.2.2. Parking

Existing

Publicly available parking within the Randwick Junction Town Centre is provided by both Council and private operators. In terms of Council-managed parking, the Silver Street car park has approximately 33 spaces and is time-restricted. On-street parking is also managed through length-of-stay and time-of-day based (e.g. clearway) restrictions.

In terms of privately-owned parking, the Randwick Plaza car park has 135 spaces, and was found to have significant spare capacity during the site visit undertaken for the *Randwick Junction Integrated Transport and Access Study* (Arup, 2017). Further, the Royal Randwick Shopping Centre car park provides 371 spaces for customer parking. Table 4.3 summarises the existing car parking supply in the Randwick Junction Town Centre.

Table 4.3: Randwick Junction – Existing Parking Supply

Location	AM/ PM Peak	Off-Peak
Silver Street car park	33	33
Randwick Plaza car park	135	135
Royal Randwick Shopping Centre car park (customer-only)	371	371

Total Off-Street	539	539
Silver Street	64	64
Waratah Avenue	59/63	63
Arthur Street	102	102
Belmore Road (between Alison Road and High Street)	59/41	81
Alison Road (between Botany Street and Belmore Road)	16	16
Alison Road (between Belmore Road and Avoca Street)	2/11	11
Avoca Street (between Alison Road and High Street)	0	39
Avoca Street (between Rae Street and Alison Road)	0	18
Total On-Street	302/297	394

Evaluation on Adequacy and Capacity to Support Growth

While spare capacity was identified at off-street car parks, the Arup report found that the majority of on-street parking was at capacity.

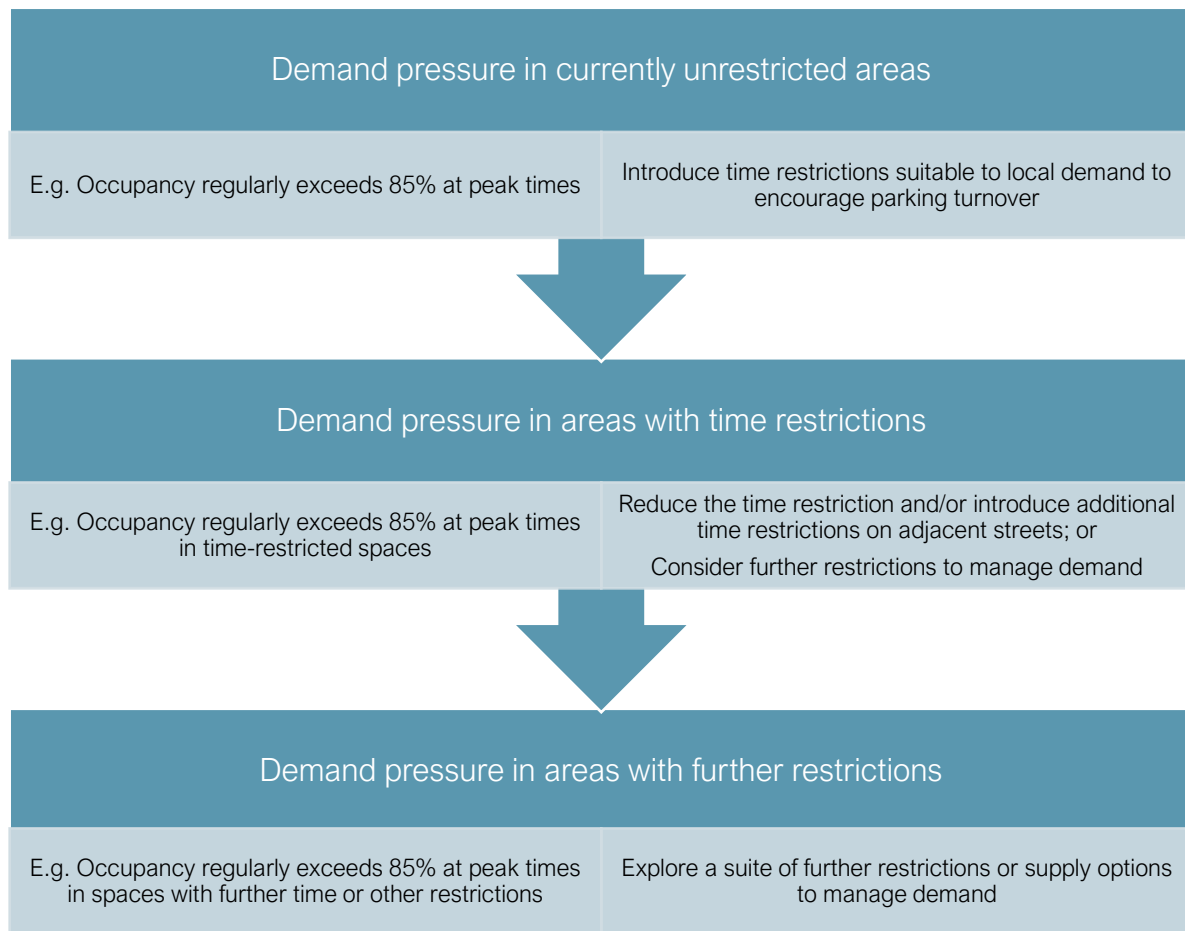
It is important that Council has a plan at the ready to manage the parking demand increase following the residential and commercial growth proposed in the *Randwick Junction Town Centre Strategy*, which stems from the 'freerider effect' of a subset of the population who choose not to pay for private off-street parking and rely on public on-street and off-street parking. This public parking management approach could involve a mixture of timed and/or priced parking to ensure it is not possible to have long-stay private parking within the public domain. This on-street parking should instead be focused on supporting high turnover, short-stay parking to provide access to local activities and services. Therefore, it is recommended that Council should develop a comprehensive public parking management plan for the Randwick Junction Town Centre.

While the remit of this study does not extend to the preparation of a comprehensive public parking management plan, high-level principles for public parking management are presented below for Council's consideration and incorporation into such a plan, which would address any consequent increases in public parking demand from the 'freerider' effect described above.

These principles include:

1. Council adopts an optimal average peak parking occupancy rate of 85 per cent, which is defined as the average occupancy of the four busiest hours of parking occupancy¹, regardless of the time of day.
2. Council adopts a graduated parking management approach in Randwick Junction, similar to Figure 4.5 below.
3. Council to decide the conditions or 'triggers' under which where parking restrictions can be further enhanced or relaxed and by how much, to respond to sub-optimal parking occupancy rates.

Figure 4.5: Graduated parking management approach



In general, the graduated parking management approach allows time limits to be considered as a management intervention before recommending further restrictions, however given the very high occupancies in Randwick Junction at present, Council may have to consider the introduction of paid parking restrictions. Conversely, as the Randwick Junction Town Centre evolves and the broader region becomes less car dependent, Council may also need to be prepared to relax price or time limits if parking demand declines.

¹ A parking space is deemed to be 'occupied' at the point of survey. E.g. if a surveyor finds a space is occupied during an hourly survey, then that space is deemed to be occupied for that hour.

4.2.3. Public Transport

Future

Figure 4.6 shows the Randwick Junction Town Centre's public transport network, showing the L2 Randwick light rail line, the Randwick light rail station, the streets designated as bus routes in the revised South East Sydney bus network, and rapid bus routes proposed in the *South East Sydney Transport Strategy*. The light rail takes passengers to Moore Park and Sydney CBD, while future rapid bus routes will go to Bondi Junction via Waverley to the north, Coogee to the east, Mascot via Kingsford to the south, and Green Square via Kensington to the west. Local routes also provide access to surrounding suburbs and smaller town centres, including Eastgardens and Maroubra.

Figure 4.6: Randwick Junction – Public Transport Network



Evaluation on Adequacy and Capacity to Support Growth

In terms of network coverage, the Randwick Junction Town Centre is well situated, with access to nearby strategic and town centres. There is a sufficient distribution of bus stops on both Belmore Road and Alison Road. Noting that High Street and Avoca Street are marked as a future rapid bus corridor, and that stops on these routes are expected to be a minimum of one kilometre apart, it is recommended that the two new rapid bus route stop pairs are provided as close to the existing Randwick light rail stop, and as close to each other, as possible. Ensuring that this stop is within a 200-metre walk of the existing light rail will help create a high-quality major transport interchange facility.

4.2.4. Pedestrians

Existing

Figure 4.7 shows the existing pedestrian environment in the Randwick Junction Town Centre. Alison Road, Avoca Street and High Street are classified as 'main roads', whereas Belmore Road is classified as a 'civic space'. While the distribution of crossing facilities along Belmore Road and Alison Road are generally adequate, there is a larger 310-metre gap between signalised crossings on Avoca Street. The Waratah Plaza and activated laneways at Arthur Lane and Bell Lane – both included in the *Randwick Junction Town Centre Strategy* – are also illustrated.

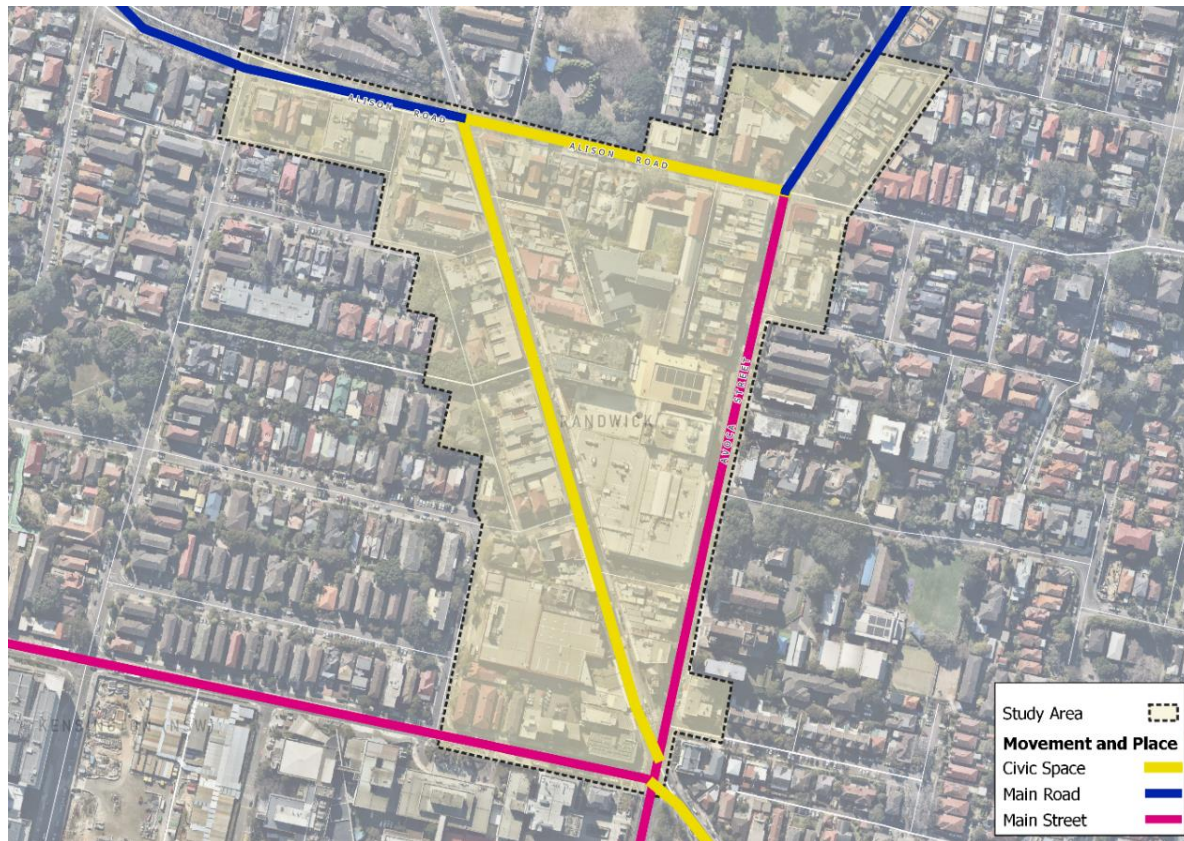
Figure 4.7: Randwick Junction – Street Classifications, Crossing Facilities and Pedestrian Crashes



Future

Figure 4.8 shows the desired movement and place classifications as contained in the *South East Sydney Transport Strategy*. Of note, Alison Road (between Belmore Road and Avoca Street) is redesignated from a main road to a civic space, while Avoca Street (south of Alison Road) and High Street are reclassified as main streets. In practical terms, this means that greater priority should be given to pedestrians (e.g. more crossings, wider footpaths etc.), active frontages, amenity and urban design, while slowing down and limiting vehicle through traffic. To that end, there are proposals in the RJTC to widen footpaths such as on Alison Road, affording more space for people walking in line with the future vision for these streets as Civic Spaces that prioritise people movement and activities.

Figure 4.8: Randwick Junction – Future Movement and Place Street Classifications



Evaluation on Adequacy and Capacity to Support Growth

The desired future Movement and Place classifications are generally appropriate for a higher density mixed use neighbourhood, by shifting towards higher place functions on all key streets in the study area. On Belmore Road, the existing distribution of formal pedestrian crossing facilities is appropriate for a civic space, yet there is potential to upgrade the existing zebra crossing at Belmore Road/Silver Street. These changes would heavily support and align with the potential introduction of signals at Avoca Street and the Royal Randwick car park, as there would be less vehicle traffic and a lower risk of pedestrian crashes on Belmore Road.

Reclassification of High Street and Avoca Street to main streets is also a largely appropriate shift, yet there may be a tension between increasing each street's place function and its future role as a rapid bus route. A main street aims to have both a high movement and a high place value. Ensuring that there are sufficient pedestrian crossing facilities, particularly on Avoca Street, while also maintaining its effectiveness as an efficient through-route is critical.

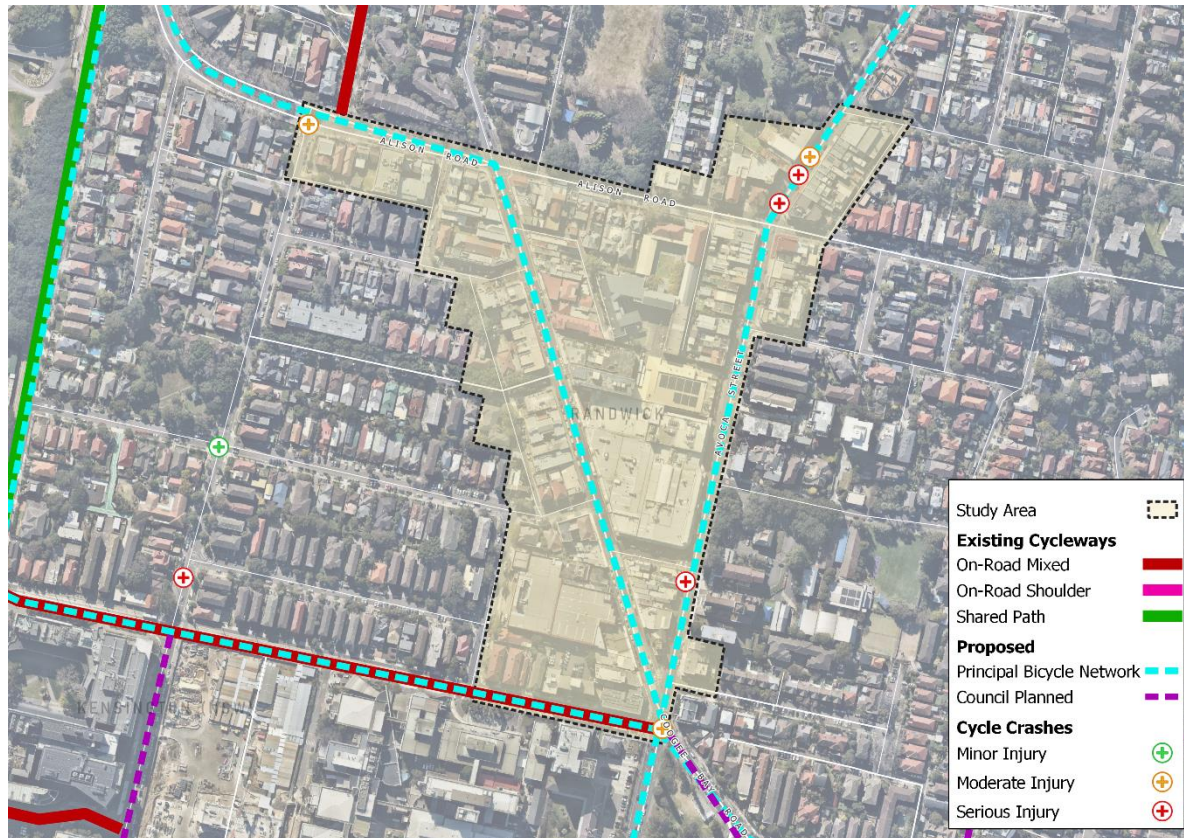
4.2.5. Cycling

Existing and Future

Figure 4.9 shows the existing and proposed cycling facilities at Randwick Junction. The only existing cycleway within the study area is the on-road mixed traffic facility on High Street, sharing the single-lane carriageway heading eastbound. Further, Principal Bicycle Network routes are intended for Alison Road, Belmore Road and

Avoca Street. Delivery of a formal cycling facility on Avoca Street is particularly important, as there is a cyclist crash cluster, just north of Alison Road.

Figure 4.9: Randwick Junction – Existing Cycleways, Proposed Routes and Cyclist Crashes



Evaluation on Adequacy and Capacity to Support Growth

As it stands, the existing cycling facilities at Randwick Junction are not sufficient to support cycling as a mode share for a larger residential population or as a commercial destination. It is critical that Council deliver its planned cycleway to the south of the study area, connecting Belmore Road to Coogee. Due to the conversion of High Street to a light rail corridor, there is insufficient space for additional separated cycleway facilities along the area in front of the hospital. Low vehicle traffic volumes and speeds mean that the on-road mixed facility at this section of High Street may be appropriate now and into the future, though it is understood Council is investigating how footpath and landscaping space along High Street in front of the hospital could be reallocated to separated cycling facilities.

Finally, a detailed investigation of the most appropriate delivery of the Principal Bicycle Network Routes on Belmore Road and Avoca Street is required, recognising the competing user needs and road space allocation constraints. For example, a shared user path would be inappropriate at Belmore Road, while an on-road cycleway could be a 'mixed traffic' facility or a separated cycleway, which may involve the removal of some car parking spaces. Avoca Street is also intended to cater for a future rapid bus route, adding further complexity to cycleway delivery. These constraints and possibilities would require further understanding at the feasibility and concept design stage.

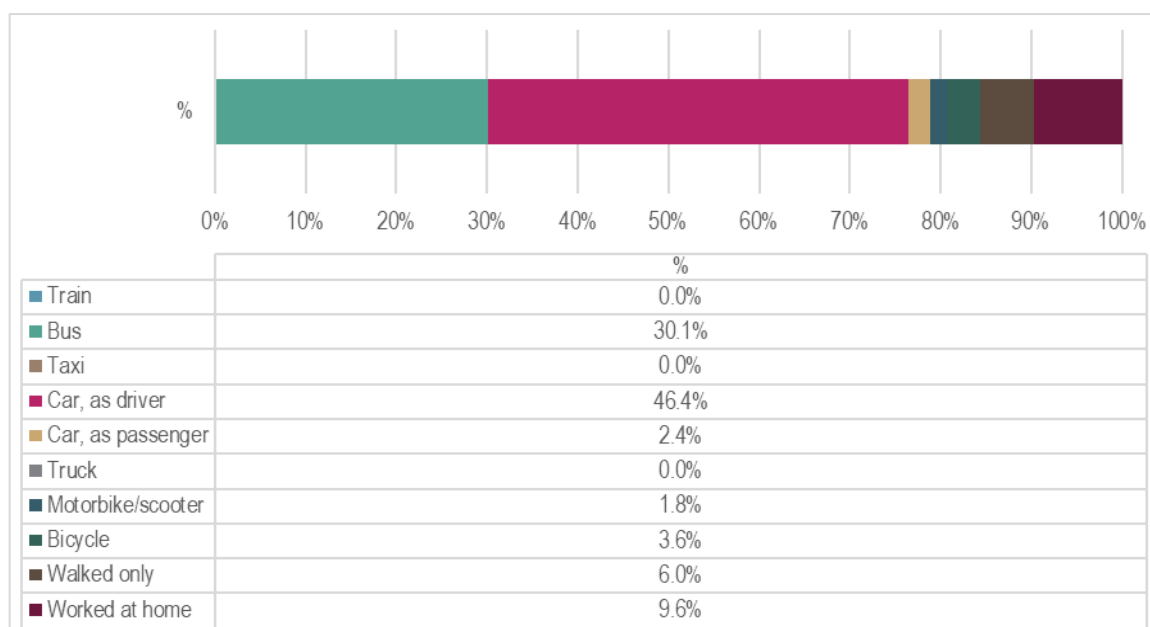
5. WEST RANDWICK

5.1. Existing Travel Patterns

5.1.1. Method of Travel to Work

Figure 5.1 shows the 'Method of Travel to Work' mode share results for residents living in the West Randwick HIA in 2016. Relative to the other HIAs, West Randwick has the lowest active transport (walking and cycling) mode share, at only 9.6 per cent, but also the equal-highest 'worked at home' share of 9.6 per cent. This figure is more than double the 'worked at home' percentage for Greater Sydney (4.4 per cent).

Figure 5.1: West Randwick – Method of Travel to Work



Considering the estimated net increase of 156 dwellings by 2036 as a result of changes proposed in the Draft *Planning Proposal*, Table 5.1 shows the forecast increase in 'journey to work' trips by mode for the 'Do Nothing' scenario, assuming that the existing mode share does not change (as per the method described in Section 1.3.1).

