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RMS  
MONA VALE ROAD INGLESIDE  
PRELIMINARY URBAN DESIGN STRATEGY  
S13-0015 - R01 - FINAL AUGUST 2013 ISSUE F



Cover Image:  
Mona Vale Road. Source RMS

Inside Cover:  
Adjacent Bushland



## MONA VALE ROAD INGLESIDE PRELIMINARY URBAN DESIGN STRATEGY

Client:  
Roads and Maritime Service

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## EXECUTIVE SUMMARY

### EXECUTIVE SUMMARY

Mona Vale Road forms a strategic link between the population centres of the Northern Beaches with the employment and education precincts of Macquarie Park. Situated on a steep sided ridge top surrounded largely by National Parks and bushland, it is highly constrained by complex and difficult terrain, important cultural assets, threatened plant communities and endangered species.

As only a two lane road, this section of Mona vale Road is congested and experiences considerable peak hour delays. With the local population set to increase with planned urban release areas, the upgrade to four lanes will provide a much needed increase in capacity. The urban design challenge with this upgrade has been how to sensitively fit a four lane road into this narrow ridge top landscape.

The preferred option moves part of the road corridor to the north of the ridge top and has been designed to protect important cultural assets and endangered species while minimizing impact on threatened plant communities. This move amalgamates a large area of previously fragmented habitat into Garrigal National Park. This alignment creates a key opportunity to provide a habitat link between the two large contiguous National Parks either side of the road and reduce the high road kill of native fauna. The early relocation of disparate services that currently crisscross the road, to a single consolidated alignment provides the opportunity for a multi-use path and facilitates road staging. Importantly for an area of high car dependence, this alignment maintains long term flexibility for future public transport options.

The urban design principles guiding the future stages of design have sought to integrate the new road with its steep bushland environment. The use of sandstone cut and a focus on the aesthetics and quality of the uphill cut batters and minimizing the extent of vegetation removed for construction are two important urban design objectives. With terrain approaching 1:2, retaining walls will be necessary to limit acquisition and loss of bushland habitat. The downhill walls are seen as being very simple concrete walls utilising simple panelling, clean and neat detailing with an open metal barrier on top to facilitate bushland views and vistas. To bring the canopy back as close as possible to the road, construction works areas beside the road are to be re-vegetated with locally provenanced species matched to the local natural systems, to be as self reliant and as minimal maintenance as possible.

The urban design recommendations for the next stage of design are to investigate alignment refinements to provide a greater buffer to a large rock outcrop, to investigate ways of better integrating the multi user path through steep bushland, and reviewing construction and staging options to maximize bushland retention by minimizing the size of temporary construction access required for the construction of downhill retaining walls.

### REPORT SUMMARY

The report is divided into a number of key sections as outlined below:

#### INTRODUCTION

The NSW Government has previously identified Mona Vale Road as a corridor of demand. The main objective of the road upgrade will be to reduce congestion and improve travel times.

There are two key guiding RMS documents outlined in the introduction. These are The "Mona Vale to Macquarie Park Corridor Strategy" which establishes the key strategic framework for the road and "Beyond the Pavement" that sets out nine key principles for urban design. These nine principles have been used as the basis for the development of the issues and principles section of this report.

#### STRATEGIC REVIEW

Section Two of this report investigates the strategic picture affecting the northern beaches location of this road, including considerations in the Sydney Metropolitan Strategy and the NSW Long Term Transport Masterplan. Key issues here are planning for strategic bus routes, and proposed urban development that will increase the population size. There are limited current strategic planning proposals that directly impact the road.

#### ISSUES AND PRINCIPLES

Section Three is an Issues review based around the nine framework principles in "Beyond the Pavement". In summary the key items here are:

##### Landscape context and road character:

Mona Vale Road from Terrey Hills to Ingleside is a beautiful winding stretch of road surrounded by two National Parks. It curves and sweeps over hilly ridgetop terrain offering users occasional long distance glimpses of the Pacific Ocean. The bushland setting with canopy over the road in places and narrow road contributes to a particular character that will be impacted by duplication of the carriageway. The urban design challenge is how to sensitively fit the four lane road into this narrow ridge top landscape and retain some of the roads character.

The key principles here include minimising damage to adjacent bushland during construction, replanting with indigenous species to maximise the close proximity of trees to the road. On the uphill side of roads, it is proposed that the cut batters maximise the use of natural sandstone.

##### Future urban development:

The road straddles two local government areas and adjoins an area of land that has been earmarked for urban expansion with the addition of possibly up to 4900 new dwellings or a potential population of around 13,000. Whilst this urban expansion is in an early investigation stage, it has shaped the design and location of key intersections.

Key opportunities here are how to ensure that the new urban development maximise pedestrian walkability and cycling connectivity internally and to key destinations such as town centres, schools and bus stops. Urban planning should ensure Mona Vale Road does not become a barrier to connectivity.

##### Protection of cultural assets:

The study area on Mona Vale Road Ingleside has important cultural assets near the road including the Baha'i Temple and sensitive Aboriginal areas. The preferred road alignment and construction areas retain and protect all of these assets.

##### Working with terrain:

The steep terrain either side of the ridge top road poses topographical and geotechnical constraints. Considerable cut and fill are required in this environment. The preference where possible is to utilize the natural sandstone in cut embankments and concrete retaining walls using simple panelling on the fill embankments.

##### Working with habitat:

With extensive bushland including National Parks either side of the road, there are threatened communities and endangered plant species in close proximity to the road. The preferred road alignment protects endangered plant species and minimises impacts on threatened communities.

##### 'Designing-in' options to reduce car dependence:

The road serves a region of Sydney which has very high levels of car dependence, largely due to a lack of public transport alternatives. As a consequence of this and the fact that it serves a peninsular, Mona Vale Road experiences significant congestion during the weekday morning and evening traffic peak flows. Weekend vehicle volumes are only slightly lower than the weekday peaks due to high tourist demand. The steep terrain of the study area also compounds traffic flow issues as it contributes to delays caused by heavy vehicle movements.

Alternatives to car travel are seen as part of the long term strategic planning solution to traffic flow issues on Mona Vale Road. While there are currently no planned public transport options for the corridor, with future population growth, the potential for long term public transport options within the design life of this road need to be considered within the road carriageway set by this design.

##### Achieving an integrated minimal maintenance design:

In this bushland environment it is important to utilize a simple design language of robust materials fit for purpose and the place with clean and neat detailing. Provide a self-reliant and minimal maintenance natural landscape using locally provenance material as far as is practicable and reduce opportunities for crime and vandalism through good design.

## EXECUTIVE SUMMARY

### PREFERRED OPTION

In developing the road from the guidance of the Strategic Urban Design report, three road options were investigated. This was an iterative process and as a result of community consultation, constructability and risk management reviews, the northern alignment was selected as the preferred option. This option relocates the central section of the road corridor to the north of a large rock outcrop and ridge. There are a number of benefits in this option as outlined below.

- The disparate collection of services that currently crisscross the road, will be relocated to the north of the road into a single consolidated alignment. This will be undertaken in the first stage of works and provides the opportunity for providing a multi-use path on this alignment. Further development is required in future design stages to ensure a best fit of this corridor with the landscape.
- The relocation of the road to the north connects a large previously fragmented section of bushland in State ownership to Garrigal National Park.
- There is an opportunity with gradients here that would allow for the provision of a fauna overpass connecting the two large contiguous areas of National Park either side of the road. Along with opportunities in filled areas to provide fauna underpasses, these will provide important habitat links and offer the opportunity to reduce the high road kill particularly of swamp wallabies.
- The preferred option provides for future expansion within the carriageway through the option of either hard shoulder running or implementation of tidal flow measures.

### URBAN DESIGN DIRECTIONS

A significant urban design challenge for the road is its integration into its bushland environment. There are a number of key recommendations here including:

- Utilising natural sandstone in cut embankments or facing of unsuitable sections with sandstone.
- Ensuring that the top line of these cut embankments have simple geometries, by filling sections exhibiting loose or poor material with large sandstone blocks recovered from site excavations.
- No visible shotcrete.
- The use of concrete retaining walls with simple panelling for down hill sides that utilize simple panelling and continuous parapets to provide shadow lines.
- The use of a consistent concrete cope on the top of downhill retaining walls integrated into the crash barrier.
- Utilising open metal railings as part of crash barriers to allow views to bushland and visually open up the road corridor.

### CONCLUSIONS / RECOMMENDATIONS

The key recommendations arising from this report are as follows:

- Investigate road alignment refinements to provide a more substantial buffer to the large rock outcrop as illustrated on page 47.
- Review road construction and staging options to maximize bushland retention by minimizing the size of temporary construction access required for the construction of downhill retaining walls.
- Undertake further detailed design on the alignment and construction methodology of the services easement. The intention should be to minimise impacts to bushland and rock outcrops.
- Investigate ways the multi user path can be better integrated into the into the steeply sloping bushland and rock shelf terrain carefully detailing construction methods. We recommend that in the next stages the alignment of the multi user path should be pegged on site and surveyed to assist in the design decisions.
- Investigate ways of improving the grade of the multi user path wherever possible.
- The preferred option provides an opportunity for a fauna overpass. Design and detailing of this should be simple and elegant.
- While expense may be a limitation there are benefits in the viaduct option for the Tumburra Street Intersection that should be considered with further review.
- Continue to consider long terms options that will facilitate modal shift in the region by providing for efficient and well serviced public transportation. After this expansion there is no more room to widen the road. Therefore means of better utilising the carriageway should be considered in any planning including both tidal flow and hard shoulder running.
- At a strategic level it will be important to continue to liaise with Urban Growth NSW and Pittwater Council regarding the future urban expansion of the Ingleside / Warriewood Urban Release area to ensure Mona Vale Road is not a barrier to pedestrian connectivity and to maximise pedestrian walkability and cycling connectivity through the development and to key destinations such as town centres, schools and bus stops.
- Work with Transport for NSW to co-ordinate public transport with the road and the new release area.

