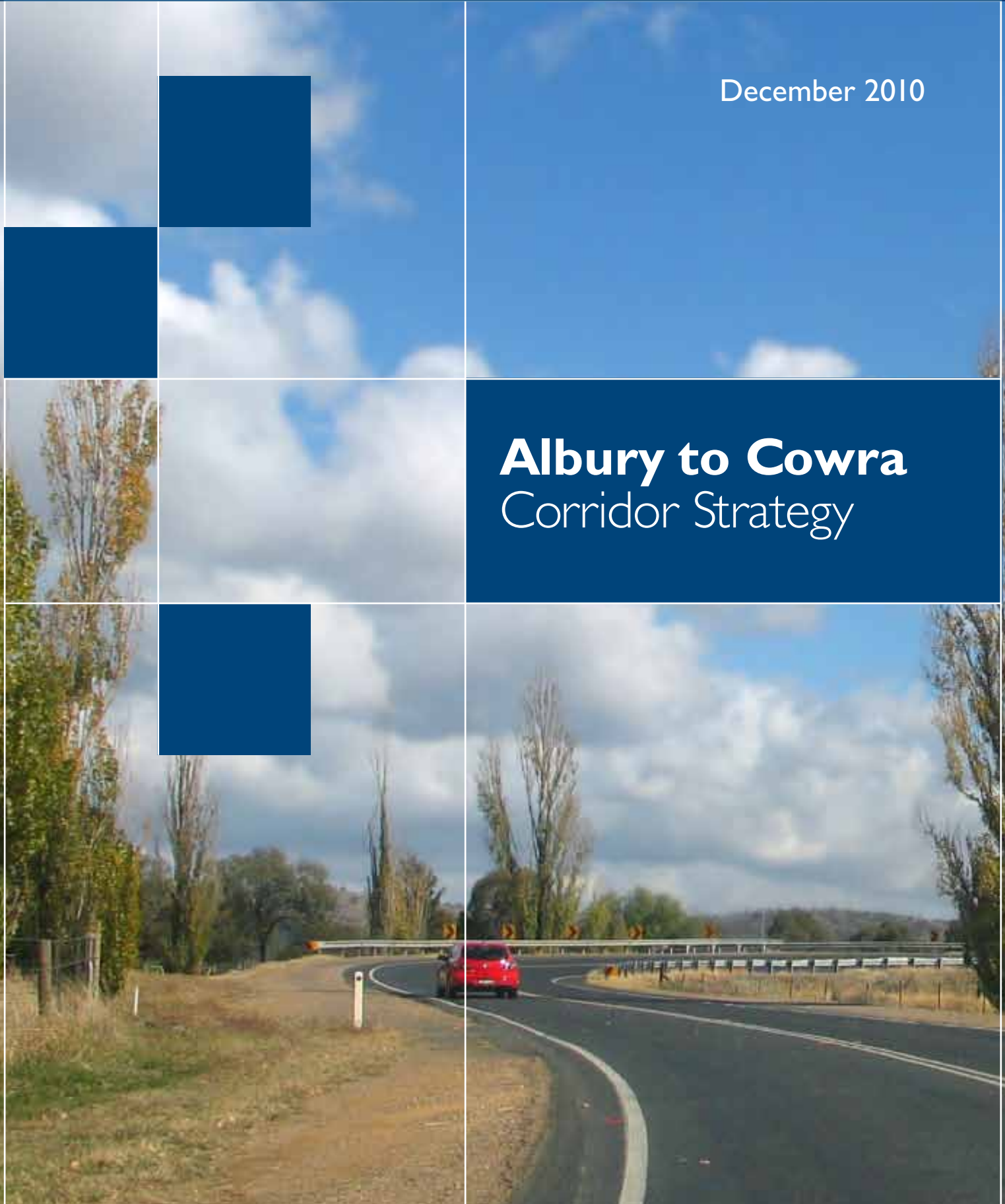




December 2010

Albury to Cowra Corridor Strategy



Albury to Cowra Corridor Strategy

The Albury to Cowra corridor, serviced by the Olympic Highway, connects Albury on the Victorian border to Cowra in the mid west of New South Wales, passing through the major regional towns of Wagga Wagga, Junee, Cootamundra and Young.

This strategy has been prepared by a multi-disciplinary team from the Roads and Traffic Authority (RTA) with expertise in road safety, traffic, asset management, land use and development. It draws together a variety of aspects of the corridor and identifies:

- **Corridor-specific objectives** that support the RTA's broader road network objectives.
- **Key transport demands** in the corridor, and the consequential transport roles of the Olympic Highway.
- The **performance** of the transport infrastructure in serving the needs of the corridor.
- **Key transport demands** that are likely to be placed on the corridor over the next 25 years.
- Current and future **challenges** in meeting the corridor-specific objectives, and the RTA's **strategies** to meet these challenges.

