

Mona Vale Road West Upgrade – McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside

Socio-economic impact assessment



IMPORTANT NOTICE

Document controls

Revision #	Date	Prepared by	Reviewed by	Approved for Issue by
1 – Draft	01.10.15	N. Philps	J. Duncan	A. Louis
2 – Final	11.04.16	N. Philps	N. Philps	A. Louis
3 – Revised final	28.09.16	N. Philps	C. Masters	C. Masters

This report is confidential and is provided solely for the purposes of the proposed Mona Vale Road West Upgrade. This report is provided pursuant to a Consultancy Agreement between SMEC Australia Pty Limited (“SMEC”) and NSW Roads and Maritime Services under which SMEC undertook to perform a specific and limited task for NSW Roads and Maritime Services. This report is strictly limited to the matters stated in it and subject to the various assumptions, qualifications and limitations in it and does not apply by implication to other matters. SMEC makes no representation that the scope, assumptions, qualifications and exclusions set out in this report will be suitable or sufficient for other purposes nor that the content of the report covers all matters which you may regard as material for your purposes.

TABLE OF CONTENTS

- 1. INTRODUCTION 1**
 - 1.1. Background 1
 - 1.2. Report purpose 1
 - 1.3. Assessment methodology 1
 - 1.4. Data sources used to inform assessment 2
 - 1.5. Policy context 2
 - 1.6. Study area 2
 - 1.7. Proposal objectives 5
 - 1.8. Proposal scoping 5
- 2. DESCRIPTION OF THE PROPOSAL 6**
- 3. COMMUNITY ENGAGEMENT 7**
- 4. EXISTING SOCIO-ECONOMIC ENVIRONMENT 8**
 - 4.1. Population and demographics 8
 - 4.2. Future growth 10
 - 4.3. Local and regional context 14
 - 4.4. Amenity and land use 14
 - 4.5. Social infrastructure 17
 - 4.6. Travel behaviour 18
 - 4.7. Business and industry 21
 - 4.8. Tourism 21
 - 4.9. Recreation 22
 - 4.10. Community values 22
 - 4.11. Summary 24
- 5. ASSESSMENT OF SOCIAL AND ECONOMIC IMPACTS 25**
 - 5.1. Construction phase impacts 25
 - 5.2. Operational phase impacts 31
- 6. MITIGATION MEASURES AND STRATEGIES 37**
 - 6.1. Construction phase 37
 - 6.2. Operational phase 38
- 7. CONCLUSION 40**
- REFERENCES 41**

LIST OF FIGURES

Figure 1-1 Proposal study area and regional context4

Figure 4-1 Draft Ingleside Precinct Structure Plan (Department of Planning and Environment, 2016).....12

Figure 4-2 Future development in the area13

Figure 4-3 Land use and social infrastructure16

Figure 4-4 Bus routes and bus stop locations19

ABBREVIATIONS AND ACRONYMS

Abbreviation/ Acronym	Description
ABS	Australian Bureau of Statistics
CIP	Community Involvement Plan
CNVP	Construction Noise and Vibration Management Plan
CTMP	Construction Traffic Management Plan
ENMM	Environmental Noise Management Manual
LGA	Local Government Area
LOTE	Language other than English
REF	Review of Environmental Factors
RFS	Rural Fire Service
SA	Statistical Area
SEIA	Socio-economic impact assessment
SEIFA	Socio-economic Index for Areas
SSC	State Suburb Code
SES	State Emergency Services
TZ	Travel Zone

1. INTRODUCTION

1.1. Background

Mona Vale Road is the main east–west link between the Pacific Highway, Pymble and Pittwater Road at Mona Vale totalling about 20 kilometres in length and carrying about 22,000 vehicles per day (in both directions) through the proposal area. Mona Vale Road is a classified B-double route and a bus route, with heavy vehicles making up about 10 per cent of the total per cent of the total traffic count using the road.

Roads and Maritime propose to upgrade and widen about 3.2 kilometres of Mona Vale Road between McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside, from a two lane (one in each direction) to a four lane (two lanes in each direction) road (the proposal). The existing two lane road has a steep vertical alignment east of Manor Road with prominent sandstone cuttings on both sides of the road. Two lanes in each direction are currently provided along Mona Vale Road at either end of the proposal area.

As a result of the steep grades, heavy vehicle use, and lack of overtaking opportunities, road users frequently experience major traffic delays both during and outside of peak periods, as traffic flow behind heavy vehicles is slowed.

The proposal is needed to reduce congestion and improve road safety. In addition, the concept design provides for anticipated future growth in the region.

The proposal is stage three of a broader upgrade of Mona Vale Road between Terrey Hills and Mona Vale. Stage one involved improving the Mona Vale Road / Ponderosa Parade / Samuel Street intersection at Mona Vale and was completed in late 2014. Stage two is the Mona Vale Road East upgrade which involves upgrading 3.2 kilometres of Mona Vale Road from two lanes to four lanes between Manor Road/Lane Cove Road, Ingleside and Foley Street, Mona Vale.

1.2. Report purpose

This socio-economic impact assessment (SEIA) has been prepared to inform the Review of Environmental Factors (REF) for the Mona Vale Road West Upgrade. The assessment is required by Roads and Maritime to ensure all potential impacts have been adequately considered.

Socio-economic impact assessment involves the analysis, monitoring and management of the social and economic consequences of development. It involves identifying and evaluating changes to or impacts on, communities, business and industry that are likely to occur as a result of a proposed development, in order to mitigate or manage impacts and maximise benefits.¹

This desktop assessment describes the existing socio-economic environment for the proposal, providing a profile of the geographic localities, social groups and businesses that have the potential to be affected by the proposal. It identifies potential socio-economic impacts from the proposal, during construction as well as operation and provides measures to mitigate any potential negative impacts and enhance potential benefits.

1.3. Assessment methodology

This desktop assessment has been prepared in accordance with the Roads and Maritime *Environmental Impact Assessment Practice Note on Socio-economic assessment* (EIA-05) (the Practice Note). With reference to Table 1 of the Practice Note, the proposal is expected

¹ Roads and Maritime (2013) *Environmental Impact Assessment Practice Note on Socio-economic assessment* (EIA-05).

to have several impacts (scale) of a moderate nature or duration (magnitude). Consequently, the proposal has been assessed at a “moderate level”.

Preparation of this assessment has involved:

- Preparing a profile of demographic characteristics, community infrastructure and businesses that may be influenced by the proposal
- Analysis stakeholder issues relating to potential social and economic impacts
- Identifying the scope of the likely changes and social and economic impacts that may occur as a result of the proposal
- Conducting an analysis of potential negative and positive impacts, both direct and indirect, during construction and operation
- Identifying safeguards and management measures to mitigate the impacts during construction and operation.

1.4. Data sources used to inform assessment

Information used to inform this study has been obtained from a range of sources detailed in footnotes and the references section of this report. These include:

- State and local government reports, plans, policies and web pages
- Technical consultancy reports and plans
- Australian Bureau of Statistics (ABS) 2011 Census of Population and Housing
- NSW Department of Planning and Environment population and dwelling projections
- Department of Employment Small Area Labour Markets, June Quarter 2016
- Outcomes of community consultation undertaken by Roads and Maritime for this proposal.

1.5. Policy context

The *Environmental Planning and Assessment Act 1979* requires consent authorities to consider the social and economic impacts in the locality (s79C(1)(b)) and also the public interest (s79C(1)(e)) in the assessment of development proposals.

In addition to the Practice Note, this assessment has been guided by a range of policies and plans prepared by local, State and Federal government agencies. Key planning and policy documents relevant to this assessment include:

- *NSW Long Term Transport Master Plan* (Transport for NSW, 2012)
- *A Plan for Growing Sydney* (Department of Planning and Environment, 2014)
- *Northern Beaches Transport Action Plan* (Transport for NSW, 2014)
- *Shaping Our Future* (Shore Region of Councils, 2010)
- *Mona Vale to Macquarie Park Corridor Strategy* (Roads and Traffic Authority, 2009)
- *Connections: Towards 2017* (Transport for NSW, 2014a)
- *Pittwater Council Social Plan 2012 – 2016* (Pittwater Council, 2012a)
- *Pittwater Walks and Rides Strategy Masterplan* (Pittwater Council, 2012b).
- *Warringah Council Recreation Strategy 2009* (Warringah Council, 2009)
- *Warringah Bike Plan* (Warringah Council, 2010).

1.6. Study area

The proposal is located within the Pittwater and Warringah local government areas (LGAs) on Sydney’s Northern Beaches.² The proposal includes 3.2 kilometres of improvements

² In May 2016, the NSW Government announced the amalgamation of clusters of LGAs across the State.

Pittwater, Warringah and Manly LGAs were selected to be amalgamated as the Northern Beaches LGA. Where available data and reports for the new Northern Beaches LGA is used. However in many cases new reporting is

along Mona Vale Road between McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside. The proposal runs through the suburbs of Terrey Hills and Ingleside. The suburbs of Terrey Hills and Duffys Forest are primarily accessed via Booralie Road and the intersection of Mona Vale Road and McCarrs Creek Road, at the western end of the proposal.

The section of Mona Vale Road within the proposal area is primarily within a bushland setting with Ku-ring-gai Chase National Park adjacent to the road corridor to the north and Garigal National Park adjacent to the road corridor to the south. Other small patches of bushland (not forming part of a national park) occur along the northern side of Mona Vale Road between Kimbriki Road and the Baha'i Temple.

The Kimbriki Resource Recovery Centre is located to the south of Mona Vale Road off Kimbriki Road and the Baha'i Temple is located to the north of the road between Addison Road and Powder Works Road. Other land uses in the vicinity of the proposal area include the Monash Country Club near the Powder Works Road intersection, the Ingleside Baptist Church located off Powder Works Road, residential development in Terrey Hills and also on the northern side of the road at Addison Road and Tumburra Street along with commercial and business development, an area informally known as Wirreanda Valley.

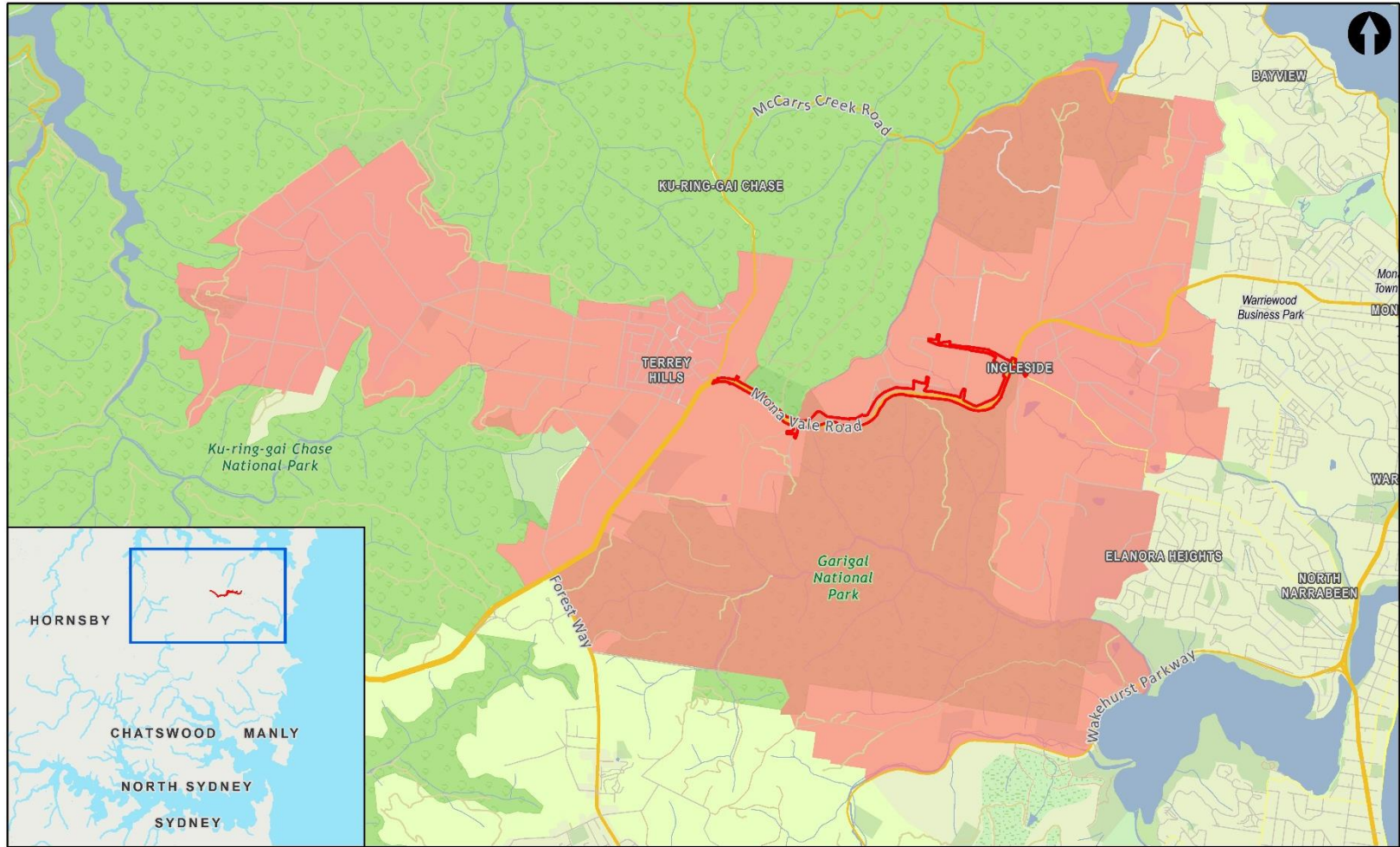
For the purpose of this assessment, the study area has been defined as the area likely to be affected by the proposal. In defining this area consideration has been given to:

- The location of the proposed upgrade works
- The location of potential ancillary sites
- The nature of existing surrounding development
- Local travel patterns and transport routes
- Local areas of recreation and open space
- The location and distribution of community facilities and services and their accessibility
- Retail and employment areas.

