AECOM

Menangle Pastoral
13 April 2012

Menangle Residential & Mixed-Use Development

Traffic and Transport Overview

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Prepared for

Menangle Pastoral

Prepared by

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1.0 Introduction

AECOM has been commissioned by the landowners to prepare a traffic and transport overview of a proposed residential and mixed-use development at Menangle in Sydney's southwest.

A Planning Proposal is being prepared for the development which would consist of up to 400 residential lots and a mixed-use heritage precinct.

1.1 Study Area

Menangle is located within the local government area (LGA) of Wollondilly Shire. At the 2006[1] census, Menangle had a population of 327 people however the recent opening of the retirement village, Durham Green, would have increased this figure. It is approximately 10 kilometres south of Campbelltown and the main village sits between Menangle Road and the Main Southern Railway line.

Figure 1 identifies the proposed development in the context of Menangle. The site is adjacent to the north and east of the existing village and surrounds the Menangle Railway Station. The site currently consists of rural lots and farmland. Heritage properties, including the disused creamery on the western side of Menangle Railway Station, are also located on the site.

As shown in **Figure 1**, Menangle Road is the main road through the study area for local traffic. It links Macarthur / Campbelltown to the north, with Picton Road to the south. Station Street and Stevens Road provide road access between Menangle Road (and the village) with Menangle Railway Station. Moreton Park Road connects Menangle with Douglas Park (approximately 7 kilometres to the south) and Woodbridge Road provides connections to the west (Camden and Picton). The Hume Highway runs in a north-south alignment to the east of the study area although there is no direct connection within the immediate vicinity.