This strategy adopts a 25 year time frame to guide the RTA's long-term management of the Albury to Cowra corridor in line with the RTA's stated objectives.



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A quick overview

This Albury to Cowra corridor strategy provides an overall view of the road transport system from Albury on the Victorian Border to Cowra in the mid west of NSW. Incorporating road safety, transport efficiency and asset maintenance, the strategy adopts a 25 year framework for the management of the corridor.

The primary road transport route within the corridor is the Olympic Highway; a 315km long north-south route that links the Hume Highway around 18km north of Albury to the Mid Western Highway at Cowra. Between Albury and Wallendbeen it runs close to and parallel with the Main Southern rail line. The road provides the primary local and regional transport link for people and freight. The rail line operates primarily as a very long distance inter-regional passenger link and freight line.

The highway travels through predominantly undulating farm land between the Hume Highway and Wagga Wagga, into rolling terrain around Junee, Cootamundra and Young and across the predominantly flat plains approaching Cowra. Along the way it passes through the built up areas of Culcairn, Wagga Wagga, Junee, Cootamundra and Young.



Connecting Routes

The Hume Highway at the southern end of the Albury to Cowra corridor is part of the National Network and is the primary route linking Sydney, Canberra and Melbourne. The Hume Highway is currently being upgraded and will be dual carriageways for its entire length from 2013.

The Mid Western Highway at the northern end of the Olympic Highway is a state road linking the Great Western Highway at Bathurst to the Sturt Highway at Hay.

Other major routes connecting to the corridor include the Sturt Highway at Wagga Wagga, the Goldfields Way near Junee, and the Burley Griffin Way at Wallendbeen, north of Cootamundra. The Sturt Highway is part of the National Network forming part of the east-west Sydney-Adelaide corridor. Goldfields Way provides a critical connection between the Olympic Highway at Junee and the Newell Highway at West Wyalong. Burley Griffin Way is the major east-west link between Griffith, the Hume Highway, Yass and Canberra. The Newell Highway is part of the National Network.

The Albury to Cowra corridor is characterised by its relationship with the Main Southern Railway Line. The railway runs parallel to the Olympic Highway between Albury and Wallendbeen. The road and railway cross each other many times.

Population

The combined population of the local government areas along the route as at the 2006 census was over 198,000. The major population centres are located at the corridor's southern end where the twin cities of Albury and Wodonga have a combined population of 79,000, and Wagga Wagga which has a population of around 60,000.

Features

The surrounding region is rich in natural resources such as timber to the east, and fertile soils producing a variety of grains, cereals, fruits and vegetables along both sides of the route. Wagga Wagga is home to significant livestock saleyards and a meat production industry with the majority of stock transported into and out of the region by road. Intermodal facilities are developing within the region especially in Wagga Wagga and Albury. Future corridor management will require considered regulation of vehicle access to ensure efficient movement of both commuter and freight transport, particularly on the approach to towns and centres providing important transport functions.