Table 5.1: West Randwick – Employed Residents' Anticipated Peak Hour Travel

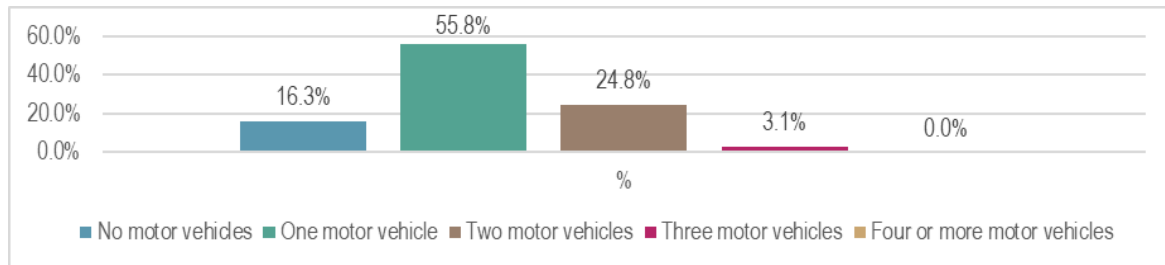
Mode	Peak Hour Net Trip Increase
Public Transport	+25
Active Transport	+8
Private Vehicle	+41

Using the *Guide to Traffic Generating Developments* as an additional method, the estimated net new resident car spaces of 187 (under existing controls) by 2036 results in a forecast AM peak hour traffic generation of 28 vehicles.

5.1.2. Car Ownership

Figure 5.2 shows the 'Number of Motor Vehicles by Household' for dwellings in the West Randwick HIA in 2016. Compared to other HIAs, West Randwick has the highest rate of single car ownership (55.8 per cent) and the lowest proportion of households not owning a car (16.3 per cent).

Figure 5.2: West Randwick – Car Ownership



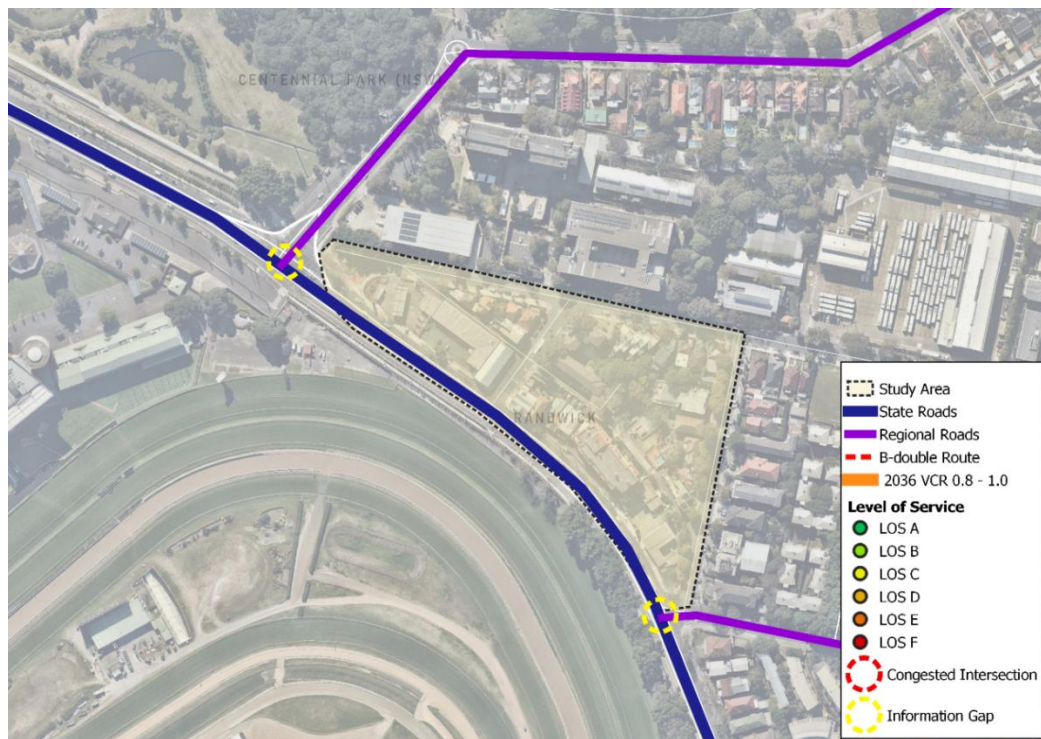
5.2. Existing and Future Transport Network

5.2.1. Road and Freight

Existing

Figure 5.3 shows the road network in the West Randwick HIA. Classified as a state road, Alison Road runs along the southern border of the HIA. Just outside the HIA study area, Darley Road (to the north-west) and Cowper Street (to the south-east) are regional roads. There are no designated B-double routes.

Figure 5.3: West Randwick – Road Network and Traffic Performance



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Evaluation on Adequacy and Capacity to Support Growth

As it is only road links with a VCR of more than 0.8 that are illustrated in this LTS' traffic sections, the absence of any congested links illustrated on the map above means that congestion is not expected to be so severe as to extend the peak period in the future, based on high-level strategic modelling. Notwithstanding, further intersection modelling may be necessary in the future as such strategic models may not have accounted for specific growth plans proposed as part of the *Comprehensive Planning Proposal*.

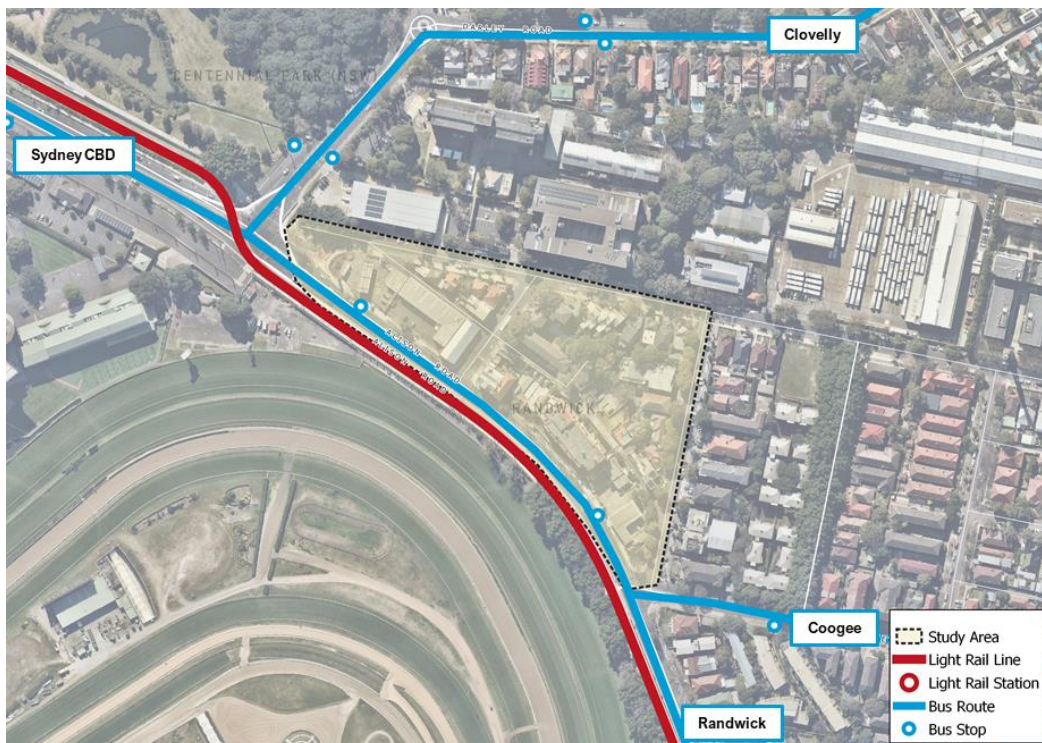
In the 'Do Nothing' scenario, 28 to 41 private vehicle trips are added in the peak hour journey to work traffic – a negligible increase on the existing and forecast traffic volumes in the STFM.

5.2.2. Public Transport

Future

Figure 5.4 shows the West Randwick HIA's public transport network, showing the L2 light rail line and the streets designated as bus routes in the revised South East Sydney bus network. No rapid bus routes proposed in the *South East Sydney Transport Strategy* are proposed in this area. The light rail takes existing residents to Moore Park and Sydney CBD, while bus routes 339/339X go to Clovelly, and 373/373X, 374/374X and 337X take residents to Coogee, Randwick and Maroubra Beach. The Wansey Road light rail stop is approximately 250 metres south of the HIA, while the Royal Randwick light rail is 300 metres north-west of the HIA, meaning that residents have adequate walking access to the light rail network.

Figure 5.4: West Randwick – Public Transport Network



Evaluation on Adequacy and Capacity to Support Growth

In terms of bus stop locations, there are two bus stops within the HIA, however they both on the northern side of Alison Road, only servicing routes heading south-east. For the same routes heading in the opposite direction, there is a stop on Cowper Street and another bus stop at the Royal Randwick light rail stop.

While it would be preferable to have another bus stop on Alison Road within the HIA boundary, there is no opportunity to do so, as the north-west traffic lane is adjacent to the light rail corridor. Nonetheless, all existing and future residents in the HIA will be within a 400-metre walk of a bus stop.

As for light rail, each light rail vehicle has a capacity of 450 passengers, which is equivalent to nine buses, running at five-minute headways in peak periods, for an hourly capacity of 5,400 passengers. Given the high-capacity nature of this service, it is expected it will accommodate the increase in patronage from the dwelling growth in this HIA.

5.2.3. Pedestrians

Existing and Future

Figure 5.5 depicts the existing pedestrian environment at the West Randwick HIA. Alison Road is classified as a 'main road', meaning a high movement (e.g. focused on moving vehicles and people) and low place value (e.g. fewer land uses, street fronting activity and gatherings of people). Concerning the West Randwick HIA, the *South East Sydney Transport Strategy* does not propose any desired classifications for streets that are different from their existing classifications. Additionally, there were no pedestrian crashes in the reporting years of 2015 to 2019.

Figure 5.5: West Randwick – Street Classifications, Crossing Facilities and Pedestrian Crashes



Evaluation on Adequacy and Capacity to Support Growth

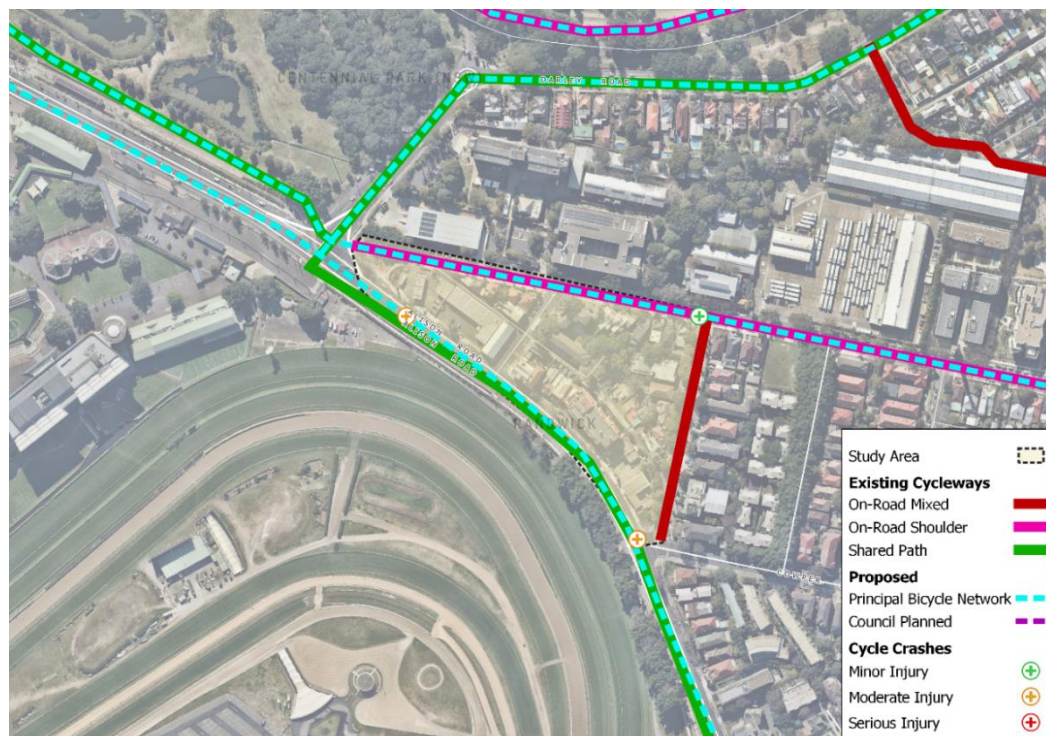
At a HIA precinct scale, the location and distribution of existing crossing facilities are adequate to support the proposed population growth, however, consideration could be given to an upgrading of the existing refuge islands at the John Street – King Street intersection, either to raised zebra crossings or new refuge islands in accordance with best practice guidelines. Additionally, John Street is likely to function as a key north-south spine through the middle of the West Randwick HIA, yet it is currently used by buses exiting the Randwick bus depot before commencing their public bus routes. Here, there is an incompatibility between the proposed higher-density residential population and the high volume of buses, regarding both safety and amenity.

5.2.4. Cycling

Existing and Future

Figure 5.6 shows the existing and future cycleways in the West Randwick HIA. Currently, the study area is bounded by cycling facilities – a shared path on Alison Road, on-road shoulder lane on King Street, and an on-road mixed facility on William Street.

Figure 5.6: West Randwick – Existing Cycleways, Proposed Routes and Cyclist Crashes



Evaluation on Adequacy and Capacity to Support Growth

The existing shared path on Alison Road – connecting to Darley Road and Centennial Park – provides high-quality north-south cycling access for future residents, however, the existing on-road shoulder facility on King Street is not adequately safe to encourage cycling, particularly given its proximity to the Randwick bus depot. As King Street is marked as a Principal Bicycle Network route, consideration should be given to its upgrade. This gap is evidenced by the cyclist crash at the intersection of King Street and William Street, near the Randwick bus depot. There is limited road width capacity for a separated cycleway, however a shared user path would be sufficient as it would still address the key goal of separating cyclists from buses.

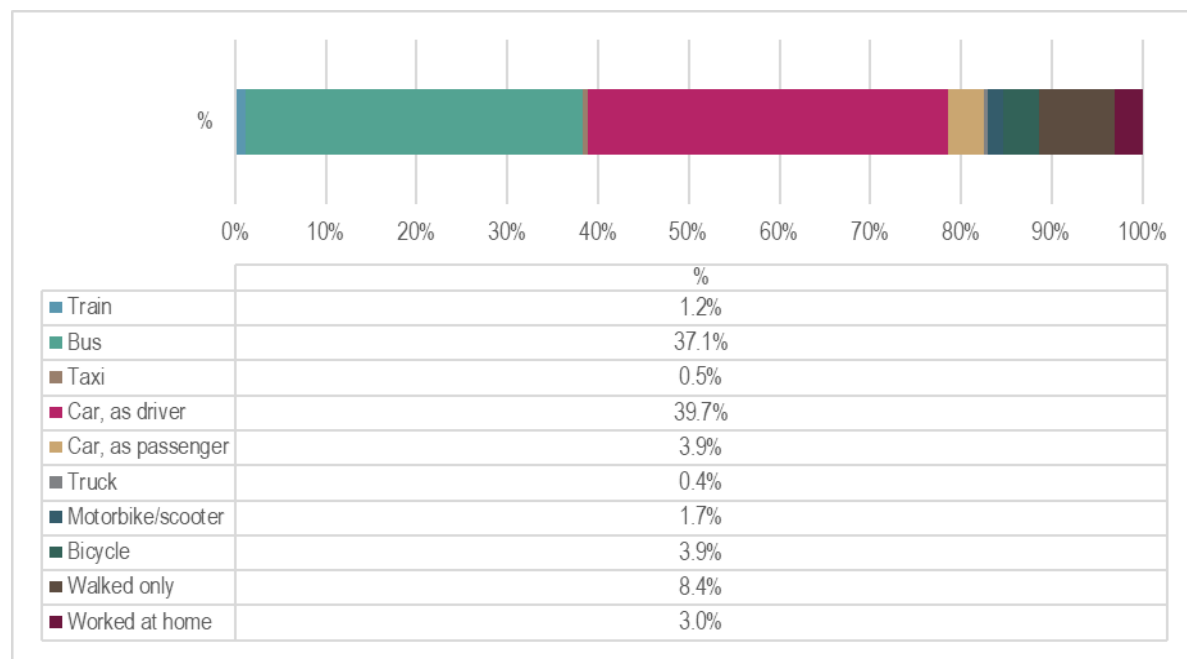
6. KENSINGTON NORTH

6.1. Existing Travel Patterns

6.1.1. Method of Travel to Work

Figure 6.1 shows the 'Method of Travel to Work' mode share results for residents living in the Kensington North HIA in 2016. Compared to other HIAs, Kensington North has the second-highest public transport mode share (38.3 per cent), but also the second-lowest active transport mode share (12.4 per cent).

Figure 6.1: Kensington North – Method of Travel to Work



Considering the estimated net increase of 315 dwellings by 2036 as a result of changes proposed in the Draft *Planning Proposal*, Table 6.1 shows the forecast increase in 'journey to work' trips by mode for the 'Do Nothing' scenario, assuming that the existing mode share does not change (as per the method described in Section 1.3.1).

Table 6.1: Kensington North – Employed Residents' Anticipated Peak Hour Travel

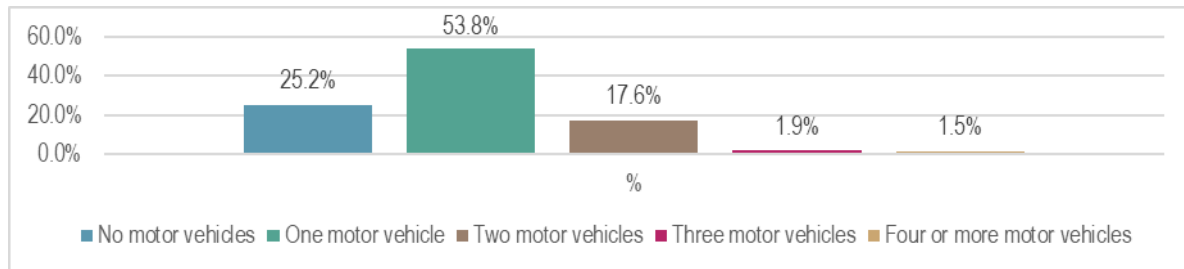
Peak Hour Net Trip Increase	Number
Public Transport	+63
Active Transport	+20
Private Vehicle	+76

Using the *Guide to Traffic Generating Developments* as an additional method, the estimated net new resident car spaces of 378 (under existing controls) by 2036 results in a forecast AM peak hour traffic generation of 57 vehicles.

6.1.2. Car Ownership

Figure 6.2 shows the 'Number of Motor Vehicles by Household' for dwellings in the Kensington North HIA in 2016. Relative to other HIAs, Kensington North has the second-highest rate of single car ownership (53.8 per cent).

Figure 6.2: Kensington North – Car Ownership



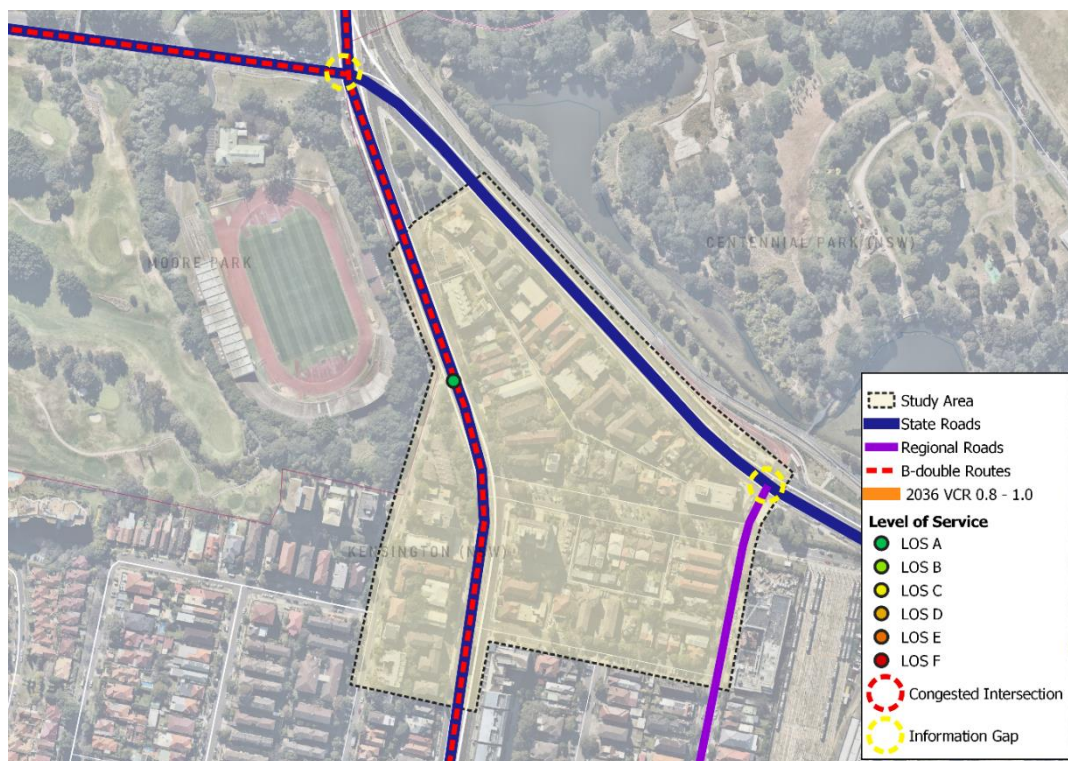
6.2. Existing and Future Transport Network

6.2.1. Road and Freight

Existing

Figure 6.3 shows the road network in the Kensington North HIA. Alison Road and Anzac Parade are state roads, while Doncaster Avenue is a regional road. Anzac Parade is also a designated B-double route.