In practice it is clear that there are several scales of potential impact, ranging from the immediate impact along Mona Vale Road, the Terrey Hills, Duffys Forest and Ingleside suburbs, the Warringah and Pittwater LGAs or the wider Northern Beaches region. While some impacts are likely to be experienced in the immediate locality of the proposed upgrade, some impacts and benefits may extend across the LGA or the wider Northern Beaches community.

The study area has been defined based on the suburbs (state suburb code (SSC)) of Terrey Hills, Duffys Forest and Ingleside (refer Figure 1-1). These suburbs are considered to represent the directly affected area of the proposal.

not yet available, in which case the data relevant to the Pittwater and Warringah LGA is used in the first instance as the proposal falls within these former jurisdictions.

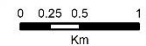


- Proposal Boundary
- SEIA investigation study area

Upgrade of Mona Vale Road between McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside 30011633

Proposal study area and regional context Fig. 1-1

(Source: Vector backdrop – Roadnet © Map Data Services 2015, Nearmap 2015)



Location: I:\projects\30011633 - Mona Vale Rd REF\008 DATA\05 GIS\Maps\SEIA\WVRW_Figure1-1.mxd

Last updated by: DW13219 on 17/10/2016 at 14:26

Figure 1-1 Proposal study area and regional context

1.7. Proposal objectives

Roads and Maritime has established the following objectives for the proposal:

- Provide a safe road environment that reduces the frequency and severity of crashes
- Reduce congestion on Mona Vale Road between McCarrs Creek Road and Powder Works Road during peak periods
- Reduce delays on Mona Vale Road between McCarrs Creek Road and Powder Works Road during peak periods
- Deliver infrastructure that provides effective network performance for at least the minimum term of ten years after opening
- Improve access to bus services. Strengthen integration between land use and all other modes of road use
- Contribute to safe and effective pedestrian and cycling infrastructure, that supports local and State Government initiatives for active transport
- To provide the best economic outcome and deliver a positive benefit-cost ratio
- Minimise impacts to the local environment including adjacent bushland, whilst enhancing urban design and transport outcomes.

1.8. Proposal scoping

The Practice Note includes an initial scoping checklist to be used as a starting point for investigation of potential social and economic impacts of the proposal. This initial scoping exercise suggests that key social and economic issues of relevance for the proposal are likely to include:

- Changes to the character of the local area
- Changes in the way people access and use local facilities
- Changes in travel patterns for motor vehicle users, cyclists and pedestrians
- Changes to the amenity for some residents, including visual and landscape, noise, light spill, privacy and activity levels.

2. DESCRIPTION OF THE PROPOSAL

The proposal generally includes:

- Widening to provide an additional two traffic lanes (one in each direction) on Mona Vale Road between McCarrs Creek Road and Powder Works Road
 - Widening on the southern side of the existing carriageway only from McCarrs Creek Road to Kimbriki Road
 - Deviation of the entire dual carriageway from the current road to the north of a rock outcrop between Kimbriki Road and Tumburra Street
 - Widening on the northern side of the existing carriageway only from about 700 meters west of Tumburra Street to Addison Road
 - Widening on both sides of the existing carriageway from Addison Road to Powder Works Road.
- Provision of a new local road connection from Addison Road to Tumburra Street/ Wirreanda Road
- Provision of a new intersection at Tumburra Street and Wirreanda Road and widening between the intersection and Mona Vale Road
- Provision of a new traffic signal intersection at Kimbriki Road including additional dedicated turning lanes and a truck climbing lane
- Grade separation of the intersection with Tumburra Street under Mona Vale Road including on and off ramp connections
- Construction of retaining walls and/or sandstone cuttings at various locations along the alignment
- Relocating utilities where required, including the provision of a six metre wide utility corridor to the north of Mona Vale Road (proposed and existing) from Kimbriki Road to Addison Street
- Constructing a multi-use path, about three metres wide (sealed or concreted) on the northern side of Mona Vale Road following the utility corridor or road verge for the full upgrade length
- Provision of fauna connection measures, comprising:
 - Rope bridge linking west of Kimbriki Road to Ku-ring-gai Chase National Park
 - Fauna bridge linking Ku-ring-gai and Garigal National Park
- Upgrade of the existing pavement and cross drainage systems including the construction, reconstruction and extension of pavement drainage lines
- Landscaping over the length of the proposal
- Installation of traffic monitoring cameras at all signalised intersections to assist with traffic management.

3. COMMUNITY ENGAGEMENT

This chapter summarises community engagement undertaken for the proposal to date. Community engagement will continue throughout the life-cycle of the project. Further detail can be found in Chapter 5 of the REF and the *Mona Vale Road East and West Upgrades Community Consultation Report*.³

Stakeholder engagement is an essential element of understanding stakeholder and community values, concerns, potential impacts, hopes, fears and opportunities in relation to a project. A range of stakeholders have been consulted to date for the proposed Mona Vale Road upgrade projects, using a variety of engagement methods.

The following key stakeholders have been consulted to date:

- Pittwater Council
- Warringah Council
- Department of Planning and Environment
- Ingleside Community Reference Group for Department of Planning
- Office of Environment and Heritage
- National Parks and Wildlife Service
- Transport for NSW
- Bicycle NSW
- Utility authorities.

In October 2014 a community update describing the proposal was distributed to the local community and submissions were sought up until 14 November 2014. Three community information sessions were held where the project team was available to answer questions and receive feedback on the proposal.

Issues raised by the community during the public display period include:

- Pedestrian and cyclist facilities and safety
- Traffic capacity
- Road safety
- Noise and vibration
- Fauna and flora impacts
- Construction staging and timing
- Facilities for horse riders.

These issues have been considered in the design development and REF where relevant in order to improve the proposal outcomes. These issues will also be used to inform the identification of community values and the impact assessment.

At the time of preparation of this report, no consultation with potentially affected properties had been carried out to inform this assessment. Roads and Maritime proposes to undertake consultation with the community and stakeholders prior to and during the public display of the REF and during detailed design.

³ Roads and Maritime (2015) *Mona Vale Road East and West Upgrades Community Consultation Report*.

4. EXISTING SOCIO-ECONOMIC ENVIRONMENT

In order to consider the potential social impacts of the proposed upgrade of Mona Vale Road West between McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside, it is important to understand the social profile of the area in which it would be built and the demographic characteristics of people in the area. The following community profile is based on data from the ABS 2011 Census of Population and Housing unless otherwise indicated. The study area has been profiled by compiling data from the suburbs (SSC) Terrey Hills, Duffys Forest and Ingleside. Comparisons are made with the population of the wider Warringah and Pittwater LGAs and the Greater Sydney Statistical Area (1GSYD) (Greater Sydney).

4.1. Population and demographics

Population

- In 2011 the population of the study area was 4,543. Pittwater LGA was 57,155 and Warringah LGA was 140,741
- The estimated residential population for Pittwater was 64,189 and 156,693 for Warringah at 30 June 2015⁴
- Between 2009 and 2014, the Pittwater LGA population experienced an annual growth of 2.06 per cent⁵ and Warringah LGA experienced an annual growth of 1.75 per cent
- The proportion of population aged 14 or younger was 20.9 per cent in the study area, 19.99 per cent in the Pittwater LGA, 20.11 per cent in the Warringah LGA and 19.2 per cent in Greater Sydney
- The proportion of population aged 65 and above was 15.36 per cent in the study area, 17.03 per cent in the Pittwater LGA, 15.45 per cent in the Warringah LGA and 12.85 per cent in Greater Sydney
- The study area had a lower incidence of indigenous population (0.35 per cent) in comparison to both the Pittwater LGA (0.44 per cent) and Warringah LGA (0.43 per cent). Greater Sydney had the highest incidence of indigenous population at 1.25 per cent.
- The overseas born population in the study area (21.24 per cent) was slightly lower than that of the Pittwater LGA (22.69 per cent) and Warringah LGA (28.16 per cent), but all were considerably lower than that of Greater Sydney (34.24 per cent)
- The study area had a lower incidence (6.03 per cent) of language other than English (LOTE) spoken at home compared to Pittwater LGA (23.08 per cent) and Warringah LGA (41.31 per cent). All areas had considerably lower rates than that of Greater Sydney (67.22 per cent)
- In 2011, 3.72 per cent of the population in the study area had a need for assistance⁶, similar to Pittwater LGA (3.19 per cent), Warringah LGA (3.67 per cent) and Greater Sydney (4.38 per cent).

Housing

- The study area had 95.38 per cent of dwellings in separate houses, compared to 80.05 per cent in the Pittwater LGA, 56.65 per cent in the Warringah LGA and 68.60 per cent in Greater Sydney. By contrast, the study area had a below-average share (2.17 per cent) of medium density dwellings (semidetached, row, terrace, townhouses) compared to that

⁴ Profile.id.com.au for Pittwater and Warringah LGAs.

⁵ NSW Planning and Environment, *State and Local Government Area Population Projections, 2014*

⁶ Need for assistance is defined by the ABS as “people with a profound or severe disability in one or more of the three core activity areas of self-care, mobility and communication, because of a disability, long term health condition (lasting six months or more) or old age.

of the Pittwater LGA (19.42 per cent), Warringah LGA (36.53 per cent) and Greater Sydney (30.94 per cent)

- The study area had a higher average household size (3.03) than the Pittwater LGA (2.7), Warringah LGA (2.7) and Greater Sydney (2.7)
- In 2011, the average monthly mortgage repayments of households in the study area were significantly higher (\$4,436.33) than that of the Pittwater LGA (\$3,000), Warringah LGA (\$2,600) and Greater Sydney (\$2,167)
- Average weekly rent was low in the study area (\$376.67) compared to that of the Pittwater LGA (\$498), Warringah LGA (\$440). Greater Sydney had the lowest average weekly rent at \$351.

Travel patterns

- Vehicle ownership: 2.31 per cent of households in the study area had no vehicle, compared with 4.09 per cent in the Pittwater LGA, 7.86 per cent in the Warringah LGA and 12.11 per cent in Greater Sydney. Average motor vehicles per dwelling were highest for the study area at 2.47 vehicles compared to Pittwater LGA (1.9 vehicles), Warringah (1.7 vehicles) and Greater Sydney (1.6 vehicles). The relatively high vehicle ownership in the study area reflects its location and lack of public transport options
- Travel to work by car: 60.72 per cent of the study area's population travelled to work by car as a driver, compared to 60.89 per cent in the Pittwater LGA, 56.79 per cent in the Warringah LGA and 53.65 per cent in Greater Sydney. 3.69 per cent travelled to work by car as a passenger, compared to 3.72 per cent in the Pittwater LGA, 4.4 per cent in the Warringah LGA and 4.53 per cent in Greater Sydney
- Active transport: 3.73 per cent of the study area population travelled to work by walking or cycling; this compared to 3.69 per cent in the Pittwater LGA, 4.16 per cent in the Warringah LGA and 4.86 per cent in Greater Sydney.

Economic

- In 2011, the individual statistical areas within the study area had a median weekly household income range of \$1,725 to \$2,611, compared to \$1,819 for the Pittwater LGA, \$1,722 for the Warringah LGA and \$1,447 for Greater Sydney
- The Socio-economic Index for Areas (SEIFA) relative measure of aspects of socio-economic advantage and disadvantage for Pittwater LGA was 1114 in 2011, one of the highest ranking areas in NSW. The index of relative socio-economic advantage and disadvantage in 2011 for the Warringah LGA was 1095. The NSW average is 1000. The three suburbs of the local area had relative SEIFA scores ranging from 1102 to 1139. Higher scores indicate a relative lack of disadvantage and greater advantage in general.

Employment

- In 2011, the study area had the lowest incidence of unemployment at 3.0 per cent, compared to 3.5 per cent in the Pittwater LGA, 3.48 per cent in the Warringah LGA and 5.74 per cent in Greater Sydney
- At June 2016, Terrey Hills - Duffy Forest had an unemployment rate of 2.0 per cent, Warringah LGA 3.4 per cent and Pittwater 2.4 per cent⁷
- Employment in professional, scientific and technical services comprised the highest proportion of the Pittwater LGA's workforce (12.03 per cent), followed by construction (10.3 per cent) and healthcare and social assistance (10.24 per cent). Professional, scientific and technical services were also the highest proportion in the Warringah LGA workforce (12.01 per cent), followed by healthcare and social assistance (10.31 per cent)

⁷ Department of Employment, *Small Area Labour Markets June Quarter 2016*

and retail trade (10.28 per cent). Healthcare and social assistance led Greater Sydney's workforce (10.9 per cent), followed by retail trade (9.83 per cent) and professional, scientific and technical (9.6 per cent).

4.2. Future growth

Draft Ingleside Structure Plan

The Department of Planning and Environment and Pittwater Council commenced the Ingleside Precinct Planning Project in July 2013 to investigate the development potential of Ingleside. The intent is to identify opportunities for development in the area, taking into account the environment, economic viability, housing types, community consultation and infrastructure needs⁸ (Pittwater Council, 2015). The precinct comprises around 700 hectares of land and includes a part of the proposal study area. Currently, an additional 3,500 dwellings are envisaged within the Ingleside precinct and it is likely that a portion of these dwellings will be accommodated within the study area. The draft Structure Plan includes areas for low and medium density residential development as well as rural lots and environmental living. New open space, a school and community facilities are also proposed (refer Figure 4-1).