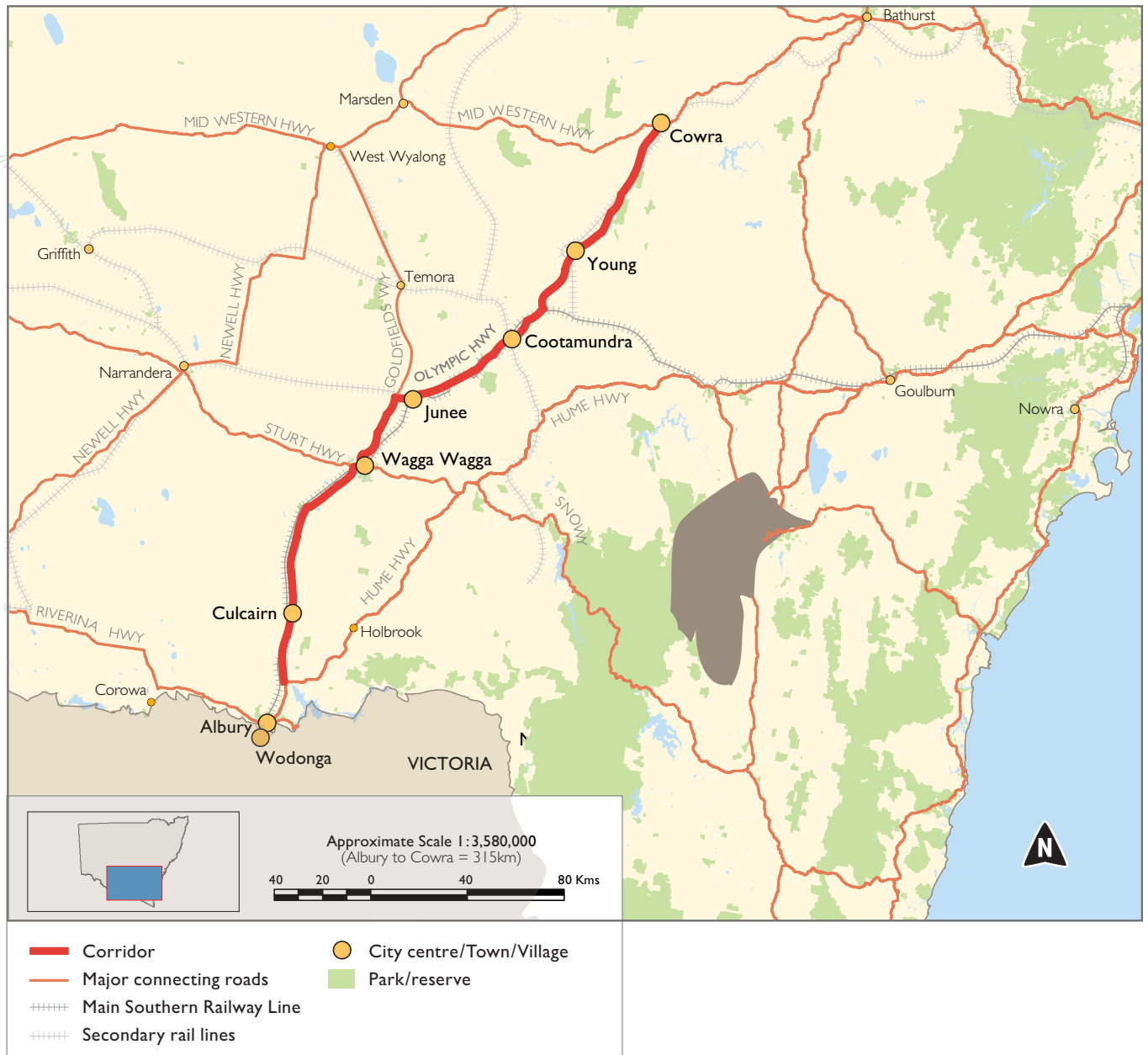


Figure I.1. General location of the Albury to Cowra corridor. The primary road transport route within the corridor is the Olympic Highway; a 315km long north-south route that links the Hume Highway around 18km north of Albury to the Mid Western Highway at Cowra.



Approaching Five Mates Crossing bridge

Facilities and attractions

There are significant national defence facilities located near Wagga Wagga, with the Army Recruit Training Centre at Kapooka and Air Force recruit Training at Forest Hill. The large Charles Sturt University campus is also in Wagga Wagga. Major tourist attractions along the corridor include the Japanese Gardens in Cowra, the Cherry Festival at Young and major events at larger centres like Wagga Wagga and Albury. Other regionally significant events such as the Henty Machinery Field Days are held in late September each year. Over 60,000 people visit the Field Days over the two and a half day period.

Transport functions

- A commuter route between towns.
- A major supply route connecting towns along and adjacent to the corridor.
- A freight route servicing local agricultural and non-agricultural industries.
- An interregional freight corridor supporting the Newell and Hume Highways for Melbourne to Brisbane freight.
- A tourist route for regional travel.
- An access route for support services and maintenance for the adjacent north-south rail corridor.
- A detour route for Hume Highway traffic following incidents closing that route.

Key Issues

Generally, the Olympic Highway is a two lane rural road with annual average daily traffic volumes (AADT) of 1,500 to 6,000 vehicles per day in rural areas and up to 13,000 vehicles per day in urban areas. Overtaking lanes are provided in some locations. Within urban areas there is often more than one lane for each direction, or a wide roadside area for angled parking.

For most of the corridor, the road alignment is within recommended criteria. Isolated sections of the corridor have tight curves, steeper grades or narrow road width. There are also some sections where the road side environment is less forgiving to errant vehicles due to steep embankments, rock cuttings, retaining walls, trees, drainage structures and railway assets. These are significant, particularly when considering the dominance of single vehicle off-road crashes in the rural sections.

Urban sections have other safety issues including conflicts between through traffic, local access and amenity, and pedestrian and bicycle safety.

The corridor includes fourteen railway crossings, including both level crossings and grade separated facilities. Some of these present safety risks due to poor road alignment on the approaches often combined with narrow bridge widths or low bridge clearances.

Increased demand for higher productivity vehicles and their suitability to existing road conditions presents a challenge for managing corridor assets and performance.