Figure 6.3: Kensington North – Road Network and Traffic Performance



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As illustrated in the map, no links have a VCR greater than 0.8, meaning that the level of forecast congestion is expected to be effectively managed by the existing road network.

Additionally, the intersection performance analysis in the *Kensington and Kingsford Planning Strategy* modelling report (Arup, 2017) included the Anzac Parade/Boronia Street intersection in its model. In alignment with the STFM results, this intersection is forecast to perform at Level of Service A following the developmental uplift proposed in the Strategy. The addition of 57 to 76 private vehicle trips in the 'Do Nothing' scenario is likely to have a negligible impact on the future traffic volumes and capacity estimated by the Kensington and Kingsford Planning Strategy.

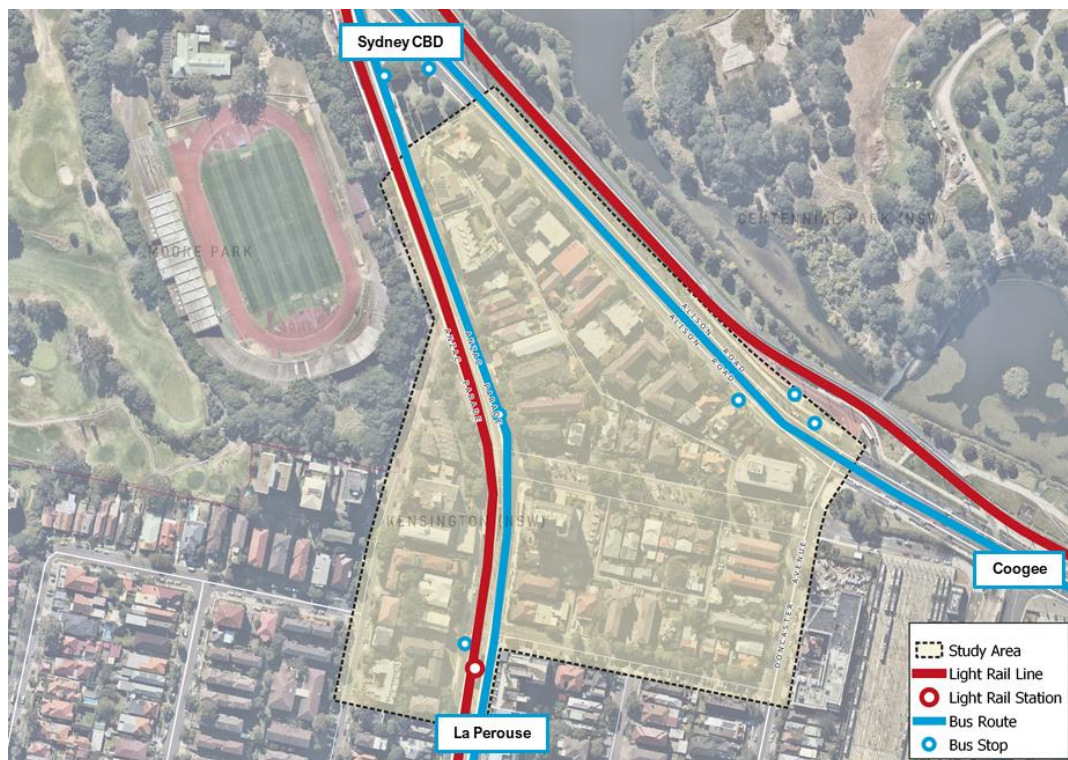
The modelling report did not include the Anzac Parade/Dacey Street/Alison Road intersection and the Alison Road/Doncaster Avenue Road intersection in its performance analysis. As such, there is an information gap here in understanding the development uplift's traffic impact at these particular locations.

6.2.2. Public Transport

Future

Figure 6.4 depicts the Kensington North HIA's public transport, showing the L2 Randwick light rail line and L3 Kingsford line. The Royal Randwick L2 stop is approximately 220 metres east of the HIA, while the ES Marks stop on the L3 line is in the southern section of the HIA. Proposed local bus routes take residents to the Sydney CBD, Maroubra Beach, Eastgardens, La Perouse and other local centres. There is one rapid bus route planned (Rozelle to Coogee via Green Square, Kensington and Randwick). This route is expected to interchange at the Kensington light rail stop to the south of the HIA.

Figure 6.4: Kensington North – Public Transport Network



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Based on the existing public transport stop locations, everyone in the HIA is within a 400-metre walk to an existing bus or light rail stop – for which all already have adequate stop facilities such as shelters. Given the high capacity and high coverage of the existing network, it is sufficiently able to support the growth proposed in the *Randwick Comprehensive Planning Proposal*.

6.2.3. Pedestrians

Existing

Figure 6.5 depicts the existing pedestrian environment in the Kensington North HIA. Anzac Parade, Alison Road and Doncaster Avenue are all classified as ‘main roads’, meaning a high movement and low place value. Their function as movement corridors is particularly evident by the limited crossing facilities, such as the 380-metre gap between crossings on Anzac Parade, and the 470-metre gap on Alison Road. These long distances between crossings create a poor level of pedestrian connectivity between local trip origins and destinations, ultimately discouraging walking as a mode for shorter trips.

Figure 6.5: Kensington North – Street Classifications, Crossing Facilities and Pedestrian Crashes



Future

Figure 6.6 shows the *South East Sydney Transport Strategy*'s future Movement and Place classifications, with Anzac Parade (south of Carlton Street) reclassified as a ‘main street’, meaning a higher emphasis on its place value. Refer to Section 1.3.2 for further explanation on these classifications.

Figure 6.6: Kensington North – Future Movement and Place Street Classifications



Evaluation on Adequacy and Capacity to Support Growth

Considering the proposed growth for the Kensington North HIA, the classification of Anzac Parade (north of Carlton Street) as a 'main road' is not congruent with the proposed higher-density character of the neighbourhood. A reclassification of this section of Anzac Parade to a 'main street' (meaning a higher 'place' value and priority for urban design and pedestrians), as well as a new formal crossing facility, would more appropriately support the HIA's higher intensity of development. Further, given the 25-metre width of Abbotford Street, there is potential to reclassify it from a 'local street' to a 'civic space', reallocating the existing space used for car parking to more pedestrian-friendly and place-centred uses.

6.2.4. Cycling

Existing and Future

Figure 6.7 shows the existing and future cycleways in the Kensington North HIA, including the existing shared path on Alison Road and the on-road shoulder lane on Doncaster Avenue.

Figure 6.7: Kensington North – Existing Cycleways, Proposed Routes and Cyclist Crashes



Evaluation on Adequacy and Capacity to Support Growth

As the key north-south cycling route through Kensington and a Principal Bicycle Network route, the on-road shoulder facility on Doncaster Avenue is not sufficiently safe to encourage cycling, and the proposed upgrade to a separated cycleway soon to be under construction will meet the demand following the population uplift in both the Kensington North HIA and Kensington Town Centre.

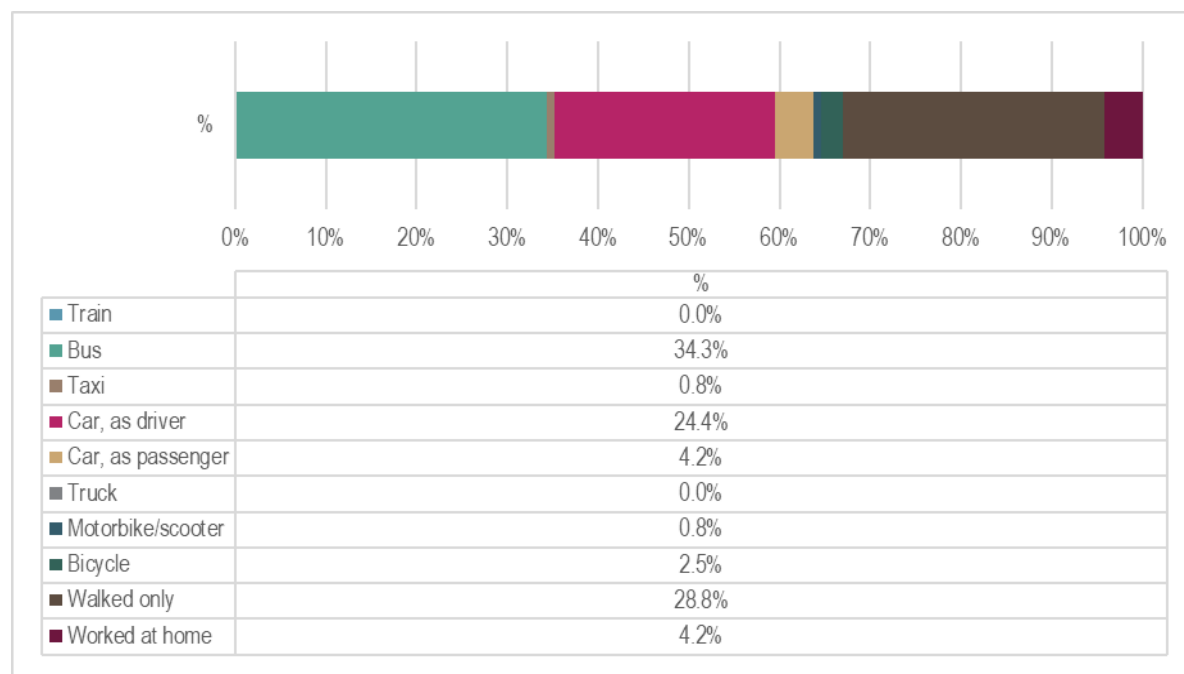
7. ARTHUR STREET

7.1. Existing Travel Patterns

7.1.1. Method of Travel to Work

Figure 7.1 shows the 'Method of Travel to Work' mode share results for residents living in the Arthur Street HIA in 2016. Compared to other HIAs, Arthur Street has the highest active transport mode share (31.3 per cent), comprising the highest walking mode share of 28.8 per cent.

Figure 7.1: Arthur Street – Method of Travel to Work



Considering the estimated net increase of 474 dwellings by 2036 as a result of changes proposed in the Draft *Planning Proposal*, Table 7.1 shows the forecast increase in 'journey to work' trips by mode for the 'Do Nothing' scenario, assuming that the existing mode share does not change (as per the method described in Section 1.3.1).

Table 7.1: Arthur Street – Employed Residents' Anticipated Peak Hour Travel

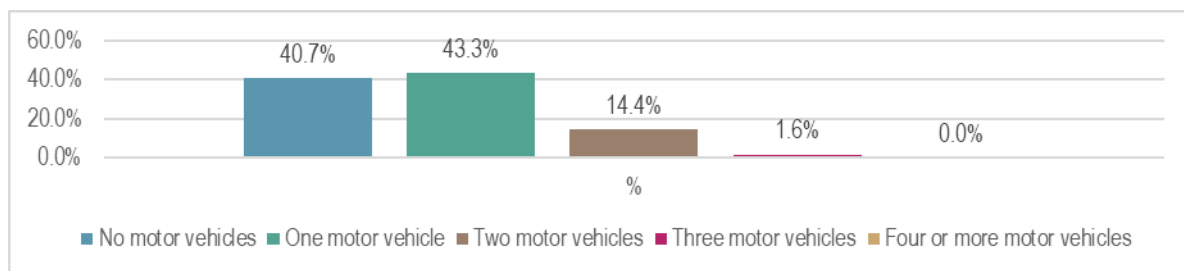
Peak Hour Net Trip Increase	Number
Public Transport	+85
Active Transport	+78
Private Vehicle	+75

Using the *Guide to Traffic Generating Developments* as an additional method, the estimated net new resident car spaces of 569 (under existing controls) by 2036 results in a forecast AM peak hour traffic generation of 85 vehicles.

7.1.2. Car Ownership

Figure 7.2 shows the 'Number of Motor Vehicles by Household' for dwellings in the Arthur Street HIA in 2016. A large proportion (83.9 per cent) of households own one or no vehicles. Relative to other HIAs, these car ownership rates show a very similar pattern to Randwick Junction, whereby a similarly large proportion (90.1 per cent) of households also own only one or no vehicles.

Figure 7.2: Arthur Street – Car Ownership



7.2. Existing and Future Transport Network

7.2.1. Road and Freight

Existing and Future

Figure 7.3 shows the Arthur Street HIA road network, consisting of Wansey Road and Botany Street running north-south, while Arthur Street, Blenheim Street and High Street run east-west. None of the aforementioned streets are classified as a state or regional road, or a B-double route.

Figure 7.3: Arthur Street – Road Network and Traffic Performance



Evaluation on Adequacy and Capacity to Support Growth

As illustrated in the map, no links have a VCR greater than 0.8, meaning that severe congestion that extends the length of the peak period is not expected to occur in the future. In the 'Do Nothing' scenario, 75 to 85 private vehicle trips are added in the peak hour journey to work traffic – a negligible increase on the existing and forecast traffic volumes in the STFM.

Focusing on the local scale, Arup's *Traffic and Transport Assessment* (2021) for the Children's Comprehensive Cancer Centre notes that the Botany Street/High Street intersections performs at a Level of Service D in both the AM and PM peak hours, meaning that the intersection is operating at near capacity and improvements should be investigated to cater for future growth.

7.2.2. Public Transport

Future

Figure 7.4 shows the Arthur Street HIA's public transport network, showing the L2 Randwick light rail line, the streets designated as bus routes in the revised South East Sydney bus network, and rapid bus routes proposed in the *South East Sydney Transport Strategy*. Route 358 heads south on Botany Street and takes passengers to Sydenham via Mascot, while other routes on Belmore Road go to nearby centres and suburbs. The proposed east-west rapid bus route will take passengers to Coogee in the east and Rozelle via Green Square to the west, though rerouting will be necessary due to the one-way direction on High Street between Clara Street and Belmore Road.

Figure 7.4: Arthur Street – Public Transport Network



Evaluation on Adequacy and Capacity to Support Growth

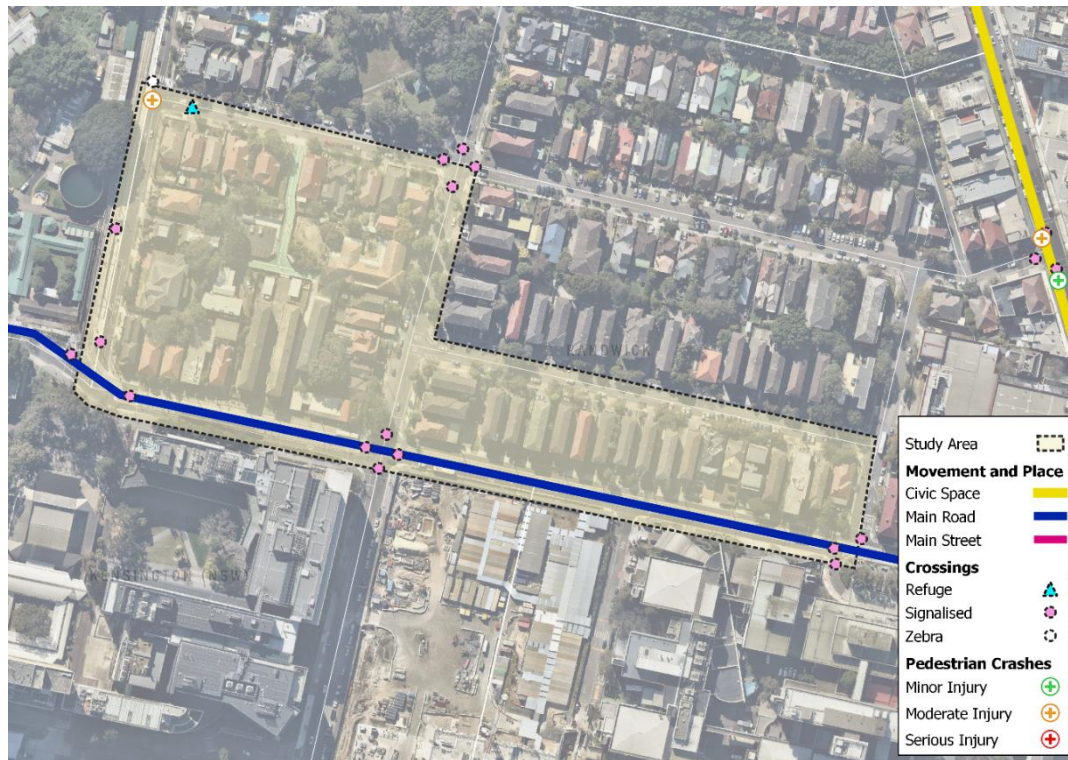
The UNSW High Street light rail stop within the HIA, as well as the Randwick stop to the immediate east mean that every future resident will be within a 400-metre walk to a light rail stop. Considering that all nearby strategic centres – Green Square, Mascot, Maroubra Junction, Eastgardens, Bondi Junction and the Sydney CBD – are directly accessible via public transport, the future public transport network can effectively support the proposed growth for the Arthur Street HIA.

7.2.3. Pedestrians

Existing

Figure 7.5 depicts the existing pedestrian environment at the Arthur Street HIA. High Street is classified as a 'main road'. Signalised crossings are at four locations along High Street, as well as Wansey Road and the Botany Road/Arthur Street intersection. There was one pedestrian crash in the reporting years of 2015 to 2019, at the intersection of Wansey Road and Arthur Street, however this was prior to the light rail and one-way road changes at Wansey Road.

Figure 7.5: Arthur Street – Street Classifications, Crossing Facilities and Pedestrian Crashes



Future

Figure 7.6 shows that High Street's desired street function in the *South East Sydney Transport Strategy* is a 'main street', meaning a shift to a higher place value.

Figure 7.6: Arthur Street – Future Movement and Place Street Classifications



Evaluation on Adequacy and Capacity to Support Growth

At a HIA precinct scale, there is an adequate number and distribution of signalised crossing facilities to support the proposed population growth, however, the provision of some additional refuge islands and/or zebra crossings through the HIA would improve the precinct's walkability and safety.

In regard to movement and place, balancing the disparate functions of a main street is a common challenge, yet for a High Street, this issue should be more straightforward. Here, the high 'movement' function is delivered by the L2 Light Rail and a future rapid bus route, while the single one-way lane adjacent to UNSW and one travel lane in each direction for the remainder of High Street, means a relatively low volume of traffic.

Given the nature of public transport services running to a timetable – as opposed to continuous vehicle traffic – there is ample opportunity to improve High Street's place function and strengthen its role as the HIA's main street.

7.2.4. Cycling

Existing and Future

Figure 7.7 shows the existing and future-state cycling network, for which it is expected there are no changes. High Street and Wansey Road are classified as Principal Bicycle Network routes, on which there is an on-road mixed facility and off-road shared user path, respectively. There were two cyclist crashes in the HIA in the reporting years of 2015 to 2019, at the Botany Street/Arthur Street intersection, and on Botany Street near Blenheim Street. It is noted that these crashes were prior to the light rail and its impact on local traffic conditions.

Figure 7.7: Arthur Street – Existing Cycleways, Proposed Routes and Cyclist Crashes



Evaluation on Adequacy and Capacity to Support Growth

The shared user path on Wansey Road was recently delivered as part of the CBD and South East Light Rail project, while the on-road mixed facility on High Street – now with low traffic volumes and speeds post-light rail – is unlikely to change in the short-term due to existing cross-sections (notwithstanding current Council investigations to reallocate space from existing footpaths and landscaping) and is sufficient for the future land use intensity of the precinct.

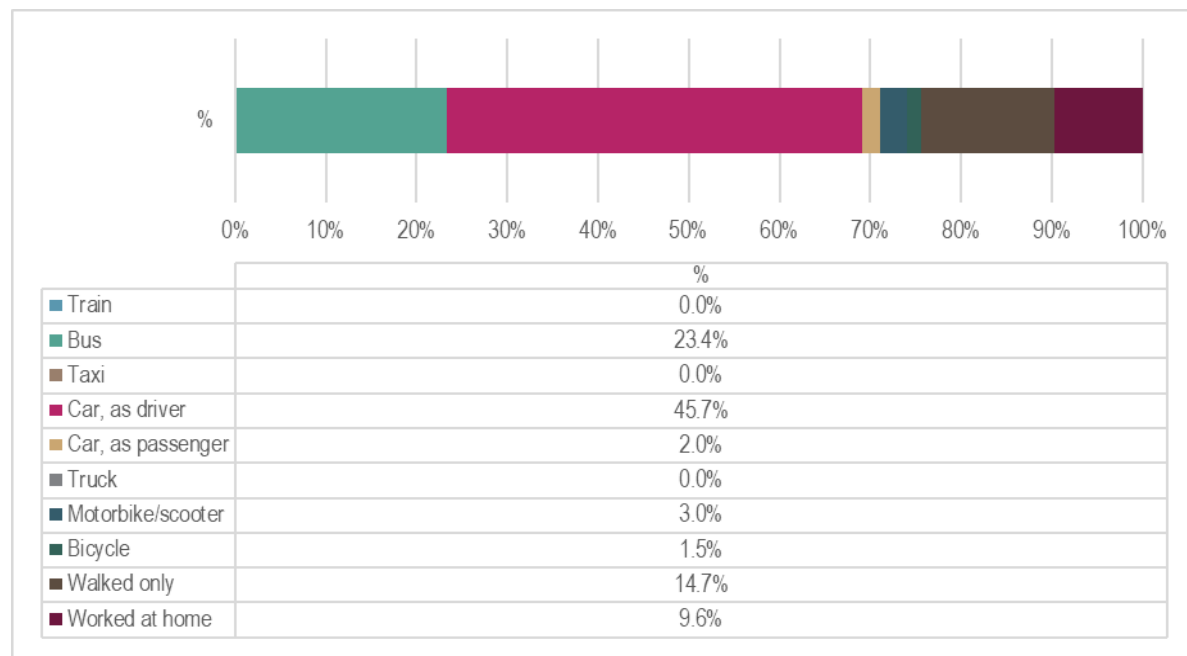
8. MAGILL STREET

8.1. Existing Travel Patterns

8.1.1. Method of Travel to Work

Figure 8.1 shows the 'Method of Travel to Work' mode share results for residents living in the Magill Street HIA in 2016. Compared to other HIAs, Magill Street has the lowest public transport mode share (23.4 per cent) and the highest private vehicle mode share (50.8 per cent).