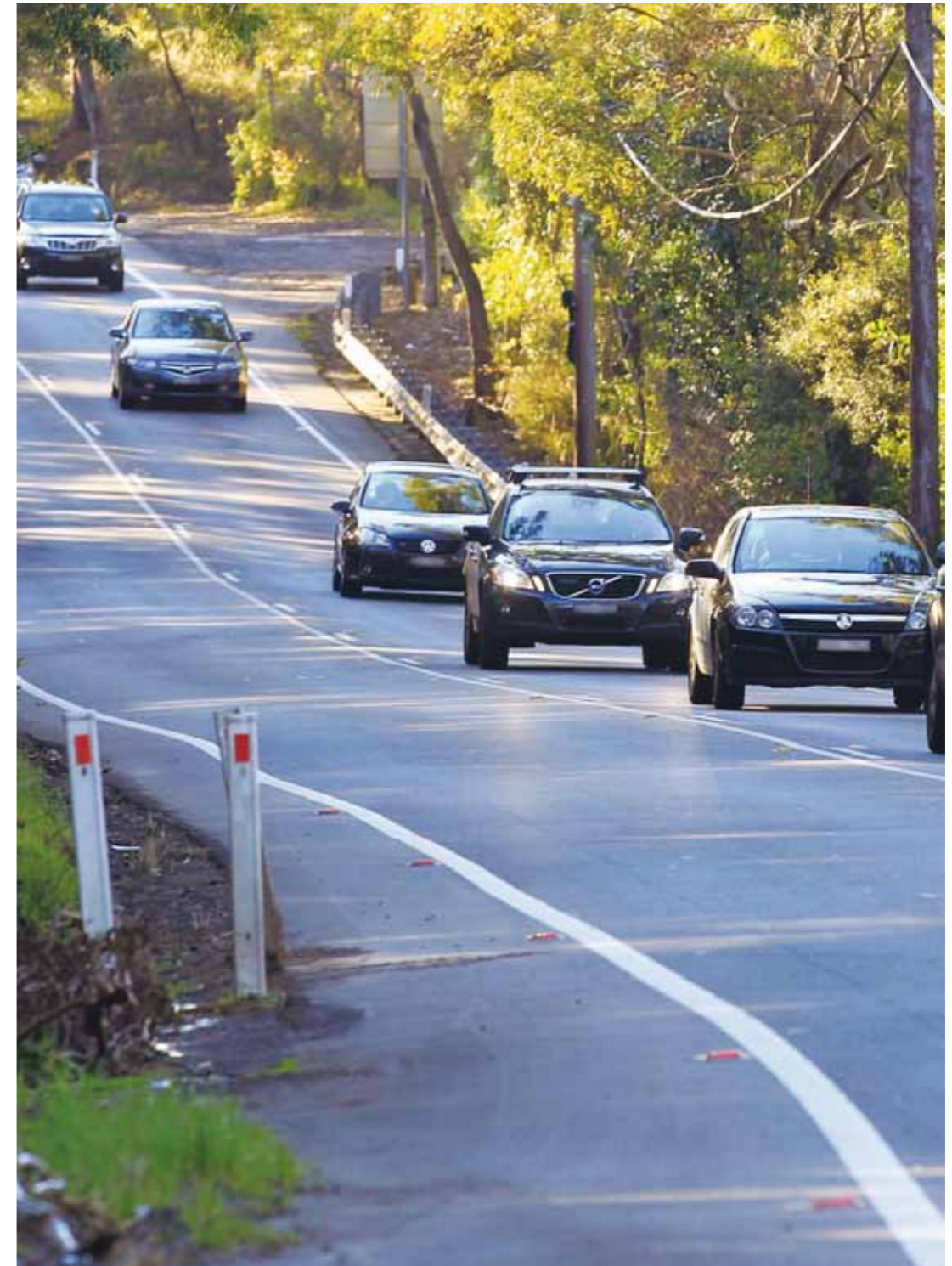


Image source RMS

# Introduction / Background



## CHAPTER 1 - INTRODUCTION

### PURPOSE OF STUDY / BACKGROUND TO STUDY

This study has been prepared as a Preliminary Urban Design Strategy to inform the future stages of design for Mona Vale Road between McCarrs Creek Road, Terrey Hills and Powder Works Road, Ingleside.

This document has been informed by the review of three route options. A preferred option was chosen with considerable consultation and review and this report focuses upon the preferred option. The ultimate aim is to produce an integrated engineering and urban design outcome that responds to the character and considerable environmental constraints of this section of road while having a long range view for the future. This document picks from the prior strategic urban design investigation by CLOUSTON Associates. (January 2012)

### REVIEW AND ASSESSMENT OF PREVIOUS STUDIES

In preparing this review we have referred to previous relevant documents and guidelines, with the main informing documents being:

- Roads and Traffic Authority Road Design circa 1966
- Roads and Traffic Authority Beyond the Pavement 2009 edition
- Mona Vale to Macquarie Park Corridor Strategy 2009
- Land use assessment undertaken by Pittwater Council
- Roads and Traffic Authority Northern Beaches Bus Rapid Transit - Pre feasibility study
- Roads and Traffic Authority Cycleway strategy
- NSW Government Sydney Metro Strategy 2010
- Strategic Urban Design Investigation. CLOUSTON Associates 2012
- Mona Vale Road Upgrade Options report - Preliminary Environmental Investigation
- Mona Vale Road Upgrade • Community Consultation Summary Report
- NSW Long Term Transport Masterplan
- NSW 2021
- NSW State Infrastructure Strategy
- Roads and Maritime Services Centre for Urban Design. Bridge Aesthetics. July 2012

### STATE PLANNING

#### NSW long term transport masterplan and NSW 2021

The NSW Long Term Transport Masterplan and the NSW 2021 Ten Year Plan both inform this project. The former provides broad recommendations and the latter key related goals – seven of which apply to Mona Vale Road. The content and scope of these plans are outlined on page 12.

### THE CORRIDOR

#### Mona Vale to Macquarie Park Corridor Strategy

The Mona Vale to Macquarie Park Corridor Strategy provides the rationale for the project. It establishes the broad framework for the 24km stretch of Route 3 that Mona Vale Road occupies. It recognises the strategic importance of Mona Vale Road and its orbital profile in linking the recreational assets of the northern beaches (including Garigal and Ku-ring-gai National Parks and beaches) with key employment and education areas in Top Ryde, Macquarie Park and Parramatta.

The report sets out a 25 year framework for the management of the corridor. It identifies that car ownership and car dependence in this corridor is amongst the highest in the Sydney region. The report identifies key challenges including:

- The performance of congested single lane segments between McCarrs Creek Road and Ingleside.
- Delays to general traffic caused by heavy vehicles along the hilly section between Mona Vale and Ingleside.
- Relatively narrow sealed shoulders on single lane and passing lane sections of Mona Vale Road between Ingleside and McCarrs Creek Road.

The Short term priorities for the period 2009-2014 arising out of this study include:

- ST2 Commence planning to enhance capacity and efficiency for light and heavy vehicles in single lane sections between Terrey Hills and Ingleside, including identification of corridor requirements.

The Long term priorities for the period 2009-2014 arising out of this study include:

- LT3 Monitor the adequacy of the capacity for the single lane sections between Mona Vale and Ingleside and, if appropriate, consider options for enhancing this capacity.
- LT4 Continue to support increased levels of public transport to Warriewood, Ingleside, St Ives and Macquarie Park and higher occupancy in vehicles as road capacity becomes increasingly constrained.
- LT7 With the department of Planning and Pittwater Council, encourage public transport, walking and cycling in the development of Ingleside, and secure developer contributions to deliver this infrastructure.

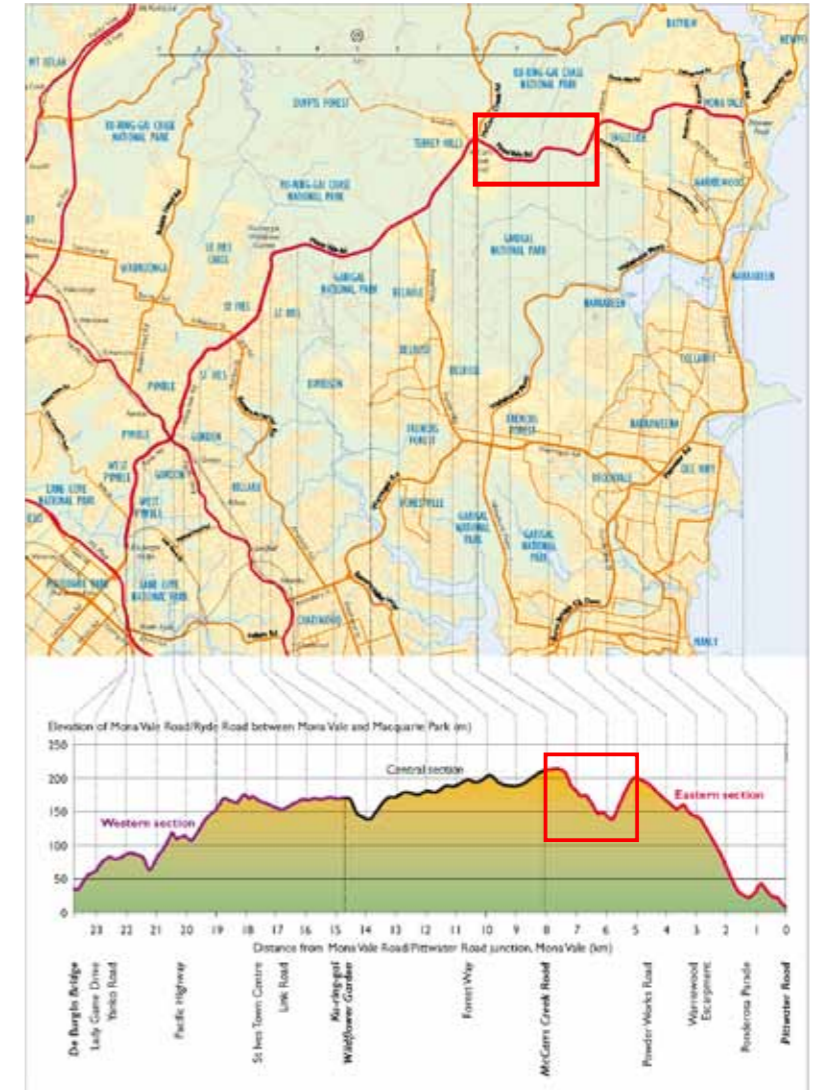


Figure 1.2. Elevation profile of Mona Vale Road/Ryde Road between Mona Vale and Macquarie Park.

Source: Roads and Traffic Authority 2009 Mona Vale to Macquarie Park Corridor Strategy



## CHAPTER 1 - INTRODUCTION

### URBAN DESIGN POLICY

#### Beyond the Pavement

Beyond the Pavement is a key RMS policy document that outlines urban design considerations including both physical outcomes and performance outcomes.