Based on the average number of people per household in the Pittwater LGA in 2011, the Ingleside Release Area could introduce around 8,100 new residents into the community, contributing to traffic volumes and cycle and pedestrian volumes.

A timeframe for the gazettal of the final Precinct Plan has not been announced. It is likely that any lands that are released for development would be done so in stages over a number of years. It is likely that South Ingleside (to the south of Mona Vale Road) would be one of the first areas released.

Future growth

The population of the Northern Beaches LGA is projected to increase by 0.7 per cent annually from 251,700 to 297,950 in 2036.⁹ The projected implied dwellings will increase from 103,800 in 2011 to 126,200 in 2036.¹⁰

Part of this growth in both LGAs will be accommodated in the study area, in the Ingleside Release Area (refer Figure 4-2).

The proposal has been designed with consideration for the proposed future land release and the traffic modelling undertaken as part of the proposal impact assessment has included full development of the Ingleside Release Area in the 2036 ultimate development scenario.

Once completed, the proposal is also likely to contribute to the improved attractiveness of the new precinct for future development opportunities.

Warringah Council's Community Strategic Plan¹¹ identifies that demand for access to and from the Northern Beaches is expected to continue to increase, putting more strain on transport infrastructure, contribution to higher levels of congestion, longer journey times and peak periods. Together these pressures can be expected to place limits on employment growth and to deliver the services needed across the wider community, with corresponding impacts on the quality of life in the community.

⁸ Pittwater Council (2015) Greenfield release area – Ingleside, accessed from <http://www.pittwater.nsw.gov.au/ingleside/about> on 18 February 2015.

⁹ NSW Planning and Environment, *State and Local Government Area Population Projections, 2016*.

¹⁰ NSW Planning and Environment, *State and Local Government Area Dwelling Projections, 2016*.

¹¹ Source: <https://eservices1.warringah.nsw.gov.au/ePlanning/live/Public/xc.community/Pressures.aspx>

Bureau of Transport Statistics projections project that by 2036, there will be 3,598 jobs located in the travel zones TZ2171, 2170 and 2012 that most closely align with the study area for this paper, a 30 per cent increase from 2,731 in 2011.¹²

¹² Population, Employment and Workforce Forecasts – September 2014, accessed on 13 October 2015 from

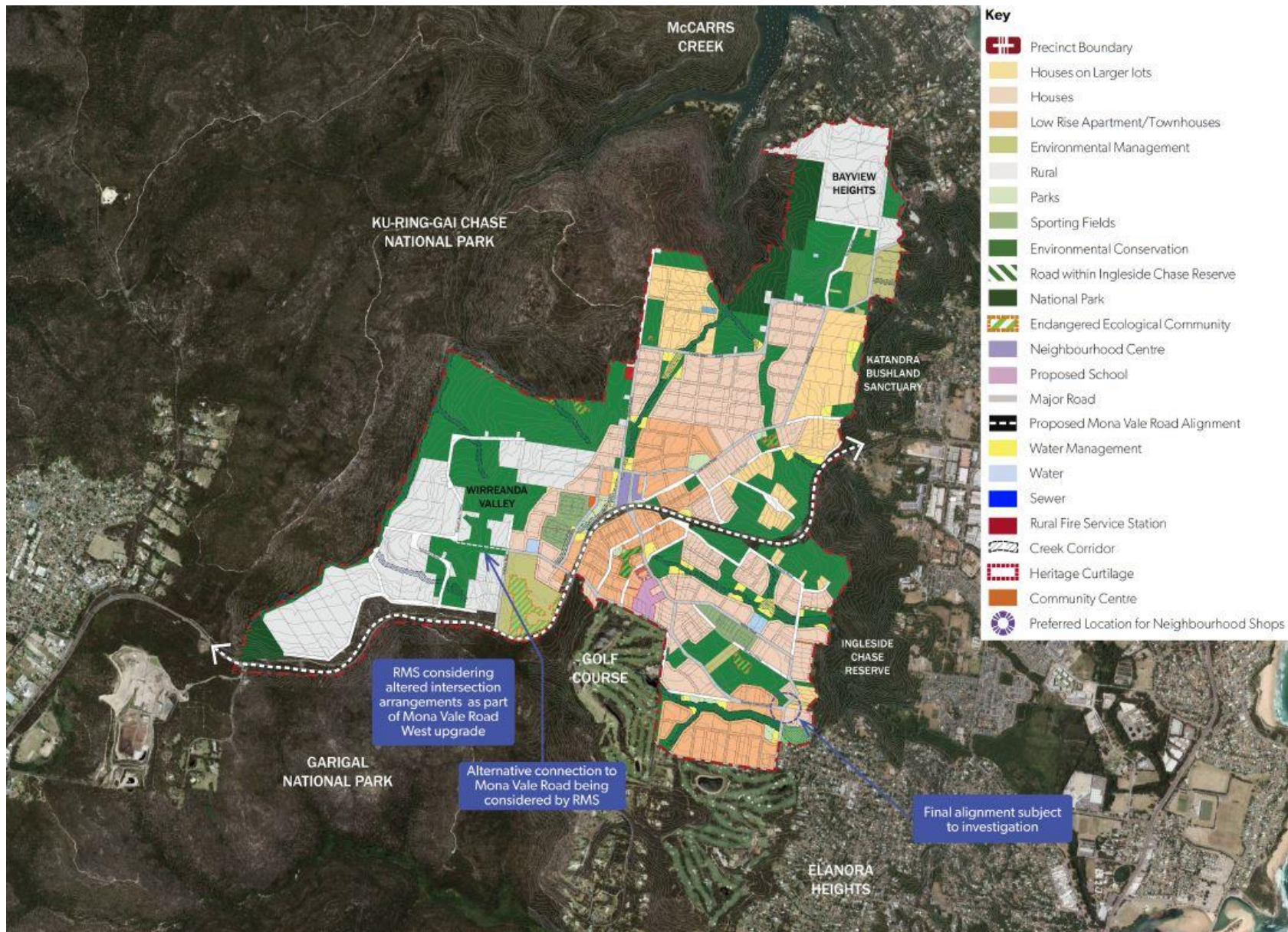
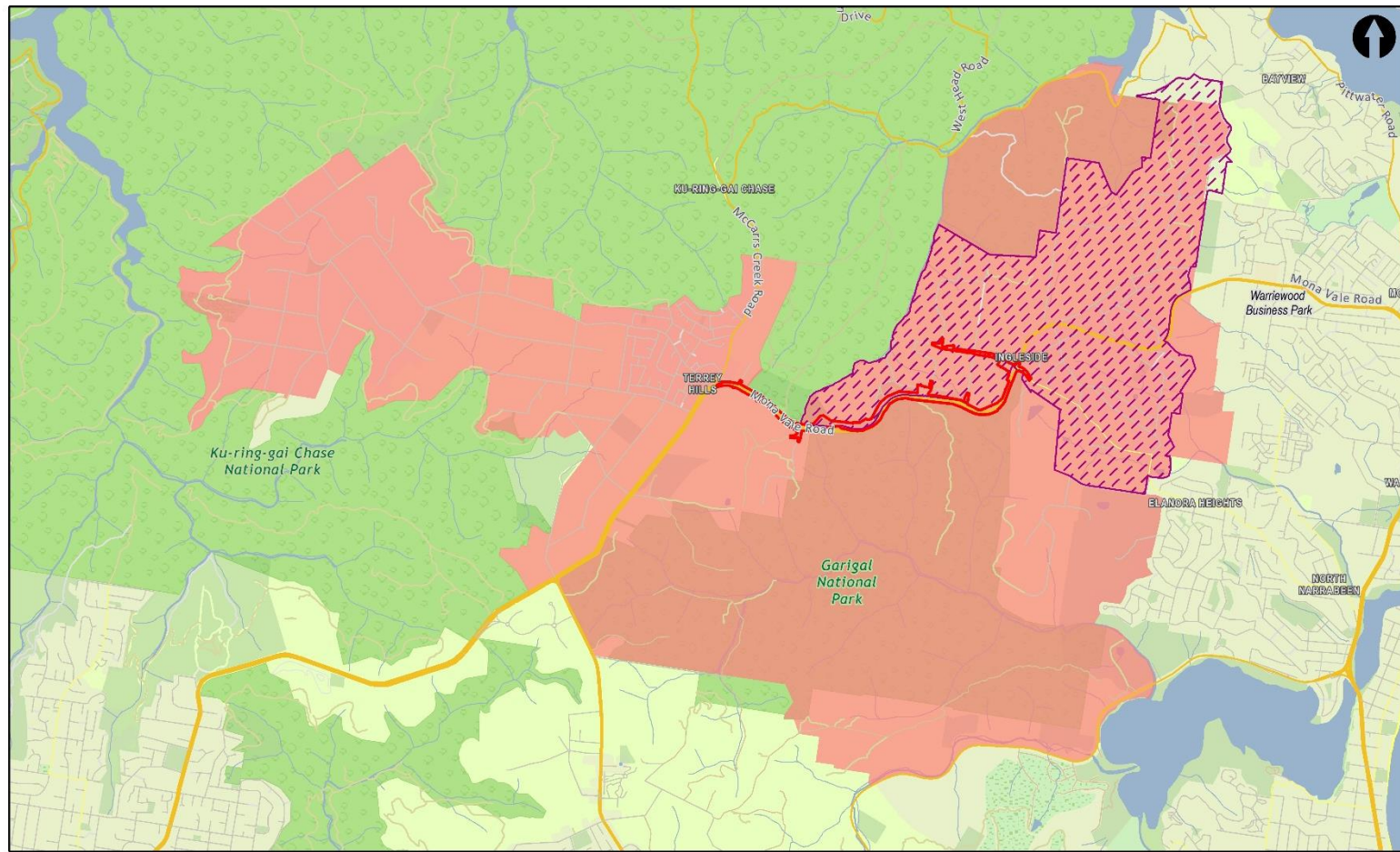


Figure 4-1 Draft Ingleside Precinct Structure Plan (Department of Planning and Environment, 2016)

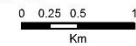


- Proposal Boundary
- SEIA investigation study area
- Ingleside land release area

Upgrade of Mona Vale Road between McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside 30011633

Future development in the area Fig. 4-2

(Source: Vector backdrop – Roadnet © Map Data Services 2015, Nearmap 2015)



Location: I:\projects\30011633 - Mona Vale Rd Ref\008 DATA\05 CIB\Map\SEIA\MVRW_Figures3-1.mxd

Last updated by DW13219 on 17/10/2016 at 14:27

Figure 4-2 Future development in the area

4.3. Local and regional context

European settlement of the Warringah and Pittwater area dates back to Governor Hunter's survey of Broken Bay in 1796. Early use of the area focussed on timber-getting and farming. Poor access was a major inhibitor of development.

Towards the end of the 1800s, improved access allowed growth to occur at a quicker pace. Land continued to be used mainly for farming, grazing and orchards, but industries in fishing, boat building and timber-cutting were also established.

The Pittwater area became a popular holiday destination in the early 1900s and inter-war period, with many guesthouses and holiday homes built at this time. Significant residential development took place from the 1950s, assisted by the construction of roads and bridges. Urban development continued from this time, concentrated largely in the coastal part of the Pittwater region.

The origins of Mona Vale Road can be traced to 1840, with a road in this vicinity being depicted on a County of Cumberland map. Mona Vale Road is the main east-west link between the Pacific Highway, Pymble and Pittwater Road at Mona Vale, totalling about 20 kilometres in length and carrying about 22,000 vehicles per day through the proposal area. The road is an integral component of the transport network in the north-east region of Sydney and plays a crucial role in linking major urban areas.

The suburbs of Duffys Forest and Terrey Hills are semi-rural in nature. The Mona Vale town centre is approximately 3.7 kilometres east of Powder Works Road. Local shops are available at Terrey Hills immediately west of the McCarrs Creek Road intersection.

The area is the traditional homelands of the Guringai people and was used by Aboriginal people prior to European settlement. There are rock carvings are present throughout the area which collectively comprise an important cultural complex.¹³

There are a two local heritage items in the area including a group of Monterey Pines, located at the north eastern intersection of Baha'i Temple Way and Mona Vale Road and the Baha'i Temple at 173 Mona Vale Road. The Baha'i Temple is considered to be "one of the four major religious edifices constructed in Sydney during the 20th century."¹⁴

4.4. Amenity and land use

Amenity refers to the quality of a place, its appearance, feel and sound, and the way its community experiences the place. Aesthetic qualities are an important part of amenity, but the broader concept of amenity is determined also by the physical design of a place and the human activity that takes place within it. Amenity is a characteristic of a community that is determined by the physical environment yet it depends on the human response to that environment. A place that has 'amenity' is regarded as pleasant and attractive, as well as convenient and comfortable.¹⁵

The amenity of the study area derives from its natural character and rural residential areas, and the way the community uses these areas. The local community currently enjoy a high level of amenity as a result of the natural bush setting and local recreation opportunities.

Land use in the immediate vicinity of Mona Vale Road within the study area is predominantly natural bush land with Ku-ring-gai Chase National Park to the north and Garigal National Park to the south. Development activity is concentrated at either end of the proposed road

¹³ Kelleher Nightingale (2015) *Mona Vale Road Upgrade Terrey Hills to Ingleside Aboriginal Cultural Heritage Constraints Mapping and Archaeological Survey Report*.