Figure 8.1: Magill Street – Method of Travel to Work



Considering the estimated net increase of 228 dwellings by 2036 as a result of changes proposed in the Draft *Planning Proposal*, Table 8.1 shows the forecast increase in 'journey to work' trips by mode for the 'Do Nothing' scenario, assuming that the existing mode share does not change (as per the method described in Section 1.3.1).

Table 8.1: Magill Street – Employed Residents' Anticipated Peak Hour Travel

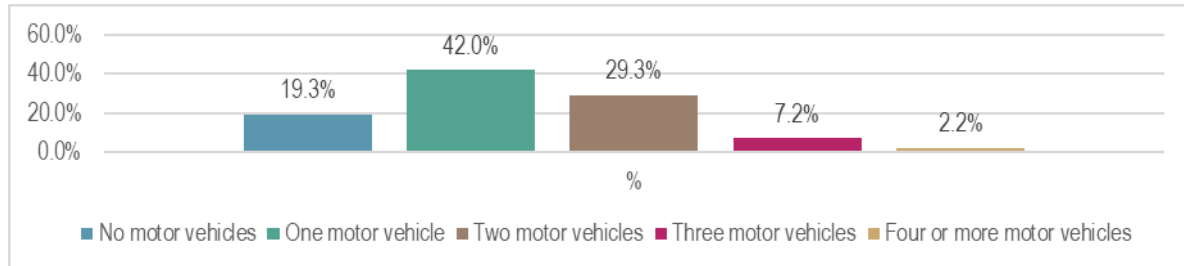
Peak Hour Net Trip Increase	Number
Public Transport	+28
Active Transport	+19
Private Vehicle	+61

Using the *Guide to Traffic Generating Developments* as an additional method, the estimated net new car spaces of 274 (under existing controls) by 2036 results in a forecast AM peak hour traffic generation of 41 vehicles.

8.1.2. Car Ownership

Figure 8.2 shows the 'Number of Motor Vehicles by Household' for dwellings in the Magill Street HIA in 2016. Compared to other HIAs, Magill Street has the highest proportion of households owning two or more motor vehicles (38.7 per cent).

Figure 8.2: Magill Street – Car Ownership



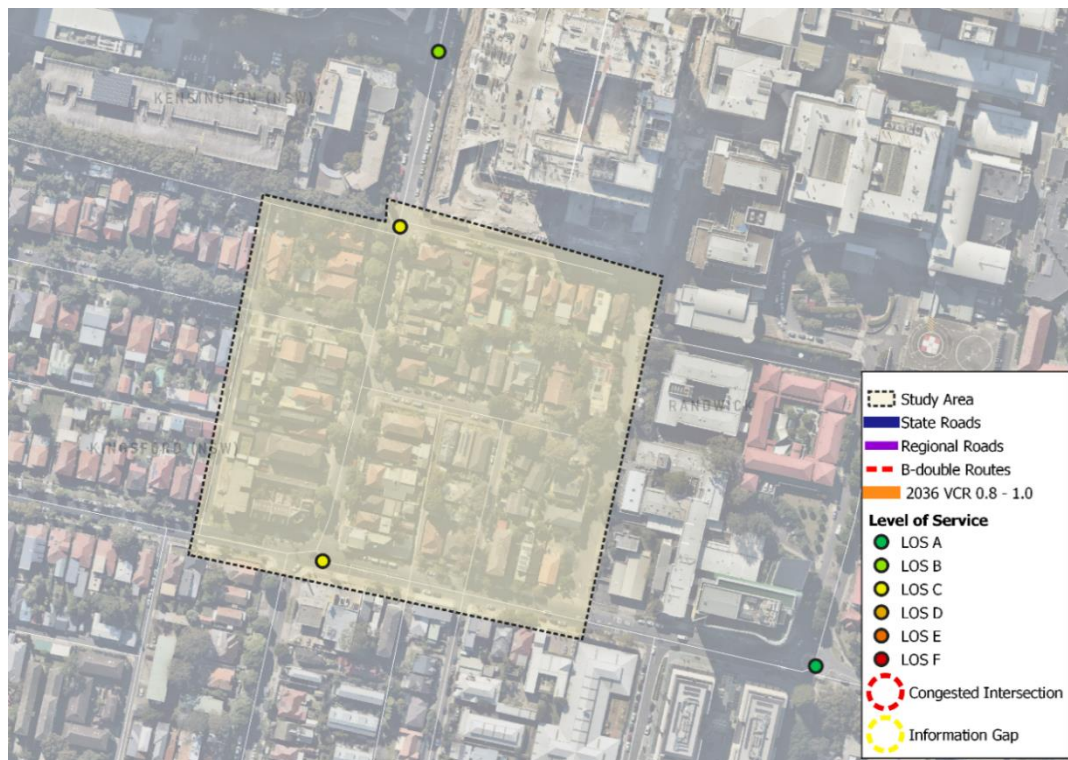
8.2. Existing and Future Transport Network

8.2.1. Road and Freight

Existing and Future

Figure 8.3 shows the Magill Street HIA road network, consisting of Botany Street and Hospital Road running north-south, while Magill Street and Barker Street run east-west. None of the aforementioned streets are classified as a state or regional road, or a B-double route.

Figure 8.3: Magill Street – Road Network and Traffic Performance



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The *Randwick Campus Redevelopment Transport Assessment* (Arup, 2018) notes that Magill Street currently functions as a local access street. It recognises that in spite of the Prince of Wales Hospital expansion, and its consequent ambulance set down areas, emergency drop-off spaces and loading facilities, the forecast daily traffic volumes along Magill Street (2,500 vehicles per day) is still less than the 3,000 vehicles per day threshold for a local street. A Level of Service C was identified at the Botany Street/ Barker Street intersection, indicating that it is currently performing satisfactorily.

Evaluation on Adequacy and Capacity to Support Growth

As it is only road links with a VCR of more than 0.8 that are illustrated in this LTS' traffic sections, the absence of any congested links illustrated on the map above means that congestion is not expected to be so severe as to extend the peak period in the future, based on high-level strategic modelling. In the 'Do Nothing' scenario, 41 to 61 private vehicle trips are added in the peak hour journey to work traffic – a negligible increase on the existing and forecast traffic volumes in the STFM and other traffic modelling. However, further investigations at the intersections highlighted above should be conducted to monitor any changes to Levels of Service.

8.2.2. Public Transport

Future

Due to its proximity to the Arthur Street HIA, the public transport network for the Magill Street HIA is largely similar, however future residents will be within a 10-minute walk (rather than 5-minute walk) of the L2 Randwick light rail line and future rapid bus route to Coogee and Rozelle. A proposed north-south rapid bus route on Avoca Street, travelling to Randwick and La Perouse, is likely to have a stop that is no more than a 20-minute walk for residents in the Magill Street HIA.

The newly introduced Route 358 heads south on Botany Street and takes passengers to Sydenham via Mascot, while the also new Route 303 running east-west on Barker Street services the Prince of Wales Hospital as its eastern terminus and Sans Souci (via Mascot) as its western terminus.

Figure 8.4: Magill Street – Public Transport Network



Evaluation on Adequacy and Capacity to Support Growth

While the local bus route options within the Magill Street HIA are more limited to compared to other study areas, given the UNSW High Street light rail is no more than a 10-minute walk (mostly flat topography) for any resident, this means that future residents still have considerable public transport accessibility and coverage. There are no clear improvements to be made to the public transport network, however, the extra walking distances may disincentivise public transport as a mode choice for some future residents.

8.2.3. Pedestrians

Existing and Future

Figure 8.5 shows the existing and future pedestrian environment at the Magill Street HIA, including signalised crossings on all legs of the Botany Street/Barker Street intersection, and refuge islands on all legs of the Kennedy Street/Barker Street intersection. There were two pedestrian crashes on Botany Street in the reporting years of 2015 to 2019. All streets' existing and desired function is a 'local street', meaning low movement and low place.

Figure 8.5: Magill Street – Street Classifications, Crossing Facilities and Pedestrian Crashes



Evaluation on Adequacy and Capacity to Support Growth

If the proposed signalised intersection (*Acute Services Building*, Prince of Wales Expansion Stage 1 SSDA traffic and transport report) at the UNSW Gate 11/Botany Street intersection is delivered as part of the Randwick Campus Redevelopment, another signalised intersection on Botany Street within the HIA would not be appropriate. However, there remains a 310-metre gap between formal crossing facilities.

To improve the HIA's walkability, it is recommended that a raised pedestrian crossing at the Botany Street/Norton Street intersection is provided. Considering that Botany Street is also a bus route, this raised crossing would need to support bus movements while slowing bus speeds to increase pedestrian safety.

In regard to movement and place, the proposed zone change from R2 Low Density Residential to R3 Medium Density Residential means that the desired 'local street' classification for Botany Street and Hay Street is congruent with the *Randwick Comprehensive Planning Proposal*.

8.2.4. Cycling

Existing and Future

Figure 8.6 shows the existing and future cycling environment at the Magill Street HIA. Of note is the east-west connection to the north of the study area, going through the UNSW campus. There is also an on-road mixed traffic facility on Magill Street and an on-road shoulder lane on Botany Street, to the south of the HIA. In the reporting years of 2015 to 2019, there was one cyclist crash – at the intersection of Magill Street and Botany Street. There are no Council-delivered routes or Principal Bicycle Network routes, however Council have proposed to deliver a shared user path on Botany Street, between Oval Lane and High Street. Council is also investigating a potential route on Magill Street, Hospital Road and Young Street to connect to surrounding residential areas in the south.

Figure 8.6: Magill Street – Existing Cycleways, Proposed Routes and Cyclist Crashes



Evaluation on Adequacy and Capacity to Support Growth

The existing and future cycling network within and surrounding the Magill Street HIA is currently not equipped for a safe cycling experience and would not incentivise future residents to choose cycling as a mode. The shoulder lane facility on Botany Street currently ends at Barker Street. A continuation of this facility northwards could connect to the existing on-road mixed traffic facility on High Street and the broader Randwick cycling network.

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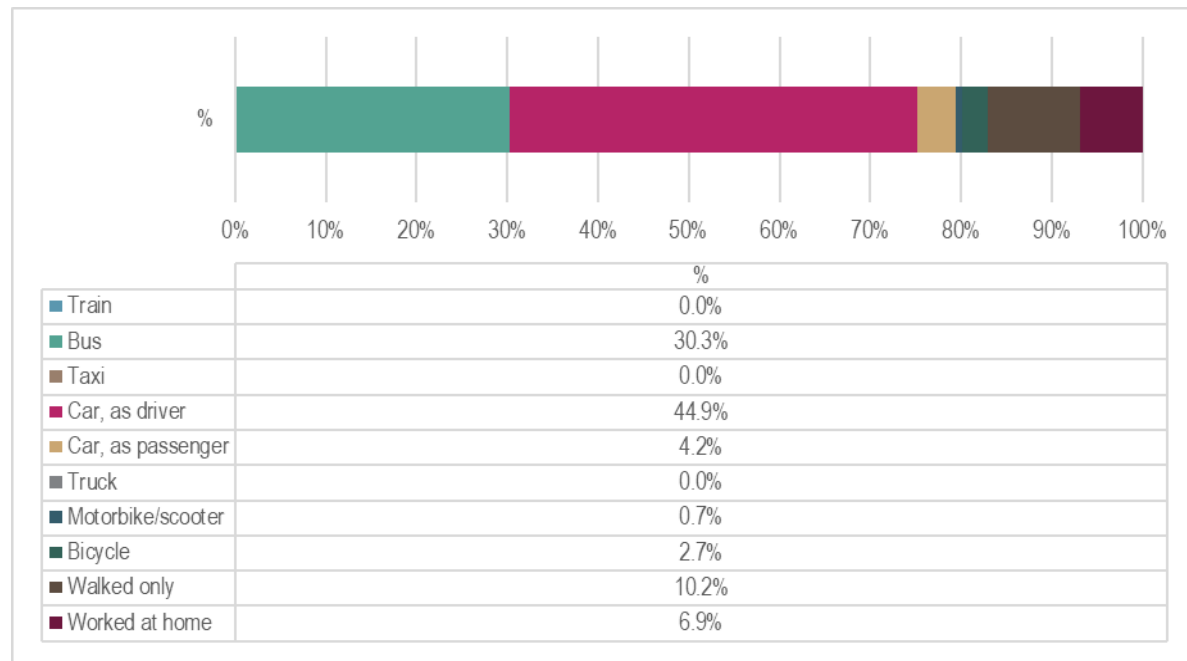
9. KINGSFORD SOUTH

9.1. Existing Travel Patterns

9.1.1. Method of Travel to Work

Figure 9.1 shows the 'Method of Travel to Work' mode share results for residents living in the Kingsford South HIA in 2016. Relative to other HIAs, Kingsford South's mode share for each mode category (active, public, private vehicle) generally falls in the middle of the set.

Figure 9.1: Kingsford South – Method of Travel to Work



Considering the estimated net increase of 549 dwellings by 2036 as a result of changes proposed in the Draft *Planning Proposal*, Table 9.1 shows the forecast increase in 'journey to work' trips by mode for the 'Do Nothing' scenario, assuming that the existing mode share does not change (as per the method described in Section 1.3.1).

Table 9.1: Kingsford South – Employed Residents' Anticipated Peak Hour Travel

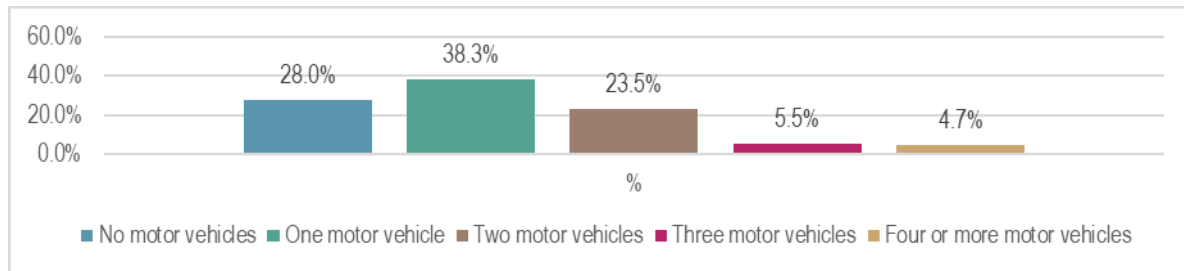
Peak Hour Net Trip Increase	Number
Public Transport	+87
Active Transport	+37
Private Vehicle	+143

Using the *Guide to Traffic Generating Developments* as an additional method, the estimated net new resident car spaces of 659 (under existing controls) by 2036 results in a forecast AM peak hour traffic generation of 99 vehicles.

9.1.2. Car Ownership

Figure 9.2 shows the 'Number of Motor Vehicles by Household' for dwellings in the Kingsford South HIA in 2016. Kingsford South has the highest proportion of households owning three or more motor vehicles (10.3 per cent), reflective of its low-density residential nature.

Figure 9.2: Kingsford South – Car Ownership



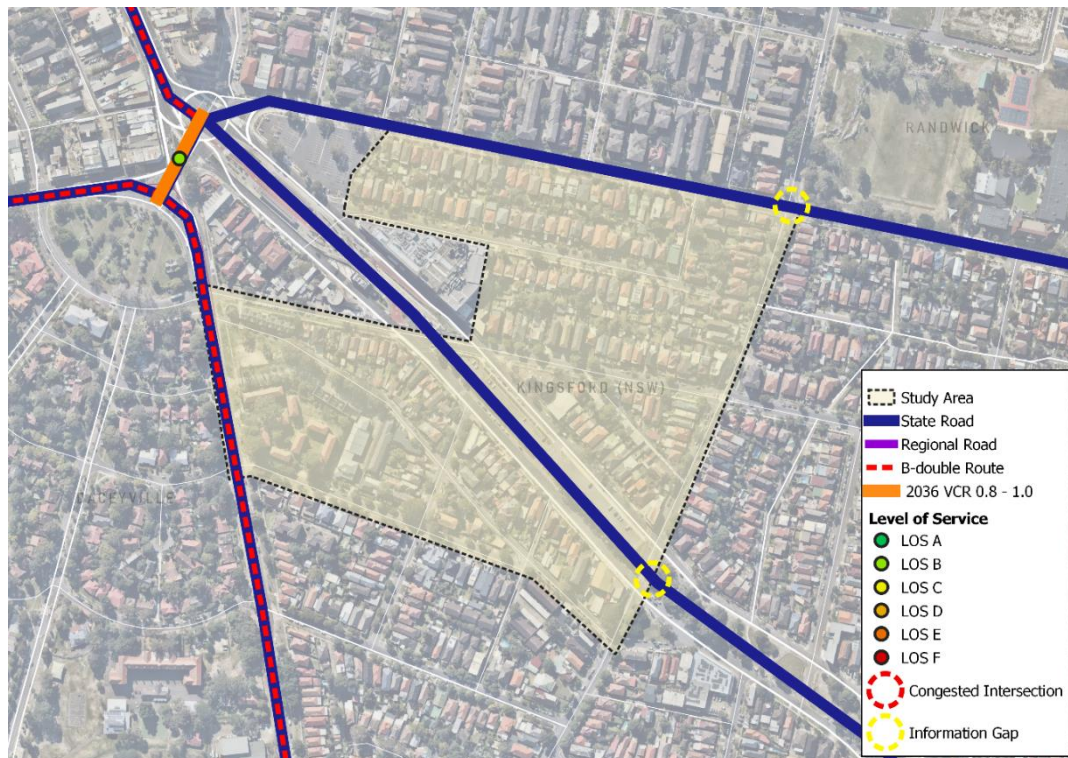
9.2. Existing and Future Transport Network

9.2.1. Road and Freight

Existing

Figure 9.3 shows the road network in the Kingsford South HIA. Rainbow Street, Anzac Parade and Bunnerong Road are state roads. Bunnerong Road is also a designated B-double route.

Figure 9.3: Kingsford South – Road Network and Traffic Performance



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Evaluation on Adequacy and Capacity to Support Growth

As illustrated in the map, Gardeners Road to the northwest of the study area, between Rainbow Street and Bunnerong Road, is forecast to have a VCR of 0.88 (operating at near capacity), as it is the junction of several key traffic routes. Nonetheless, all links within the study area have a VCR of less than 0.80, meaning that congestion is not expected to be so severe as to extend the peak period in the future. It is still recommended that key intersections within the precinct – such as Rainbow Street/Botany Street and Anzac Parade/ Botany Street – are investigated and their performance better understood due to the lack of recent detailed traffic modelling from secondary sources in this study area.

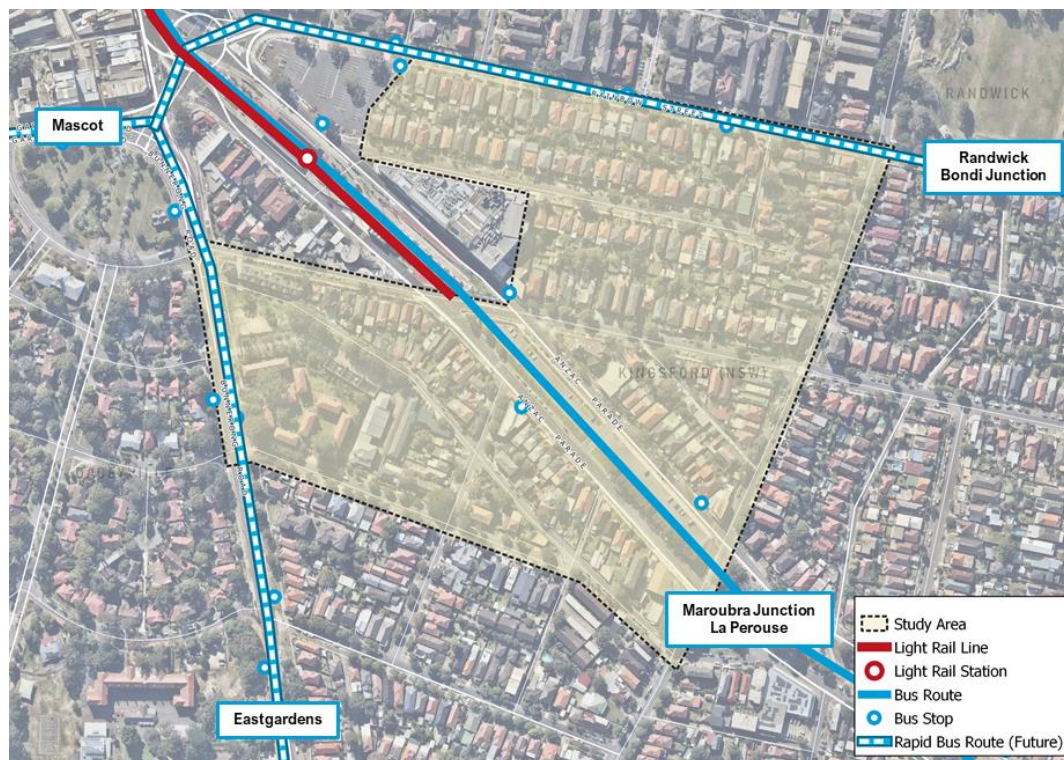
In the 'Do Nothing' scenario, a range of 99 to 143 private vehicle trips are added in the peak hour journey to work traffic – a negligible increase on the existing and forecast traffic volumes on key roads (Rainbow Street, Anzac Parade, Bunnerong Road and Gardeners Road) in the STFM, subject to further investigations.