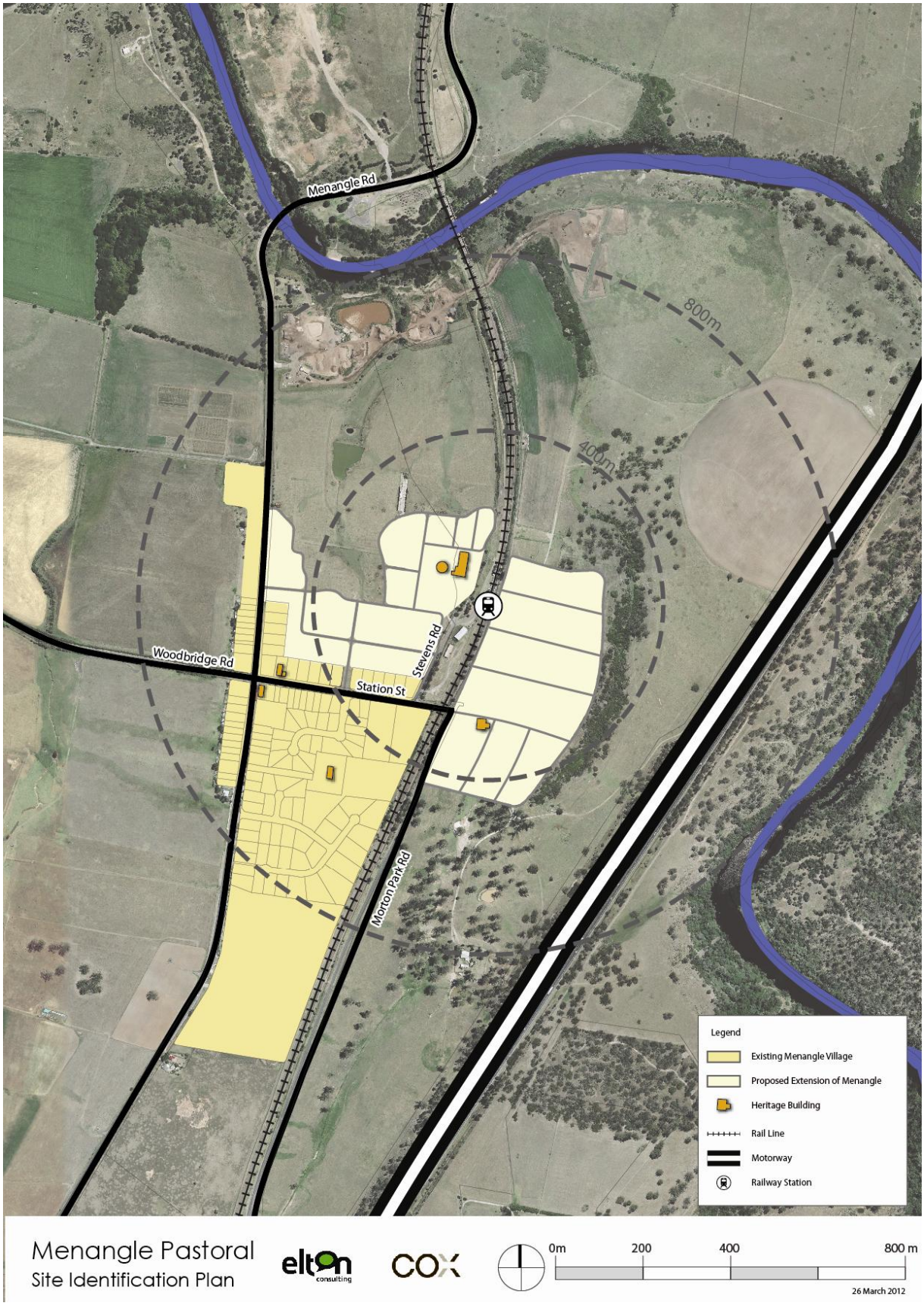
1.2 Report Purpose

This report has been prepared to summarise key opportunities and constraints associated with the proposed development in terms of traffic, transport and access. It reviews the existing transport networks, opportunities arising from the proposal, and also determines sustainable transport principles for the development that would aim to reduce the potential vehicular impacts upon development of the site.

The report will be used to support the Planning Proposal for the development which seeks a rezoning of the current land to enable development for residential and mixed-use purposes. For a rezoning application, an overview of the transport matters is provided. More detailed appraisal, that provides critical review of the design, identifies impacts and recommends network changes, would be provided for development applications for the site should it proceed to that stage.

[1] The first release of 2011 ABS census data will not be available until June 2012

Figure 1: Menangle Residential and Mixed-Use Development Context Plan



Source: Cox Architects, April 2012.

2.0 Regional Transport and Planning Context

2.1 The Metropolitan Plan for Sydney 2036

The Metropolitan Plan (Department of Planning, December 2010) forecasts Sydney's population will reach 6 million by 2036 - an increase of 1.7 million since 2006. It defines a need for 770,000 additional homes. The location of new homes (and jobs) will need to be considered with transport capacity as it will have significant impacts on how effectively Sydney develops as a compact and connected city and how it manages congestion and its related issues including economic efficiency, social costs, equity, air quality and climate change.

In addressing the sustainable city challenge, the plan proposes that at least 70% of new homes should be located in existing suburbs and at least 80% of all new homes should be located within walking catchments of existing and planned centres of all sizes with good public transport.

2.2 The Metropolitan Transport Plan - Connecting the City of Cities

The Metropolitan Transport Plan (Department of Planning, February 2010) set a 25 year vision for land use planning for Sydney, and a 10 year fully funded package of transport infrastructure to support it. The Plan defined the vision, approach and funding guarantees to effectively integrate transport and land use planning for Sydney to ensure it is a city of diversity, with a variety of renewed neighbourhoods and ample transport options.

Given that the State Government is currently preparing a Long Term Transport Master Plan (LTTMP) for Sydney, the 2010 Plan has been superseded. However, many of the projects and initiatives contained within it may be carried forward into the LTTMP which is due to be released later this year.

The key transport projects and initiatives identified in the 2010 Plan that could be relevant to this project include:

- A new express rail service for Western Sydney which will help increase the capacity across the whole rail network;
- A thousand new buses to be used on the network of 43 strategic bus corridors, which improves bus services to / from the nearest major centres of Campbelltown - Macarthur;
- Promotion of active lifestyles, through construction of missing links of the Strategic Cycle Network;
- Enhancing the Nation's Highway Network including the Hume Highway; and
- Construction of a dedicated freight route through Sydney including the Southern Sydney Freight Line, with associated benefits for the passenger rail system.