It is important that the RTA recognises these challenges and works towards addressing them through strategic management of the corridor over the longer term.

Identified challenges in managing the corridor and short-term and long-term priorities are listed on the opposite page.

Key challenges in managing the Albury to Cowra corridor

Key challenges

- Off-road crash risk in rural sections impacting on road safety, network operations and performance.
- Crash risks at railway level crossings, including short stacking in side roads resulting in heavy vehicles queuing across rail lines.
- Crashes in urban areas, safety in high pedestrian areas and near other pedestrian generators and the needs of vulnerable road users.
- Commuter peak volumes generated by regional centres of Wagga Wagga and Albury.
- Continued access during traffic incidents along this corridor as well as adjoining and parallel routes.
- Increases in road freight due to population and economic growth within and beyond the corridor.
- Physical restrictions (asset condition, load, vertical clearance and geometry) as well as community concerns regarding higher productivity vehicles.
- Safety issues and corridor performance regarding low clearances, narrow widths and road alignment in the approaches to road bridges and underpasses in partnership with rail authorities.
- Changing climatic conditions (temperature and rainfall) over the longer term that may impact the road asset and its management and operations.
- Environmental and social impacts of increased through-traffic volumes in urban areas.

Short-term priorities (2010-2015)

- Investigate means of separating or managing conflicts between the through and local/access functions of the highway, particularly in the towns of Junee, Cootamundra and Young.
- Work with industry partners, stakeholders and rail asset owners in prioritising road and bridge upgrades, including the road-over-rail bridge at Kapooka, for higher productivity vehicles.
- Continue to implement road safety initiatives to address identified and emerging crash types and locations.
- Monitor the effectiveness of rest areas including frequency, accessibility and adequacy of facilities.
- Develop an integrated incident management plan for this Highway and adjoining routes.
- Continue to address locations of run-off-road crashes on curves by using a safe-systems approach including improved clear zones, widened shoulders and hazard protection.
- Ensure the road is kept in sound condition.
- Monitor traffic needs for efficient flows of vehicles.

Longer-term priorities (beyond 2015)

- Investigate measures of spatially separating conflicts between through and local traffic in towns, particularly in the major towns of Junee, Cootamundra and Young, but also in smaller villages and towns such as the grain loading villages between Culcairn and Wagga Wagga.
- Implement the statewide, prioritised program of upgrades to railway level crossings (as coordinated by the Level Crossing Strategy Council), including the crossings at Harris Gates (north of Illabo), Bethungra, Tanyinna and Koorathawa in consultation with third party asset owners.
- Progressively undertake road/rail grade separation upgrades including upgrades to existing grade separated facilities in consultation with rail authorities in accordance with statewide priorities.
- Review the likely performance of the Highway with regard to future traffic conditions and overtaking needs, including passing opportunities at intersections, to formulate a prioritised works program.
- Ensure that the road is kept in sound condition on a long-term, sustainable basis.