Physical outcomes include:

- How roads sensitively relate to their environment – a critical issue here is the narrow ridge top road, surrounded largely by National Park and bushland. At one of the narrowest points on the ridge top there is a substantial natural rock shelf that has a considerable impact on the horizontal design alignments for the roadway.
- The accessibility and connectivity the roads create – This is important as Mona Vale Road provides a strategic link between the recreational assets of the northern beaches through to key economic areas and a growing housing area. However the modal split is dominated by private vehicles.
- With the proposed future development of two town centres on either side of Mona Vale Road, there is an opportunity through good design to integrate both sides of urban development with a high degree of pedestrian and cycle connectivity.
- The contribution to the public domain – While the character of Mona Vale Road is largely bushland, the quality of the public domain needs to be sensitive to this road experience and associated views and create an address for new urban development.

Performance outcomes include safety considerations, cost effectiveness and sustainability as outlined below:

- Improvements to this section of road should have flow on economic benefits, while being as cost effective as possible to achieve. That said, this road will need to contribute to the visual look and feel of the environment and in some cases higher quality finishes will make a more lasting contribution to the road as an experience. For example the use of shotcrete in cut embankments is undesirable.
- Sitting within such a natural environment, sustainability through effective planting selection and facilitating a wider mode of transportation are important, as well as ensuring continuity of natural systems and habitats.

This preliminary Urban Design strategy has used the nine principles in beyond the pavement as way to structure the review of the road and the resultant design principles.



Image source RMS



*Long vista to the Pacific Ocean is an important point in the experience of the road.*

# Planning Context



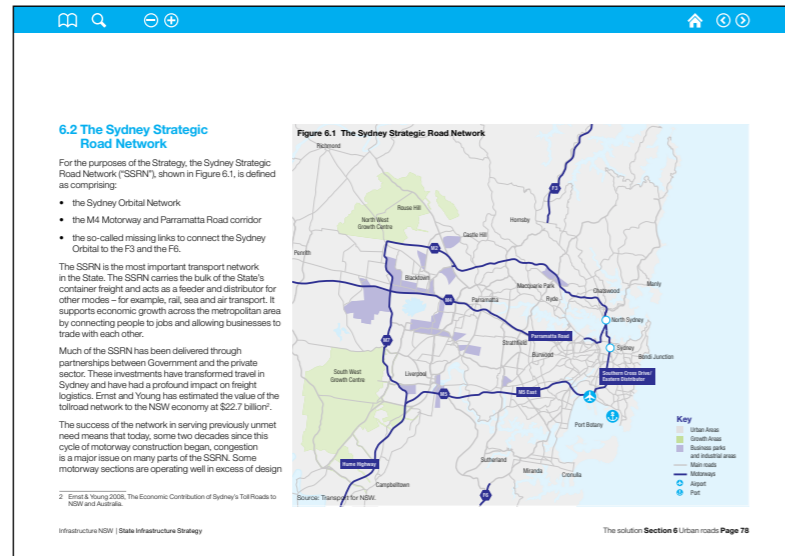
## CHAPTER 2 - SITE PLANNING CONTEXT - STRATEGIC PLANNING FRAMEWORK

### NSW LONG TERM TRANSPORT MASTERPLAN

The NSW long term transport masterplan identifies Mona Vale Road ( graphically) as a corridor of demand. The document has a number of broader recommendations including the need to integrate transport with landuse planning, improving the transport network connections of the city, improved inter-modal connections and bring introduce single cross-mode tickets.

### NSW STATE INFRASTRUCTURE STRATEGY

The NSW State Infrastructure Strategy Identifies priority projects to help unlock Sydney's potential. Its focus is primarily around the M2, M7 Loop, M4 and M5 connections, F3 and proposed West Connex and Parramatta Road upgrades.

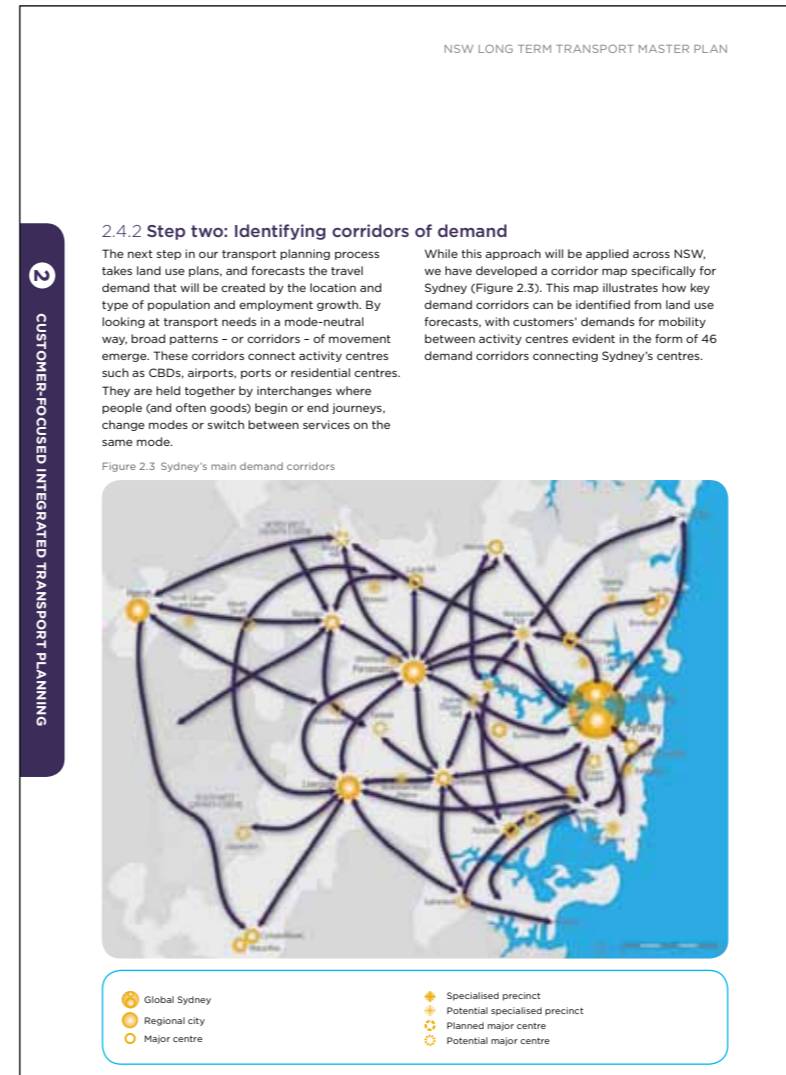


NSW State Infrastructure Strategy

### NSW 2021 THIRTY TWO GOALS

The NSW 2021 Ten Year Plan has 32 key goals of which a number have relevance to infrastructure generally and peripherally to Mona Vale Road. The key related goals included:

1. Improve the performance of NSW economy.
7. Reduce travel times.
9. Improve customer experience with transport services.
10. Improve road safety.
22. Protect our natural environment.
26. Fostering opportunity and partnerships with Aboriginal people.
27. Enhance culturally creative, sporting and recreational opportunities.



NSW long term transport masterplan

### THE NSW ROAD SAFETY STRATEGY 2012-2021

The NSW Road safety strategy 2012-2021 outlines a number of strategic initiatives to improve road safety. Of relevance to Mona Vale Road is the desire to "Ensure road safety is considered throughout the design, construction, maintenance, operation and audit of the road network for all road users including targeting treatments to address head-on, intersection, run-off road crashes".

[http://www.rta.nsw.gov.au/roadsafety/downloads/road\\_safety\\_strategy.pdf](http://www.rta.nsw.gov.au/roadsafety/downloads/road_safety_strategy.pdf)  
P21



NSW long term transport masterplan

## SITE PLANNING CONTEXT - REGIONAL FRAMEWORK

### REGIONAL CONTEXT

Mona Vale Road, Ingleside, lies within the northern Sydney suburbs of Terrey Hills and Ingleside. It provides a strategic link for these suburbs and the northern beaches to the greater employment areas of the Macquarie Park / North Ryde and higher education facilities such as Macquarie University and Parramatta and Homebush Bay. This route also provides a recreation route to the northern beaches from the west.

Mona Vale Road is important in that it forms the only route into this location and is one of only three roads into and out of the Northern Beaches, yet is highly constricted.

In a regional context the road has been identified as a barrier to the contiguous extent of Ku-ring-gai Chase National Park and Garigal National Park. This is likely to be exacerbated by any future road upgrades.

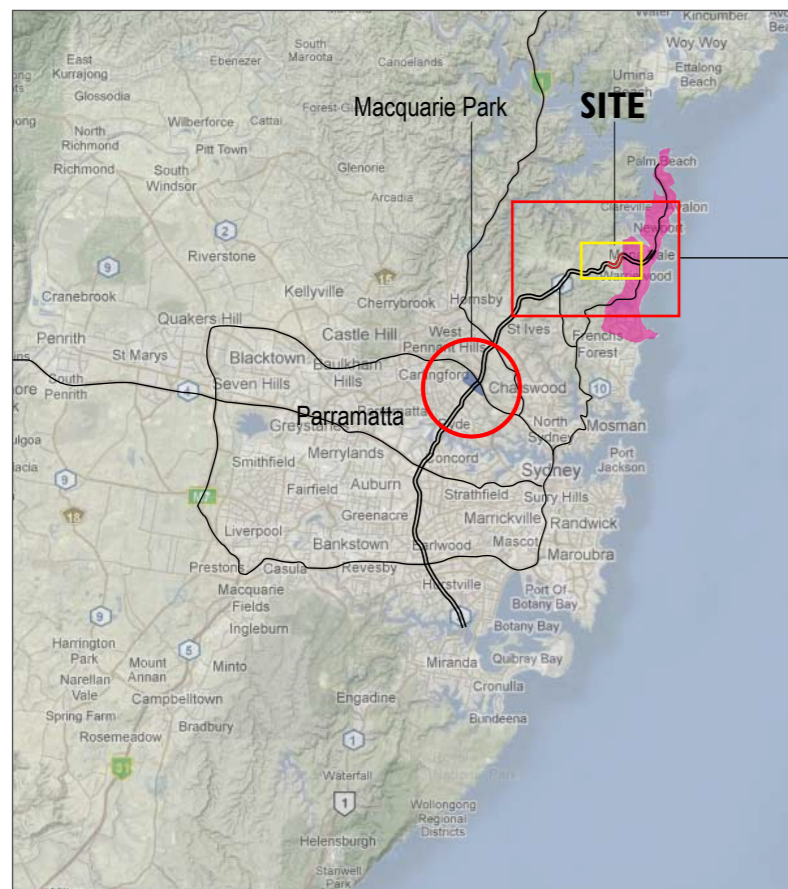
### LOCAL AND SITE CONTEXT

The road straddles two local government areas of Pittwater Council and Warringah Shire Council. It is surrounded predominantly by bushland including Garigal National Park to the south and Ku-ring-gai Chase National Park to the north. Important local destinations include Kimbriki Tip recycling facility. It has important Aboriginal and non Aboriginal cultural assets, including the Baha'i Temple.