2.3 Wollondilly Growth Management Strategy 2011

Wollondilly's population of around 43,000 will continue to grow. The increase could result in a population of over 60,000 sometime in the early to mid 2030s which would require over 7,500 extra houses and many more jobs.

The Wollondilly Growth Management Strategy (GMS) defines policy directions for accommodating growth for the next 25 years to ensure the long-term well being of the Shire and its Community. The GMS provides a plan for the future and assists the Shire Council in making decisions for future service and infrastructure provision.

Some of the key elements contained in the GMS that are relevant to development at Menangle include:

- Planning for a range of different housing types to meet the needs of the future community;
- Ensuring all forms of growth are compatible with the vision of "rural living" which now has a definition in the GMS;
- Encouraging sustainable growth which supports our existing towns and villages, and makes the provision of services and infrastructure more efficient and viable; and
- Planning for the majority of new housing growth to be focused within or immediately adjacent to our existing settlements, rather than spreading it through our rural areas.

The GMS acknowledges that there is a need for towns and villages like Menangle to grow and identifies land adjacent to Menangle Village as a possible growth location. The GMS suggests 475 additional dwellings are required to support growth, in addition to provision for a neighbourhood centre.

The GMS also identifies the potential for employment lands as well as logistics / warehousing / intermodal facilities near Menangle to provide employment to the local area.

2.4 Rail Clearways Plan

The Rail Clearways Plan, announced by the NSW Government in 2003, is a NSW Government initiative to improve reliability and increase capacity on the CityRail network. The program of works to separate Sydney's 14 metropolitan rail routes into five independent clearways is still ongoing – 10 projects complete with three still underway. By removing congestion on the network that cause delays, CityRail will be able to operate more reliable and frequent services with reduced passenger crowding whilst having the potential to increase capacity as demand grows into the future.

CityRail services on the Cumberland Line (Blacktown to Campbelltown), South Line (Campbelltown to City Circle) and East Hills Line terminate at Campbelltown, while some services on the East Hills Line (via Sydenham) terminate at Macarthur Station. 'Clearway 3' will enable express services to operate from Campbelltown to the City. Works to facilitate this include construction of extra tracks between Kingsgrove and Revesby and upgrades at Macarthur Station. The works will enable additional trains to be introduced on the line, reducing crowding on peak commuter services in the peak direction and improving frequency and reliability of train services to Macarthur.

Completed upgrades at Macarthur Station include a bus / rail interchange adjacent to the station, kiss and ride facilities and a new commuter car park. Further upgrades will involve the construction of additional track on the southern side of the existing tracks and a new (fourth) platform. These upgrades will improve the capability of Macarthur to act as the primary terminus for all Campbelltown area trains, thereby improving frequency to this regional centre.

2.5 Southern Sydney Freight Line

The Australian Rail Track Corporation (ARTC) is currently undertaking a program of works to improve the efficiency and cost-effectiveness of rail freight services along the north-south rail corridor between Melbourne, Sydney and Brisbane. A major bottleneck in the rail freight network currently exists in southern Sydney, where freight trains share existing rail lines with the Sydney metropolitan passenger services operated by CityRail.

The Metropolitan Strategy aims to encourage the upgrade of the metropolitan rail freight network and to maximise the efficiency of freight transport and the proportion of freight transported by rail. As part of the strategy to achieve this, the Southern Sydney Freight Line (SSFL) will be developed.

The SSFL would provide a dedicated freight line for a distance of 30 kilometres between Macarthur and Sefton in southern Sydney. The SSFL would provide a third track in the rail corridor specifically for freight services, allowing passenger and freight services to operate independently, increasing the competitiveness of rail freight. The SSFL would provide opportunity for improved passenger services on the line that serves Menangle.

3.0 Existing Traffic and Transport Conditions

3.1 Existing Travel Behaviour

Travel characteristics for NSW residents travelling to work are gathered through the national census. The most recent Journey to Work (JTW) data set available was obtained from the 2006[2] Census. The JTW data set includes details of the origin and destination zones of trips, as well as characteristics of the journey such as mode of travel.