¹⁴ Dictionary of Sydney 2008 in *Mona Vale Road West Upgrade Statement of Heritage Impact* (RPS 2016)

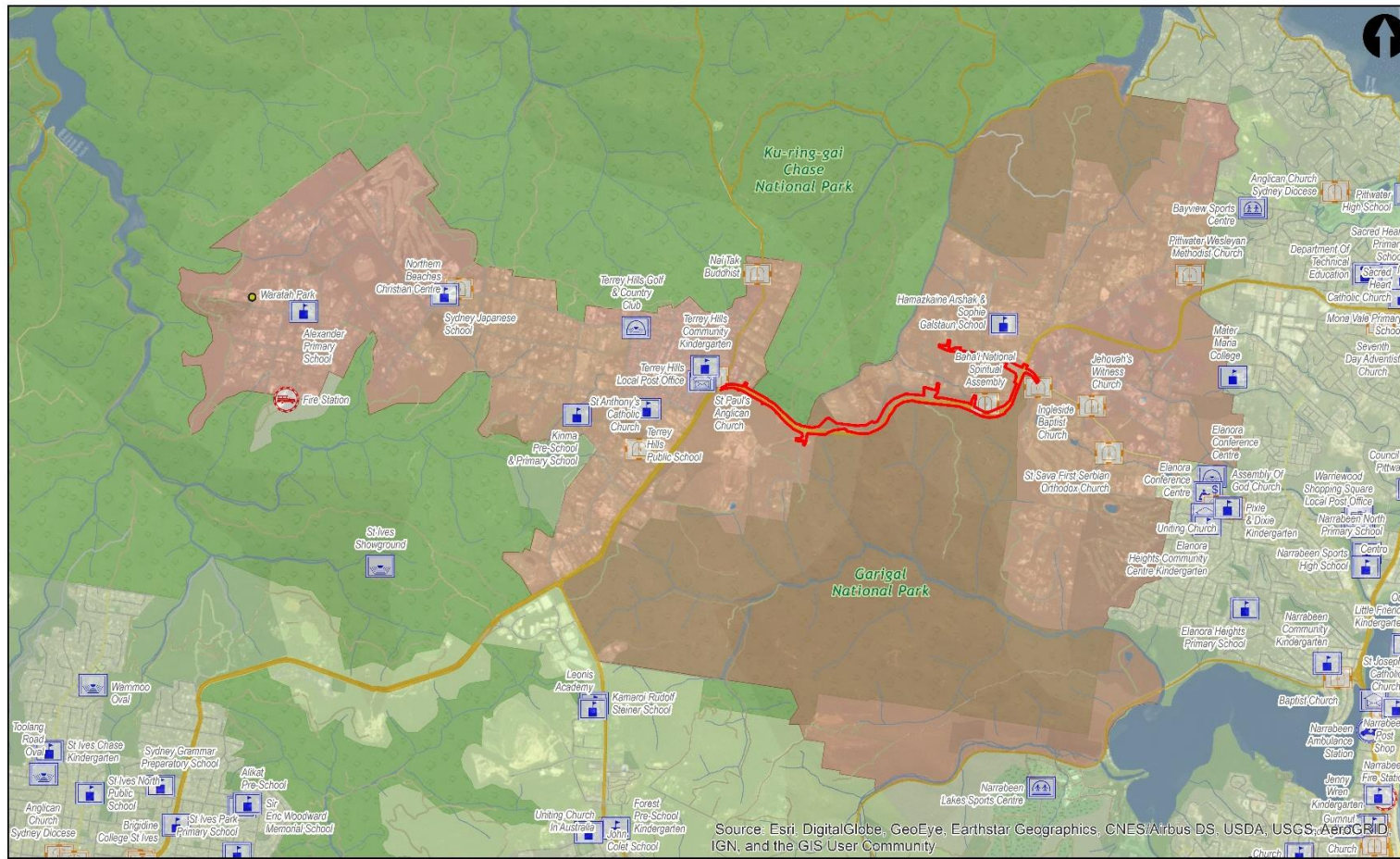
¹⁵ Handy, S. (2002) "Amenity and severance" in Hensher, D.A and Button, K.J. (eds) *Handbook of transport and environment*, Elsevier Science, Oxford.

upgrade section; at Terrey Hills in the west and to a much lesser extent, at Ingleside in the east (refer Figure 4-3). Both suburbs are largely rural residential in nature, with large blocks, hobby farms and horse paddocks.

The other two prominent land uses are Kimbriki Recycling and Waste Disposal Centre at the western end of the study area, accessed via Kimbriki Road down a steep incline; and the Baha'i Temple at the eastern end of the study area. Located at one of the highest points in the area, it is a prominent landmark visible across the wider region.

The area of Ingleside within the study area is accessed from Mona Vale Road via Tumburra Street and is generally separated from Mona Vale Road by a vegetated recreation reserve.

Traffic on Mona Vale Road is typically the most dominant noise generator in the area. Acceleration of vehicles up the steep inclines and decelerating down the hill is particularly evident. Generally local residents experience good air quality given the proximity to natural bushland.

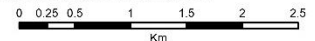


Proposal Boundary
 SEIA investigation study area

Upgrade of Mona Vale Road between McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside 30011633

Land use and social infrastructure Fig. 4-3

(Source: Vector backdrop – Roadnet © Map Data Services 2015, Nearmap 2015)



Last updated by: DW13219 on 17/10/2016 at 14:32

Location: I:\projects\30011633 - Mona Vale Rd REF\008 DATA\05 GIS\Maps\SEIA\MVRW_Figure3-3.mxd

Figure 4-3 Land use and social infrastructure

4.5. Social infrastructure

Key facilities and services relevant to local residents and visitors to the study area are summarised below and shown in Figure 4-3. Mona Vale town centre is located outside of the study area, to the east of Foley Street, and contains local shops, Council chambers and a library. There are several small local parks and reserves within the study area.

Schools

The following schools are located within the study area:

- Terrey Hills Primary School, Terrey Hills
- Kinma Preschool, Terrey Hills
- Northern Beaches Christian School, Duffys Forest
- Sydney Japanese School, Duffys Forest
- Galstaun College, Ingleside
- Alexander Primary School, Duffys Forest
- German International School, Terrey Hills
- Mosman Preparatory School, Terrey Hills
- Forestville Montessori Secondary School, Terrey Hills.

The following education related facilities are also located within the study area:

- Camp Kedron, Ingleside – Holiday camp and conference centre
- Ingleside Scout Camp, Ingleside – outdoor activities, conference rooms and accommodation.

A large parcel of land (Lot 201 DP1054875) at 169 Mona Vale Road is currently zoned as SP2 Infrastructure (Education) and is identified in the draft Ingleside Structure Plan as a potential future school. It does not currently appear to have any education related uses. It is noted that this Lot and the adjoining Lot at 169a Mona Vale Road were sold by the government in January 2016 for \$7.25 million.¹⁶

Health and emergency services

Mona Vale Hospital is located outside the study area on Pittwater Road around one kilometre south of the intersection with Mona Vale Road.

There are a number of rural fire service brigades located within the study area:

- Manor Road, Ingleside
- Tumbledown Dick, Tumburra Street, Ingleside
- Booralie Road and Yulong Avenue, Terrey Hills
- Anembo Road, Duffys Forest.

The Warringah Headquarters, including Emergency Control Centre and State Emergency Services (SES) and Marine Rescue NSW, are located immediately to the west of the proposal location at the intersection of Kamber Road and Mona Vale Road, Terrey Hills.

Places of Worship

The Baha'i Temple or House of Worship was opened in September 1961. It stands over 38 metres in height with a diameter of around 30 metres and is a highly visible landmark on the Northern Beaches. The temple is open to all visitors daily and contains gardens and picnic area also open to the public. It is listed on the local heritage register for Pittwater LGA. The temple is accessed via a signalised intersection at Baha'i Temple Way and Mona Vale Road.

¹⁶ From NSW Valuer General's website via NSW Globe. Accessed 14 October 2016.

The Ingleside Baptist Church on Powder Works Road and St Paul's Anglican Church, corner Yulong Avenue and Mona Vale Road, Terrey Hills are also located in the vicinity of the proposed works.

Other

The Animal Welfare League NSW at 11 Cicada Glen Road, Ingleside, provides an adoption centre for dogs and cats. It is open every day and serves the Sydney metropolitan area.

4.6. Travel behaviour

Mona Vale Road is an important arterial road connector for north-eastern Sydney. The 20 kilometre route connects Pittwater Road at Mona Vale in the north east to the Pacific Highway at Pymble. It is frequently used by heavy goods vehicles and is the main east-west connector in northern Sydney for heavy goods vehicles, including B-doubles. Road users in the study area currently experience traffic congestion during peak hours.

The existing road has a steep vertical alignment in sections and capacity on the road is constrained due to lack of overtaking opportunities and limited capacity at intersections such as McCarrs Creek Road.¹⁷ This factor, combined with steep grades and heavy vehicle use, causes frequent major traffic delays both during and outside of peak hours, as traffic flow behind heavy vehicles is slowed. In addition to the traffic congestion, this section of Mona Vale Road has a high crash rate indicating safety issues for vehicles using this road.

Congestion imposes costs on the economy and the community through longer commutes, higher operational costs and restricted access. Congestion costs Sydney around \$5 billion a year and is set to grow to \$8 billion a year by 2020. This has an indirect impact on businesses through increases in transport costs.¹⁸

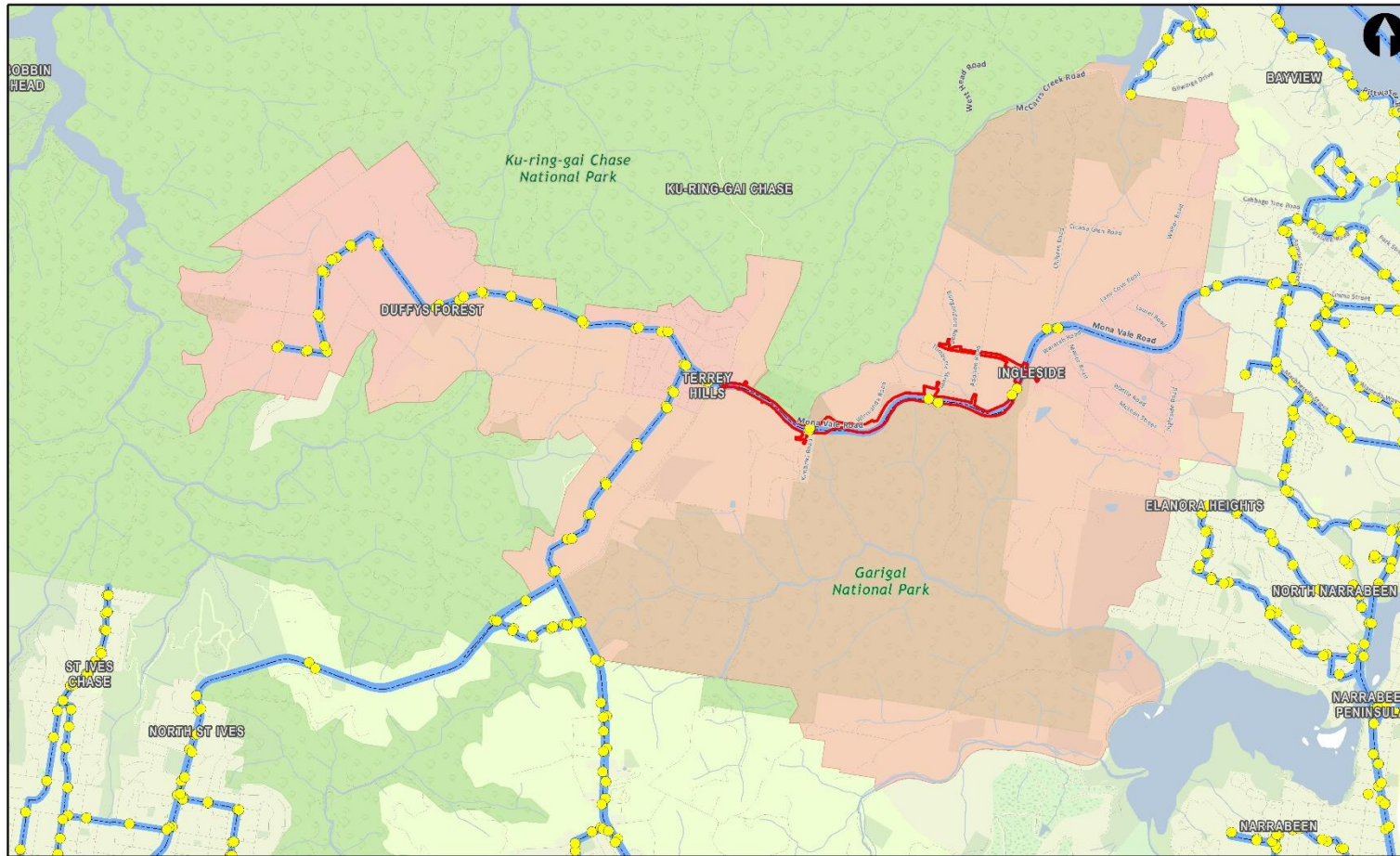
Parking is not permitted along Mona Vale Road within the study area.

Public transport

Forest Coach Lines operates routes 196 (Gordon to Mona Vale) and 197 (Macquarie to Mona Vale) along Mona Vale Road through the entire length of the study area. Weekday services are offered from approximately 6 am to 10.30 pm, with shorter hours on weekends and public holidays. School bus services also operate through the study area. A number of other services operating along Forest Way terminate in Terrey Hills at Myoora Road.

¹⁷ Aecom (2015) *Mona Vale Road Upgrade West Traffic and Transport Assessment*.

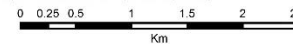
¹⁸ Infrastructure NSW (2014) *State Infrastructure Strategy Update*.