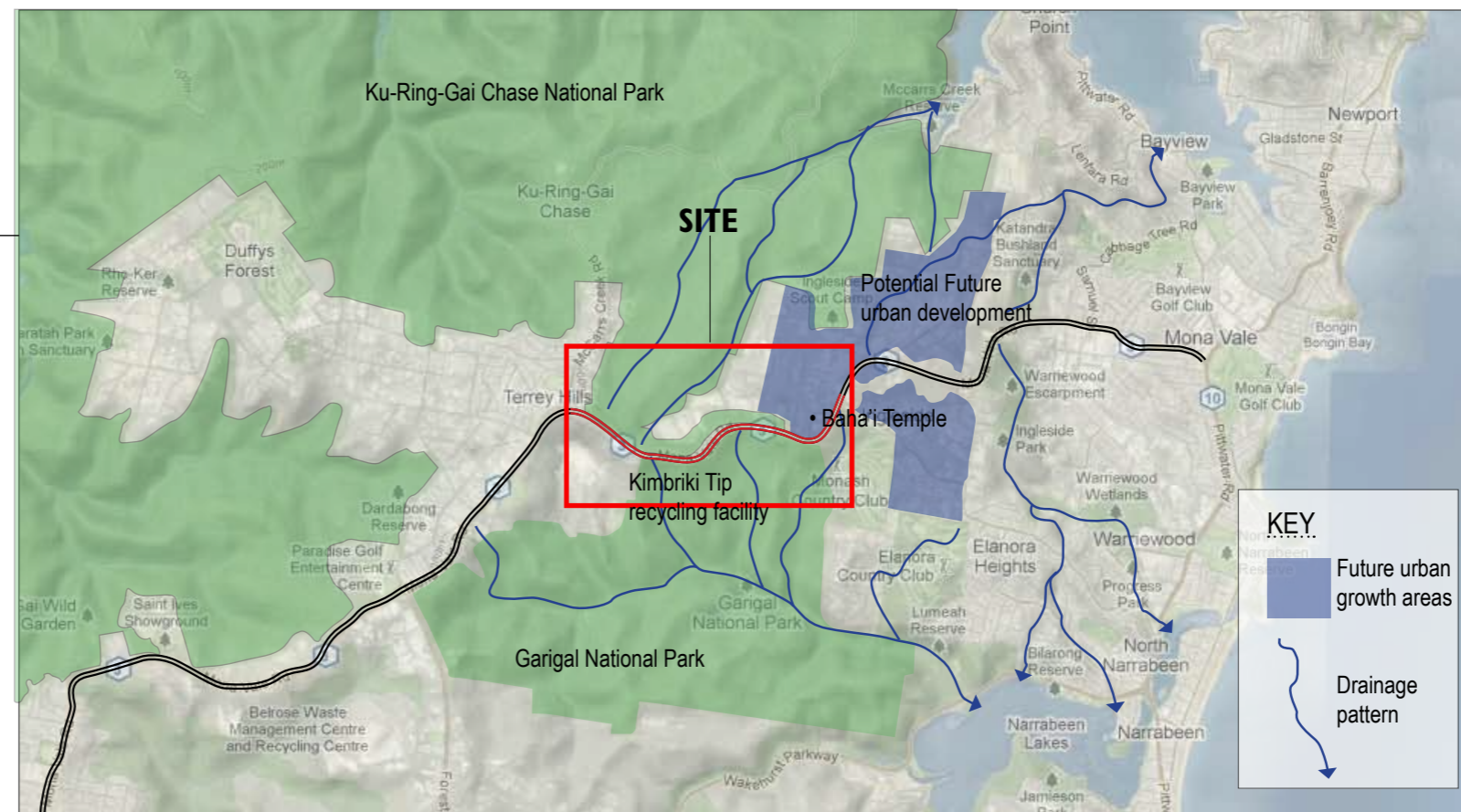
Mona Vale Road occupies a ridge top setting that divides the catchments of the highly dissected Hawkesbury sandstone terrain on either side. This terrain and other barriers such as Narrabeen Lakes have influenced both settlement patterns and transport networks. These physical barriers limit future urban growth and the road networks into and out of the Northern Beaches. To this end Mona Vale Road will remain an important strategic link for the mid to long term. Given the constrained nature of the road, this poses questions about how to effectively design longer term potential. Particularly with the need to consider strategic bus lanes and heavy vehicle overtaking lanes on steep sections. There is a formal path between the Baha'i Temple and Addison Road on the northern side of Mona Vale Road.



View looking East from the Baha'i temple. Source - Google earth



Regional context: Source: Google Maps

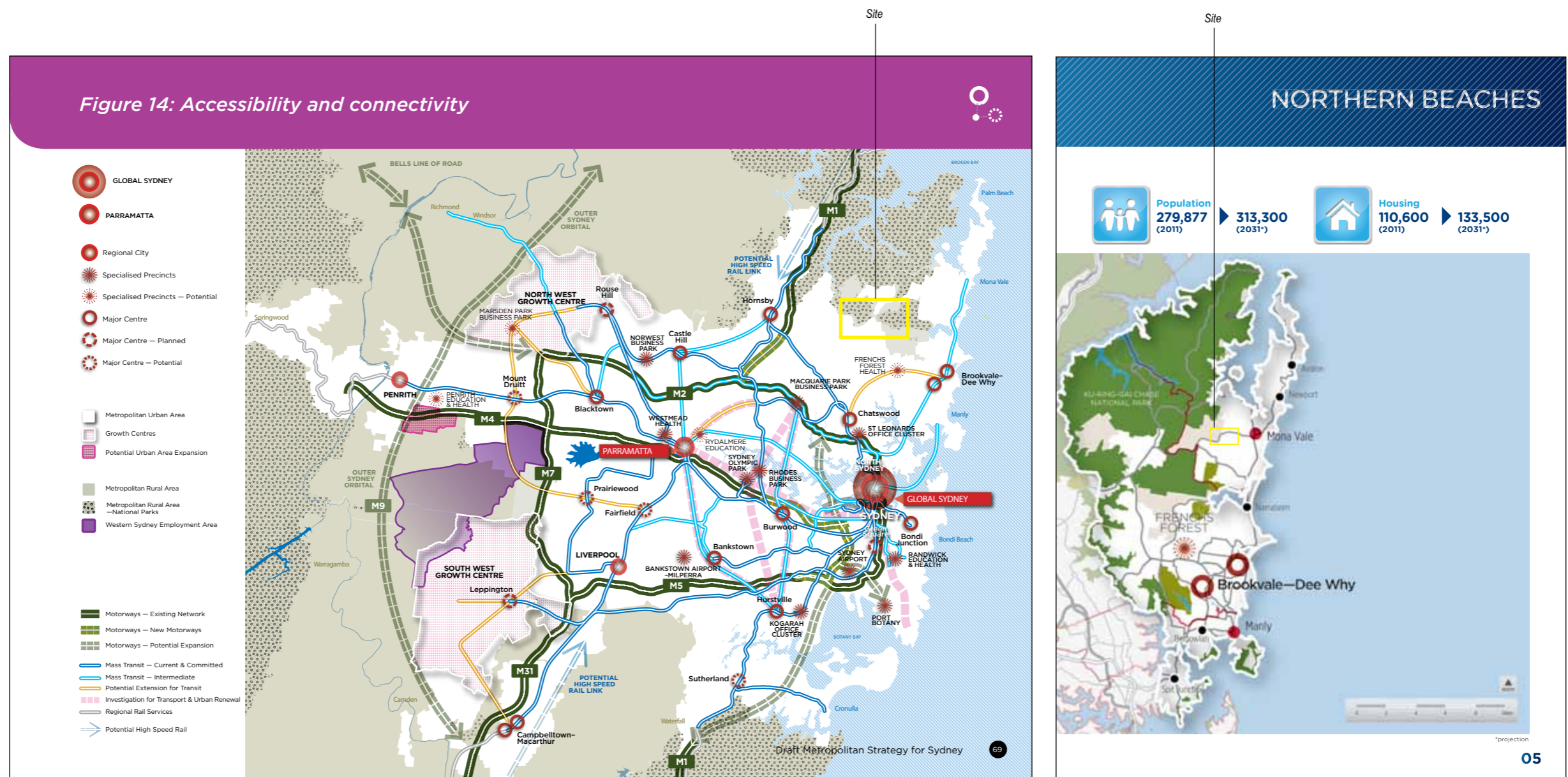


Local context : Source: Google Maps

## SITE PLANNING CONTEXT - REGIONAL FRAMEWORK

### 2013 NSW GOVERNMENTS METROPOLITAN STRATEGY

The 2013 Metropolitan Planning Strategy outlines the strategic planning framework for Sydney through to 2021. It simplifies the intent of the previous metropolitan plan and while Mona Vale is shown as a priority mass transit (bus) hub, Mona Vale Road is not specifically identified for public transport expansion.