9.2.2. Public Transport

Future

Figure 9.4 depicts the Kingsford South HIA's public transport, showing the L3 Kingsford light rail line and Juniors Kingsford light rail stop. As a transport junction, two future rapid bus routes will travel via Kingsford. One route, going east-west on Rainbow Street, will take passengers to Sydenham via Mascot to the west, and Bondi Junction via Randwick to the east. Another rapid bus route heads south to La Perouse via Maroubra Junction, while local bus routes go to nearby suburbs, such as Eastlakes and Eastgardens.

Figure 9.4: Kingsford South – Public Transport Network



Evaluation on Adequacy and Capacity to Support Growth

Future residents will have the option to travel on three key public transport routes: Rainbow Street, Anzac Parade and Bunnerong Road. No resident will be more than a 10-minute walk from the Juniors Kingsford Light Rail stop. Similarly, no resident will be more than a 15-minute walk from the bus route corridor furthest away from them. Based on both the distribution of routes and stops, as well as the wide network coverage, the Kingsford South HIA is well-placed to support a higher use of public transport and higher residential density.

9.2.3. Pedestrians

Existing

Figure 9.5 shows the existing pedestrian environment at the Kingsford South HIA. There are numerous signalised crossings across Anzac Parade and the Nine Ways junction, while there are refuge islands on all four legs of the Botany Street/Sturt Street intersection. In the reporting years of 2015 to 2019, there were some pedestrian crashes, on streets classified as 'main roads', however there were no crash clusters of concern.

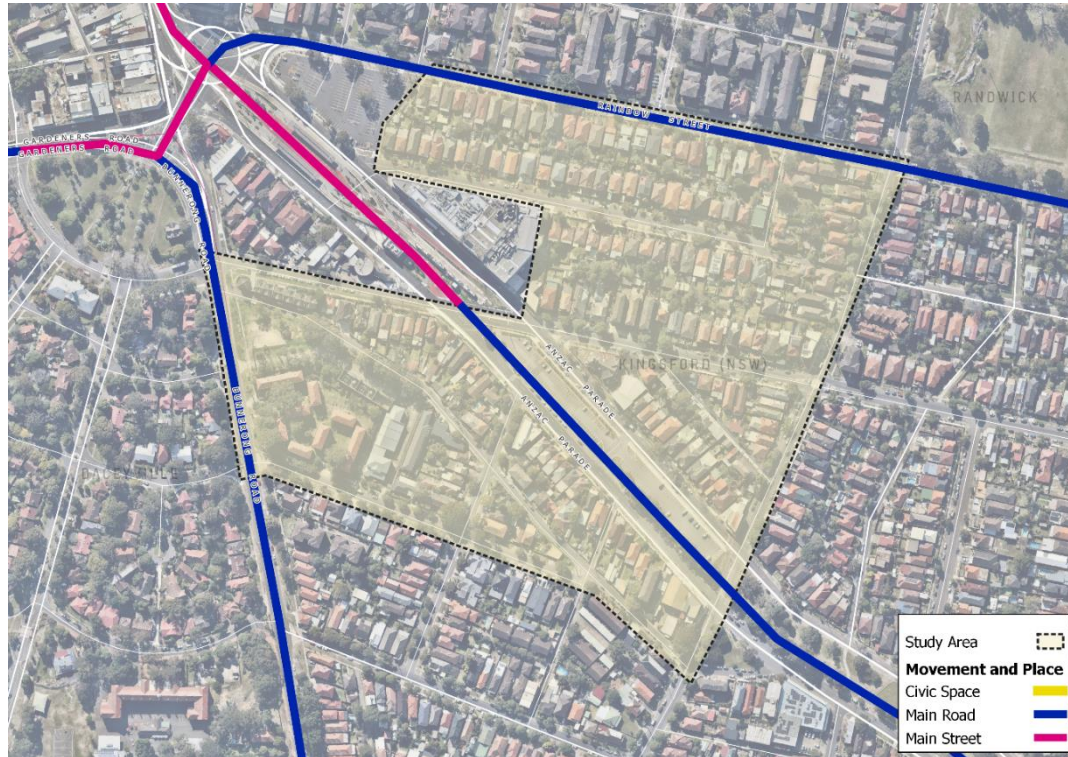
Figure 9.5: Kingsford South – Street Classifications, Crossing Facilities and Pedestrian Crashes



Future

Figure 9.6 shows the desired movement and place functions contained in the *South East Sydney Transport Strategy*, including the designation of Anzac Parade (up to the Juniors Kingsford light rail stop) as a 'main street', meaning a higher emphasis on its place functions.

Figure 9.6: Kingsford South – Future Movement and Place Street Classifications



Evaluation on Adequacy and Capacity to Support Growth

Given that the majority of the land in the HIA is proposed to be rezoned from R2 Low Density Residential to R3 Medium Density Residential, the existing desired Movement and Place classification is appropriate going forward. The remaining section of Anzac Parade within the HIA study area boundary will be characterised by residential land use either side, meaning that the majority of people walking within the area will be residents. Without commercial land use (trip attractors), the low volume of pedestrians means it is not necessary to further emphasise the street's place value through reclassification to a 'main street', to accommodate the proposed growth.

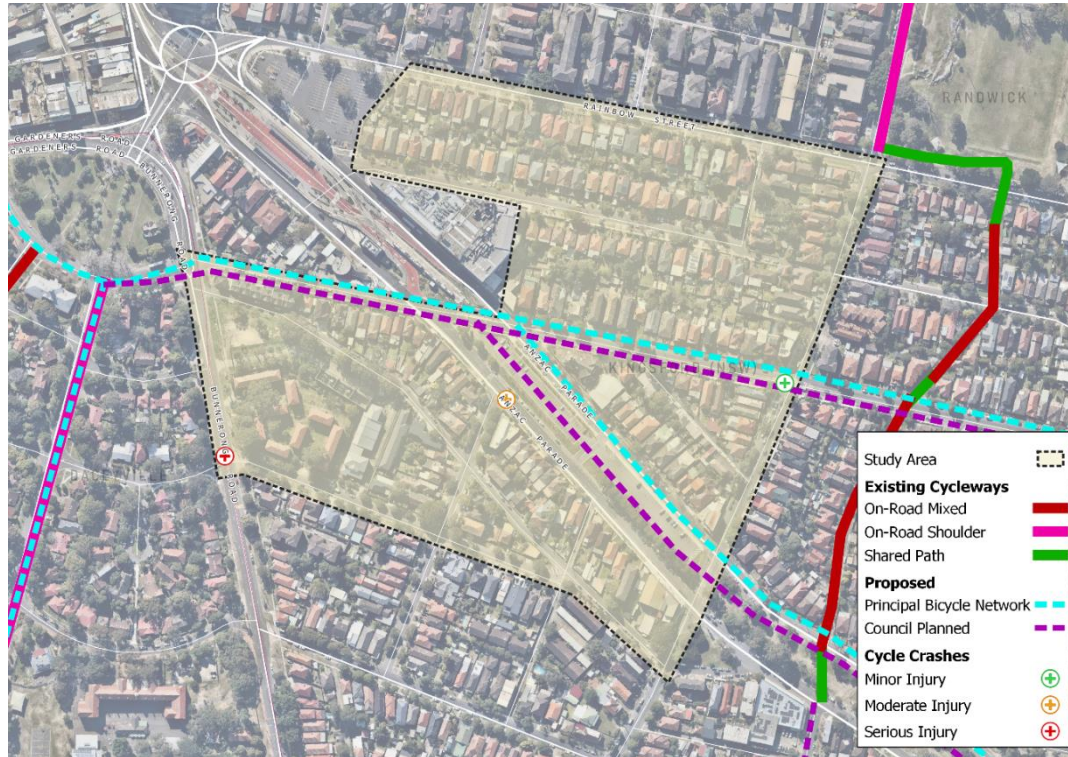
Within a more fine-grain walking network away from Anzac Parade, there is the opportunity for a greater density of formal pedestrian crossings, including at Sturt Street, Wallace Street, Rainbow Street and Jacques Street.

9.2.4. Cycling

Existing and Future

Figure 9.7 shows the existing and future cycling environment at the Kingsford South HIA. Of note is the existing on-road mixed facility to the east of the HIA at Byrd Avenue, as well as the dual-proposed Council and Principal Bicycle Network routes on Anzac Parade and Sturt Street. In the reporting years of 2015 to 2019, there were three cyclist crashes – all on streets classified as main roads.

Figure 9.7: Kingsford South – Existing Cycleways, Proposed Routes and Cyclist Crashes



Evaluation on Adequacy and Capacity to Support Growth

It is critical that cycleways on both Anzac Parade and Sturt Street are delivered in the medium-term, preferably separated from vehicle traffic. These two cycleways would create an adequate spine of cycling infrastructure through the HIA and provide critical links to other regional existing and proposed facilities.

10. PARKING

10.1. Evaluation on Existing Parking Rates

Considering that the *Randwick Development Control Plan (DCP) 2013* sets out parking rates for all new developments, it is more appropriate to address it as a transport issue in its own section of the Local Transport Study.

10.1.1. Car Parking

Table 10.1: Car Parking Rates – Existing (DCP 2013)

Land Use	Requirement
Studio	0.5 spaces per dwelling
1-bedroom	1 space per dwelling
2-bedroom	1.2 spaces per dwelling
3+ bedroom	1.5 spaces per dwelling
Visitor	0.25 spaces per dwelling
Student accommodation	0.2 spaces per bedroom
Boarding houses	0.5 spaces per bedroom (AHRSEPP)
Business premises	1 space per 40m ² GFA
Restaurants or cafes	1 space per 40m ² GFA for the first 80m ² , then 1 space per 20m ² GFA thereafter

Evaluation on Capacity to Support Growth

Based on the existing car parking rates in Table 10.1, approximately 2,426 new car spaces would be provided for the estimated net new 2,022 dwellings across all HIAs and Randwick Junction by 2036. On average, this means that there would be an average of 1.2 car spaces per dwelling. For the commercial land use in Randwick Junction, the existing rates would mean an additional 250 to 375 car spaces would be provided for the low and high scenarios, respectively. Maintaining these rates as a 'do-nothing' business-as-usual approach is not aligned with Council's goal to promote active and public transport and would lead to an increased rate of traffic generation as a result. A reduction in the minimum car parking rates would be more appropriate for the higher-density residential lifestyle generated by the proposed development uplift.

10.1.2. Bicycle Parking

Table 10.2: Bicycle Parking Rates – Existing (DCP 2013)

Land Use	Residents/ Employees	Visitors/ Customers	End-of-Trip Facilities
Multi-dwelling housing/ residential flat building	1 bike space per 2 units	1 bike space per 10 units	N/A
Commercial	1 bike space per 10 car parking spaces		Showers: 1 per 0-12 employees 2 per 13-14 employees 4 per 50-149 employees 6 per 150-299 employees 8 per 300-500 employees

Evaluation on Capacity to Support Growth

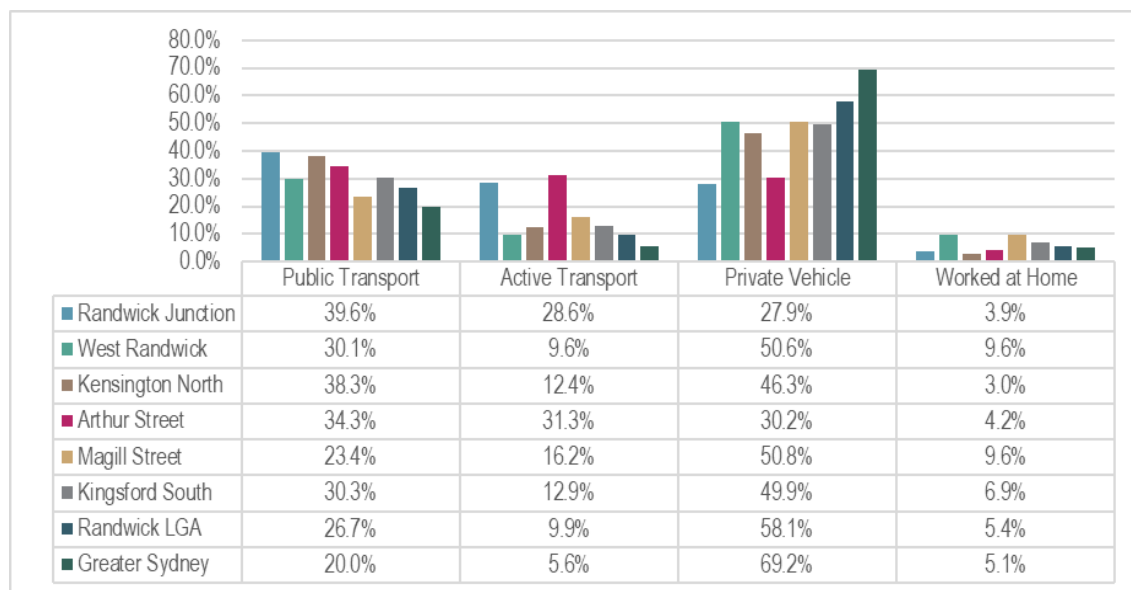
Under the existing DCP bicycle parking controls, the proposed number of dwellings (by 2036) – as a result of the proposed changes of the *Comprehensive Planning Proposal* and *Randwick Junction Town Centre Strategy* – would result in 1,011 new bicycle parking spaces for residents across the study areas, and 25 or 38 new spaces for Randwick Junction's commercial land use, under the 'low' and 'high' scenarios, respectively. For the estimated net new resident population, this would mean that only 20 to 25 per cent of residents would have access to secure bicycle parking – a figure not high enough to support a significant increase in cycling as a mode. Increasing the bike parking requirements would be one component of improving the basic infrastructure to a level that would encourage cycling at a greater rate than at present.

11. FUTURE SCENARIOS

11.1. 'Do Nothing' Scenario

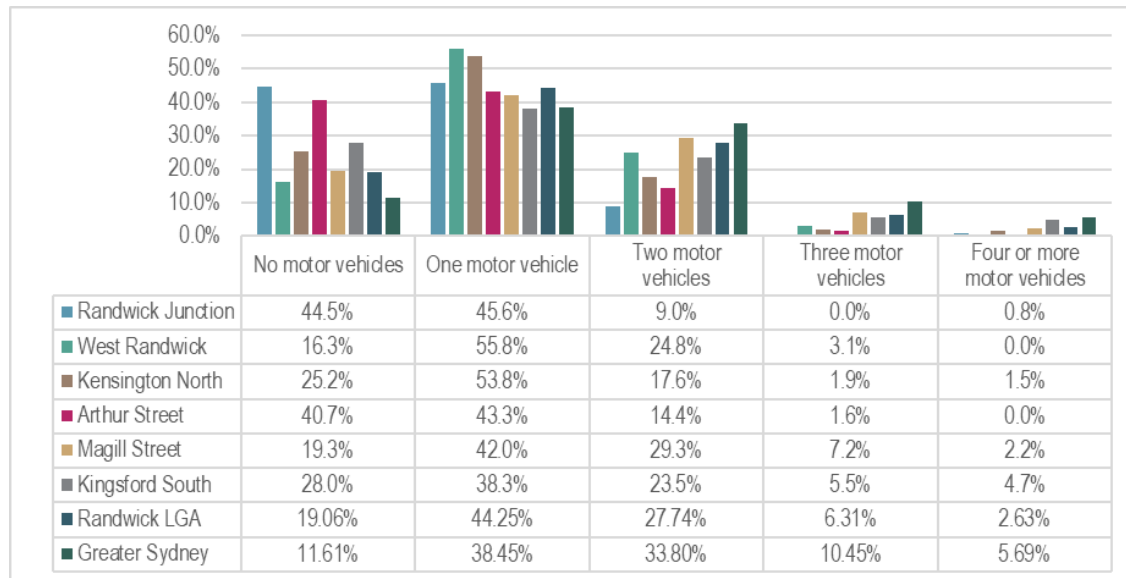
Figure 11.1 and Figure 11.2 show the 'Method of Travel to Work' mode share results and the 'Number of Motor Vehicles by Household' for dwellings in the six study areas, Randwick LGA and Greater Sydney (for comparison) in 2016. Future travel patterns in accordance with these existing trends represent the 'Do Nothing' scenario, for which the impacts were discussed in the prior sections of the Local Transport Study. All HIAs have a higher public transport mode share compared to the Greater Sydney average, due to Randwick LGA's proximity to key employment centres, such as Sydney CBD, and the quality of public transport services to/from the Randwick LGA and the Sydney CBD. Active transport mode share is also higher than the Greater Sydney average, particularly due to the variety of local employment options (UNSW, hospital, Randwick Junction retail) nearby residents' homes.

Figure 11.1: All Study Areas – Method of Travel to Work



The higher rates of public and active transport use also correspond to vehicle ownership rates across the study areas that are less than the Greater Sydney average, shown on the following page.

Figure 11.2: All Study Areas – Car Ownership



11.2. 'Moderate' and 'Do Maximum' Targets

The Randwick Integrated Transport Strategy (RITS) sets out a series of transport-related themes and principles for Council's future planning. They are:

- **Safe:** A transport network designed to prioritise safety for everyone, particularly vulnerable road users.
- **Sustainable:** A transport network that enables people to easily choose active and public transport options more often.
- **Inclusive:** A transport network that caters to a variety of customers, modes and journey types.
- **Collaborative:** A transport network enhanced by working with partners and the community.
- **Healthy and balanced:** A transport network that improves the resilience of Randwick City by enabling people to choose healthier options such as walking and cycling, and by balancing the needs of all modes.

The RITS notes that Council seeks to increase its active transport mode share for all trips to 35 per cent, from a 26 per cent Council-wide baseline (TfNSW Household Travel Survey, 2018-19). Additionally, the RITS seeks to reduce the proportion of private vehicle trips from a baseline of 58 per cent to 45 per cent by 2031.

Table 11.2 and Table 11.3 below show the tailored 'moderate' and 'do maximum' mode share targets for future residents' method of travel to work, considering existing travel patterns, future infrastructure, and the aforementioned principles driving Council's shift toward more sustainable transport. It would be inappropriate to set a flat mode share goal for all HIAs and Randwick Junction, as each study area has its own unique context and degree to which it can encourage sustainable transport use. As such, the mode share targets recognise Council's headline targets, but proposes an individual set of targets for each study area responsive to its context. Ensuring that future Green Travel Plans for proposed developments align their mode share targets with those set out in this LTS would help directly link the new developments to the LTS' goals and objectives.

In light of the COVID-19 pandemic and the greater acceptance of flexible working arrangements, the mode share targets also include an increase in the 'work from home' category, recognising that its ongoing normalisation can work effectively as a travel demand management initiative. A more detailed view of the mode share and car ownership targets are in Appendix B.

Table 11.1: 'Do Nothing' Mode Share

	Randwick Junction	West Randwick	Kensington North	Arthur Street	Magill Street	Kingsford South
Public Transport	39.6%	30.1%	38.3%	34.3%	23.4%	30.3%
Active Transport	28.6%	9.6%	12.4%	31.3%	16.2%	12.9%
Private Vehicle	27.9%	50.6%	46.3%	30.2%	50.8%	49.9%
Worked at Home	3.9%	9.6%	3.0%	4.2%	9.6%	6.9%

Table 11.2: 'Moderate' Mode Share Targets

	Randwick Junction	West Randwick	Kensington North	Arthur Street	Magill Street	Kingsford South
Public Transport	40.0% (+0.4%)	35.0% (+4.9%)	40.0% (+1.7%)	40.0% (+5.7%)	30.0% (+6.6%)	35.0% (+4.7%)
Active Transport	35.0% (+6.4%)	15.0% (+5.4%)	17.5% (+5.1%)	35.0% (+3.7%)	20.0% (+3.8%)	15.0% (+2.1%)
Private Vehicle	20.0% (-7.9%)	40.0% (-10.6%)	35.0% (-11.3%)	20.0% (-10.2%)	40.0% (-10.8%)	40.0% (-9.9%)
Worked at Home	5.0% (+1.1%)	10.0% (+0.4%)	7.5% (+4.5%)	5.0% (+0.8%)	10.0% (+0.4%)	10.0% (+3.1%)

Table 11.3: 'Do Maximum' Mode Share Targets

	Randwick Junction	West Randwick	Kensington North	Arthur Street	Magill Street	Kingsford South
Public Transport	45.0% (+5.4%)	40.0% (+9.9%)	45.0% (+6.7%)	45.0% (+9.7%)	35.0% (+11.6%)	40.0% (+9.7%)
Active Transport	37.5% (+8.9%)	20.0% (+10.4%)	20.0% (+7.6%)	40.0% (+8.7%)	25.0% (+8.8%)	20.0% (+7.1%)
Private Vehicle	12.5% (-15.4%)	30.0% (-20.6%)	25.0% (-21.3%)	10.0% (-20.2%)	30.0% (-20.8%)	30.0% (-19.9%)
Worked at Home	5.0% (+1.1%)	10.0% (+0.4%)	10.0% (+7.0%)	5.0% (+0.8%)	10.0% (+0.4%)	10.0% (+3.1%)

11.3. Impact of Achieving Mode Share Targets

11.3.1. Anticipated Peak Hour Travel by Mode

Considering the estimated net increase in dwellings by 2036 as a result of changes proposed in the Draft *Planning Proposal*, Table 11.4 shows the forecast increase in 'journey to work' trips by mode for the 'Do Nothing' scenario, assuming that the existing mode share does not change.