Upgrade of Mona Vale Road between McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside 30011633

Bus routes and bus stop locations Fig. 4-4

(Source: Vector backdrop – Roadnet © Map Data Services 2015, Nearmap 2015)



Last updated by: DW13219 on 17/10/2016 at 14:40

Location: I:\projects\30011633 - Mona Vale Rd\REF\008 DATA\05 GIS\Map\S\SEI\MVRW_Figures\4.mxd

Figure 4-4 Bus routes and bus stop locations

Public transport accounts for less than ten per cent of the mode share in Pittwater LGA and approximately 15 per cent of transport mode share in Warringah LGA. These are both well below the Greater Sydney average of 25 per cent.

The following bus facilities exist along Mona Vale Road:

- Bus stop (east bound) to the west of the Tumburra Street intersection with Mona Vale Road
- Bus stop (west bound) to the east of the Tumburra Street intersection with Mona Vale Road
- Bus stops (east and west bound) to the south west of the Powder Works Road intersection with Mona Vale Road
- Bus stops (east and west bound) to the west of Kimbriki Road

There is no safe connection to the east bound or west bound bus stops at Tumburra Street or Kimbriki Road.

Pedestrians and cyclists

There is limited existing active transport provision along Mona Vale Road West. This is a reflection of both the challenging nature of the terrain as well as the low intensity land use through which the proposal study corridor traverses, with much of the study corridor cutting through Ku-ring-gai Chase and Garigal National Parks. There is a small section of footpath on the northern side of the road in the vicinity of the Baha'i Temple. Sections of pedestrian footpath also connect the bus stops to the intersection of Powder Works Road and Mona Vale Road

Mona Vale Road is an existing on road regional cycle route however it has been identified that the section between Kimbriki Road and Powder Works Road / Baha'i Temple Way is deficient.¹⁹ There are also safety concerns and issues with steep grade conditions between Kimbriki Road and McCarrs Creek Road. The road shoulder is narrow east of McCarrs Creek Road, requiring cyclists to travel in close proximity to fast moving motor-vehicles. McCarrs Creek Road through the national park is a popular with road cyclists, particularly on weekends.

Mona Vale Road, including the section through the study area, is designated as the highest construction priority in Warringah Council's Bike Plan.²⁰ Council believes that more people cycling in Warringah will deliver benefits to the community and make cycling safer.

The results of the Super Tuesday Bike Count survey,²¹ undertaken on 3 March 2015 during the morning peak period found that there was a 49 per cent annual growth compared to the same location in 2014, in Warringah LGA.²² While outside the study area, counts at the intersection of Mona Vale Road and Forest Way showed an increase of 45 per cent between 2014 and 2015. At the intersection of Booralie Road and Myoora Road, 42 bicycle commuters were recorded during the two hour survey, a decrease of seven per cent compared to 2014. Generally however it has been noted that the lack of adequate provision for cyclists along Mona Vale Road is likely to explain why bicycle journey to work make up an extremely small proportion of journeys to work.²³ It has been noted that the absence of bicycle traffic east of McCarrs Creek Road is not due to a lack of demand for this route, but is mainly due to unsafe cycling conditions also this stretch of road.²⁴

¹⁹ Aecom (2015) *Mona Vale Road Upgrade West Traffic and Transport Assessment*.

²⁰ Warringah Council (2010) *Warringah Bike Plan*.

²¹ An annual volunteer visual bike count to provide reliable annual figures about bicycle commuters and their movements during morning peak hours across Australia.

²² Bicycle Network (2015) Super Tuesday Bike Commuter Count Warringah Council, accessed from <http://www.warringah.nsw.gov.au/sites/default/files/documents/general-information/warringah-bike-plan/2015-130066-super-tuesday-2015-report-warringah-final.pdf>

²³ Warringah Council (2010) *Warringah Bike Plan*.

²⁴ Bicycle NSW (2012) Bicycle NSW Submission to Roads and Maritime Services in response to Exhibition of Mona

4.7. Business and industry

As described above, the study area comprises predominantly natural bushland with pockets of rural residential development. In 2011, there were 2,731 jobs located in the travel zones TZ2171, 2012 and 2170, which most closely correspond to the study area for this paper, and 2,931 in 2016.²⁵

Kimbriki Resource Recovery Centre is located to the south of Mona Vale Road, accessed via Kimbriki Road. It was originally established as a landfill in 1974, converting to a recycling and dry waste disposal centre in 1989-90. It is the largest industry located within the study area. It is currently a proprietary listed company with Warringah, Manly, Pittwater and Mosman councils as shareholders.²⁶ A new putrescible waste processing facility at Kimbriki has been announced to replace the landfill station at Belrose which is scheduled to close in the next few years. The new facility is scheduled to open by 2017-18. The Kimbriki Resource Recovery Centre is currently accessed via an unsignalised intersection at Kimbriki Road and Mona Vale Road.

The Terrey Hills Village, at the western end of the proposed upgrade, includes a local shops, restaurants, supermarket and small businesses.

At the eastern end of the proposed road upgrade, Wirreanda Valley contains a number of local businesses such as nurseries, landscaping businesses and furniture. The presence of these businesses is advertised via a sign panel facing westbound traffic at the intersection of Tumburra Street and Mona Vale Road.

A number of equestrian related businesses are scattered throughout the study area, as discussed in Section 4.9.

4.8. Tourism

Tourism is a major activity in the Pittwater area, with beaches, waterways, bush, restaurants and relaxed lifestyle numbering among its key attributes. A study into domestic market perceptions of 32 Sydney tourism precincts, including the Northern Beaches, Palm Beach and Pittwater, found that Palm Beach was the second most popular beach precinct, after Bondi, with seven percent of respondents specifically citing the set of Home and Away.²⁷

The value of tourism to the Warringah and Pittwater area is significant. In 2013/14, total tourism and hospitality sales in the LGA were \$278.8 million, and the total value added was \$143.8 million.²⁸ In Warringah LGA, the total tourism and hospitality sales were \$1,165.5 million in 2013/14, and the total added value was \$549.4 million.²⁹

Pittwater Council's tourism strategy includes the objective to ensure that any investment in infrastructure provision or upgrade has the two-fold benefit of improving facilities for the community while addressing the needs of tourism operators and users.³⁰

Ku-ring-gai Chase National Park is a popular tourist destination for day trippers. Tourist accommodation is available at the Terrey Hills Motel and Caravan Park, which is located around 1.7 kilometres south west of the McCarrs Creek Road intersection with Mona Vale Road.

Vale Road Ingleside Upgrade Options Report. Accessed from <https://bicyclensw.org.au/wp-content/uploads/2012/11/BicycleNSWSubmission-MonaValeRdInglesideUpgradeOptionsReport.pdf>

²⁵ <http://visual.bts.nsw.gov.au/tz/#2170.2012.2171>

²⁶ <http://www.kimbriki.com.au/content/about-us/about-kee>

²⁷ Destination NSW (2011) Perception of Sydney Precincts.

²⁸ Pittwater Council (2015) *Tourism Sector Analysis* <http://economy.id.com.au/pittwater/tourism-value> viewed on 12 October 2015.

²⁹ Warringah Council (2015) *Tourism Sector Analysis* <http://economy.id.com.au/warringah/tourism-value> viewed on 12 October 2015

³⁰ Pittwater Council (2011) *Tourism in Pittwater: Building Communities and Economic Development*.

Mona Vale Road is one of the primary access routes to the Pittwater area from the rest of Sydney and therefore it provides an important access to the tourism needs of the area.

4.9. Recreation

Walking for pleasure or fitness is the second most popular activity, after dining in a café or restaurant, and the most popular type of active recreation for the wider Pittwater community. Bushwalking is the third most popular activity for the community.³¹ The popularity of walking has been a consistent theme in the Pittwater community for the past 20 years and the need for a network of walking tracks and paths has traditionally been given high priority by Pittwater residents. Walking is rated as the most popular recreation activity for Warringah adult residents (54 per cent), considerably higher than the NSW (33.7 per cent) and national averages (36.2 per cent).³² Cycling is the third most popular recreational activity for adults in Warringah (12 per cent). Lack of transport and linkages was identified in Warringah Council's Recreation Strategy as a key barrier to participation that needs to be addressed.

The study area contains extensive areas of bushland including Ku-ring-gai Chase National Park and Garigal National Park. These areas provide the community with recreational as well as other benefits such as somewhere to rest and relax, enjoy the scenery and vistas, and become involved in maintenance and upgrading through bush care programs.

There is no formal visitor access to either national park off this section of Mona Vale Road, however access to Ku-ring-gai Chase National Park can be obtained via McCarrs Creek Road.

There are several existing and proposed horse riding trails in Ku-ring-gai Chase and Garigal National Parks. Council manages four reserves in the area which provide a range of horse facilities including JJ Melbourne Hills, Rhoker, Kinka and Anmebo. Council is also responsible for managing the Bridle Trail, which runs from Terrey Hills to Duffys Forest. The National Parks and Wildlife Service maintains a seven kilometre Perimeter Trail along the edge of Ku-ring-gai Chase National Park in Terrey Hills and Duffys Forest that is open to horse riding as well as walkers.

There are a number of horse riding and stabling facilities in the Ingleside and Terrey Hills area including Timbarra Valley and the Ingleside Valley Equestrian Centre, Ingleside; and Shellby Equestrian Centre and the Green Fields Equestrian Centre, Terrey Hills. The most recent data available shows that in 2007 there were around 1,000 to 1,200 horses in Warringah, with most being located in Terrey Hills and Duffys Forest.³³

Several riding groups and clubs in the area have made submissions to Roads and Maritime with regards to the need for new infrastructure to link the separated and disparate parts of Ingleside together and to provide a horse riding link between Ingleside and Terrey Hills.³⁴

The Monash Country Club is located off Powder Works Road at the eastern end of the study area. The Terrey Hills Golf and Country Club and the NSW Gun Club are located in Duffys Forest. The golf clubs would draw membership from a wide geographic area as well as international visitors.

4.10. Community values

Community values relate to things such as:

- Amenity and character

³¹ Pittwater Council (2014) *Draft Public Space and Recreation Strategy*.

³² Warringah Council (2009) *Recreation Strategy 2009*.

³³ Warringah Council (2009) Research Paper – Horse riding trails and facilities in Terrey Hills and Duffys Forest. Accessed from <http://www.warringah.nsw.gov.au/sites/default/files/documents/general-information/horse-trails/2009-riding-trails-and-facilities-terrey-hills-and-duff-forest.final-version-adopted-8-december-2009.200912009.pdf>

³⁴ North Shore Horse and Pony Association (2013) Trail Summer/Autumn Newsletter 2013. Accessed from http://www.nshpa.org.au/Images/Trail/Trail_Summer_Autumn_2013.pdf

- Community health and safety
- Community cohesion and sense of community
- Environmental values
- Intangible connections to place.

Access to employment and key regional services (hospitals, schools), traffic safety and the importance of a thriving local economy were some of the key community issues identified in Pittwater Council's Social Plan.³⁵

A consistent theme in community consultation for most Pittwater Council projects relating to public space is the high value residents place on Pittwater's natural environment. The community wish to protect, conserve and enhance the natural environment, with nature appreciation being the seventh most popular activity in the LGA.³⁶ Natural areas in the study area with high conservation value include the Ingleside Escarpment and Ingleside Chase Reserve, and Katandra Bushland Sanctuary. Members of the community often participate and connect through their shared similar values and interest in the natural environment. Many of the opportunities to participate locally are centred around the beaches and waterways.³⁷

Council's transport options paper identifies that geographically Pittwater is more isolated than other parts of the Northern Beaches and that sufficient public transport systems are a key social consideration for residents. Council studies have shown that "traffic congestion, lack of available efficient public transport and heavy reliance on private vehicle patronage is a huge problem".³⁸ It is recognised that traffic congestion and accessibility are important issues that impact on their way of life. Council's Transport Discussion Paper also identifies the need for more bike paths as a priority from the dual perspectives of personal health and environmental sustainability. Promotion of active transport and improving the walkability of the area was also identified as important, particular given the older age profile of the population.

The Warringah Community Strategic Plan 2023³⁹ identifies six key outcomes that will guide the implementation of the plan and reflect the values held by the community. Relevant to the proposal are "connected transport", defined as the ability to safely and conveniently walk or ride around Warringah and that the road network is functional and well designed. Residents value the natural bush environment and their opportunities to pursue outdoor recreation activities.

Ku-ring-gai Chase National Park is listed on the National Heritage List. The listing criteria is "because of the place's importance in the course, or pattern, of Australia's natural or cultural history", reflecting the importance of this natural area to both the local and broader community.

The value placed on walking/bushwalking/bike tracks/trails (69 per cent) in Warringah suggests that residents value their access to these facilities in both their local and wider area.⁴⁰

Feedback from community consultation for the Mona Vale East and West proposals indicates that the greatest proportion of concern for respondents was around potential impacts to flora and fauna, suggesting respondents place a high value on their valuable natural environment.

³⁵ Pittwater Council (2012) *Pittwater Social Plan 2012-2016*, accessed from http://www.pittwater.nsw.gov.au/council/Corporate_Documents/social_plan

³⁶ Pittwater Council (2014) *Pittwater Draft Public Space and Recreation Study*, p36.

³⁷ Pittwater Council (2012) *Discussion Paper 2: A Sense of Place*.

³⁸ Pittwater Council (2012) *Discussion Paper 6: Getting Around Pittwater – Our Transport Needs*.

³⁹ Warringah Council (nd) *Warringah Council Community Strategic Plan*, accessed from <http://www.warringah.nsw.gov.au/your-council/plans-and-reports/community-strategic-plan> on 14 October 2015.

⁴⁰ Warringah Council (2009) *Recreation Strategy 2009*.