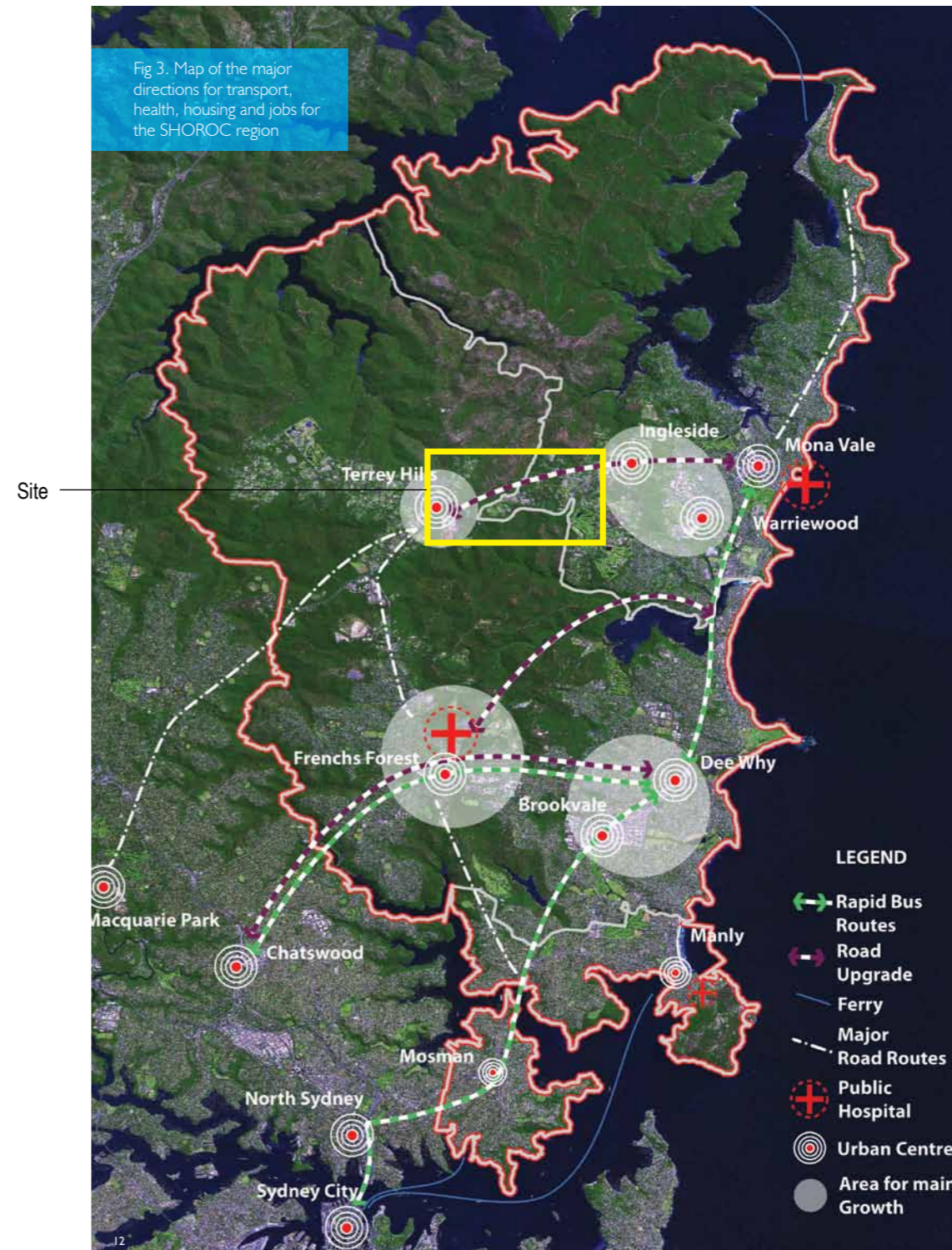
## SITE PLANNING CONTEXT - REGIONAL FRAMEWORK

### SHOROC - SHAPING OUR FUTURE

The Shaping our Future plan has identified a similar range of issues to those outlined earlier, including the upgrade of the Terrey Hills to Mona Vale section of Mona Vale Road. It was prepared as a response to the NSW State Plan, Metropolitan Transport Plan, and Metropolitan Strategy by a consortium comprising Manly, Mosman, Warringah and Pittwater councils. In their study they have identified "... significant road congestion, limited and inefficient public transport as well as the lack of access to an appropriate and accessible high quality health service" as the most critical challenges for the region.

[SHOROC, 2010. *Shaping our future. Directions for transport, health, housing and jobs for a vibrant sustainable SHOROC region.* p7]

This is important because it further illustrates that congestion on Mona Vale Road is a regional issue and that the road will be linking not just the major destinations of Mona Vale and Macquarie Park, but also smaller planned local centres.



Source; SHOROC, 2010. *Shaping our future. Directions for transport, health, housing and jobs for a vibrant sustainable SHOROC region.* p14

## SITE PLANNING CONTEXT - PHOTOGRAPHIC APPRECIATION



View east of the drop off to Tumbledown Dick Hill with the Pacific Ocean in the distance providing a key sense of arrival to the northern beaches.



View east of a typical curving and winding section of the road



View looking west, up hill towards Terrey Hills (source: Google earth).



Large rock shelf viewed in Google earth looking west with Garigal National Park on the left (source: Google earth).



View east, constrained section at the top of the ridge with steep drop off to Garigal National Park on the right.



View west, from Powder Works Road end looking across the Baha'i Temple (source: Google earth).



Views of bushland on north side of the road corridor.



Curving left hand drive up around the Baha'i Temple site, with slow vehicle lane and elsholz kerb.



The Baha'i Temple and roadside floral gateway.



## SITE PLANNING CONTEXT - PLANNING AND LAND OWNERSHIP

### LAND OWNERSHIP AND TENURE

There are about 10 adjacent land owners in this section of road. Much of the land in the easement is under State Government control.

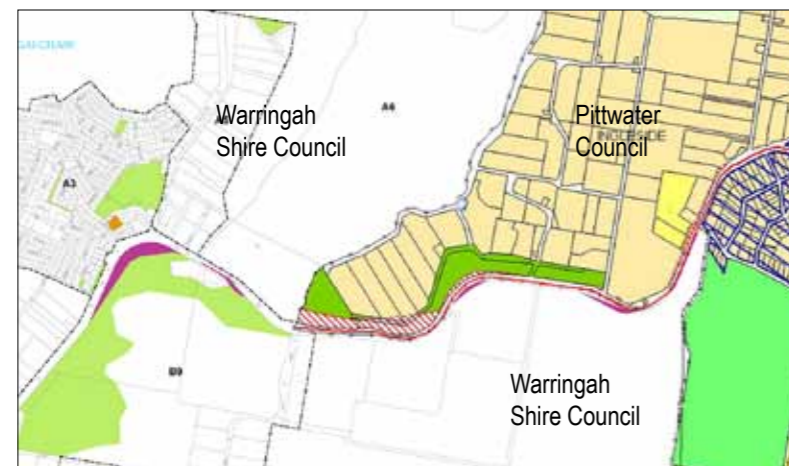
### STATUTORY PLANNING CONTEXT

The road site lies within two council areas of Pittwater Council and Warringah Shire Council.











Relevant Statutory considerations include:

- Threatened Species Conservation Act 1995
- Native Vegetation Act 2003
- The Rural Fires Act 1997
- Native Title Act 1993
- Native Title Act (NSW) 1994
- Aboriginal Land Rights Act 1983
- The Environmental Protection and Biodiversity Act 1999
- National Parks and Wildlife Act 2010
- Heritage Act 1977

Development Control Plans for the site are covered by two local council areas with variations for future road widening locations.



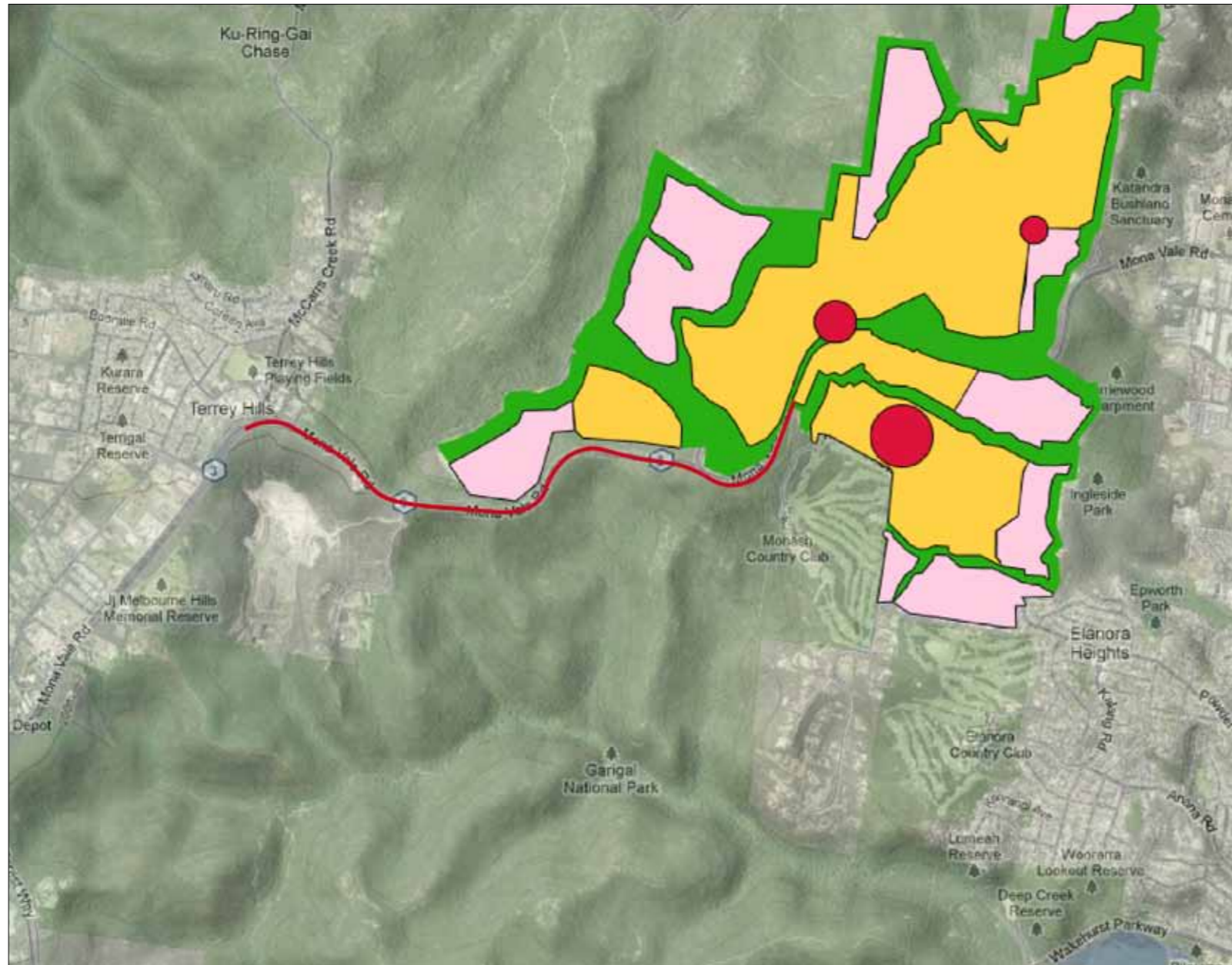
### LAND OWNERSHIP

- |  |  |   |                                     |
|--|--|---|-------------------------------------|
|  | Private ownership  |  | Water Board                         |
|  | National Spiritual Assembly of Baha'is of Australia Inc. |  | State of New South Wales            |
|  | Minister of Education                                    |  | NSW Lands Department                |
|  | Warringah Shire Council                                  |  | National Parks and Wildlife Service |
|  | Metropolitan Water Sewerage and Drainage Board           |  | Crown Land                          |