3.1.1 Wollondilly Statistical Local Area

Menangle lies within the Wollondilly Statistical Local Area (SLA) and the 2006 JTW data found the following characteristics in the Wollondilly region:

- Wollondilly SLA Population (2006 Census) - 40,344
- Proportion of Wollondilly SLA population under 25 (2006 census) - 38%
- Total Labour Force in Wollondilly SLA (2006 census) - 20,292

2006 JTW data shows that 33% of trips are self contained meaning they remain within Wollondilly SLA. Other important destinations include Campbelltown (14%), Camden (13%) and Liverpool (6.2%). This means that over 66% of JTW trips originating from Wollondilly leave the shire but remain in the South West subregion. Some of the other destinations outside the subregion include Bankstown, Fairfield, Parramatta, Penrith, Sydney, Wingecarribee and Wollongong. All these SLAs account for another 21% of trips from Wollondilly.

Two thirds of trips that have Wollondilly SLA as a destination originate in Wollondilly SLA (66%) and other origins include Wollongong (10%), Camden (6%), Campbelltown (6%) and Wingecarribee (4%). These SLAs account for over 92% of all trips having Wollondilly SLA as a destination.

Of the 13,925 daily work trips made by residents in Wollondilly in 2006:

- 86% were made by car, truck or motorbike;
- 6% were made as a vehicle passenger;
- 5% were made by train;
- 1% was made by bus; and
- 2% were made by other modes (i.e. walk / cycle).

3.1.2 Menangle

Menangle lies within Travel Zone (TZ) 1439 (Menangle Station) and of the 103 trips made by residents in TZ 1439:

- 87% were made by car, truck or motorbike;
- 6% were made as a vehicle passenger;
- 4% were made by train; and
- 3% were made by bus.

These statistics suggest that over 90% of the work trips made by residents in Menangle and Wollondilly are private vehicular trips.

[2] The first release of 2011 ABS census data will not be available until June 2012

3.2 Walking

Existing infrastructure for pedestrians is very limited in the Menangle area, reflecting the low number of residents that currently live in Menangle and its rural nature. Other than on Menangle Road itself, footpaths are not provided on local roads, such as Moreton Park Road and Station Street. There are also no formal footpaths between Menangle village and Menangle Railway Station.

There are pedestrian refuges on Menangle Road, to the north and south of the intersection with Station Street, to facilitate safe crossing of the main through route.

3.3 Cycling

Wollondilly Council has adopted a cycleway / shared path route map (dated June 2008) for the whole shire. The adopted plan will complement the existing number of shared cycle ways networked throughout the Shire.

The route map includes a shared path on Menangle Road, Station Street and Moreton Park Road however there are currently no dedicated cycle facilities along these routes in the vicinity of the study area. It is unknown whether there are plans in the short-term to implement dedicated cycle facilities in accordance with the route map.

The Campbelltown cycleway network consists of both on and off-road signposted routes. Currently an on-road cycle route is provided on Menangle Road between the Hume Highway overbridge near Medhurst Road and Macarthur.

There is also no formal (secure) bicycle parking facilities at Menangle Railway Station.

3.4 Bus Services

The study area is currently serviced by Busways route 889 that operates between Menangle and Campbelltown, a low frequency route. The bus travels from Campbelltown via Macarthur Square along Menangle Road, Station Street and Moreton Park Road. A total of 12 services stop in Menangle throughout the weekday, with a frequency of approximately 55 minutes in the morning peak and between 60-105 minutes in the afternoon peak. Four services stop at Menangle on a Saturday, with one service in each direction during the morning and afternoon.

Menangle is also serviced by Busways route 47, which links Menangle with Camden. This route travels along Woodbridge Road, Finns Road and Menangle Road, providing four morning and three afternoon services Monday to Friday (there are no weekend services).

Therefore, although bus services are in operation to serve Menangle, the frequency is very low.

3.5 Rail Services

CityRail services to the south west generally terminate at Campbelltown, although some services on the East Hills Line terminate at Macarthur Station. Electrification of the rail line ceases to the south of Macarthur Station and so services to Menangle Station are provided by diesel trains operating on the Southern Highlands Line.