4.11. Summary

Key socio-economic characteristics of the study area can be summarised as follows:

- The study area is strongly defined by physical and social characteristics
- The presence of two national parks and the associated bushland setting along Mona Vale Road are highly valued by the local community
- Private vehicles are the predominant mode of transport throughout the study area, with higher than average levels of vehicle ownership. There is limited public transport availability
- There are limited opportunities for cycling and pedestrian movement along Mona Vale Road and cycling is perceived as highly dangerous along this stretch of road
- Recreational horse riding plays an important role in the lives and business of local residents
- The Baha'i Temple is prominently located at the eastern end of the study area
- The study area affords many opportunities for passive and active recreation with an abundance of natural features, bushland areas and lookouts.

5. ASSESSMENT OF SOCIAL AND ECONOMIC IMPACTS

The proposed upgrade of Mona Vale Road West would add an additional two lanes on Mona Vale Road in order to alleviate traffic congestion, improve road safety and provide for future population and employment growth. It would also improve safety for cyclists by providing dedicated off-road paths and improved on-road facilities. The proposal would also include the construction of a new local connecting road from Mona Vale Road, opposite the existing intersection with Powder Works Road, through to Harvey Road, to be known as the Harvey Road extension.

Following the local profiling and consultation with local residents, businesses and stakeholders, the following potential impacts were identified as a result of the proposal during construction and operation phases.

5.1. Construction phase impacts

5.1.1. Land use and property impacts

The proposal would be constructed predominantly within the road corridor, however construction of the Harvey Road extension would impact on a number of private properties. Property acquisitions would be required as detailed in Table 5-1.

In the context of this assessment, land use severance refers to the creation of a physical barrier between a property and an existing road access to that property, or between one part of a property and another part of the same property. Land use sterilisation refers to the situation where properties and their land use are severed into fragments of a size and or shape that makes the ongoing use of that land unfeasible.

Table 5-1 Property acquisition details and property access changes

No.	Lot / DP	Ownership	Type*	Area (m ²)
1	Lot 2, DP255466	Council	Part	385
2	Lot 5, DP255466	Metropolitan Water Sewerage And Drainage Board	Total	3725
3	Lot 4, DP255466	Council	Part	525
4	Lot 7064, DP 1051232	The State of NSW	Part	655
5	Lot 7306, DP 1132678 (21 Wirreanda Road)	The State of NSW	Part	13,195
6	Lot 4, DP792962	Minister administering the NPW Act	Part	2155
7	Lot 180, DP752046	The State of NSW	Part	1030
8	Lot 181, DP752046	Private	Part	590
9	Lot 2, DP802508	Private	Part	180
10	Lot 1, DP802508	Private	Part	1535
11	Lot 52, DP 1152609 (173 Mona Vale Road)	Private	Part	2910
12	Lot 201, DP1054875 (169 MVR)	Minister for Education	Part	6345
13	Lot 173, DP752046	Private	Part	775

14	Lot 177, DP752046 (31 Addison Road)	Private	Part	1570
15	Lot 2, DP213794 (30 Addison Rd)	Private	Part	3710
16	Lot 4, DP1039775 (167 MVR)	Private	Part	1585
17	Lot 2, DP565232 (165 Mona Vale Road)	Private	Part	210
18	Lot 38 DP 114318 (178 Mona Vale Road)	Private	Part	560
19	Lot 30, DP12115	Minister administering the EP&A Act	Part	245
20	Lot 31, DP12115	Minister administering the EP&A Act	Part	290
21	Lot 2, DP521700	Minister administering the EP&A Act	Part	335

The areas of land required from Ku-ring-Gai Chase National Park and Garigal National Park have been acquired through the revocation process under the National Parks and Wildlife Act 1974 (NPW Act) (refer Section 4.3.5).

Final acquisitions required would be confirmed through detailed design in consultation with landowners. All property valuations and acquisitions would be carried out in accordance with the Roads and Maritime Services Land Acquisition Information Guide (Roads and Maritime Services, 2014b) and the Land Acquisition (Just Terms Compensation) Act 1991. The new Harvey Road extension would result in the demolition of two large sheds/greenhouses on the southern boundary of 167 Mona Vale Road. The purpose of the sheds is unknown and may be associated with business activities.

Generally the new Harvey Road extension would be established along the edge of existing cadastral boundaries however it would have a severance effect on one lot, 169 Mona Vale Road. The main house would be located to the north of the Harvey Road extension, however a parcel of land approximately 8,735 hectares in size, representing 19 per cent of the total lot, would be separated from the main house. Existing land use activities on this southern parcel appear to include a gymkhana ring and other horse riding related facilities (to the west), and an extensive area of boat and shed storage (to the east, close to Baha'i Temple Way). It is not known if the boat storage activity is a commercial venture or a private activity.

Under the proposal, a new local road connection from the Harvey Road extension to Baha'i Temple Way would be constructed over the south eastern portion of the lot. Once the Harvey Road extension is constructed, which would require the partial destruction of the gymkhana ring, the remaining portion of land, representing around 11 per cent of the total lot, could potential have minimal value for the existing property owner.

The Harvey Road extension would result in the demolition of a shed at 21 Addison Road as well as one of three buildings in the residential complex. The ownership of this property is s on the same Lot as the Baha'i Temple and there is potential that it may be connected with activities at the temple. For the purposes of this assessment it has been assumed that it is a private residential dwelling, however if alternative uses and affiliations are identified, additional assessment may be required.

It is not clear from aerial photography if there is a private internal connection between 21 and 30 Addison Road. If it does exist, this connection would be severed by the proposed Harvey Road extension.

The new road could potentially impact on activities at what appears to be a scrap yard accessed from the bend in the road where Harvey Road becomes Bungendore Street. Desktop mapping identifies the property as being 8 Addison Road, however there appears to be no connection within the parcel of land between the scrap yard site and the residential property with this address, located to the south of the Lot. Anecdotal evidence suggests that the site may belong to a local contractor however this has not been confirmed at this stage. For the purposes of this assessment it has not been considered to be a registered business and as such as not been assessed as a business impact.

New property access arrangements would be required at several properties, as identified in Table 5-1, some of which may require new construction on private property.

Acquisition timeframes and the uncertainty around development activities could potentially cause anxiety for some residents and landowners, particularly in the vicinity of the proposed Harvey Road extension which represents a previously unexpected intrusion into previously rural environment.

Several structures would require demolition, generally presumed to be shed, although one may be an indoor swimming pool. It is not known if there are business activities conducted from any of the structures. Site survey and consultation with residents would be required to fully understand the extent of property impacts.

Final acquisitions required would be confirmed through detailed design in consultation with landowners. All property valuations and acquisitions would be carried out in accordance with the *Land Acquisition Information Guide* (Roads and Maritime Services, 2014b) and the *Land Acquisition (Just Terms Compensation) Act 1991*.

Temporary sites are likely to be required for use as construction compounds. At this stage, the location of any ancillary sites has not been confirmed. Any requirement to lease areas would be determined during detailed design.

Land use

The majority of the proposal is located within the existing road corridor and would have minimal impact on adjoining land uses. Construction of the Harvey Road extension would disrupt some land use activities at Ingleside adjacent to the proposed road and would require the demolition of some structures associated with rural activities. The new local access road for the Baha'i Temple, off the proposed Harvey Road extension would reduce the amount of land available for the SP2 Infrastructure (Education) activity identified in the Draft Structure Plan.

5.1.2. Amenity impacts

Amenity

Amenity impacts include any factors that affect the ability of a resident, visitor or business owner to enjoy their home and daily activities, for example, noise, vibration, detrimental changes to views or changes to air quality. A project could improve amenity in some locations while being reduced in others.

Construction activities associated with the proposal would generate noise and vibration impacts which would potentially adversely impact on residents, businesses and other visitors in the study area if left unmitigated. Sensitive receivers generally relate to residents, but also include schools, child care centres, community, recreation facilities and businesses. Sensitive receivers in the study area are identified in Section 4.5 of this report and shown on Figure 4-3.

The majority of the construction activities would take place from 7am-6pm, Monday to Friday and 8am-1pm Saturday, with no work on Sunday or public holidays. However, certain activities may need to take place outside of these hours due to technical considerations, such as the need to meet particular quality specifications for placement of concrete pavement; safety and traffic management considerations; and/or due to climatic factors. Out

of hours noise from construction activities can create considerable distress and disturbance for affected receivers, particularly if unexpected or prolonged.

Any extension to working hours would be subject to notification of the directly affected residents, in accordance with the procedures contained in the *Environmental Noise Management Manual* (ENMM).⁴¹ The Noise and Vibration Assessment⁴² prepared for the proposal sets out the out of hours work procedures and notification processes which would be required and these would be included in the safeguards and mitigation measures identified in the REF.

The Noise and Vibration Assessment identifies that residential receivers along the proposal corridor would be expected to experience exceedances of the relevant noise management levels during standard hours of construction as well as outside of standard hours, under worst-case conditions. Night works would also cause exceedances in some areas. The Noise and Vibration Assessment and the REF have detailed construction noise and vibration management measures that would need to be implemented in order to manage the impacts on local residents and other sensitive receivers during construction to the greatest extent possible. It is likely however, that there would be a reduction in amenity for receivers along the road corridor during construction.

Dust would be generated from earthworks associated with construction of the proposed upgrade. The total amount of dust would depend on the silt and moisture content in the soil and the types of activities being carried out. The main sources of dust would be from vegetation clearing, earthworks and associated heavy vehicle movement and stockpiling activities. Safeguards and mitigation measures have been recommended however it is unlikely that the implementation of all reasonable and feasible air quality control measures would reduce construction borne dust completely.

Vegetation clearing required for the proposal would occur early in the construction phase and would have an immediate adverse visual impact which would be experienced by the local community, business employees and road users. Given the natural bush setting of much of the proposal corridor and the value placed by the community on their natural environment, this is likely to be of concern to local residents. The Visual Impact Assessment⁴³ prepared for the proposal considers both the sensitivity and magnitude of visual impacts at numerous points along the proposal corridor to understand the visual impacts at the local scale as well as the overall impacts. In addition to vegetation clearing, the proposal would result in an increased road footprint and introduce new built features such as retaining walls. The assessment identified that visual impacts are highest in the areas where there is less space available in the corridor for the upgrade work to be implemented, particularly in areas where there is more urban development or where there is heritage significance.

The impacts on the amenity of the community along Mona Vale Road during construction are not expected to be substantial.

Harvey Road extension

Construction of the proposed Harvey Road extension would involve clearing, demolition and construction activities close to residential dwellings in quiet rural areas that were previously not exposed to noise generating activities, particularly at 21 Addison Road where the new road would be immediately adjacent to the main house. Vegetation clearing would remove natural screening buffered between some rural residential properties.

5.1.3. Social infrastructure

The Baha'i Temple is currently accessed via Baha'i Temple Way which forms an intersection with Mona Vale Road and Powder Works Road at Ingleside. A new local road connection

⁴¹ RTA (2001) *Environmental Noise Management Manual*.

⁴² Pacific Environment (2016) *Mona Vale Road Upgrade West - Noise and Vibration Impact Assessment*.

⁴³ Design Inc (2016) *Mona Vale Road Upgrade West: Landscape Character, Visual Impact Assessment and Urban Design Study*.

would be constructed off the proposed Harvey Road extension, connecting back into the existing Baha'i Temple Way. This would provide safer access into the temple for visitors. There is the potential for construction noise to impact on worship services at the Baha'i Temple and the Ingleside Baptist Church.

Other than traffic delays that may occur at times during construction, the majority of community facilities within and in close proximity to the study area are not expected to be affected by construction activity.

Emergency services such as the RFS, SES and ambulances would potentially be affected by road construction works and traffic delays.

5.1.4. Travel behaviour

The proposal would impact on traffic during construction as a result of:

- Reduced speed limits around construction sites
- Increased heavy vehicle and construction machinery movements
- Temporary partial or complete closure of roads, intersections and/or accesses.

This is expected to result in additional delays along Mona Vale Road, particularly during peak hours, which is likely to generate increased frustration for local road users and increased travel times for road users and bus services. Increased traffic delays during busy holiday periods are also likely to generate increased frustration for road users and local residents.

The proposal would limit direct access from Addison Road to Mona Vale Road to left in left out only, requiring residents to travel a slightly longer distance via the new Harvey Road extension. The new arrangements allow for safer vehicle movements and removes the potential unsafe turning movements (right turn in and out) across oncoming traffic.

Property access

Construction of the proposed Harvey Road extension would impact on the private access to a number of private properties as well as the Baha'i Temple, with some properties potentially requiring temporary access arrangements.

Public transport

Bus routes would continue to operate along Mona Vale Road during construction, however, reduced speeds and temporary relocation of bus stops would have a short-term impact on bus services during construction. The temporary relocations of bus stops may require further distances to be walked to and from bus stops which may have an adverse impact on less mobile transport users. Any bus stop relocations would be undertaken in consultation with the relevant bus operators. Further detail on the proposed temporary changes during construction is provided in the Traffic and Transport Assessment report.⁴⁴

Pedestrians and cyclists

Currently pedestrians do not have access along Mona Vale Road through the study area. This would be unchanged throughout construction period. Cyclists are limited to the hard shoulder and access would be maintained during construction.

5.1.5. Business and industry impacts

Construction activities along Mona Vale Road would have minimal direct impact on local businesses and industry. There is the potential for indirect impacts as a result of traffic delays.

Construction of the new intersection at Kimbriki Road and Mona Vale Road would potentially present some delays to vehicles wishing to access the Kimbriki Resource Recovery Centre.

⁴⁴ Aecom (2016) *Mona Vale Road Upgrade West – Traffic and Transport Assessment*.

The construction phase would generate a number of jobs. Construction worker expenditure would benefit local businesses in the vicinity of the upgrade, such as cafes and takeaways in the Terrey Hills. The expenditure would have flow on effects to other businesses in each area. This is a benefit of the proposal.