## SITE PLANNING CONTEXT - DEVELOPMENT

### LEGEND

-  Mona Vale Road
-  High Density Town Centre
-  Medium Density Residential
-  Low Density Residential
-  Proposed Green Corridor



**POTENTIAL 4900 LOT DEVELOPMENT**  
 Subdivision Source: Adapted from Landcom powerpoint presentation

Base map source : Google maps

### FUTURE DEVELOPMENT

As part of the NSW Government's strategy to provide for additional housing to support Sydney's growing population, the Ingleside area has been proposed to cater for up to an additional 4900 plus dwellings. Both Pittwater Council and Urban Growth NSW have done preliminary investigations for the site - primarily for areas to the north of the road section, consisting of higher density development than existing.

As outlined before, the constraints created by bushland and National Parks including Garigal and Ku-Ring-Gai Chase National Parks as well as the coast, mean that there are limited green field opportunities. Therefore urban density in this northern beaches area has a limited carrying capacity without increased Floor Space Ratio and height changes, allowing for multistorey apartments.

The current intent of the Ingleside/ Warriewood release area is to accommodate up to 4900 new homes or the equivalent of a small suburb. With a likely population of 13,700 (based on Warringah Councils occupancy rate of 2.8 /dwelling). The entire Warriewood / Ingleside release area has a predicted population of 17,800. [Pittwater Council]  
[http://www.pittwater.nsw.gov.au/\\_data/assets/pdf\\_file/0008/19178/Land\\_use\\_Selection\\_and\\_Dwelling\\_Population\\_Projections.pdf](http://www.pittwater.nsw.gov.au/_data/assets/pdf_file/0008/19178/Land_use_Selection_and_Dwelling_Population_Projections.pdf) Accessed on 20/4/13

The northern part of the peninsula served by Mona Vale Road is highly geographically constrained which will limit long term residential development. The NSW 2021 Northern Beaches Regional Action Plan predicts that the Northern beaches population (which includes everything east of Middle Harbour and north of Mosman) will grow by 33,000 by 2021. [NSW 2021 Northern Beaches Regional Action Plan. P5]

The planned Ingleside development proposal raises the following issues:

- Considerations of access and frontage roads.
- Identifying any early requirement for signalised intersections
- Agreeing to intersection locations as soon as possible.
- Agreeing on initial strategic transport items such as bus stop locations so the necessary pull in and out lanes / early start lanes can be catered for. These are often associated with intersections.
- Confirming pedestrian and cycle connections, across but also along the corridor.
- Noise implications and how noise attenuation can be factored into the design in terms of land take and so forth.
- Staging of the new development.
- Development of further sections of Mona Vale Road need to consider this future development

## SITE PLANNING CONTEXT - PUBLIC TRANSPORT

### BUS NETWORK

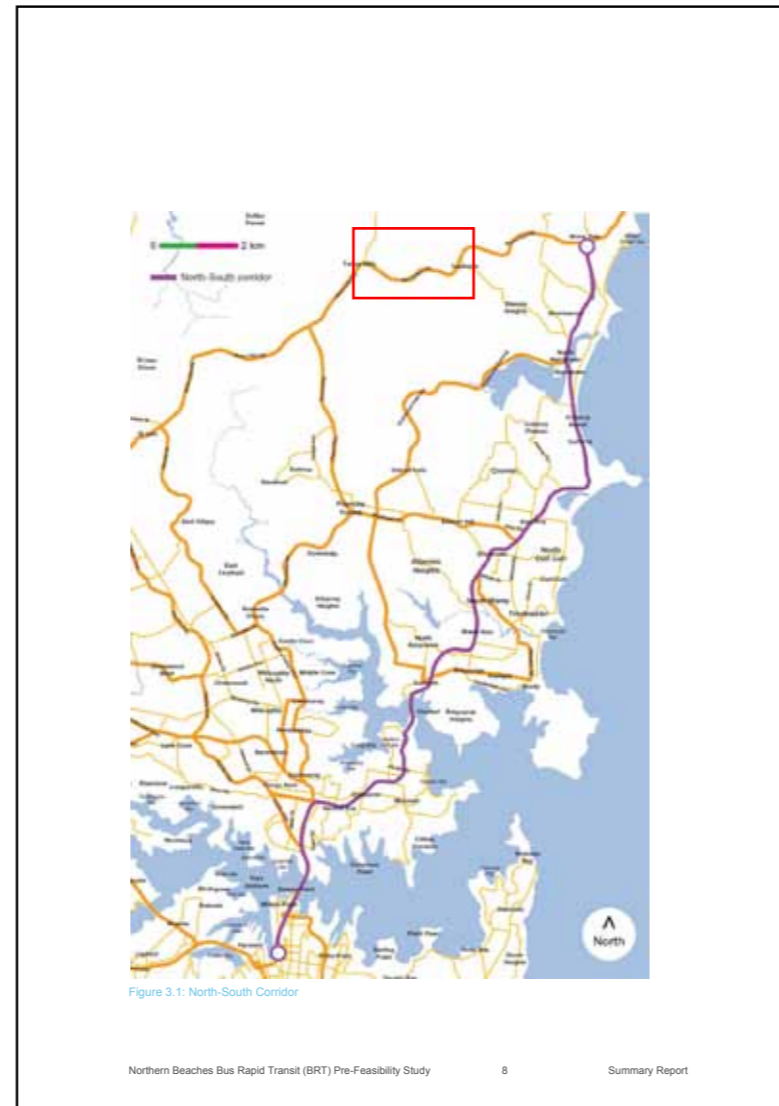
Mona Vale Road is currently served by Forest Coach Lines routes 196 and 197. Buses will continue to play an important role in providing public transport options for the northern beaches, given the lack of heavy and light rail.

### Bus Rapid Transit for the Northern Beaches

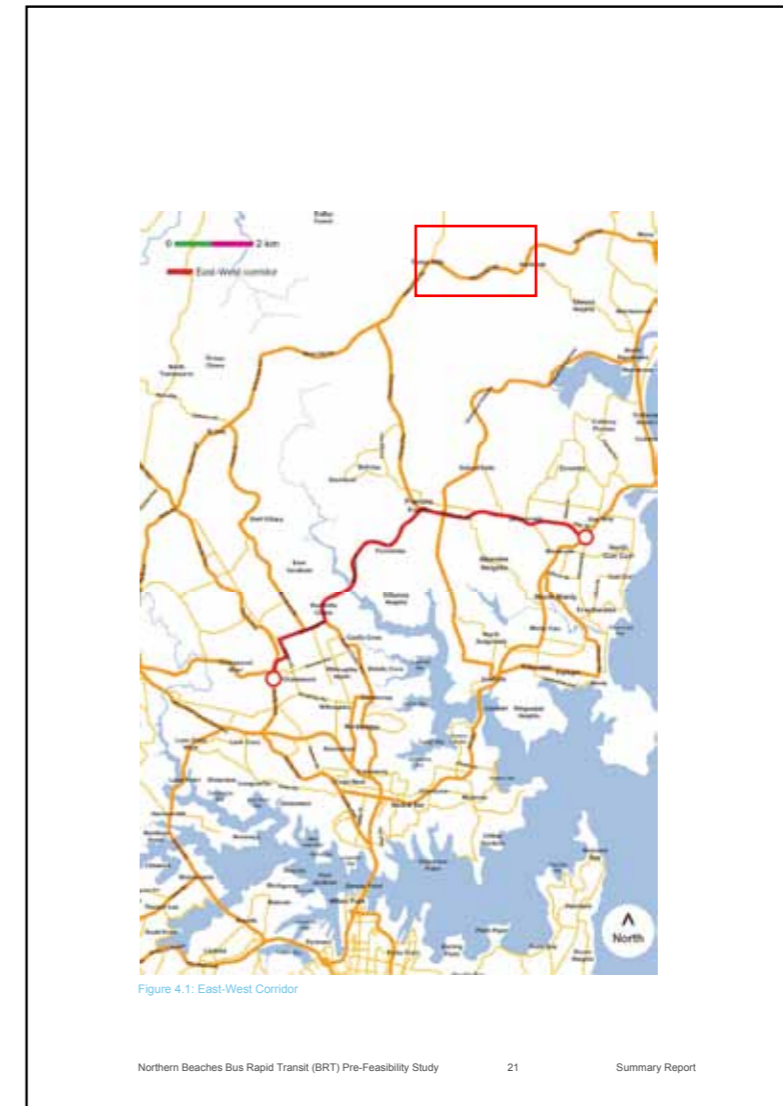
Bus T-Way or Bus Rapid Transit options may be one of the best ways of providing public transport to the region. It raises questions of land take and planning implications and is unlikely to be feasible in the study corridor.

The NSW Department of Transport is currently undertaking a pre-feasibility study for a Bus Rapid transit system for the Northern beaches with a number of options under review. These include options using either Warringah Road or Pittwater Road. Neither impacts directly upon Mona Vale Road.

There may be indirect impacts if bus lanes are implemented for the North South route along Pittwater Road. The pre-feasibility study outlined that it will increase traffic congestion along this route. This may force some drivers to seek alternate routes.