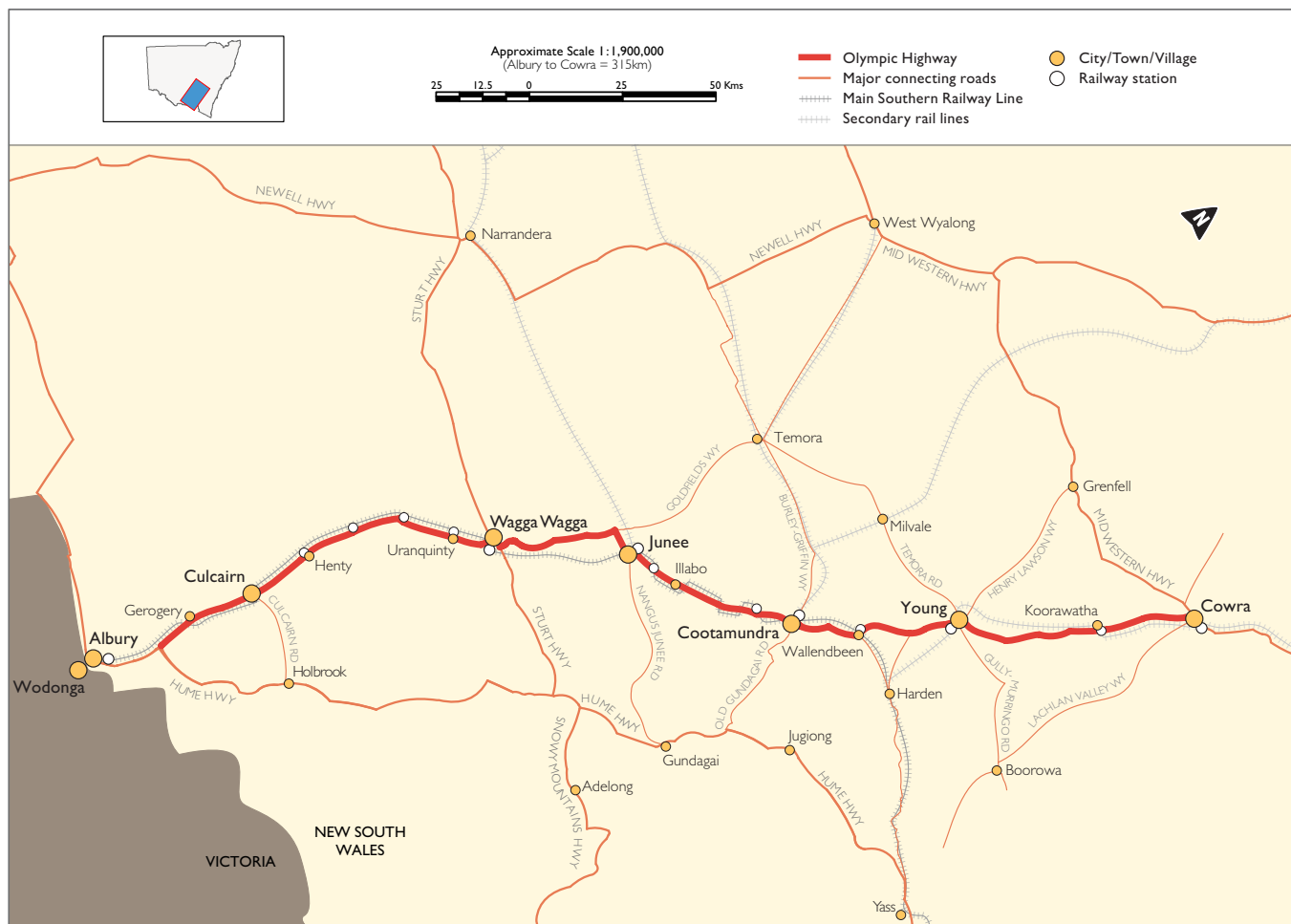


Figure 1.2. The Olympic Highway and the main population centres along the Albury to Cowra corridor.