Table 11.4: Employed Residents' Anticipated Peak Hour Travel – Do Nothing

	Randwick Junction	West Randwick	Kensington North	Arthur Street	Magill Street	Kingsford South	TOTAL
Estimated Net New Dwellings by 2036	~300	156	315	474	228	549	2,022
Net New Residents	660	343	693	1,043	502	1,208	4,448
Net New Employed Residents	449	233	471	709	341	821	3,025
Net New Employed Residents Travelling in Peak Hour	157	82	165	248	119	287	1,059
Peak Hour Public Transport Net Trip Increase	62	25	63	85	28	87	350
Peak Hour Active Transport Net Trip Increase	45	8	20	78	19	37	207
Peak Hour Private Vehicle Net Trip Increase	44	41	76	75	61	143	441

In comparison, Table 11.5 contains the peak hour net increase in trips by mode, for both the 'moderate' and 'do maximum' scenarios, assuming that all new residents make travel choices in alignment with each study area's mode share targets. As shown, the 'do maximum' scenario results in approximately double the amount of additional sustainable transport trips (public and active) and about a doubling in the reduction of private vehicle trips, compared to the 'moderate' scenario. Simply put, there is a 24 per cent reduction in added private vehicle trips in the 'moderate' compared to 'do nothing' scenario, and a 48 per cent reduction in added private vehicle trips in the 'do maximum' compared to the 'do nothing' scenario.

Table 11.5: Employed Residents' Anticipated Peak Hour Travel – Moderate and Do Maximum

Peak Hour Net Trip Increase	Randwick Junction	West Randwick	Kensington North	Arthur Street	Magill Street	Kingsford South	TOTAL
Moderate							
Public Transport	63 (+1)	29 (+4)	66 (+3)	99 (+14)	36 (+8)	101 (+14)	393 (+43)
Active Transport	55 (+10)	12 (+4)	29 (+9)	87 (+9)	24 (+5)	43 (+6)	250 (+43)
Private Vehicle	31 (-13)	33 (-8)	58 (-18)	50 (-25)	48 (-13)	115 (-28)	334 (-107)
Do Maximum							
Public Transport	71 (+9)	33 (+8)	74 (+11)	112 (+27)	42 (+14)	115 (+28)	446 (+96)
Active Transport	59 (+14)	16 (+8)	33 (+13)	99 (+21)	30 (+11)	57 (+20)	295 (+88)
Private Vehicle	20 (-24)	25 (-16)	41 (-35)	25 (-50)	36 (-25)	86 (-57)	232 (-208)

12. RECOMMENDATIONS

12.1. Introduction

This section outlines the series of recommendations developed to help meet the 'moderate' and 'do maximum' mode share targets. The likelihood of Council achieving the targets for any given study area depends on the degree to which they and allied stakeholders such as Transport for NSW implement the suite of proposed recommendations, covering both infrastructure, services and policy. Summary maps of the recommendations are in Section 12.6.

12.2. General

Table 12.1: General – Recommendations

Study Area	Recommendation
General	Ensure that Green Travel Plans for developments within a HIA set mode share targets and initiatives congruent with this Local Transport Study.

12.3. Road and Traffic

Table 12.2: Road and Freight – Recommendations

Study Area	Recommendation
General	Co-ordinate with Transport for NSW to monitor traffic performance and investigate improvements at the following intersections: <ul style="list-style-type: none"> • Avoca Street/Barker Street • Anzac Parade/Todman Avenue
	Ensure developments within a HIA have adequate off-street loading and servicing provisions to ensure no increase in demand for on-street servicing.
Randwick Junction	Co-ordinate with Transport for NSW to regularly monitor traffic performance and investigate improvements at the Alison Road/Avoca Street intersection.
	Prepare a traffic circulation plan for the Randwick Junction Town Centre, seeking to distribute traffic more effectively according to each road's capacity, as well as Council's other non-traffic related objectives for particular streets.
	Develop a comprehensive public parking management plan for the Randwick Junction Town Centre, setting the 'trigger' conditions aligned with the 'graduated parking management approach'.
West Randwick	Co-ordinate with Transport for NSW to conduct intersection performance modelling on: <ul style="list-style-type: none"> • Alison Road/Darley Road • Alison Road/Cowper Street
Kensington North	Co-ordinate with Transport for NSW to conduct intersection performance modelling on: <ul style="list-style-type: none"> • Anzac Parade/Dacey Street/Alison Road • Alison Road/Doncaster Avenue

Study Area	Recommendation
	Co-ordinate with Transport for NSW to regularly monitor traffic performance and investigate improvements at the Anzac Parade Street/Todman Avenue intersection.
Arthur Street	Co-ordinate with Transport for NSW to regularly monitor traffic performance and investigate improvements at the Botany Street/High Street intersection.
Magill Street	Co-ordinate with Transport for NSW to monitor traffic performance at Botany Street/Barker Street intersection.
Kingsford South	Co-ordinate with Transport for NSW to conduct intersection performance modelling at the Anzac Parade/Botany Street intersection.

12.4. Public Transport

Table 12.3: Public Transport – Recommendations

Study Area	Recommendation
General	Advocate to Transport for NSW for prioritised investigation and delivery of the following three rapid bus routes: <ul style="list-style-type: none"> • Bondi Junction to Sydenham, via Randwick and Kingsford • Rozelle to Coogee via Kensington and Randwick • Kingsford to La Pouse
Randwick Junction/Arthur Street	Co-ordinate with Transport for NSW in the investigation of a high-quality transport interchange – a holistic solution accounting for all users (light rail terminus, 2 x rapid bus stop pairs, cycleways, vehicle traffic etc.).
West Randwick	Council to reinstate the bus shelter at the 'Alison Road before Cowper Street' bus stop.
Kensington North	-
Magill Street	Council to provide a pair of bus stops on Barker Street (between Kennedy Street and Botany Street), as part of the South East Sydney bus network changes.
Kingsford South	Co-ordinate with Transport for NSW in incorporating future rapid bus services (including high-quality bus stops) at the Juniors Kingsford transport interchange.

Figure 12.1: Bus Infrastructure – Example of Rapid Bus Stop



12.5. Active Transport and 'Movement and Place'

Table 12.4: Active Transport and 'Movement and Place' – Recommendations

Study Area	Recommendation
General	Ensure that new high-density developments incorporate laneways and shared zones where possible to prioritise movement by people on foot.
	Investigate giving effect to the desired Place functions for Main Streets and Civic Spaces, through footpath widening, road space reallocation (e.g. parklets), pedestrian priority, diversion of heavy vehicles where possible, tree planting etc.
	Investigate the incorporation of the <i>South East Sydney Transport Strategy</i> 's desired Movement and Place classifications, as well as the recommended changes/additions in this table, into an updated DCP.
Randwick Junction	Upgrade zebra crossing at Belmore Road/Silver Street to a raised pedestrian crossing.
	In conjunction with the redevelopment of Royal Randwick shopping centre, investigate feasibility of a signalised crossing at Avoca Street (either at or north of Milford Street), to enable new turning movements into the Royal Randwick shopping centre car park and improve traffic circulation in the Randwick Junction Town Centre.
	Conduct walking and intersection crossing counts at key locations on Belmore Road, in order to obtain baseline pedestrian data to inform potential future project delivery (e.g. road space reallocation).
	Commence cycleway concept design process for Principal Bicycle Network routes on Belmore Road and Avoca Street, due to their high complexity and interaction with other road users.

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RECOMMENDATIONS

Study Area	Recommendation
West Randwick	Upgrade refuge islands at John Street/King Street intersection.
	Investigate converting King Street on-road shoulder cycling facility to an off-road shared user path.
Kensington North	Investigate provision of a signalised crossing at the Anzac Parade/Boronia Street intersection.
	Investigate reclassification of Abbotford Street from a Local Street to a Civic Space and explore options for improvement to existing open space and public domain, particularly the impact of potential parking supply reduction.
Arthur Street	Investigate provision of a new refuge island crossing on Botany Street at Blenheim Street intersection.
Magill Street	Provide a shared user path on Botany Street, from Barker Street to Oval Lane, and continue investigation of a route on Magill Street, Hospital Road and Young Street to connect to surrounding residential areas in the south.
Kingsford South	Investigate the provision of mid-block crossings (either refuge island or zebra) at: Wallace Street, Sturt Street and Jacques Street.
	Continue delivery of cycling facilities (preferably separated from vehicle traffic) on Anzac Parade, Sturt Street and other Council-proposed routes in the surrounding area.

Figure 12.2: Pedestrian Infrastructure – Example of Raised Pedestrian Crossing



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Figure 12.3: Cycling Infrastructure – Example of Shared User Path



Figure 12.4: Movement and Place – Example of a Main Street



Source: <https://globalhobo.com.au/2017/05/03/sydney-newtown/>

Figure 12.5: Movement and Place – Example of a Civic Space



Source: Google Street View

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12.6. Recommendation Maps

Figure 12.6: Randwick Junction and Arthur Street – Recommendations Map

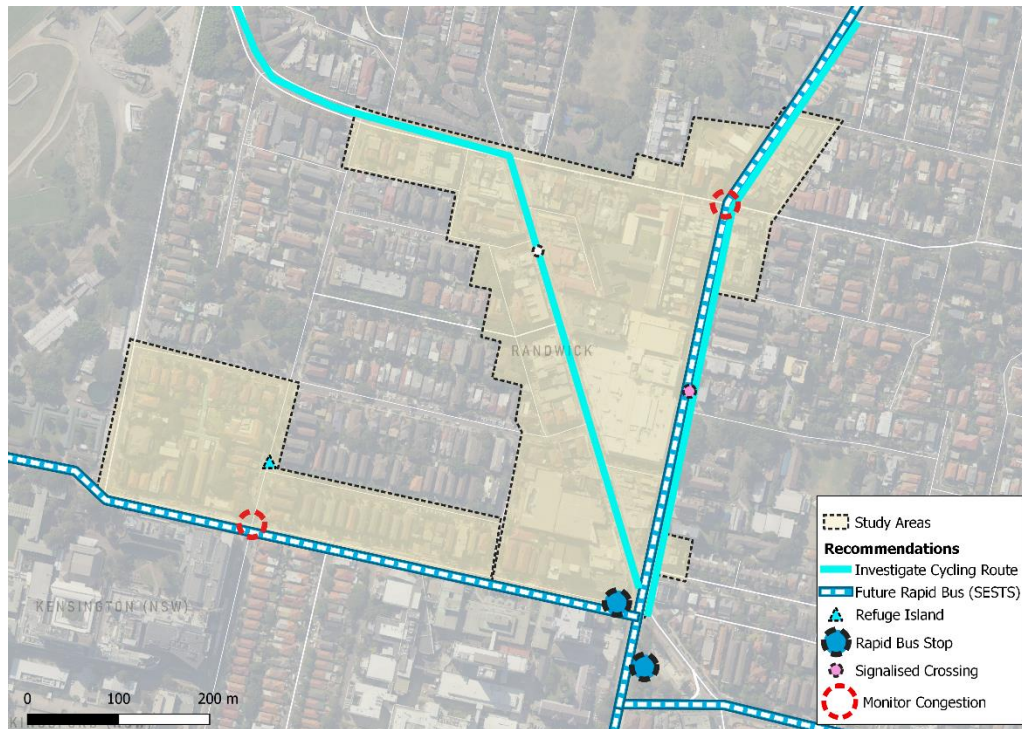
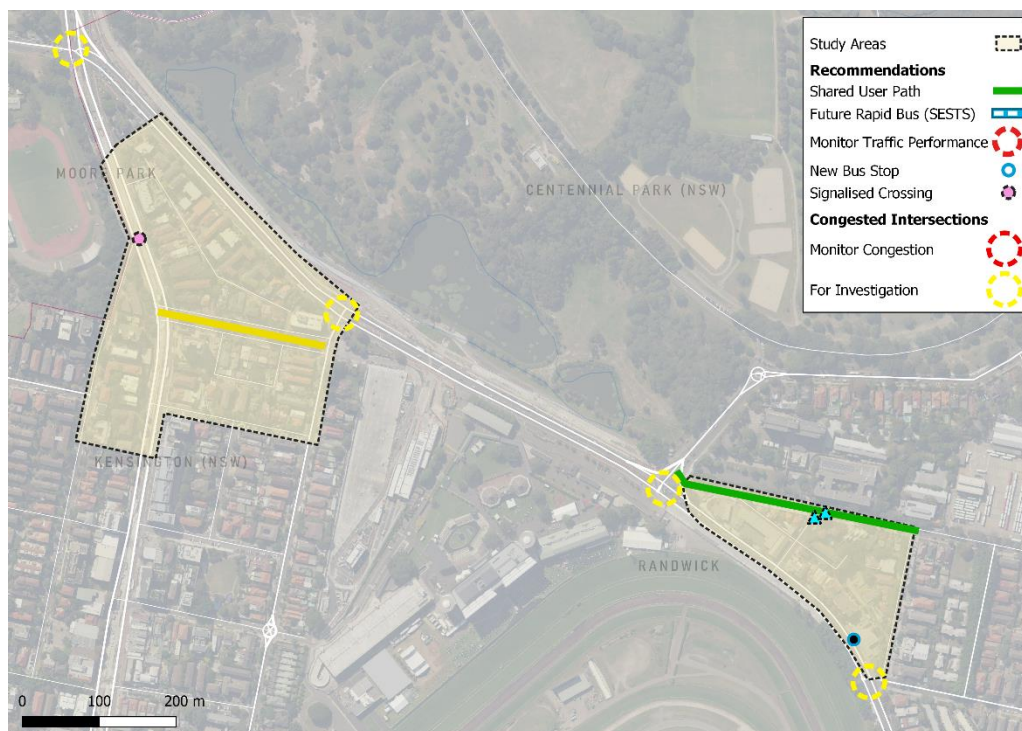


Figure 12.7: West Randwick and Kensington North – Recommendations Map

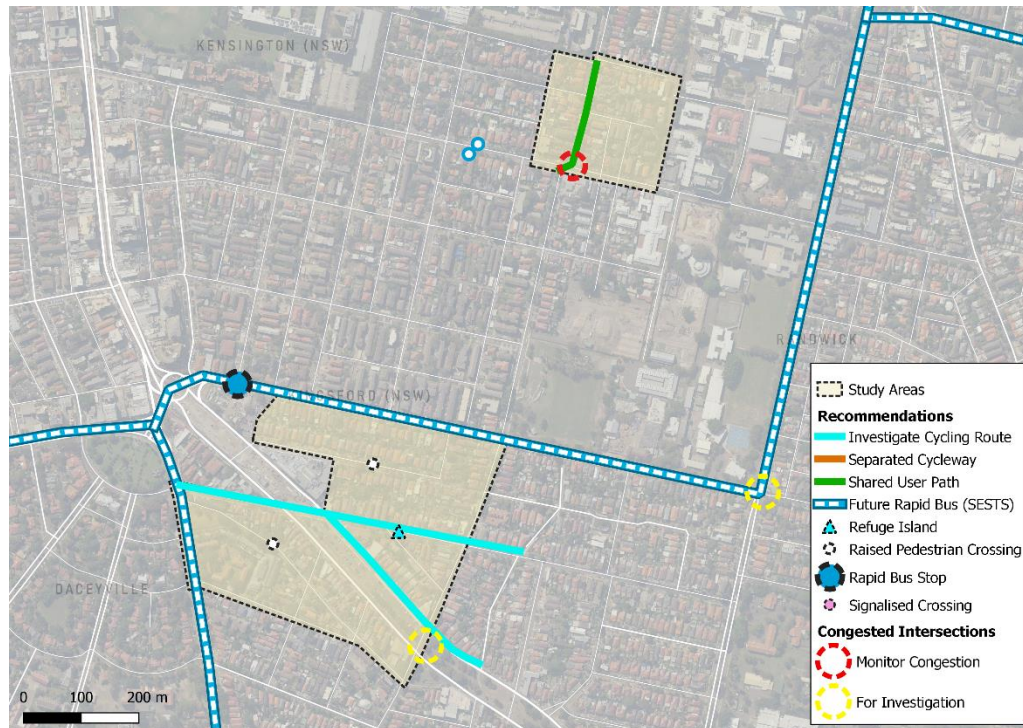


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Figure 12.8: Magill Street and Kingsford South – Recommendations Map



12.7. Parking

Parking Permit Scheme

The *Randwick Comprehensive Development Control Plan (DCP) 2013* notes that the objective of the existing resident parking scheme is to improve the amenity for those residents who do not have access to an off-street parking space and where there is time limited on-street parking in place. Therefore, the DCP states that no parking permits can be issued to residents of new developments that have been approved by Council in accordance with the DCP, ensuring that new developments do not increase congestion and parking demands in busy areas while encouraging developers to adopt sustainable transport options.

It is recommended that this control is maintained in an updated/new DCP following the *Randwick Comprehensive Planning Proposal*.

Parking Rates

It is recommended, that to reduce car dependency and car ownership rates, that the DCP is amended to apply new parking rates to the Randwick Junction Town Centre and HIAs. Table 12.5 shows the proposed minimum parking rates. For consistency and simplicity across the growth areas, these proposed rates are aligned with the *Kensington and Kingsford Planning Strategy* and the *Randwick Junction Town Centre Strategy*. A consistent parking management approach for all locations is advantageous because varied parking rates may result in imbalanced development activity in these areas.

Table 12.5: Car Parking Rates – Proposed

Land Use	Minimum Requirement
Studio	0.2 spaces per dwelling
1-bedroom	0.6 spaces per dwelling
2-bedroom	0.8 spaces per dwelling
3+ bedroom	1.1 spaces per dwelling
Visitor	0.2 spaces per dwelling
Student accommodation	0 minimum
Business premises	1 space per 125m ² GFA
Restaurants or cafes	1 space per 100m ² GFA

Implementation of the proposed parking rates would result in a shift from 1.2 spaces per dwelling (under existing controls) to 0.8 spaces per dwelling under the new controls, based on typical apartment block composition.

Table 12.6 below shows the analysis of the impact that the proposed car parking rates would likely have on the net new residential car spaces provided, and the new AM peak hour traffic generation. Not including visitor parking, the proposed rates' 33 per cent decline in car spaces per dwelling also means a 33 per cent decline in expected traffic generation. The raw figures shown below in the table generally align with the forecast decline in private vehicle trips in the achievement of the 'moderate' scenario mode share targets. This means that a reform to the study areas' car parking rates would be an influential lever in shifting travel mode choices, however it is still critical that the improved active and public transport recommendations are implemented, as new residents will still need high-quality infrastructure and services to travel with other modes.

Table 12.6: Impact of Proposed Car Parking Rates – Car Spaces and Residential Traffic Generation

Study Area	Estimated Net New Car Spaces		Car Spaces Difference	Estimated AM Peak Hour Traffic Generation		Traffic Generation Difference
	Under Existing Controls	Under Proposed Controls		Existing Controls	Under Proposed Controls	
RJ – Residential	360	240	-120	54	36	-18
RJ Commercial (Low)	250	80	-170	200	64	-136
RJ – Commercial (High)	375	120	-255	300 ²	96	-204
West Randwick	187	125	-62	28	19	-9

² This peak generation will be outside of the AM peak as commercial floorspace attracts peak generation at a different time to commuting activity.

Study Area	Estimated Net New Car Spaces		Car Spaces Difference	Estimated AM Peak Hour Traffic Generation		Traffic Generation Difference
	Under Existing Controls	Under Proposed Controls		Existing Controls	Under Proposed Controls	
Kensington North	378	252	-126	57	38	-19
Arthur Street	569	379	-190	85	57	-28
Magill Street	274	182	-91	41	27	-14
Kingsford South	659	439	-220	99	66	-33

Bicycle Parking Rates

Table 12.7 shows the proposed bicycle parking rates, increasing the minimum requirement for residential and commercial developments. It should be noted that while the commercial rate of 1 bike space per 2 car spaces may seem like a significant change from the existing 1 bike space per 10 car parking spaces, it works in tandem with the lower proposed car parking rates.

Table 12.7: Bicycle Parking Rates – Proposed

Land Use	Residents/Employees	Visitors/Customers	End-of-Trip Facilities
Multi-dwelling housing/ residential flat building	1 bike space per unit	1 bike space per 10 units	N/A
Commercial	1 bike space per 2 car parking spaces		Showers/change cubicles: 1 for up to 10 bike parking spaces 2 for 11-20 bike parking spaces 2 additional shower and change cubicles for each additional 20 bike parking spaces

Table 12.8 shows the impact of the proposed bicycle parking rates on bicycle parking provision. Proposed controls will result in 1 bicycle space per dwelling, compared to 0.5 bicycle parking spaces under the existing controls. Independent of the cycling network infrastructure, the proposed bicycle parking rates are more than sufficient to achieve the active transport mode share targets.