Train services at Menangle are very infrequent in the peak hours, with a 60 minute frequency in the morning and 30-60 minute frequency in the afternoon. A Compendium of CityRail Travel Statistics (CityRail, 2010) indicates that Menangle Station is used very little by passengers, with only 10 entries and 10 exits during a weekday in 2009. There are no formal interchange facilities at Menangle Station, given the lack of train services and passengers to this station.

For commuters travelling from Menangle to the city and vice versa, a change of trains is required at either Campbelltown or Macarthur stations.

Menangle Station is unmanned and therefore, together with low levels of passenger demand, casual observation / surveillance is low. The station has parking provision for approximately 20 vehicles however there are no line-markings and during site visits it's been observed that very few (<5) vehicles are left parked at the station. Anecdotal evidence has indicated that vehicles are subject to theft / vandalism due to the low level of activity at

the station. As a consequence of this, and the frequency of trains to / from Menangle, commuters are more likely to drive to Campbelltown or Macarthur stations to park and catch the train rather than travel from Menangle.

3.6 Road Network

3.6.1 Hume Highway (SH31)

The Hume Highway (SH31) is a National Highway and therefore has an emphasis on catering for freight and inter-regional trips between Sydney, the Southern Highlands and Canberra. However, it also provides trunk commuter access between south western Sydney, the Sydney CBD and industrial areas along the M5 Motorway. Current accesses to SH31 from Menangle are 10 kilometres north at Narellan Road and 16 kilometres south at Picton Road.

The Hume Highway is a four-lane road with shoulder lanes on both sides of the carriageways.

3.6.2 Menangle Road

Menangle Road is critical to the site, as it is currently the primary provider of road access to the north. It is classified as a state road and therefore controlled by NSW Roads & Maritime Services (RMS). It is a two-way two-lane rural arterial road with a 100km/hr speed limit south of the Broughton Anglican College. The speed limit reduces to 60km/hr through Menangle Village.

Traffic volumes from 2005 (approximately 6,000 vehicles / day at Nepean River Bridge) are well below capacity for a road of this standard due to limited land use activity southwest of Campbelltown, especially in the vicinity of Menangle, and the availability of the Hume Highway for longer distance trips. All vehicles on Menangle Road heading north must travel through the Macarthur Square town centre to access the surrounding regional road network. Therefore, traffic volumes at Menangle Road, west of Geary Road, are higher, recorded at approximately 9,000 vehicles / day in 2005.

Due to the amount of potential and committed developments in Macarthur and Menangle Park to the north, the capacity of Menangle Road to the north of the site may become an issue in the future. However, it is understood that Menangle Road will be upgraded in this area with the progressive development of Menangle Park.

The intersection of Menangle Road and Station Street is the main intersection in the village. It is a four-way intersection, with Woodbridge Road forming the western arm, and is sign-controlled. Anecdotal evidence suggests that drivers from Camden are now using Woodbridge Road / Menangle Road to access Macarthur / Campbelltown to avoid congestion on Narellan Road. The impact of this activity would need to be considered as part of future assessments for the study area.

3.6.3 Station Street

Station Street links Menangle Road with Moreton Park Road and, via Stevens Road, connects the village with the rail station. Station Street is a two-way two-lane road with a posted speed limit of 60km/hr and a wide cross section.

Station Street crosses the rail line via an overbridge at its eastern end.

3.6.4 Stevens Road

Stevens Road connects Station Street with Menangle Railway Station. It is a two-way road with no line markings and it has a fairly narrow cross-section. The road has significant trees in the verge on both sides.

Stevens Road appears to be located on (Lot 201 DP590247 of the subject site) private land.