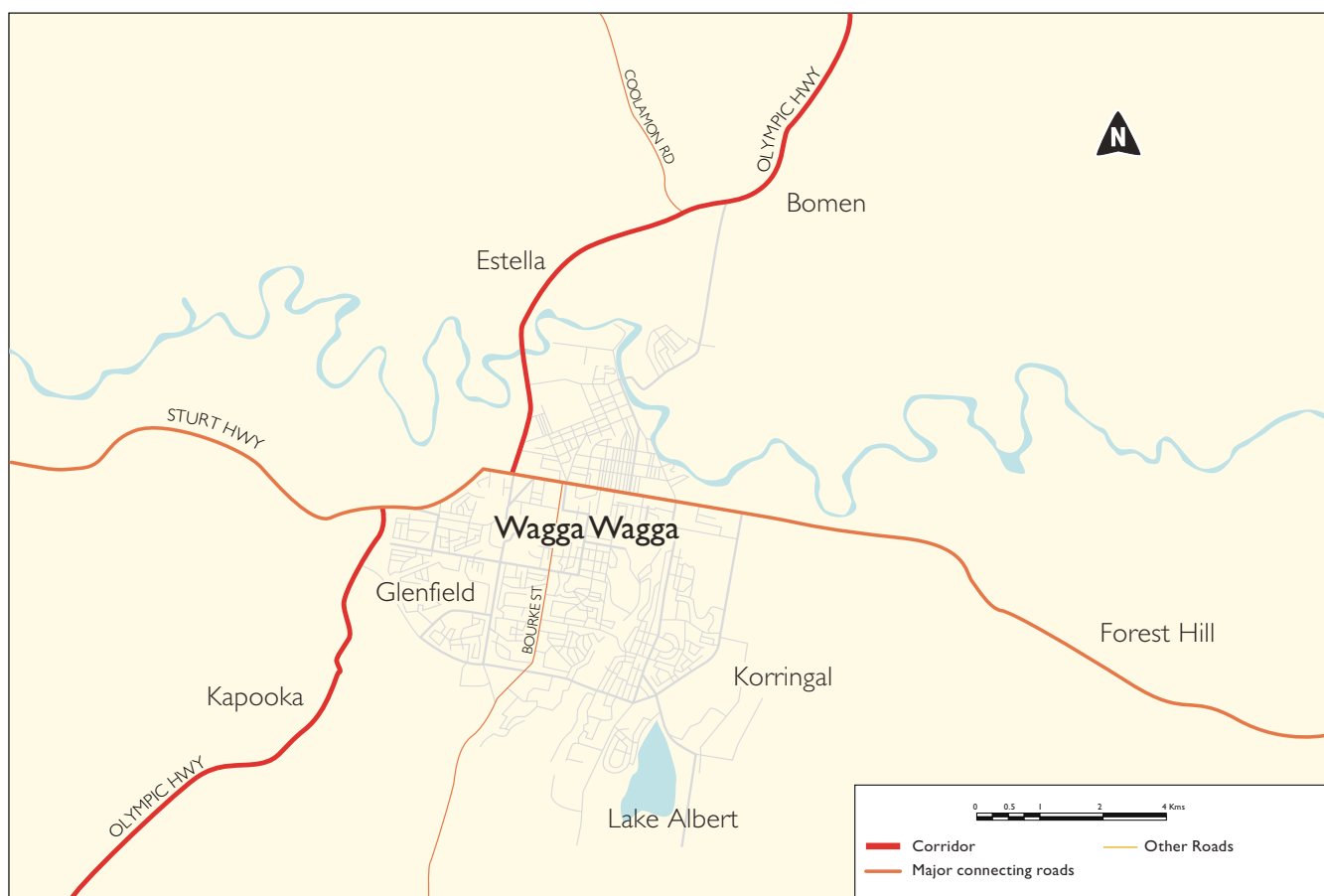


Figure 1.2.I Local Map of Wagga Wagga.

I Introduction

The Albury to Cowra corridor, located in south-western New South Wales (NSW), provides a north-south connection between Albury and the Riverina Region and Cowra and Bathurst west of the Blue Mountains. The Olympic Highway runs from the Hume Highway 18km north of Albury (23km north of the Murray River) to the Mid Western Highway at Cowra. The corridor is approximately 315km long crossing the South East Riverina plains and passing through Wagga Wagga Junee, Cootamundra, Young and continuing through to the central west grazing and farming areas.

The local government areas (LGAs) along the corridor cover 24,740 square kilometres and have a total population of approximately 198,000. The largest centre along the corridor is Albury/Wodonga at the southern end, with a combined population of around 79,000 people. Population growth along the corridor between 2001 and 2006 was 0.6% per annum, which is the same as the NSW average growth rate¹.

The Roads and Traffic Authority (RTA) manages over 20,000km of roads, almost 5,000 bridges, major culverts, tunnels, and nine vehicular ferries in NSW. Together these assets managed by the RTA are valued at around \$75 billion.

Transport servicing the corridor

Within the corridor, the Olympic Highway provides the primary means of transport between the major centres of Albury, Wagga Wagga, Young and Cowra. The route parallels the Sydney to Melbourne Main South railway line between Albury and Wallendbeen 20km north of Cootamundra. A branch rail line off the Main South line connects Murrumburrah (east of Wallendbeen) to Young and Cowra and the Olympic Highway parallels this line between Young and Cowra. Two regional airports, at Albury and Wagga Wagga, provide scheduled services to Sydney and Melbourne.

The Olympic Highway approximately parallels the Hume Highway to the east and the Newell Highway to the west.

The five main State Roads crossing or joining the Olympic Highway are:

- **Hume Highway** (part of the National Network), which connects Sydney and Melbourne through the south of NSW.
- **Sturt Highway** (part of the National Network), which connects Sydney and Adelaide via the Hume Highway through the south west of NSW.
- **Goldfields Way**, which diverges from the Olympic Highway at the locality of Wallacetown just west of Junee and connects to Wyalong on the Newell Highway.
- **Burley Griffin Way**, which serves as an important east-west route connecting the Burley-Griffin-designed towns of Griffith and Canberra and links the Murrumbidgee irrigation area around Griffith with the Hume Highway route connecting Sydney and Melbourne.
- **Mid Western Highway**, which provides a connection from the Great Western Highway at Bathurst to the Sturt Highway at Hay and intersects with the Olympic Highway at its northernmost point in Cowra.