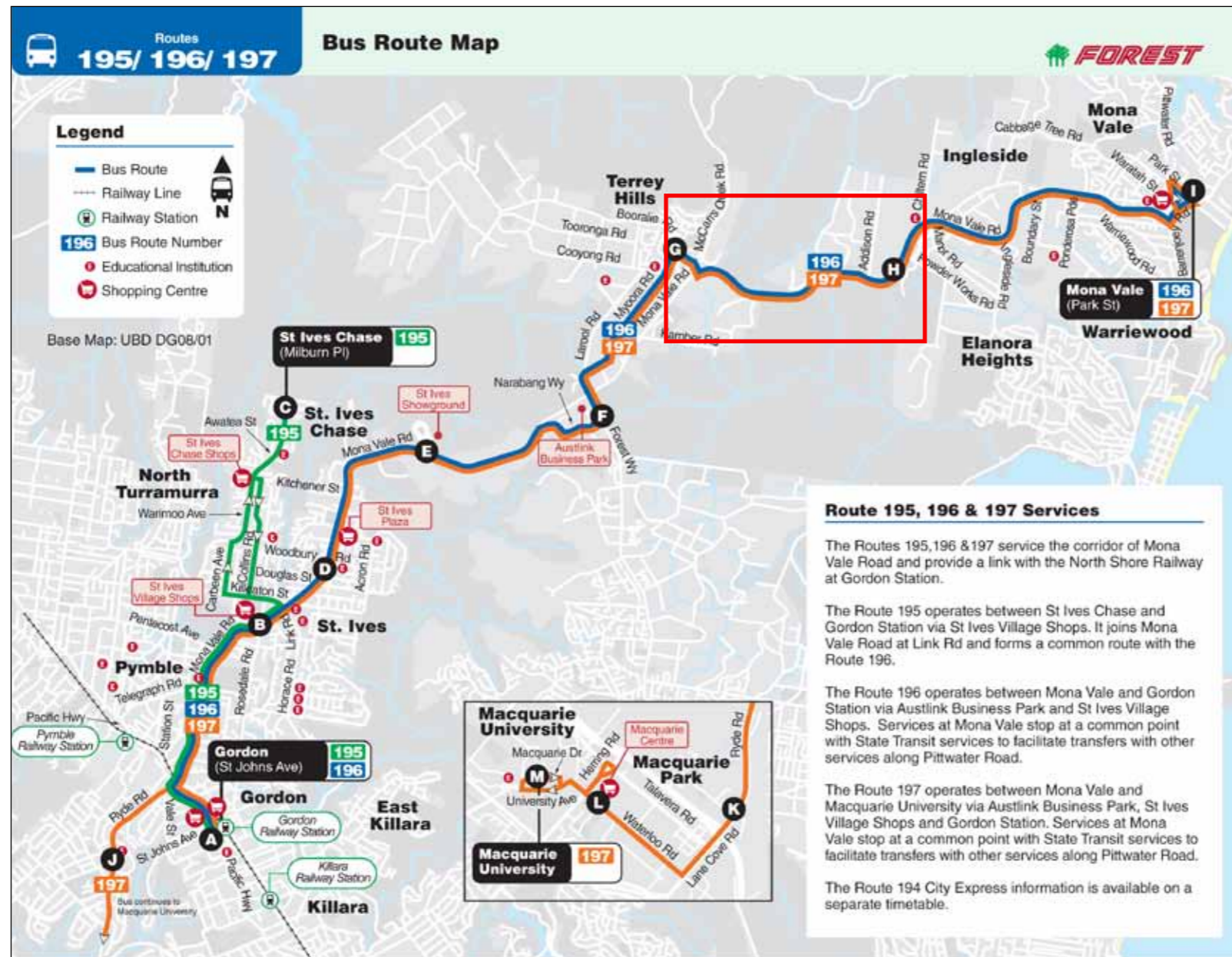
Bus Rapid Transit for the Northern Beaches -North South Route



Bus Rapid Transit for the Northern Beaches - East West Route



SITE PLANNING CONTEXT - PUBLIC TRANSPORT



Existing Bus Routes; Gordon Station - St. Ives - Terrey Hills - Monavale (Source: Forest Coach Lines)



## SITE PLANNING CONTEXT - TRANSPORT

### CYCLE NETWORK

The NSW Bike Plan is aimed at making it easier and safer to use cycling as a mode of transport. Through the NSW Bike Plan, the NSW Government is hoping to encourage safer cycling and to:

- Increase the share of short trips by bike in Greater Sydney for all travel purposes to five per cent by 2016 and
- Double the use of cycling to get to work, across all of NSW, between 2006 and 2016.

[http://www.rta.nsw.gov.au/roadprojects/projects/bicycle\\_projects/documents/nsw\\_bike\\_plan.pdf](http://www.rta.nsw.gov.au/roadprojects/projects/bicycle_projects/documents/nsw_bike_plan.pdf) p3

While large sections of Mona Vale Road have dedicated cycleway lanes, the Ingleside section is extremely tight and dangerous and does not provide commuter bike lanes. Mona Vale Road has been identified as a long term part of the Cycleway.

The Mona Vale Road upgrade would enable on road cyclist provisions and a Multi Use Pedestrian/Cycle path to abut the upgrade for its full extent. The multi use path is provided by utilising the easement for relocated utilities. Given the lack of residential land to the south, it is only proposed that a multi use pathway be located on the north side of the road.

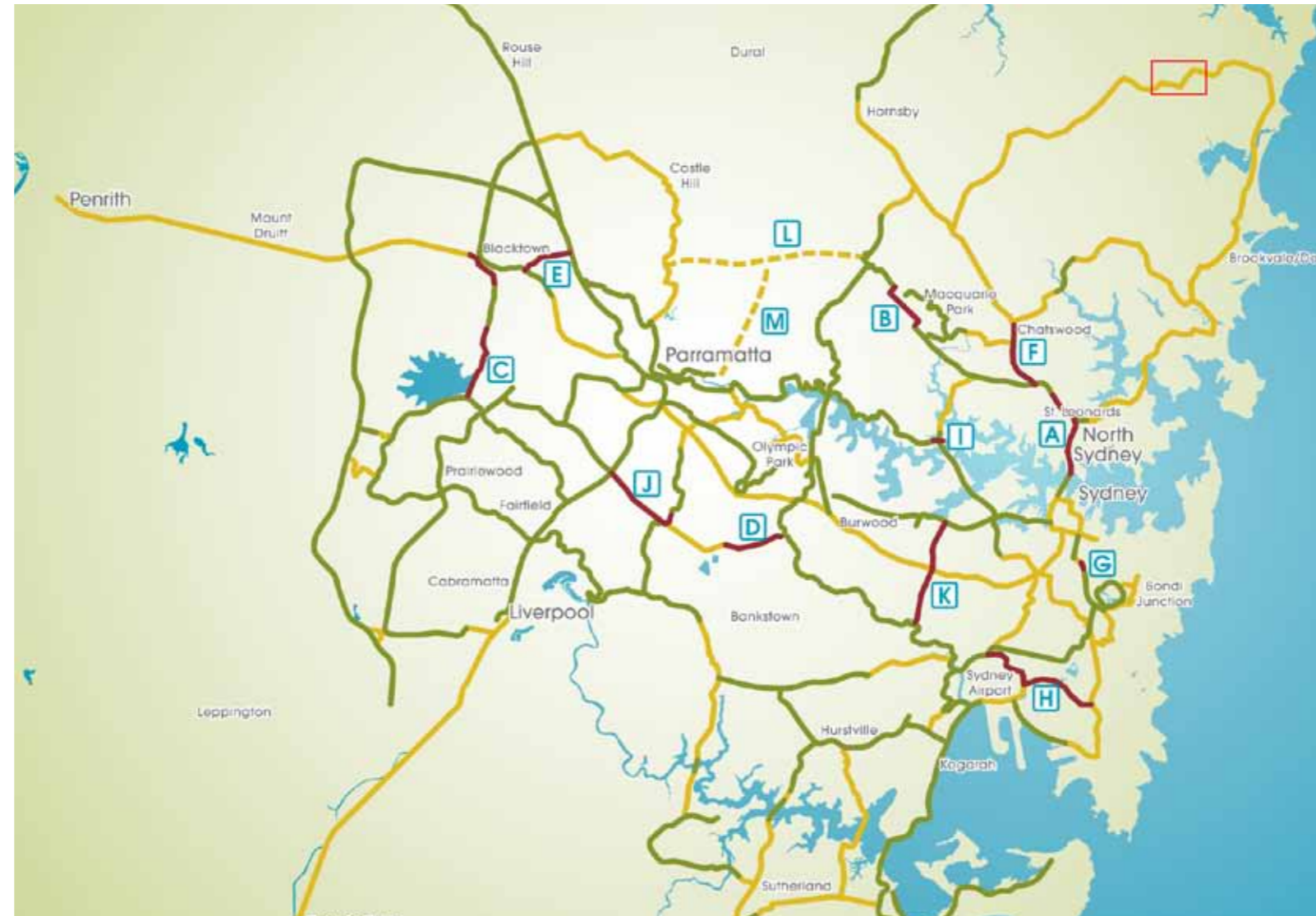
### RAIL NETWORK HEAVY RAIL / LIGHT RAIL.

In the 1920's city engineer John Bradfield proposed a rail network for Sydney that included a heavy rail line to Mona Vale in the northern beaches. A stub tunnel for this line built in 1930 leads off platform 2 at North Sydney station, but that is as far as rail connections to the area ever got. There have been a number of proposals since then for this line or versions of it to the northern beaches, some only as far as Dee Why. None have come to fruition and no rail programmes are currently planned.

[http://en.wikipedia.org/wiki/Proposed\\_railways\\_in\\_Sydney#cite\\_note-26](http://en.wikipedia.org/wiki/Proposed_railways_in_Sydney#cite_note-26)  
<http://www.smh.com.au/news/national/ghost-trains-the-forgotten-rail-network/2007/07/20/1184560040257.html>

### SYDNEY METRO

While there is no rail network at present, the Sydney Metro, before it was shelved, was intended to provide four routes, the northern beaches being one of these.