3.6.5 Moreton Park Road

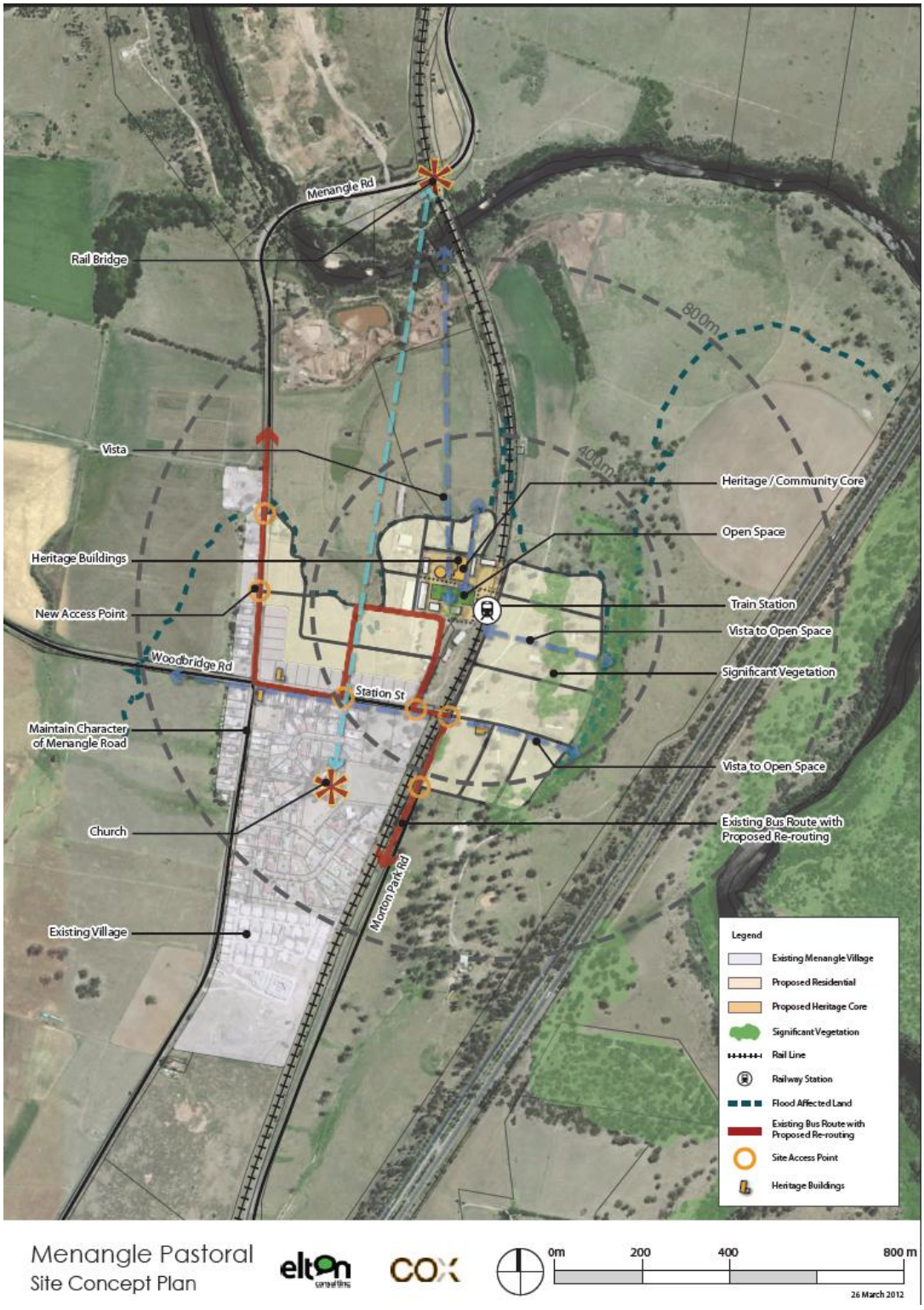
Moreton Park Road is a two lane, undivided road that runs north to south from Menangle to Douglas Park. It has a speed limit of 80km/hr and provides an alternative route to Menangle Road to the south and runs parallel to the Hume Highway.

Moreton Park Road connects to Station Street on the western side of the rail overbridge. At this location there are poor lines of sight due to the steep incline created by the overbridge and the acute angle (approximately 80 degrees) for the through route. Observations during a site visit indicate that some drivers have not managed the turn correctly and have run into the safety barrier.

4.0 Proposed Development

A concept plan has been prepared for the proposed development and is shown in **Figure 2**.

Figure 2: Menangle Residential and Mixed-Use Development Concept Plan



Source: Cox Architects, April 2012.