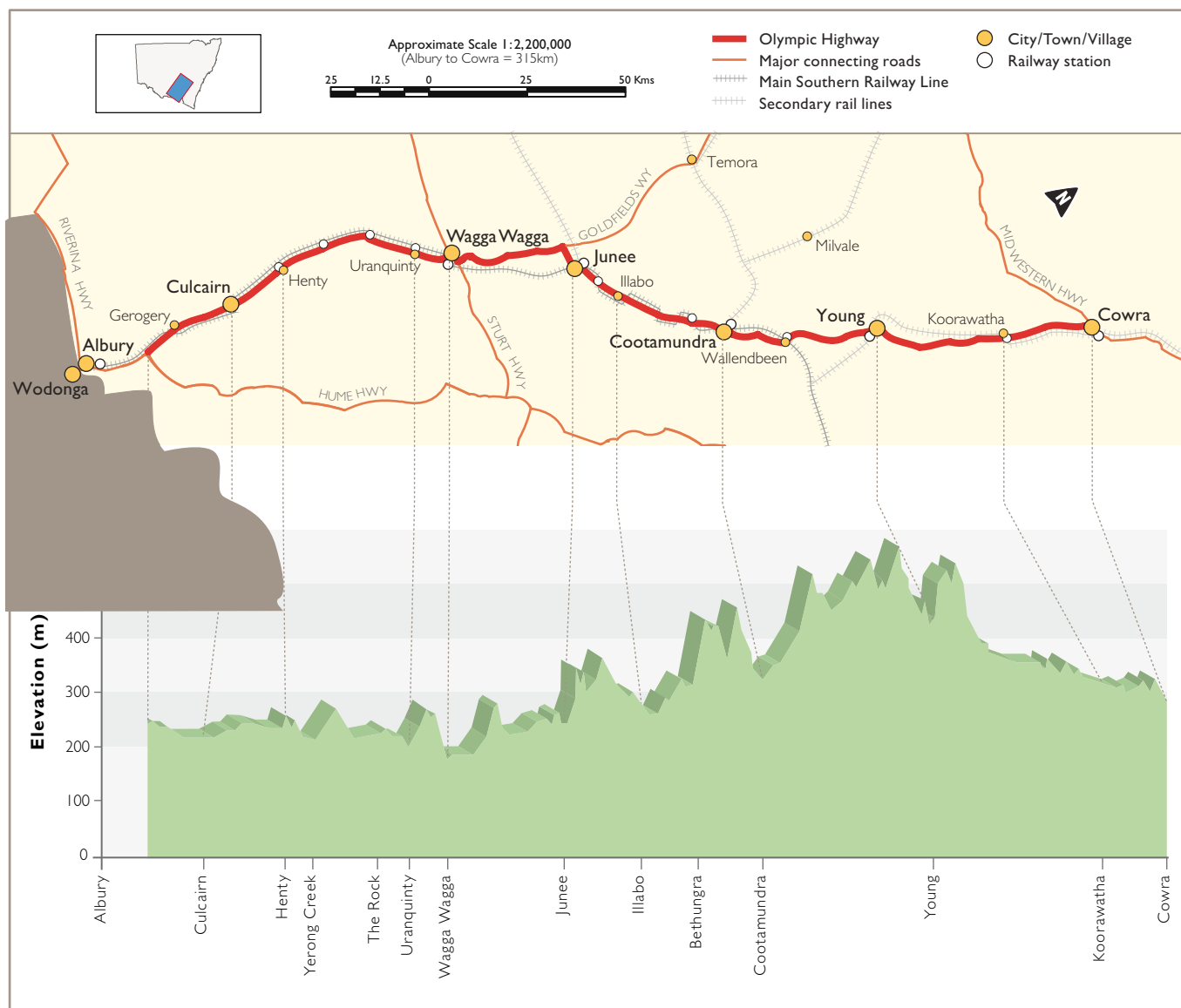


Figure 1.3. Elevations along the Olympic Highway between the Hume Highway and Cowra.

Features

Natural and built geographic conditions vary along the corridor. Most of the corridor's population live in the regional centres of Wagga Wagga and Albury/Wodonga, while Culcairn, Junee, Cootamundra, Young and Cowra are centres with populations of 10,000 or less.

The average annual rainfall along the route varies only slightly between about 550mm per year and 610mm per year. Parts of the route cross the broad floodplains typical of inland rivers and creeks and are therefore subject to occasional flood events. The elevation of the route varies from about 165 metres at Albury, 210 metres in Wagga Wagga, 395 metres in Young, and 295 metres in Cowra making it a fairly flat route to travel (*Figure 1.3*).

The Olympic Highway is generally a two-lane undivided rural road, but it also includes wider sections within urban areas and some passing lanes. Where the road passes through suburban areas it accommodates both parking and pedestrian needs of the town shopping centre and highway through traffic. Around Wagga Wagga and Albury, and to a lesser extent around Young and Cowra, the route also functions as a commuter artery. A two kilometre section of the highway through Wagga Wagga is a four-lane divided urban road. The southernmost 18km of the corridor is the 4 lane divided Hume Highway from Albury to the commencement of the Olympic Highway at the Bells Road intersection.