Existing and proposed bike networks of the greater Sydney region (Source: NSW Bike Plan)





# Issues Review

## CHAPTER 3 - ISSUES REVIEW - INTRODUCTION

### INTRODUCTION

This Issues Review section of the Report has been framed around the nine design principles developed in "Beyond the Pavement" which are:

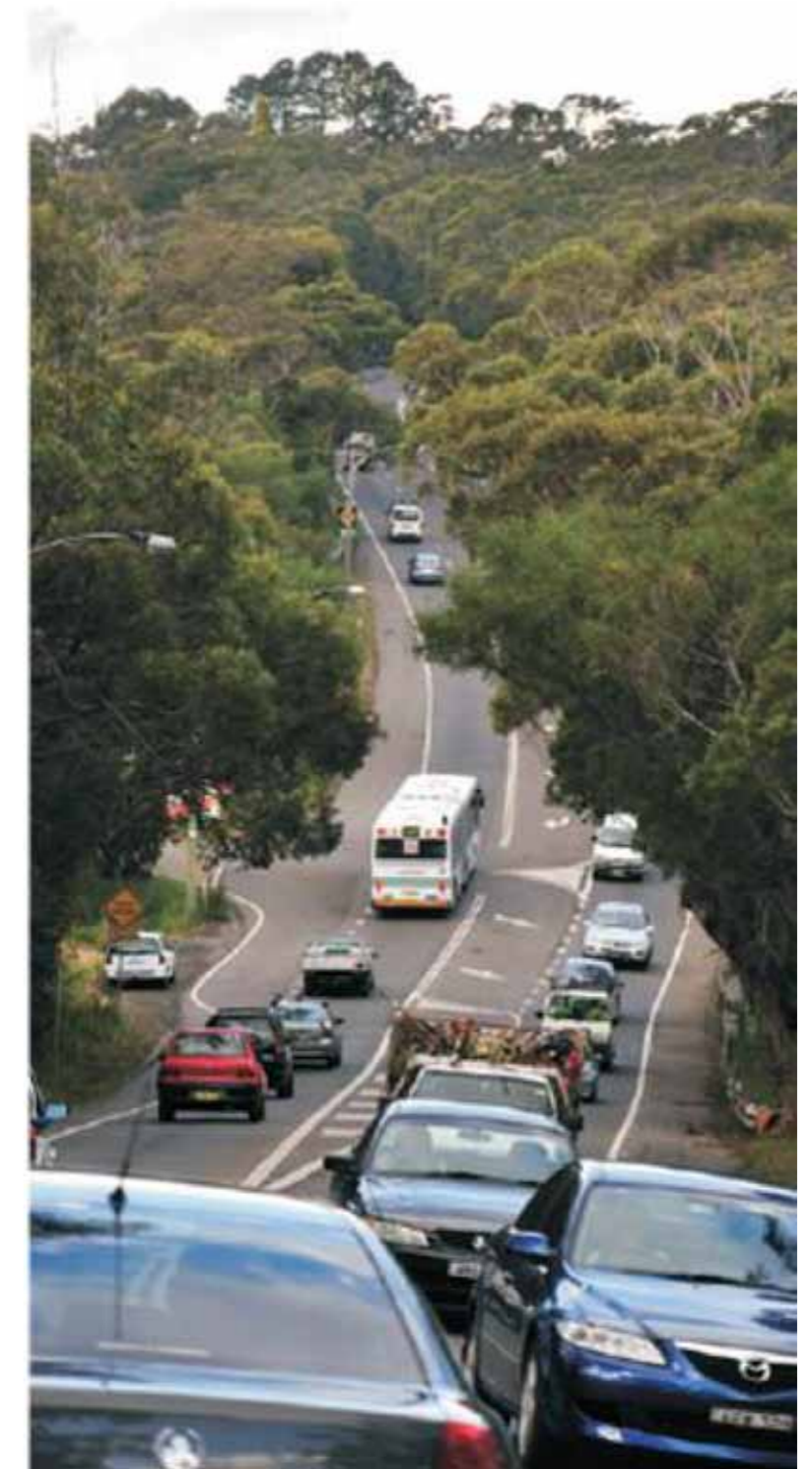
- *Contributing to urban structure and revitalisation*
- *Fitting into the built fabric*
- *Connecting modes and communities*
- *Fitting with the landform*
- *Responding to natural patterns*
- *Incorporating heritage and cultural contexts*
- *Designing roads as an experience in movement*
- *Creating self explaining road environments*
- *Achieving integrated and minimal maintenance design*

Following is an outline of the issues and associated design principles for each issue.



Peak hour on Mona Vale Road is characterised by strong tidal flows.

(source RMS)



Tumbuma Street Intersection, Mona Vale Road

(source RMS)



## ISSUES REVIEW - CONTRIBUTING TO URBAN STRUCTURE AND REVITALISATION

### CONSIDER THE ROLE OF ROAD NETWORKS IN THE STRUCTURING OF TOWNS, CITIES AND REGIONS.

The road network of Sydney is essentially a radial pattern centred in the CBD, with the roads following ridgelines, bent and shaped by physical barriers. The Northern Beaches is effectively the end destination of this network with roads heading predominantly south, travelling to the city centre.

Mona Vale Road is a strategic link to the employment and education areas of North Ryde and beyond to Sydney Olympic Park and Parramatta. It also provides an alternative route to the commercial and employment centres of Chatswood and St Leonards.

Geographic barriers such as Narrabeen lagoon and the heavily dissected bushland of Garigal National Park reduce the likelihood of new road opportunities in the foreseeable future. There are effectively only three roads into and out of the northern beaches at present, only one of which is a four lane dual carriageway.

The road widening will have an impact on the proposed development area to the north and the intersections / access roads / cycle connections / underpass / overpass options that will be critical to urban connectivity. Within the study area, a supporting continuous local road network will be important.

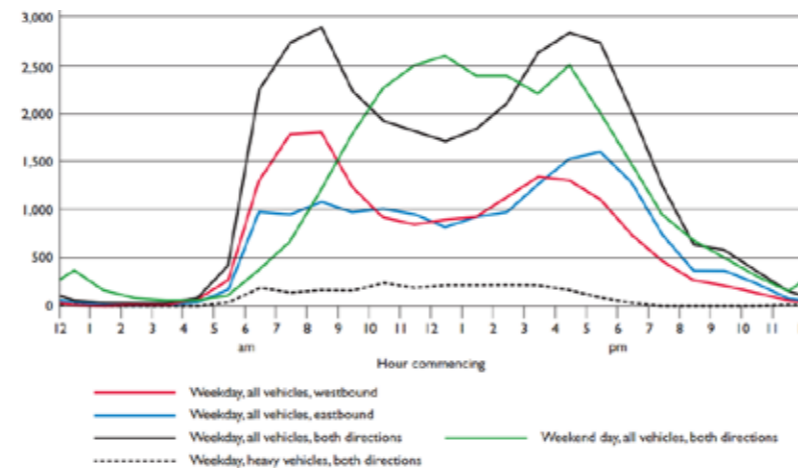
### CONSIDER BOTH TRANSPORT AND COMMUNITY NEEDS IN PLANNING AND DESIGNING ROAD NETWORKS AND HIERARCHIES Commuter and Weekend Peak Flows

The Ingleside stretch of Mona Vale Road is currently an area of congestion, particularly during the commuter peaks. There is a heavy dependence upon private vehicles in the northern beaches and this has been driven by limited public transport options, particularly for late night travel. The expense of a taxi fare is often prohibitive to travel. Given the proposed increase in residential lands, this problem will only be exacerbated.

The road experiences high daily directional and seasonal peaks in traffic flow. The weekday morning peak is generally highest between 8:00 am and 9:00 am and exhibits a westbound to eastbound dominance in the ratio of 60:40. The afternoon peak fluctuates throughout the week between 4:00 pm and 6:00 pm and is dominated by eastbound movements in the same ratio. The weekend traffic volume reaches its peak around midday it is equal-directional and has an hourly vehicle volume only slightly lower than the weekday peaks. We understand from verbal communication with local residents that peak flows also occur during public holiday long weekends.

#### Other Road Users

Other users include trucks accessing Kimbriki Tip. There is a proposal to expand this tip and this will have impacts on the intersection design and turning movements. This also has the potential to have impacts for truck movements and the possible impacts of slow moving vehicles.



Hourly traffic flows on average weekdays and weekend days in 2007 on Mona Vale Road just east of McCarrs Creek Road in Terrey Hills. Source: RMS 2009 Mona Vale to MacQuarie Park Corridor Strategy

### CREATE STREETS AND BOULEVARDS THAT PROVIDE A SENSE OF PLACE

Mona Vale Road has a particular 'sense of place' created by its narrow winding bushland character, in places trees almost touch canopies across the road. Currently it is essentially a two lane road with overtaking lanes in a bushland corridor. The creation of a four lane road will have considerably different visual characteristics.

With the increase in design speed, and the expansion of the road from effectively two to four lanes, the current character will undoubtedly change. The challenge is to maintain the distinctive bushland character along with its undulating and curving character.

### CONSIDER THE POTENTIAL OPPORTUNITIES OF A REDUCTION IN TRAFFIC VOLUME

#### Modal Shift Considerations

As outlined previously, the only modes of transport in the region are cars (including taxis), buses and cycling. Despite past plans, it is unlikely that there will be a light rail or heavy rail network to service this area in the foreseeable future. There is, however, a need to change the modal shift balance away from cars by increasing the opportunities for buses and cyclists.

The concept design considers the future provision for public transport by providing an adequate footprint for bus priority. Similarly, any opportunities to improve cycling should be pursued through the objectives of the NSW Bike Plan.

While increasing capacity is one option, providing more viable public transport options are likely to be essential to the solution. As one local resident commenting on the SHOROC website noted:

*"The single lane road isn't the problem. The lack of decent public transport is....It only takes a small percentage reduction in cars to massively reduce traffic jams - just look at the traffic improvement during school holidays."*

Posted by Steve. June 2011. Accessed 22/08/2011  
<http://shoroc.com/2011/mona-vale-road/>

#### Hard Shoulder Running

The preferred road way options provide for the option to expand to six lanes with the uptake of hard shoulder running in the longer term. This option can be realised by a reduction in shoulder widths of the carriageway.

#### Co-ordination of Development with Other Modes of Transport

The mid term plans for urban development proposes up to 4900 new dwellings in the immediate vicinity of the road. Geographic constraints will limit long term growth on the peninsula without substantial increases in height, densities or floors space ratios. It is important from an urban planning perspective that Urban Growth NSW or any future developer, look at the ability to provide local employment opportunities to reduce the need to commute and to provide walkable/cycleable neighbourhoods that limit incidental travel and trips. Given the limited routes available, this applies not only to the immediate residential development areas but to the entire peninsula.

#### PRINCIPLES:

- Consider the future growth of public transport within the footprint provided by the project.
- Consider options for hard shoulder running that might enable dedicated bus lanes in the future.
- Provide safe and convenient cycleways in any future upgrading.
- Liaise with Urban Growth NSW / potential developers to maximise local employment and workplace opportunities and create walkable local environments.