Table 12.8: Impact of Proposed Bicycle Parking Rates

Study Area	Estimated Net New Bicycle Spaces		Bicycle Spaces Difference
	Under Existing Controls	Under Proposed Controls	
RJ – Residential	150	300	+150
RJ – Commercial (Low)	25	40	+15
RJ – Commercial (High)	38	60	+22
West Randwick	78	156	+78
Kensington North	158	315	+157
Arthur Street	237	474	+237
Magill Street	114	228	+114
Kingsford South	275	549	+274

Car Share Parking

The *Randwick Integrated Transport Strategy* (RITS) contains the objective to “support an average annual increase of 30 car share parking spaces”. This can be achieved via proactive Council engagement with prospective car share operators to operate using public car parking spaces (e.g. on-street or in Council-managed car parks). Requiring a minimum amount of car share spaces in private developments can be fraught with difficulty because it is not possible to guarantee a car share operator would choose to operate those required spaces, nor is it possible to guarantee those spaces would be operational long-term, creating non-compliance issues. Hence, promotion of car sharing should be focused on the public domain.

Electric Vehicle Charging

In response to Council’s RITS objective to “achieve an ownership rate of 5000 electric or hybrid vehicles by 2031”, it is recommended that the DCP controls applying to Randwick Junction and the five HIAs incorporate new controls encouraging electric vehicle uptake. The Strategy also states that “new residential and commercial buildings” should “require the provision of electric vehicle charging”.

At a high-level, this would require:

1. Space required for the charging infrastructure (e.g. charging machine and cables) attached to a parking space for electric vehicles, whether in the public domain or in private developments.
2. Electricity infrastructure and capacity to support EV charging, whether in the public domain or in private developments.

Randwick City Council, through its land use planning policies, can influence point 1 above to satisfy the spatial demands for EV parking and charging, in the same way that status quo planning policies stipulate the quantum of space that should be set aside for conventional parking. In regard to point 2, while Council can provide guidance on the forms of EV charging infrastructure that should be provided, it is important to recognise that increasing the underlying electricity capacity to support the growth in EV charging is beyond Council’s remit. The discussion and recommendations for EVs provided below therefore recognise these areas of influence and limitations.

Planning for EV charging stations and parking needs to start now as retrofitting this infrastructure in existing developed buildings and sites might be financially or physically prohibitive. A series of considerations when deciding on the nature of EV charging and parking requirements in DCP is presented below to aid the discussion and development of recommendations for EV parking.

Referring back to the proposed minimum car parking rates in this LTS, it is therefore practicable to provide a ratio of EV charging facilities and spaces per the total amount of parking spaces provided. There are also differing requirements for EV charging in terms of time.

Parking spaces used by a high turnover of vehicles (e.g. in retail land uses) would naturally require fast (one to three hours) or rapid (30 minutes) charging facilities to full or 80 per cent charge to support the typical visits of shorter duration. Conversely, EV charging in a residential setting could rely on a conventional electrical connection that can provide overnight (eight hours) charging to full charge, as residents' cars are normally parked for long durations and/ or overnight. These differing requirements clearly influence the specifications for charging infrastructure that could be set out in a DCP.

Other important considerations relate to the specifications for the charging infrastructure and responsibility for electricity supply and maintenance. As there are now different manufacturers of EVs, some of which use slightly different charging adapters from one another, requirements to have EV charging in the DCP should also stipulate that charging structures be of an open standard (non-proprietary) and must be designed to be used with a wide range of EV makes and models. As regards the electricity supply and maintenance, as such charging facilities would be on private land, the responsibility for these should fall with the owner, who are free to on-charge any usage costs to the end user if they so wish.

Based on the preceding discussion, the recommendations for EV parking are:

1. Provide for EV connection capable parking spaces as a set five per cent ratio of the total amount of parking spaces supplied in a development. Where there is a fraction of a EV parking space required, then none would be required.
 - This ratio is in line with the BITRE modelling for new EV sales in Australia by 2025. While growth in EV ownership is predicted by BITRE to increase to 27 per cent of new car sales by 2030, this prediction may change and can be influenced by other uncertainties such as EV purchase price and global crude oil prices. Therefore, it is recommended that Council review this DCP requirement at least once every two years to ensure its currency. However, market demand may also influence developers to provide more electric charging points in car parks than this minimum ratio irrespective of regulatory intervention.
 - This requirement only requires the parking space to be capable of installing an EV charging station, i.e. only the electrical cabling is required. This avoids the situation of trying to estimate which parking spaces in a private residential development require a charging station.
2. DCP requirements for EV charging to include fast or rapid charging stations for retail developments
 - As commercial developments such as retail typically attract a high turnover of vehicles in the car park, the DCP should include requirements for any EV charging provided to be equipped with fast or rapid EV charging to support the typically shorter visitation durations at these locations (60 minutes or less to full charge). Such requirements are not recommended to be extended to residential developments.
3. Adopt open (non-proprietary) charging standards for EV charging.

13. MONITORING FRAMEWORK

13.1. Mode Share Targets

In order for the recommendations to be effective and help achieve the mode share targets, residents' mode share must be regularly evaluated through to 2036. 'Method of travel to work' results from future censuses should be compared against the 2016 baseline provided in this report. For any given study area, the following table provides a template for tracking mode shift against the targets. After the five-year review, Council will better understand how the recommendations have impacted travel behaviour and whether further changes (infrastructure or policy) are required. It should be noted that due to COVID-19 lockdowns in 2021, the Census results are likely to reflect a disproportional number of people working at home. Therefore, it will likely be the 2026 Census that provides better information for monitoring the achievement of the targets.

Table 13.1: Mode Share Monitoring Template

Mode	2016	Moderate	Do Maximum	2021	2026	2031	2036
Public Transport							
Active Transport							
Private Vehicle							
Worked at Home							

Further, for Council to effectively monitor the mode share for each precinct, the ABS mesh block codes that were used to aggregate the mode share data for each HIA and Randwick Junction are provided.

Table 13.2: Mesh Blocks

Randwick Junction	West Randwick	Kensington North	Arthur Street	Magill Street	Kingsford South
10647972000	10648280000	11204913200	10651310000	10648470000	10654980000
10647771000	10647741000	11204750100	10651320000	10648480000	10654990000
10647971000	10647742000	11204749900	11204840600	10645170000	10649670000
11205088700		11204784600	10651350000	10645180000	10649650000
10644320000		10650010000	10654640000	10648410000	10649490000
10655572000		10656220000	10654650000	10648420000	10648270000
10655571000		10644690000	10651300000	10648430000	10641730000
11205088600		11204850800	10651330000		10641690000
11205094000		10647260000	11204840500		10647070000
10655582000		10655070000	10651380000		10646290000
10645050000		10652320000	10651410000		10649350000
10645060000		10650060000	10651400000		
10646800000		10644710000			
10646810000		10650040000			
10648001000		10644650000			
10648002000		10654200000			
10649690000		10644640000			
		10655560000			
		10645250000			

A. BACKGROUND STRATEGY

Policy/ Strategy	Implications for Randwick
Future Transport Strategy 2056 (2018) by Transport for NSW	<p>Future Transport 2056 sets the 40-year vision, directions and outcomes framework for customer mobility in NSW, which will guide transport investment over the longer term. It will be delivered through a series of supporting plans, including the <i>South East Sydney Transport Strategy</i> (see below).</p> <p>In addition, the Greater Sydney Principal Bicycle Network is a key element of this strategy, which outlines what the future proposed cycling network will look like by 2056. For Randwick City, the Principal Bicycle Network includes principal bicycle routes between the Sydney CBD, Randwick and Port Botany and also supporting links which will provide cycleway access between Randwick, Clovelly, Maroubra and Malabar.</p>
South East Sydney Transport Strategy (2020) (SESTS) by Transport for NSW	<p>The SESTS sets out the medium and long term (2026-56) integrated transport and land use plan for South East Sydney; an area encompassing the Eastern Suburbs (including Randwick City) to the south of Bondi Junction, extending north to Central Station, west to the T4 Illawarra rail line and south to include Rockdale and Brighton Le Sands. It is a detailed place-based transport strategy that articulates Future Transport 2056's vision and policies for South East Sydney.</p> <p>The SESTS' vision for the South East incorporates the following elements:</p> <ul style="list-style-type: none"> • Safe, reliable and easy access to a wide range of employment, open space, education, recreation, healthcare and commercial opportunities • Safe, reliable, high quality and appropriate transport networks that meet local freight, passenger and workers' needs • Workplaces in the South East have access to a large and diverse workforce through an accessible transport network • Integrated land use and transport development that supports a mix of housing typologies, jobs and services • Walking, cycling and public transport becomes a mode of choice for those travelling to, from and within the South East • Transport technologies enable residents and workers in South East Sydney to make sustainable transport choices, support economic growth and transport service delivery. <p>The SESTS proposes a preferred integrated transport and land use scenario by 2056 to realise its stated visions. Key transport elements of this scenario include:</p> <ul style="list-style-type: none"> • Metro West extension to Malabar/La Perouse via Randwick and Green Square by 2041 • Metro from Kogarah to Randwick by 2056 • Eight new rapid bus routes connecting destinations such as Coogee, South Coogee, Maroubra, Eastgardens, Randwick, Kingsford and Kensington • Delivery of the Principal Bicycle Network • Sydney Gateway Extension to Port Botany <p>These transport elements are premised on changes to land use in South East Sydney. At a local level, strategic centres, collaboration areas and new Metro stations are a focus for residential and employment intensification. The spatial distribution of this land use and population growth is primarily driven by two new Metro lines (Sydney CBD to La Perouse and Randwick to Kogarah). As such, intensification is expected in the indicative station locations of Randwick, Maroubra Junction, Maroubra, Malabar and La Perouse within the LGA.</p>

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APPENDIX: BACKGROUND STRATEGY

Policy/ Strategy	Implications for Randwick
South East Sydney Bus Changes	The changes to the South East Sydney bus network form part of an integrated network plan developed by Transport for NSW. Including 11 new routes, 23 modified routes, 25 withdrawn routes and a series of routes without changes, the new network provides better east-west and north-south connectivity, connecting passengers to more destinations and providing better integration with other modes of transport.
Randwick Integrated Transport Strategy	<p>The RITS sets out the principles guiding the development of Randwick's multi-modal transport network into the future. These principles are: safe, sustainable, inclusive, collaborative, healthy and balanced. Specific objectives include:</p> <ul style="list-style-type: none"> • Increase active mode share to 35 per cent by 2031, from a 26 per cent baseline. • Reduce the proportion of private vehicle trips from the 2018-19 baseline of 58 per cent to 45 per cent by 2031. • Achieve an ownership rate of 5000 electric or hybrid vehicles by 2031. • Achieve a 50 per cent reduction in casualties on the road network from a 2018 baseline of 269 incidents by 2031. • Effectively manage parking to achieve a maximum 85 per cent peak occupancy for time-limited parking by 2031.
Greater Sydney Region Plan – A Metropolis of Three Cities by the Greater Sydney Commission & Eastern City District Plan	<p>The GSC presents a vision for three, integrated and connected cities that will rebalance Greater Sydney – placing housing, jobs, infrastructure and services within a 30-minute reach of more residents, no matter where they live.</p> <p>Specifically, the following strategic plans and initiatives are relevant to the study are:</p> <ul style="list-style-type: none"> • Randwick Health and Education Precinct. • Eastern economic corridor. • Improving transport, walking and cycling connections across the district. • Capitalising on the potential mass transit solution for the south east of the District. • Delivering integrated land use and transport planning and a 30-minute city.
Vision 2040 Housing Strategy	<p>The Vision 2040 Housing Strategy identifies Randwick City's housing need and housing priorities and takes a balanced approach to meeting housing needs to 2040. The Housing Strategy sets a 6-10 year housing growth target and demonstrates Randwick City's capacity to meet longer term housing needs.</p> <p>Some of the more important parts of the strategy which will have impact on transport and traffic in the LGA are:</p> <ul style="list-style-type: none"> • Changes to subdivision rules. • New low-rise medium density areas. • Identified centres and major sites. • Long term housing growth plans. • Affordable housing plans.
Randwick Community Strategic Plan/ Randwick City Plan	<p>The Randwick City Plan is a 20-year strategic plan for Randwick City. In terms of transport, it identifies the following directions and actions to achieve integrated and accessible transport:</p> <ul style="list-style-type: none"> • Implement a network of safe and convenient walking paths and cycleways. • Encourage use of public transport. • Advocate for light-rail extension to Maroubra. • Implement traffic control strategies to protect residential amenity. • Manage parking to balance convenience against reduced car reliance. • The plan also identifies future transport needs to serve the growing Randwick Collaboration Area

APPENDIX: BACKGROUND STRATEGY

Policy/ Strategy	Implications for Randwick
Randwick Local Environmental Plan (LEP) 2012	<p>The Randwick Local Environmental Plan 2012 promotes sustainable transport, including increased use of public transport, walking and cycling, road access and the circulation network and car parking provision, including integrated options to reduce car use.</p> <p>Randwick City's Integrated Transport Strategy will inform the development of an updated LEP, however, it is expected that the updated LEP will continue to promote increased use of sustainable modes of transport.</p>
Randwick Development Control Plan (DCP) 2012	<p>The current DCP includes planning controls for vehicle and bicycle parking rates and bicycle storage facilities. Most existing car parking rates for different types of land use are minimum requirements.</p>
Sydney Green Grid – Central District Spatial Framework	<p>The Greater Sydney Green Grid is a multi-layered network of Sydney's urban green infrastructure that comprises recreational, transport, ecological and hydrological functions. The Central District Spatial Framework includes the Green Grid as a series of proposed projects and priorities in areas that form part of the Central District, including Randwick City. In Randwick City, the Framework contains the following elements:</p> <ul style="list-style-type: none"> • The Great Coastal walk from South Head to La Perouse • Improved connections from Anzac Parade: Moore Park to La Perouse as it would form a continuous link with the Great Coastal Walk and connects the coast with town centres and regional parks. • Providing green links along streets near beaches in the Eastern Suburbs • Improving east west coastal green links from Randwick to Coogee • Connecting Randwick Barracks and Environment Park to the Great Coastal Walk • Improving east-west coastal green links from Mascot to Maroubra • Providing recreational facilities along Fitzgerald Avenue and Heffron Park, Maroubra
Collaboration Area Randwick Place Strategy – December 2018	<p>This Randwick Collaboration Area Place Strategy was designed by the stakeholders involved in planning for the future of the Collaboration Area. The Randwick Collaboration Area contains the cluster of the University of New South Wales (UNSW), Randwick Hospitals Campus and the surrounding town centres of Kensington to Kingsford, Randwick Junction and the Spot. Specifically, it:</p> <ul style="list-style-type: none"> • establishes a vision for the Randwick Collaboration Area, based on the community's vision expressed in the Eastern City District Plan • identifies impediments and opportunities • sets priorities for the Collaboration Area • identifies actions to deliver the vision. <p>The document defines Randwick as a strategic centre, a health and education precinct as well as a collaboration area based on the A Metropolis of Three Cities. It also outlines the challenges and the vision for the collaboration area. The most relevant of these visions to the current study are:</p> <ul style="list-style-type: none"> • The area will be well connected to rest of Greater Sydney by public transport. • Prioritise walking and cycling connections and vibrant centres of activity, including the night-time economy.

Policy/ Strategy	Implications for Randwick
Smart City Strategy – Towards a smarter Randwick	<p>The Smart City Strategy provides the roadmap for how Randwick City will respond to and take advantage of technological and societal changes, to continue to achieve its vision.</p> <p>This Strategy recognises Randwick City's strengths and sets the direction for smart city action for the next ten years.</p> <p>From a transport perspective the following objectives from the strategy are related to the study:</p> <ul style="list-style-type: none"> • Support and prepare for emerging transport technologies. • Facilitate optimum journeys and reduce traffic congestion in Randwick City through public access to information. • Utilise data to inform decisions on transport planning and infrastructure delivery. • Improve access and mobility for a diverse community.
Local Strategic Planning Statement	<p>Every council in New South Wales is required to prepare a Local Strategic Planning Statement (LSPS) that sets out their 20-year vision for land use, to inform the development of an updated Local Environmental Plan (LEP) and Development Control Plan (DCP). The Draft Randwick City LSPS' transport related actions are summarised as follows:</p> <ul style="list-style-type: none"> • Prioritise and provide improved walking and cycling access and facilities in and around town and neighbourhood centres. • Investigate emerging technologies to improve access to and management of parking. • Collaborate with councils, agencies and industry to understand emerging transport modes and technologies. • Undertake ongoing improvements to the public domain and urban interface around town and neighbourhood centres. • Continue to upgrade and extend the coastal walkway to allow residents and visitors to experience the whole eastern coastal environment.

B. DETAILED TARGETS

B.1. Randwick Junction

Figure B.1 and Figure B.2 below show the mode share and car ownership targets for the Randwick Junction Town Centre.

Figure B.1: Randwick Junction – Mode Share Targets

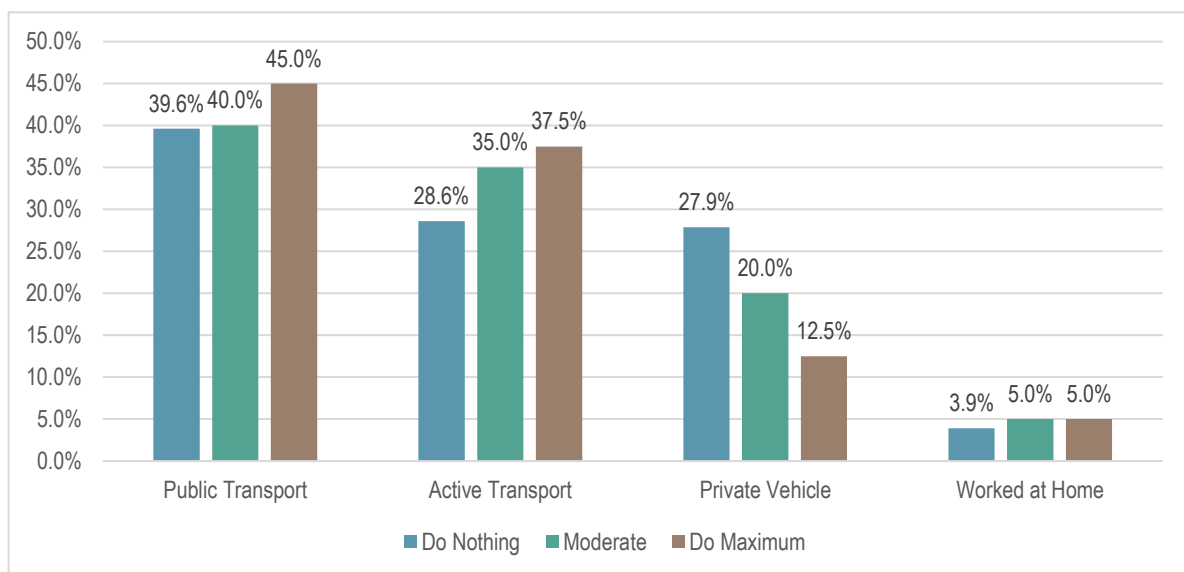
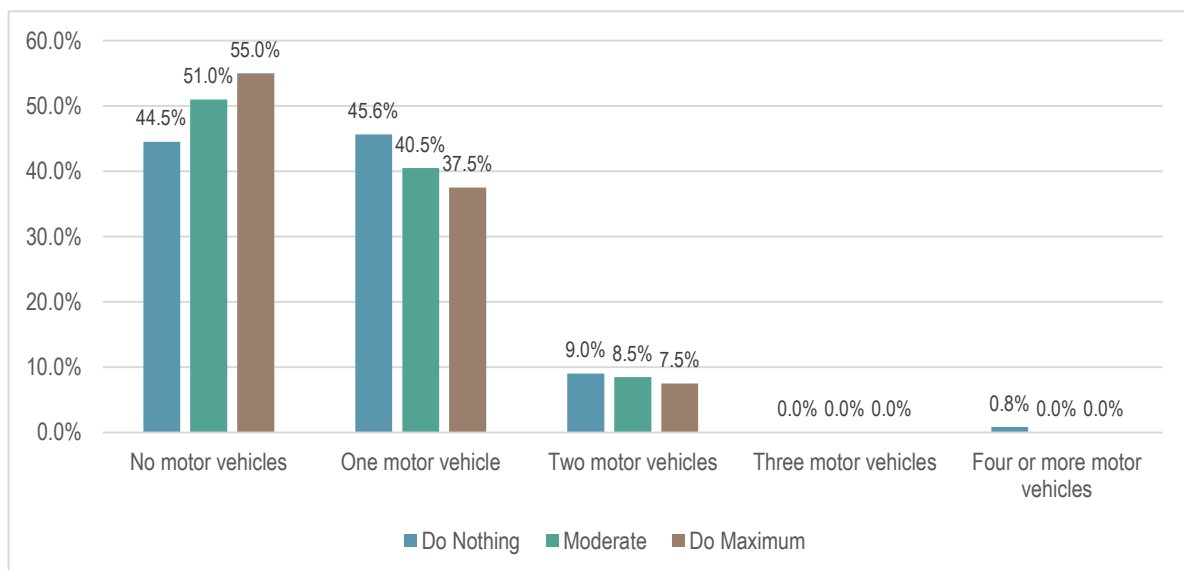


Figure B.2: Randwick Junction – Car Ownership Targets



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B.2. West Randwick

Figure B.3 and Figure B.4 below show the mode share and car ownership targets for the West Randwick HIA.