The subject site comprises approximately 25 hectares of land. The concept plan allows for up to 400 residences and a mixed-use heritage precinct. The majority of residential lots will be low density (greater than 500 square metres) although some medium / high density dwellings are proposed near to the railway station. Property sizes increase further away from the railway station and around the heritage precinct. The proposed heritage precinct will be centrally located (adjacent to the railway station) to create a heart for the new development. Indicative land uses include a 'micro brewery' and community facility.

The road layout shown in the concept plan is a grid-like pattern enabling multiple route choices. There are no cul-de-sacs (requiring circuitous movements) and roadways form the outer perimeter of the site so that properties face (rather than back on to) the surrounding open space.

The following sections describe the characteristics afforded by the plan in terms of transport.

4.1 Walking

Detailed planning for the development has yet to take place however, with the proposed land uses located adjacent to the existing village and surrounding the railway station, walking trips are likely to be common. The majority of residences will be within 400 metres of the railway station and heritage / community core and therefore access by walking will be a feasible method of travel.

Detailed planning would need to ensure adequate provision of walking (and cycling) paths to encourage safe and effective access for this mode.

4.2 Cycling

As previously mentioned, detailed planning for the development has yet to take place but opportunities exist to link the development to existing and proposed land uses and future cycle facilities. Provision of cycle paths would promote use of this mode.

4.3 Bus Services

The development will benefit from the proximity of access to existing bus services however as mentioned previously, frequencies are currently low.

Previous consultation with Transport for NSW and the bus operator, Busways, has indicated that currently there are no planned bus network upgrades in and around the Menangle area. However, further discussions should be made with these agencies at a later stage to investigate the possibility of bus route diversion (as shown in the concept plan) and / or improved service frequencies to serve the proposed development and encourage bus ridership / mode share.

4.4 Rail Services

At present, train services to / from Menangle Station are infrequent. The proposal is likely to generate additional rail passenger trips, particularly to local centres such as Campbelltown and Macarthur. The development would also improve road access to the station.

Development to / from and around the rail station will increase activity and raise passive surveillance which is a probable cause for the current low levels of passenger use.

Informal parking for station passengers currently exists adjacent to the rail station, on land owned by Menangle Pastoral. The proposed development aims to remove vehicles from the heritage precinct and create a more pedestrian friendly environment around the railway station. To facilitate this, consideration should be given to the provision of a formal parking facility between Stevens Road and the rail line (on RailCorp land). This facility would serve rail passengers and visitors to the heritage precinct however further discussion / agreement with RailCorp will be required to confirm access and operation. A parking facility in this area would also need to be carefully reviewed in terms of clearance from the rail line and for access to the road network.

There are no planned rail upgrades south of Macarthur Station as electrification of the rail line to Menangle is unlikely to be financially viable in the short-term due to lack of demand and the significant construction costs. However, as described in Section 2, 'unlocking' of the CityRail network, together with a dedicated freight corridor through the study area, would provide an opportunity for improved passenger rail services in the future. These improvements will become more viable as development around existing stations (other than Menangle) takes place and potential passenger demand rises.

4.5 Traffic Generation

Although determining traffic impacts is not required for the scope of this assessment, it is appropriate to consider the level of traffic that may be generated by the development. AECOM has adopted trip rates defined in the Guide to Traffic Generating Developments (RTA, 2002) to estimate traffic generated by the development. At a rate of 0.85 trips per low density dwelling, and for a maximum lot yield of 400 dwellings, this would equate to around 340 peak hour vehicle trips. This is considered a worst case as some of the dwellings will be medium / high density and a lower lot yield is likely. At the same time, as described in the preceding sections, improvements to existing bus and rail services, together with access to the wider cycle network and footpaths will likely result in lower trip rates for residences than those specified.

The mixed-use facilities will also generate traffic demands however they are likely to be most prevalent in off-peak times and so are unlikely to have an influence on peak hour traffic.

4.6 Road Access

Proposed road accesses to the development site are at intersections on Menangle Road, Station Street and Moreton Park Road. Although these intersections will distribute the incidence of turning movements at single locations, it is likely that most vehicles will use Station Street and Menangle Road as part of their journey.

Although detailed investigations have not been undertaken, it is considered that these roads will have sufficient capacity to support the additional demands generated by the proposal. The intersections on Menangle Road would need to be considered in further detail as part of future development planning for the site. In addition, the intersection of Station Street and Moreton Park Road, adjacent to the rail overbridge, would need to be considered carefully due to the existing sight lines in this location. A greater standard of intersection control and a change to the posted speed limits may be required in this location.