5.1.6. Tourism and recreation impacts

Construction of the proposal is expected to have some adverse impacts on congestion and travel speeds at times. While this would potentially have a minor indirect impact on tour operators travelling to and from the Terrey Hills/Ingleside area, it is likely to be minimal and manageable. It is expected to have little effect on tourist attractors in the immediate vicinity.

Other than potential traffic delays at certain periods, the proposed construction activities are not expected to interfere with either access to or use of recreational areas within or in close proximity to the study area.

Currently horse riders do not have access along Mona Vale Road. This would be unchanged during the construction period for reasons of safety.

5.1.7. Community values

As discussed in Section 5.1.2, construction of the proposal is likely to adversely impact on local visual amenity through the vegetation clearing and presence of construction activities. Given the identified community values relate to their natural environment, it is likely that there would be some adverse perceived impacts on community values through the construction phase. This is an unavoidable short-term impact associated with any infrastructure upgrade project.

5.1.8. Cumulative impacts

Other construction projects in the surrounding area, including road upgrades, may lead to the potential for road users to experience cumulative impacts during the construction of the Mona Vale Road West upgrade. The Mona Vale Road East project would be constructed just prior to the West project, potentially with some overlapping time frame. The Northern Beaches Hospital and associated road network upgrades at Frenchs Forest have been announced and will involve substantial work on Warringah Road and Forest Way. Warringah Road is the other primary east-west connection on the Northern Beaches and Forest Way provides a north-south connection between Mona Vale Road in the north and Warringah Road in the south. It is also likely that work on Pittwater Road to upgrade Narrabeen Bridge would be undertaken in a similar time period and flood remediation on Wakehurst Parkway. The resulting potential delays on all major routes through the northern beaches is likely to lead to frustration for all road users, including public transport users, and has the potential to encourage changes to travel patterns while these projects are under construction.

5.1.9. Summary of construction impacts

In summary, the following construction impacts have been identified:

- Property acquisition would be required for the proposal and some demolition of structures would be necessary, however no residential dwellings are expected to be directly affected
- Temporary noise, dust and visual impacts for local residents and road users are likely
- Additional traffic delays during construction are likely to have an indirect impact on accessibility to social infrastructure, tourism and recreation and business and industry
- Temporary diversions of public transport routes, and temporary relocations of bus stops would be required
- Additional traffic delays are likely as a result of the cumulative impacts of nearby road upgrade projects planned in the same period.

5.2. Operational phase impacts

5.2.1. Land use and property impacts

The proposal would provide improved accessibility along Mona Vale Road and contribute indirectly to the attractiveness of the Ingleside Land Release Area for future property development.

The Harvey Road extension may encourage new land use development activities on the adjoining lots, subject to council approval and alignment with the Structure Plan.

As identified in Section 5.1.1, the proposal would result in the reduction of land that is currently zoned SP2 Infrastructure (Education) in the Pittwater LEP and the Ingleside Draft Structure Plan.

The current zoning of the land is SP2 Infrastructure (Education) and it is excluded from the minimum lot size mapping on the Pittwater LEP 2014 (Sheet LSZ_007) which is likely to impact on the reuse opportunities. For reference, all surround land use is zoned RU2 Rural Landscape, with a minimum lot size of 2.0 hectares under the current Pittwater LEP.

The properties at 169 and 169a Mona Vale Road were previously owned by the NSW Government and were sold together in January 2016. 169a Mona Vale Road appears to be largely unused, other than a Senior Citizens Toy Repair Shed on the eastern end of the lot, close to Baha'i Temple Way. There may be potential to consolidate the remaining portion of 169 Mona Vale Road located to the south of the new access road and Harvey Road extension with 169A, however subdivision and rezoning approval would be required to achieve this.

The proposal would result in a slight reduction in rural residential zoned land on several private blocks.

5.2.2. Amenity impacts

Once the Mona Vale Road West and East upgrades are complete, the posted speed limit along the combined corridor would be increased from 70 kilometres per hour to 80 kilometres per hour. Traffic volumes are generally also expected to increase along Mona Vale Road as a consequence of urban growth.

The Noise and Vibration Impact Assessment⁴⁵ has identified that nine residential dwellings would be eligible for consideration for at-property treatment as a consequence of operational traffic noise in exceedance of the relevant criteria. This would represent a decrease in amenity for some residences. Three places of worship would also receive noise levels exceeding the relevant criteria, although this is already the case under the existing scenario. Further investigation would be required at detailed design to understand internal noise levels.

The proposal would increase the carrying capacity of Mona Vale Road and in doing so would relieve existing congestion. Vehicle emissions in general would still contribute to local air quality levels however generally it is expected that the proposal would generate a positive outcome for local air quality in peak periods.

As discussed in Section 5.1.2, the proposal would result in loss of vegetation along the road corridor during construction and operation as a result of the increased road footprint. The proposal would also introduce new ramps, retaining walls and culverts. This would result in a larger presence of built infrastructure in the natural bushland setting. Generally the proposal would result in a reduction in visual amenity for local residents, businesses and road users.

It is expected that with the implementation of the proposed mitigation measures, the visual impact of the proposal and the resulting changes in amenity would be acceptable for local residents, businesses and road users and would be offset by the improvement in traffic

⁴⁵ Pacific Environment (2016) *Mona Vale Road Upgrade West - Noise and Vibration Impact Assessment*.

congestion and travel times that would be experienced by all road users and in particular local residents who use it daily.

No regional or district views would be affected by the proposal. Generally the rugged topography and dense bushland greatly contribute in limiting the visual exposure of the proposal to the surrounding areas. The proposed Harvey Road extension would result in some landscape character and visual impacts, however this impact is considered to be offset by the safety and connectivity benefits that would be delivered by the proposal. Overall the visual impact assessment found that the proposal would provide open views for motorists toward the bushland and beyond, thereby reinforcing the sense of place and uniqueness of the site, providing a quality journey experience.⁴⁶ Further detail on visual amenity impacts and mitigation measures can be found in the Landscape Character, Visual Impact Assessment and Landscape Design Study.⁴⁷

As a busy main road, Mona Vale Road already presents a degree of severance in the community. The volume and speed of traffic does not encourage connections across the road, effectively operating as a barrier to social connections. The land use patterns to the north and south of the road also contribute to a lack of social connection across the road. Consequently it is not expected that the upgrade of Mona Vale Road to a four lane road would contribute to a further break down of social connection.

Harvey Road extension

The Harvey Road extension would have a negative impact on the local amenity for adjacent properties, introducing road infrastructure into a previously quiet rural area, particularly at 21 Addison Road, where the new road would be immediately adjacent to the existing house.

5.2.3. Social infrastructure

Once operational, the proposal is expected to have a positive indirect impact on social infrastructure in the wider community through improved traffic flows and accessibility along Mona Vale Road.

The Noise and Vibration Impact Assessment⁴⁸ has identified that the Baha'i Temple, the Baptist Church and St Paul's Anglican Church would experience traffic noise levels above the relevant criteria as a result of the proposal and it has been recommended that confirmation of internal noise levels be undertaken during detailed design. It is noted, however, that these facilities already experience noise levels in exceedance of the recommended levels.

As discussed in Section 5.1.1, the Lot at 169 Mona Vale Road is zoned SP2 Infrastructure (Education) in the Pittwater LEP and the draft Ingleside Structure Plan. The property acquisition and sterilisation proposed would potentially impact on the viability of a future school on this site.

5.2.4. Travel behaviour

Population and employment growth in the study area is expected to put further strain on Mona Vale Road in its capacity as one of the main roads linking the northern beaches to western Sydney. If the road is not upgraded, the current road is not expected to be able to cater for the significant amount of additional traffic expected over the next 20-25 years.

The proposal would provide

- Additional lanes for climbing and descending to improve travel time in both directions
- Widened lanes and shoulders and median separation to improve safety

⁴⁶ Design Inc (2016) *Mona Vale Road Upgrade West: Landscape Character, Visual Impact Assessment and Urban Design Study*.

⁴⁷ Design Inc (2016) *Mona Vale Road Upgrade West: Landscape Character, Visual Impact Assessment and Urban Design Study*.

⁴⁸ Pacific Environment (2016) *Mona Vale Road Upgrade West - Noise and Vibration Impact Assessment*.

- Increased speed limit (80km/h once completed)
- Facilities for cyclists and pedestrians
- Changed access to/from the Wirreanda Valley.

The proposal would result in improved traffic flow and more efficient travel times within the study area. Congestion has substantial social economic effects because it affects the ability of people get to work, access educational activities, access recreational opportunities and spend time with their families and friends. Overtaking lanes would increase safety and efficiency for B-double and freight vehicles, and the widening of the road to two lanes in either direction would provide opportunities for general vehicles to overtake heavy vehicles safely. The central concrete safety barrier along the length of the proposal would improve safety by preventing vehicles crossing to the other side of the road.

Traffic modelling indicates that the proposal would be able to adequately accommodate the future population growth from the Ingleside Land Release Area and the adjoining Mona Vale Road East upgrade.

The proposed reconfiguration at the intersection of Addison Road and Mona Vale Road to a left-in/left-out only arrangement would mean that drivers wanting to turn right to access Mona Vale Road or into Addison Road would be required to take alternate routes.

The new access route via the Harvey Road extension would result in the shifting of local traffic that previously used the Tumburra Street and Addison Road intersections with Mona Vale Road, onto the Harvey Road extension and into the Wirreanda Valley. It is anticipated that this would result in around 1000-1200 vehicles per day travelling via the Harvey Road extension, with the majority of these being redistributed local traffic.⁴⁹ This would result in a route diversion of approximately 2.0 – 2.5 kilometres, depending on the end destination.

Uncertainty can be generated by changed road access arrangements for drivers, cyclists and pedestrians.

Public transport

The proposal would permanently remove all bus stops along Mona Vale Road within the study area with the exception of the westbound stop at Kimbriki Road which would be relocated 50 metres to the north to accommodate the road upgrade footprint. The Kimbriki Road stops were informal (no bus bays) and serve only a small number of properties and the Kimbriki Resource Recovery Centre. The eastbound stop is currently located away from residential properties on the northern side of Mona Vale Road and it is not desirable to encourage pedestrians to cross four lanes of traffic on a high speed arterial road on foot, consequently the eastbound stop has been removed.

The westbound and eastbound bus stops near Tumburra Street and the intersection of Mona Vale Road and Powder Works Road would be removed. In total five bus stops would be removed. New bus stops (location yet to be finalised) and a turnaround facility would be provided in Tumburra Street/Harvey Road. This would provide safer location for bus stops away from the arterial road, closer to residential properties, and remove the risk of pedestrians attempting to cross Mona Vale Road on foot.

The new Harvey Road extension would provide an opportunity for more public transport accessibility north of Mona Vale Road by redirecting the existing bus routes 196 and 197. Forest Coach Lines and Transport for NSW have indicated that moving the bus stops off the main road and providing safer bus stop locations is a positive development that they support and have signalled their intention to work with Roads and Maritime to identify and construct new bus stops and amended routes.

Transport for NSW advice indicates that additional bus services would be implemented to service development along the Mona Vale Road corridor between Mona Vale and Macquarie Park including existing and new development along the corridor such as the Ingleside

⁴⁹ AECOM (2016) *Mona Vale Road Upgrade West Traffic and Transport Assessment*.

Release Area. Any new services would benefit from the increased capacity the proposal provides.

Pedestrians and cyclists

The proposal would provide benefits to pedestrians and cyclists as follows:

- Provision of 2.5 metre wide shoulders along the length of Mona Vale Road between McCarrs Creek Road and Powder Works Road to allow for breakdowns and on-road cyclists. This would improve safety for cyclists and allow Mona Vale Road to operate as a regional cycle route
- Provision of a multi-use path (pedestrians and cyclists) on the northern side of Mona Vale Road to connect Ingleside and Terrey Hills and connecting with existing or proposed shared use paths to the east through to Mona Vale and Pittwater Road.
- Provision of a signalised intersection at Kimbriki Road, providing safer access for pedestrians and cyclists across Mona Vale Road.

The augmentation of shared cycle and pedestrian pathways as part of the proposal is consistent with the Pittwater Walks and Rides Masterplan⁵⁰ and Warringah Council's Bike Plan⁵¹ and would contribute to improved active transport options in the Terrey Hills and Ingleside areas. The wider shoulders along both carriageways would provide cyclists with an alternate path to travel along the road corridor, representing an improvement on the current situation.

5.2.5. Business and industry impacts

It is expected that business opportunities in the area would be enhanced by the proposal due to regional economic effects, improved connectivity and reduced travel times. The climbing lanes are expected to provide improved safety and efficiency for B-double and freight access along Mona Vale Road, and the widening of the road to two lanes in either direction would improve travel times for workers, suppliers and customers. The proposed intersection upgrade at Kimbriki Road and Mona Vale Road would result in safe and efficient access for heavy good vehicles to the Kimbriki Resource Recovery Centre.

The changed access arrangements at Tumburra Street would remove the visibility of the local businesses advertised at the existing intersection with Mona Vale Road. The dependence on local businesses in Wirreanda Valley on this advertising is not known however it is not expected to be considerable given the relatively isolated location and generally high speeds of traffic through this section of Mona Vale Road.

5.2.6. Tourism and recreation impacts

Once operational, the proposal is expected to improve travel times and road safety along Mona Vale Road which would indirectly benefit tourism operators in the Northern Beaches area and improve community access to local recreational spaces including Ku-ring-gai National Park. Provision of the shared user path along the northern side of Mona Vale Road would open up access for pedestrians to walking trails in the national park as well as providing pedestrian and off road cycle connectivity between Terrey Hills and Mona Vale.