Figure B.3: West Randwick – Mode Share Targets

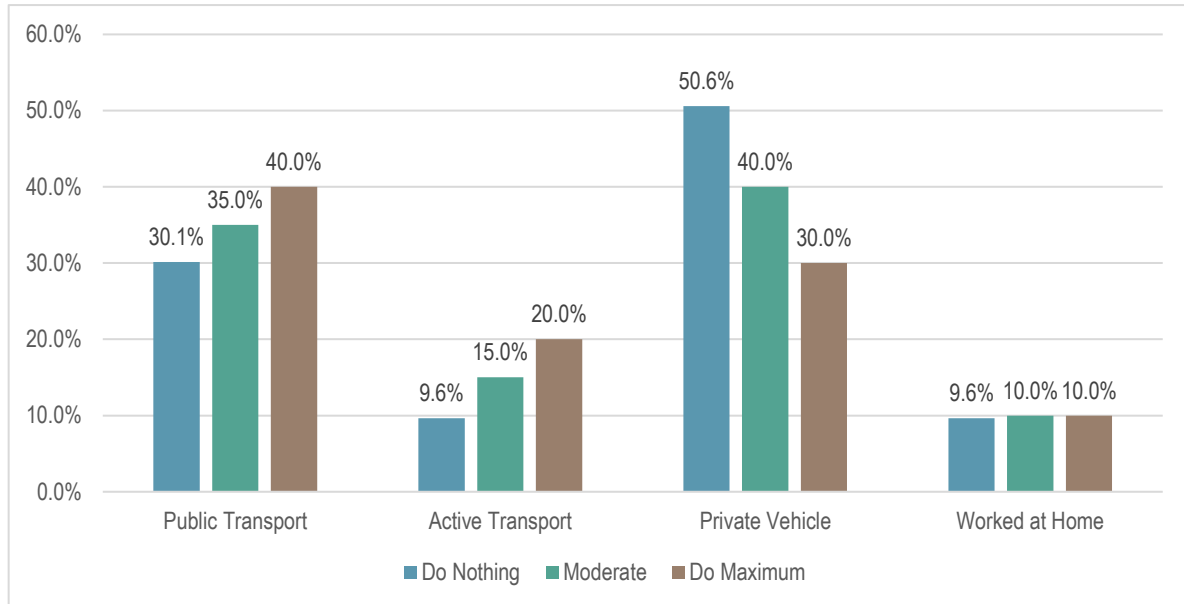
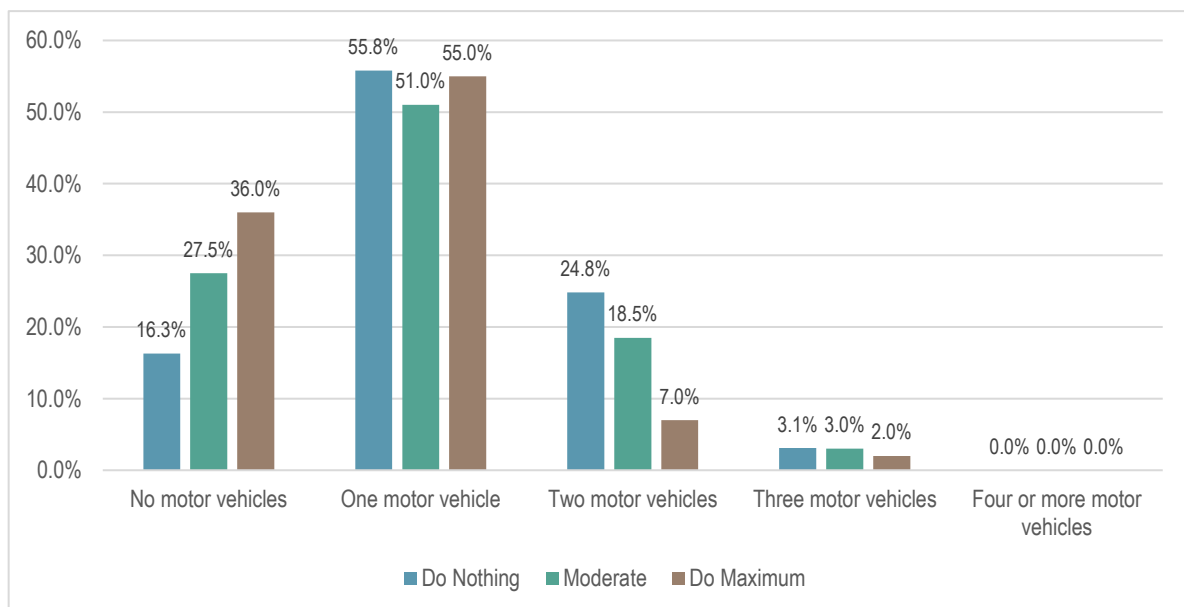


Figure B.4: West Randwick – Car Ownership Targets



B.3. Kensington North

Figure B.5 and Figure B.6 below show the mode share and car ownership targets for the Kensington North HIA.

Figure B.5: Kensington North – Mode Share Targets

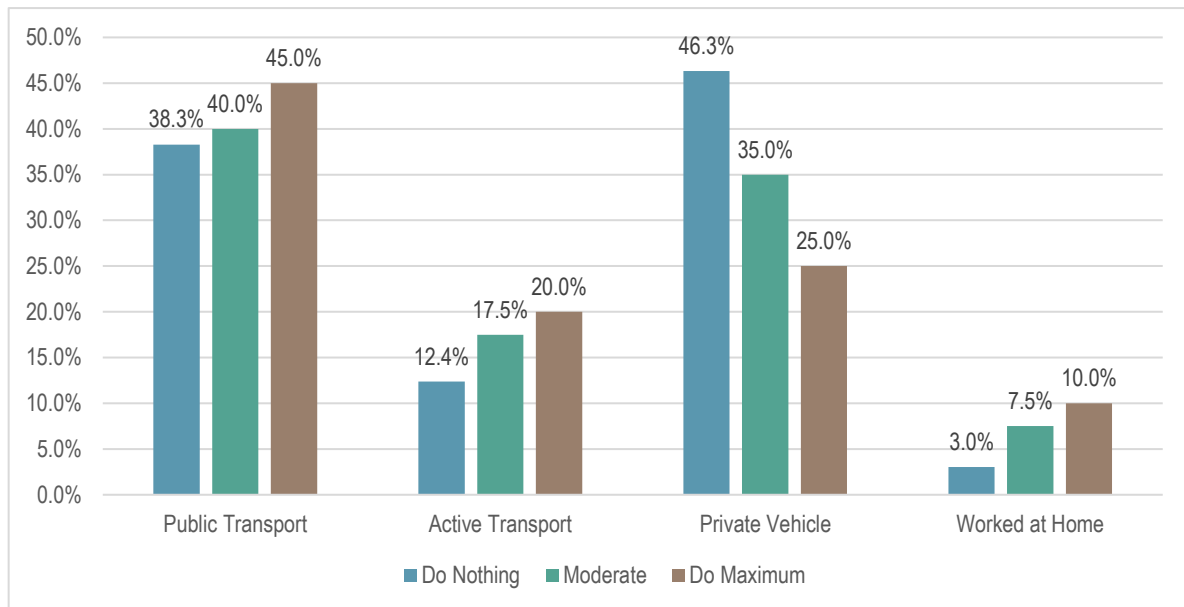
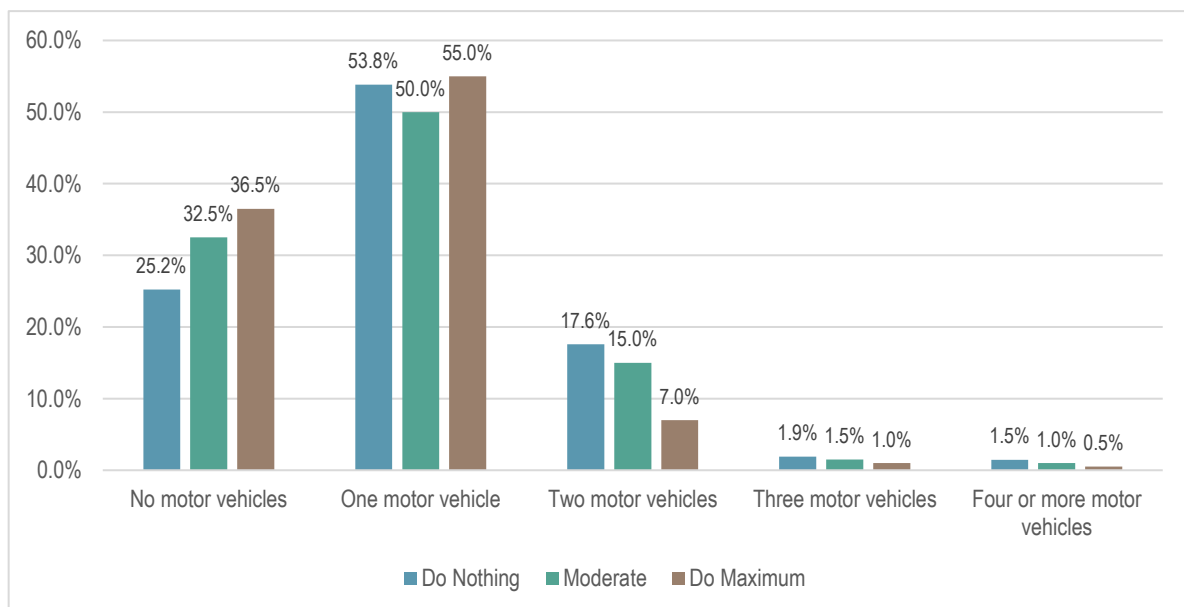


Figure B.6: Kensington North – Car Ownership Targets



B.4. Arthur Street

Figure B.7 and Figure B.8 below show the mode share and car ownership targets for the Arthur Street HIA.

Figure B.7: Arthur Street – Mode Share Targets

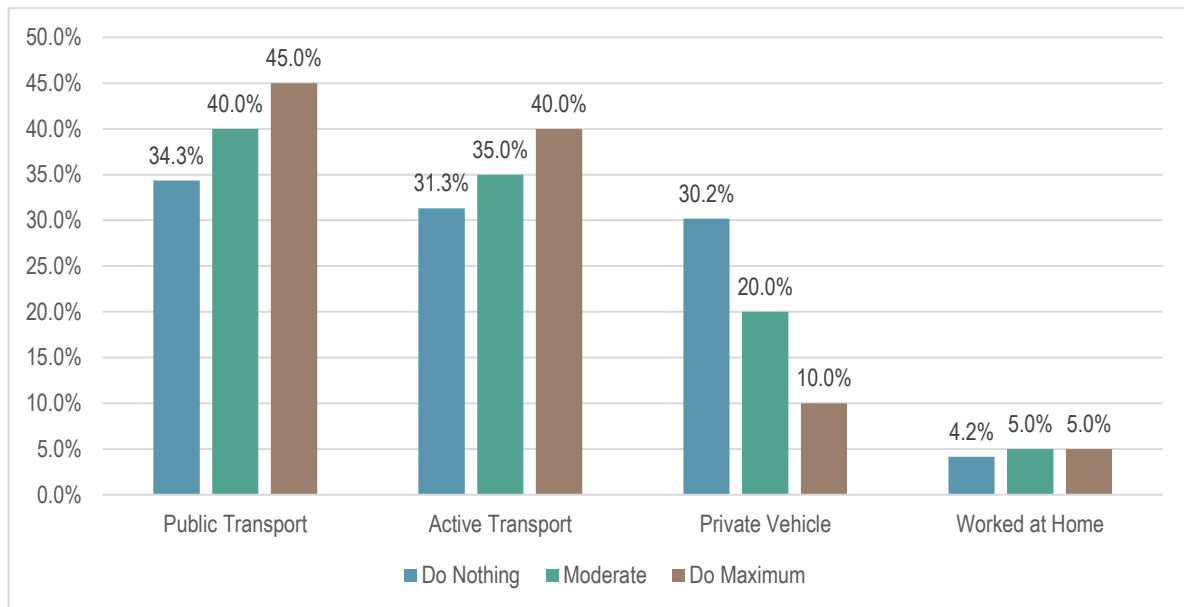
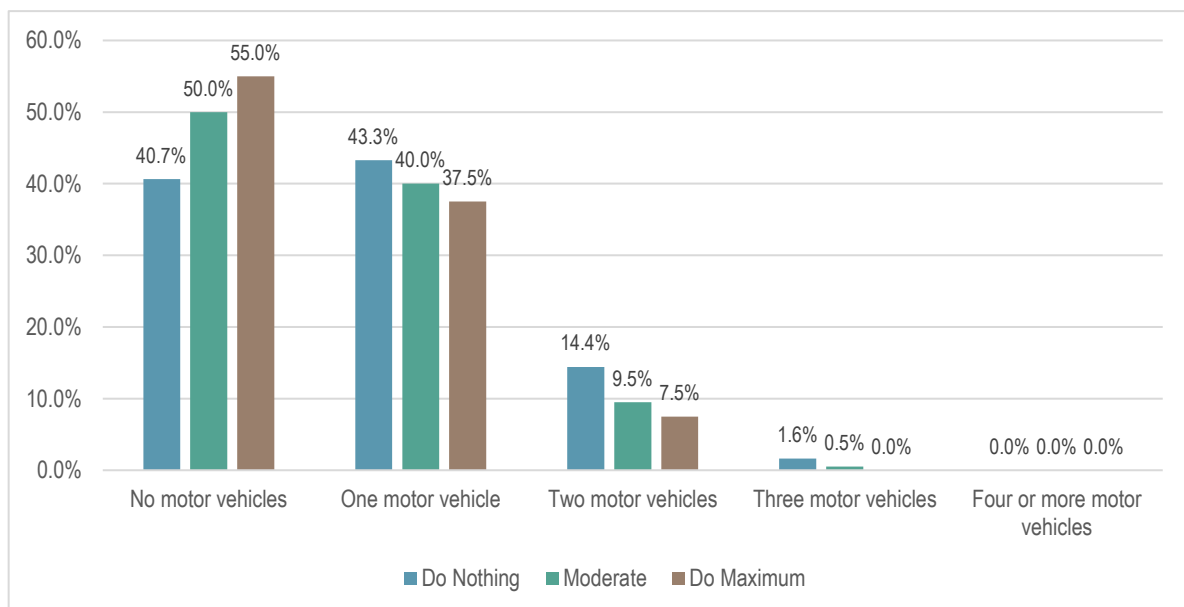


Figure B.8: Arthur Street – Car Ownership Targets



B.5. Magill Street

Figure B.9 and Figure B.10 below show the mode share and car ownership targets for the Magill Street HIA.

Figure B.9: Magill Street – Mode Share Targets

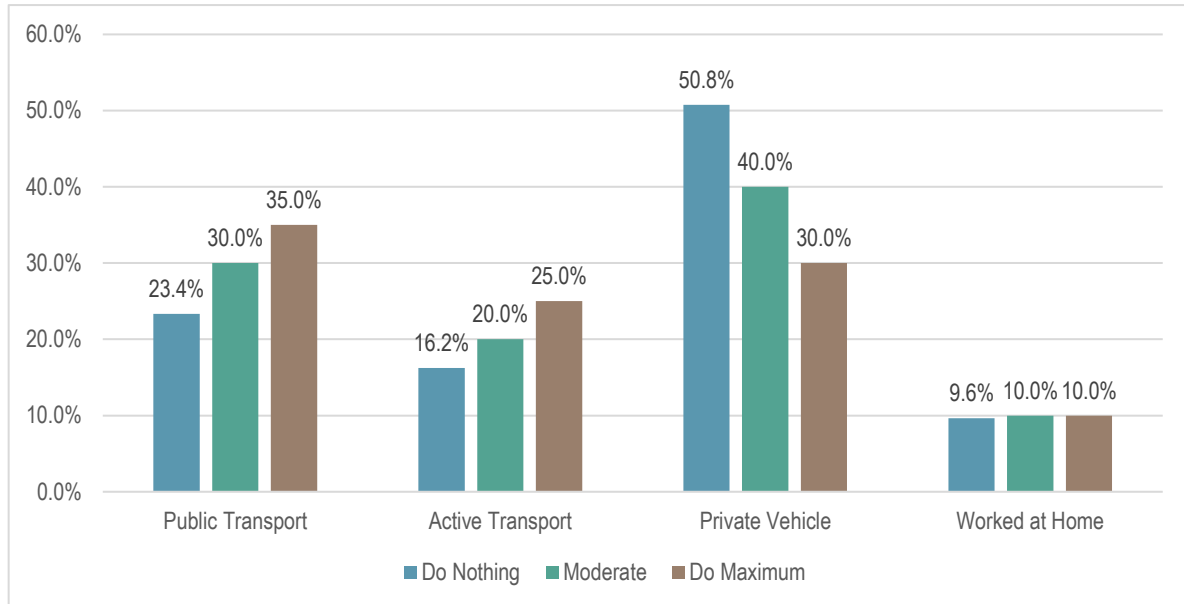
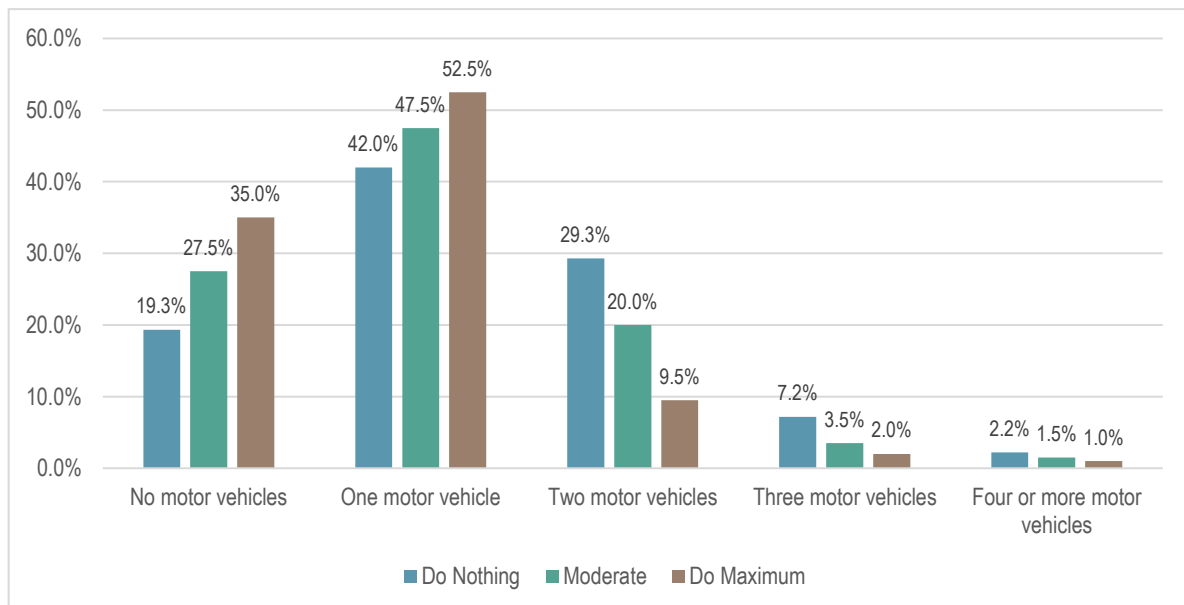


Figure B.10: Magill Street – Car Ownership Targets



B.6. Kingsford South

Figure B.11 and Figure B.12 below show the mode share and car ownership targets for the Kingsford South HIA.

Figure B.11: Kingsford South – Mode Share Targets

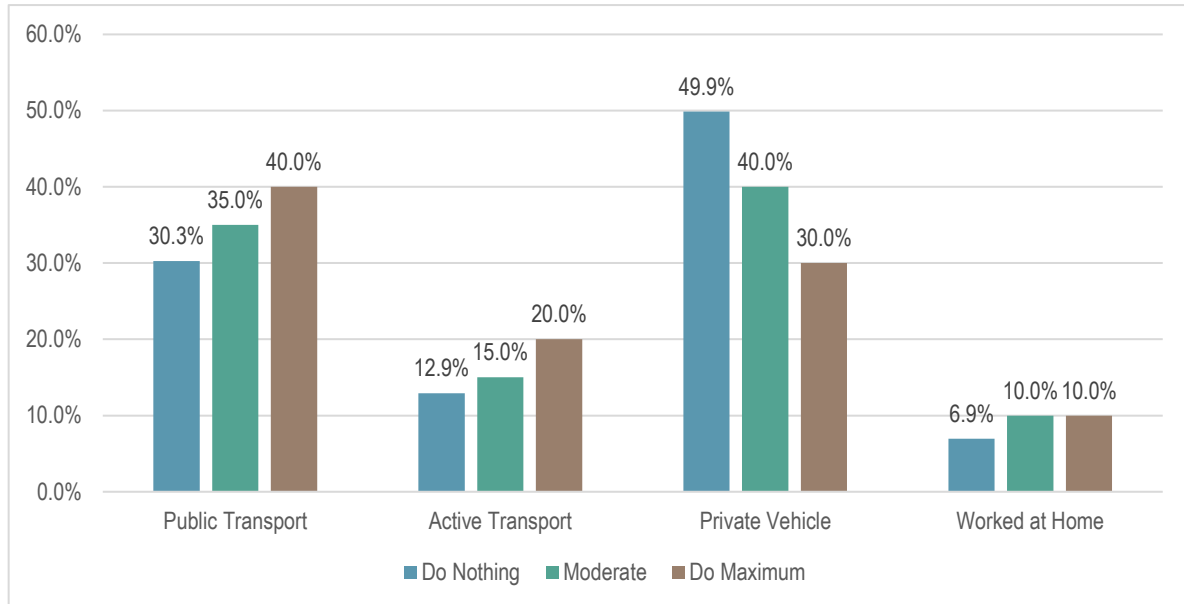


Figure B.12: Kingsford South – Car Ownership Targets