In a broader context, the proximity of intersections with the Hume Highway will facilitate access for longer distance trips.

4.7 Further Assessment

Should the proposal proceed to the next stage of planning, a more comprehensive transport impact assessment will be required. The assessment would review the concept designs in more detail, determine implications of the proposed development on the existing transport modes and propose mitigation measures where appropriate. Potential improvements to the transport networks would also be identified.

In terms of the road network, it is understood that the impacts of the traffic generated by the proposal would need to be assessed with use of Council's strategic transportation model. This would enable identification of the differences between the base and future case forecasts (with and without the proposed development) on key links and primary intersections.

4.8 Sustainable Transport

Developing sustainable transport principles for a development will help to encourage use of modes other than the private car, which the latest journey to work data (2006) shows is dominant in Menangle / Wollondilly. The development will consider sustainable transport principles as part of its forward planning and design, with the following objectives in mind:

- Providing an integrated transport network between modes and land uses;
- Providing a choice of travel mode by developing a comprehensively accessible transport network;
- Providing a safe and secure transport network;
- Providing a system that is efficient and equitable;
- Providing a system that is sustainable;
- Supporting the local community / economy; and
- Providing a safe and healthy environment.

Encouragement of walking can be achieved through improvement of pedestrian facilities and accessibility to the rail station, bus stops and Menangle Village. Further consideration will be given to footpaths, lighting, visibility, streetscape, way-finding and connections with public transport facilities.

Encouragement of cycling can be achieved through measures such as the provision of bike parking, particularly at the rail station. Information and education on cycle routes in the local area, and negotiations with Council if routes need upgrading, will also be considered.

The bus mode share for journey to work trips is low at 3% in the Menangle area. To achieve a higher bus mode share, bus service improvements that are responsive to the proposed development will be sought.

Consideration will also be given to a community intranet which would provide a good source of public transport information to residents.

The recent upgrade of Macarthur Station and its interchange facilities have allowed additional train services to terminate at Macarthur, thus increasing the frequency of peak hour services. A higher frequency of bus services between Menangle and Macarthur would complement the additional train services terminating at Macarthur Station.

5.0 Summary

The proposed development fits the strategic requirements set out in the Metropolitan Strategy and improvements to the regional transport networks will support future growth in this area of Sydney. The proposal would not require augmentation to the strategic transport networks in its own right.

Development adjacent to Menangle is specifically identified in Council's GMS and therefore the proposal is consistent with the growth plans for the sub-region.

Review of the traffic and transport context in the vicinity of the study area has identified that:

- Local residents in Menangle (and in the Wollondilly LGA) are heavily reliant on car use (2006 Census data);
- There is limited existing pedestrian facilities and a lack of connectivity to Menangle Railway Station - due to the low number of residents and passengers;
- There is a lack of dedicated cycle facilities;
- There is low public transport (bus and rail) mode share, caused in part by the low population densities and the infrequent public transport services;
- There is a lack of passenger facilities at Menangle Station; and
- There are no planned bus and passenger rail network upgrades.

The key strengths of the existing transport networks that would benefit the proposed development include:

- A trend of journey-to-work containment within the LGA;
- Opportunities to create a high quality and connected transport network for non-motorised modes of travel;
- An existing public transport framework, with scope for improvement in frequency and quality;
- Relative proximity to the suburban rail network (Macarthur Station); and
- Improvements of CityRail services to Macarthur Station and the station's facilities, such as commuter parking.

These strengths and weaknesses provide ample opportunity for leverage towards a package of measures for the proposed Menangle development.

The potential traffic impacts on Menangle Road due to traffic generated by the proposal would be carefully managed through allocating appropriate housing mix, enhancing accessibility to public transport routes and facilities as well as recommending other sustainable transport measures during the detailed master planning process. With such measures in place, there is likely to be negligible impact on the local transport networks from the proposed development.

In summary, the Planning Proposal for the rezoning of land for residential and mixed-use purposes is supported from a transport perspective.