Recreational horse riding is a popular activity in Terrey Hills, Duffys Forest and Ingleside. The wider shoulders would provide safer passage for horse riders along Mona Vale Road. The proposal would provide safe crossing, once dismounted, for horse riders at three locations:

- A new signalised pedestrian crossing at traffic lights at the intersection of Mona Vale Road and Kimbriki Road
- Existing signalised pedestrian crossing at the intersection of Mona Vale Road and Powder Works Road, and McCarrs Creek Road.

⁵⁰ Pittwater Council (2012) *Pittwater Walks and Rides Strategy Masterplan*.

⁵¹ Warringah Council (2010) *Warringah Bike Plan*.

If horse riding activities were to increase along the length of Mona Vale Road within the study area, there is the potential for increased (illegal) access by horse riders into the national parks.

5.2.7. Community values

Demographic analysis indicates the area is a well-established, family oriented area with high private vehicle ownership and dependence on cars for transport. The local community is likely to be reasonably resilient to change.

The proposal would result in some loss of native vegetation which contributes to the natural setting valued by the community. Community concerns around fauna protection and impacts on the natural environment have been considered in the design development and mitigation measures have been identified to minimise these impacts through new landscaping and planting where possible. Consultation with the local community on the preliminary concept design found that 83 per cent of respondents liked the proposal with respect to its attempts to manage potential impacts on the environment.⁵²

The design of the proposal has taken into consideration the presence of Aboriginal rock carvings and these would not be impacted by the proposal.

The proposal would provide improved east-west pedestrian and cycle (on and off road) connectivity as well as a new connection for horse riders between Ingleside and Terrey Hills. These components of the proposal would positively align identified community values.

Consultation activities undertaken for the proposal to date have indicated that generally the community are satisfied with the proposal and how Roads and Maritime proposes to address safety, road capacity and the environment. There is a general acknowledgement across the community that the congestion issues on Mona Vale Road are of great concern and need to be urgently addressed.

Harvey Road extension

The proposed Harvey Road extension would have a negative impact on the directly affected properties through the introduction of a new local road connection through previously rural areas, altering the natural setting valued by the community.

5.2.8. Cumulative impacts

Once operational, the various improvements to the road network identified in Section 5.1.8 would complement each other in addressing congestion and servicing growth in the region. This would be a positive benefit for the local community and for all road users. As a result of both the East and West upgrade of Mona Vale Road, pedestrian, cycle and recreational horse riding connectivity along the east west corridor between Terrey Hills and Mona Vale would be substantially improved.

5.2.9. Summary of operational impacts

The following impacts during operation have been identified:

- Changed access arrangements for users of Addison and Tumburra Roads, resulting in some additional travel time for drivers
- Reduced amenity of properties adjacent to the proposed Harvey Road extension as a consequence of introducing a new road into a previously rural environment
- Reduced visual amenity as a result of the increased road footprint and vegetation clearing
- Benefits to social infrastructure facilities, local businesses and industry, and tourism and recreation facilities as a result of reduced congestion

⁵² Roads and Maritime (2015) *Mona Vale Road East and West Upgrades Community Consultation Report*.

- Reduction in amenity at the Baha'i Temple, Ingleside Baptist Church and St Phillips Anglican Church as a result of increased traffic noise
- Improved safety and accessibility for public transport users through the relocation of bus stops to local roads to the north of Mona Vale Road to safer and more accessible locations
- Improved pedestrian and cyclist provision
- Improved provisions for recreational horse riders to cross Mona Vale Road at signalised intersections
- Improved safety at the intersection of Kimbriki Road and Mona Vale Road through the provision of a signalised intersection
- Vegetation clearing associated with the proposal would result in a minor adverse impact on the natural environment valued by the local community.

6. MITIGATION MEASURES AND STRATEGIES

Strategies to manage potential socio-economic impacts during construction and operational phases are outlined below.

6.1. Construction phase

Property impacts

- Site surveys should be undertaken to ascertain the actual property impacts expected as a consequence of the Harvey Road extension and appropriate management measures developed in consultation with the respective land owners.
- The Department of Planning and Environment should be consulted in relation to the proposed impact on the property zoned for future educational uses in the draft Ingleside Precinct Plan.
- Property impacts associated with the proposed Harvey Road extension are likely to be of considerable concern to affected land-owners. A transparent and equitable process to manage and communicate this activity should be established as early as possible to assist in managing land-owner anxiety.
- Property acquisition would be in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*.
- Further investigation as to the opportunities for reuse of the excess land at 69 Mona Vale Road should be conducted during detailed design.

Amenity impacts

- A construction noise and vibration management plan (CNVMP) would be prepared and implemented in accordance with Roads and Maritime guidelines. The CNVMP would detail the “best practice” construction methods to be used, presenting a reasonable and feasible approach.
- The CNVMP would also detail the community engagement activities that are planned, which would include prior notification procedures, regular updates on noise intensive activities and consideration for provision of alternative arrangements for affected residents, such as temporary relocation. Any extension to working hours or prolonged out of hours works would be agreed with directly affected residents, businesses or community users in accordance with the ENME.
- Significant trees would be maintained where possible.

Traffic impacts

- A Construction Traffic Management Plan (CTMP) would be prepared in accordance with Roads and Maritime’s *Traffic Control at Work Sites Manual (2003)*, and approved by Roads and Maritime prior to implementation.
- The CTMP would include measures to:
 - Manage traffic staging during construction
 - Ensure continuous, safe and efficient movement of traffic for both the public and construction workers
 - Maintain the capacity of local roads
 - Implement temporary speed restrictions around work zones
 - Maintain access to local roads and properties including businesses
 - Manage temporary changes to bus stop locations and routes
 - Minimise road user delays and frustrations where possible, such as additional signage and information.

- The CTMP would include requirements for ongoing consultation and notification with all emergency services providers and ensure access is maintained at all times.
- Should temporary or alternative property access be required, this would be provided in consultation with the affected landowner(s).
- Work would not be carried out on public holidays or over the Christmas and New Year holiday period. The CTMPs would address peak tourist/holiday traffic periods such as Friday and Sunday afternoons and days immediately prior to and following public holidays.
- The CTMP would include management measures for heavy vehicles accessing the Kimbriki Resource Recovery Centre.

Community consultation and communication

- The CTMP would include a construction communications plan including requirements to provide details and timing of proposed activities to affected residents, 24 hour contact name and number for complaints and details of a notification plan for changed conditions during the construction period.
- The construction communications plan would establish processes to ensure that the community and local businesses are provided with sufficient information to enable them to understand the likely nature, extent and duration of all construction activities.
- The construction communications plan would include procedures for individual notification with directly impacted residences, businesses, emergency services, utility authorities, transport industry groups and government stakeholders.
- Appropriate arrangements would be agreed and formally documented regarding safety and access on private property, including but not limited to demolition activities and livestock security.
- The construction communications plan would be prepared in accordance with Roads and Maritime's *Community Participation and Communications Manual (2010)*.
- Activities which would require updates to the community would include:
 - Changes to access and traffic conditions
 - Details of future work programs
 - General construction progress
 - Travel behaviour.

6.2. Operational phase

Amenity impacts

- The Landscape Strategy would include details of plantings to replace screening vegetation along the proposal corridor, including the Harvey Road extension, where possible.

Social infrastructure

- Vegetation lost to the frontage of the Baha'i Temple would be replaced in accordance with the landscape strategy.
- Opportunities for at-property noise treatments at the Baha'i Temple would be developed in consultation with Temple management.

Travel behaviour

- Signage would be introduced to notify new speed limits, steep descents and the new access arrangements into and out of the Wirreanda Valley.

Business and industry impacts

- Opportunities for the installation of new local business directional signage for the Wirreanda Valley would be investigated during detailed design.

Recreation impacts

- Appropriate signage would be installed to manage horse rider movements in the vicinity of the national park to indicate access rights and restrictions.

7. CONCLUSION

This report has identified and assessed the potential socio-economic impacts associated with the proposed upgrade of Mona Vale Road between McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside. The assessment has had regard to the existing context of the proposal, the contribution of other specialist studies, outcomes from community consultation, and the adoption of appropriate mitigation measures.

The proposal is expected to result in considerable improvements to traffic flow, travel times and safety for freight vehicles, buses and private users. It would provide for increased pedestrian, cycling and horse riding opportunities, activities which are highly valued by the local community.

The proposal would have some property impacts at Ingleside as a consequence of the proposed Harvey Road extension, resulting in some severance and sterilisation of land.

The proposal is expected to have some impacts on visual amenity, largely in the creation of the new Harvey Road extension, retaining walls, culvert structures and removal of vegetation. Where possible, significant trees would be retained and new plantings would attempt to assist in mitigating these impacts. Any loss of amenity would be outweighed by the significant benefits of upgrading the road.

Improved traffic flows along Mona Vale Road would benefit workers and patrons of community facilities. Social infrastructure fronting the road is expected to be largely unaffected by the upgrade; however the Baha'i Temple is expected to experience an increase in traffic noise over the relevant criteria and has been recommended for consideration of at-property treatment.

Limiting the Addison Road intersection with Mona Vale Road to left in left out access would result in a small increase in travel times for some residents who would need to travel via the new Harvey Road extension. The impact on these properties would be offset by improved road safety for all users and improved provision for pedestrians and cyclists within the study area.

Generally local businesses and industry would benefit indirectly from the proposal through improved travel times, safety and connectivity. These benefits are expected to outweigh the loss of advertising signage at Tumburra Street and opportunities for suitable new locations would be explored during detailed design.

The community values the natural environment they live in, however they also recognise that traffic congestion and accessibility are important issues that impact on their way of life. There is a general acknowledgement across the community that the congestion issues on Mona Vale Road are of great concern and need to be urgently addressed.

The impacts on the community as a whole are not expected to be significant. Uncertainty is an impact that would be felt during both construction and during the early operational phase as a consequence of changed access arrangements to Wirreanda Valley however this can be eased by a co-ordinated and regular communication program.

Where necessary, mitigation measures are recommended to address negative impacts of the upgrade, at Section 6 of this report.

Overall, the social and economic benefit of the proposal is expected to outweigh any negative impacts that cannot be satisfactorily mitigated.

REFERENCES

- Aecom (2015) *Mona Vale Road Upgrade West: Traffic Assessment*, report prepared for NSW Roads and Maritime Services, May 2015.
- Bicycle Network (2015) *Super Tuesday Bike Commuter Count Warringah Council*, accessed from <http://www.warringah.nsw.gov.au/sites/default/files/documents/general-information/warringah-bike-plan/2015-130066-super-tuesday-2015-report-warringah-final.pdf>
- Bicycle NSW (2012) *Bicycle NSW Submission to Roads and Maritime Services in response to Exhibition of Mona Vale Road Ingleside Upgrade Options Report*. Accessed from <https://bicyclensw.org.au/wp-content/uploads/2012/11/BicycleNSWSubmission-MonaValeRdInglesideUpgradeOptionsReport.pdf>
- Destination NSW (2011) *Perception of Sydney Precincts*.
- Handy, S. (2002) "Amenity and severance" in Hensher, D.A and Button, K.J. (eds) *Handbook of transport and environment*, Elsevier Science, Oxford.
- Design Inc (2016) *Mona Vale Road Upgrade West: Landscape Character Visual Impact Assessment and Urban Design Study*, report prepared for NSW Roads and Maritime Services, January 2016.
- Infrastructure NSW (2014) *State Infrastructure Strategy Update*.
- Kelleher Nightingale Consulting (2015) *Mona Vale Road Upgrade Terrey Hills to Ingleside: Aboriginal Cultural Heritage Constraints Mapping and Archaeological Survey Report*, report prepared for NSW Roads and Maritime Services, August 2015.
- North Shore Horse and Pony Association (2013) *Trail Summer/Autumn Newsletter 2013*. Accessed from http://www.nshpa.org.au/Images/Trail/Trail_Summer_Autumn_2013.pdf
- Pacific Environment (2016) *Mona Vale Road Upgrade West – Noise and Vibration Assessment*, report prepared for SMEC Australia, April 2016.
- Pittwater Council (2011) *Tourism in Pittwater: Building Communities and Economic Development*.
- Pittwater Council (2012a) *Pittwater Council Social Plan 2012 – 2016*.
- Pittwater Council (2012b) *Pittwater Walks and Rides Strategy Masterplan*.
- Pittwater Council (2012c) *Discussion Paper 2 (Social Plan): A Sense of Place*.
- Pittwater Council (2012d) *Discussion Paper 6 (Social Plan): Getting around Pittwater – our transport needs*.
- Pittwater Council (2014) *Pittwater Draft Public Space and Recreation Study*.
- Pittwater Council (2015) *Tourism Sector Analysis* <http://economy.id.com.au/pittwater/tourism-value> viewed on 12 October 2015.
- Roads and Maritime (2015) *Mona Vale Road East and West Upgrades Community Consultation Report*.
- RPS (2016) *Mona Vale Road West Upgrade Statement of Heritage Impact*.
- Warringah Council (2009) *Recreation Strategy 2009*.
- Warringah Council (2009) *Research Paper – Horse riding trails and facilities in Terrey Hills and Duffys Forest*. Accessed from <http://www.warringah.nsw.gov.au/sites/default/files/documents/general-information/horse-trails/2009-riding-trails-and-facilities-terrey-hills-and-duffy-forest.final-version-adopted-8-december-2009.200912009.pdf>

Warringah Council (2010) *Warringah Bike Plan*.

Warringah Council (2015) *Tourism Sector Analysis*

<http://economy.id.com.au/warringah/tourism-value> viewed on 12 October 2015

Warringah Council (nd) *Warringah Council Community Strategic Plan*, accessed from <http://www.warringah.nsw.gov.au/your-council/plans-and-reports/community-strategic-plan> on 14 October 2015.