Traffic volumes range between 3,000 and 4,000 vehicles per day between the Hume Highway and The Rock, but increase to over 5,000 vehicles per day between The Rock and Wagga Wagga and between Wagga Wagga and Junee. This reflects the commuter function of the route near Wagga Wagga. Within Wagga Wagga the traffic volumes peak at just over 13,000 vehicles per day. There is a notable decrease in traffic north of the Goldfields Way intersection (near Junee) which reflects the Hume Highway to Newell Highway link that the southern part of the corridor provides. North of Junee, volumes vary between 1,500 and 2,200 vehicles per day with increases of up to 7,000 vehicles per day in urban areas of Cootamundra and 11,000 vehicles per day in urban areas of Young. The weighted average proportion of heavy vehicles along the entire corridor is 19%. This equates to approximately 800 heavy vehicles south of the Goldfields Way intersection and 400 to the north.

By comparison, the Hume Highway carries 9,000 to 13,000 vehicles per day between Albury and Yass with 38% heavy vehicles, while the Newell Highway carries 2,000 to 3,000 vehicles per day with about 35% heavy vehicles.

The RTA's overall vision

The RTA's overall vision is 'a safe, sustainable and efficient road transport system'. This vision guides the RTA's *Corporate Plan 2008-2012*, known as the *Blueprint*, which reflects the NSW Government's priorities.

The RTA's high-level objectives

The RTA's high-level objectives for the State Road network, consistent with the RTA's stated Community Results are summarised in the table below.

NSW state	Growing prosperity across NSW		Delivering better services	Environment for living
RTA vision	A safe, sustainable and efficient road transport system			
RTA results	Transport	Asset	Safety	Environment
	The road transport system supports reliable and efficient movement of people and goods.	The condition and value of the road network meets acceptable standards.	The safety of the road environment, vehicles and road user behaviour are maximised.	Impacts on the natural, cultural and built environments are minimised.
Intermediate results	<ul style="list-style-type: none"> Network development meets future growth, population and freight needs. Alternative forms of transport are supported. People and freight movement and incident management are optimised. 	<ul style="list-style-type: none"> Heavy vehicle access to the road network is sustainable. The road network is being maintained to the required condition and value. 	<ul style="list-style-type: none"> The safety of the road environment is maximised. The safety of vehicles is maximised. The level of safety in road users' behaviour is maximised. 	<ul style="list-style-type: none"> The impact of road work on the environment is minimised. Less resources are used, waste is reduced and our footprint is reduced. Contributions are made towards a reduction in vehicle emissions.

Other guiding planning frameworks

In addition to reflecting the RTA's own vision and results, this Albury to Cowra Corridor Strategy also supports various Australian, NSW Government and local council strategies.

These include:

- *State Plan – Investing in a Better Future* (NSW Government 2009)

- *State Infrastructure Strategy 2008-09* (NSW Treasury)
- *Draft Greater Hume LEP 2009* (Greater Hume Shire)
- *Draft Wagga Wagga LEP 2008* (Wagga Wagga City Council)
- *Draft Bomen Masterplan 2009* (Wagga Wagga City Council)

2 Corridor objectives

In line with the RTA's Corporate Plan, the RTA's objectives for the Albury to Cowra corridor are to:

- **Enhance road safety** outcomes for all road users, particularly at road/rail interfaces and in towns.
- **Improve traffic efficiency** and reliability particularly within towns and road/rail interfaces, for the benefit of local and regional road users including rural industries.
- **Improve access** to and from major regional facilities located in Wagga Wagga and Albury, particularly from major centres like Junee, Young, Cootamundra and Culcairn.
- Maintain and where possible improve **heavy vehicle access** and use along the corridor particularly at difficult road/rail interfaces on the highway.
- Maintain and improve where appropriate the **condition of the corridor's road assets** so they continue to be fit for purpose while optimising opportunities to improve safety, efficiency and reliability.
- Support local Council initiatives for **cycling, walking and public transport**, and
- **Manage the impacts** of road traffic through and within urban areas.

These objectives support the RTA's overall objectives for the State Road network and will guide the RTA's decisions for the long-term management of the corridor.



Public transport, Wagga Wagga

3 Transport demands and roles

3.1 Current population and employment in the corridor

The demand for transport in the corridor is mostly derived from the population and employment along and close to the corridor, including the large rural land use areas and rural settlements close to the corridor.

Major population and employment centres along the Albury to Cowra corridor are shown with population densities in figure 3.1.

The corridor also serves inter-regional travel, providing an alternative to the Newell and Hume/Pacific Highway routes between Victoria and northern NSW and Queensland. The road provides the primary link for people and freight. The rail line provides the secondary link and caters primarily as a very long distance inter-regional passenger and freight line.

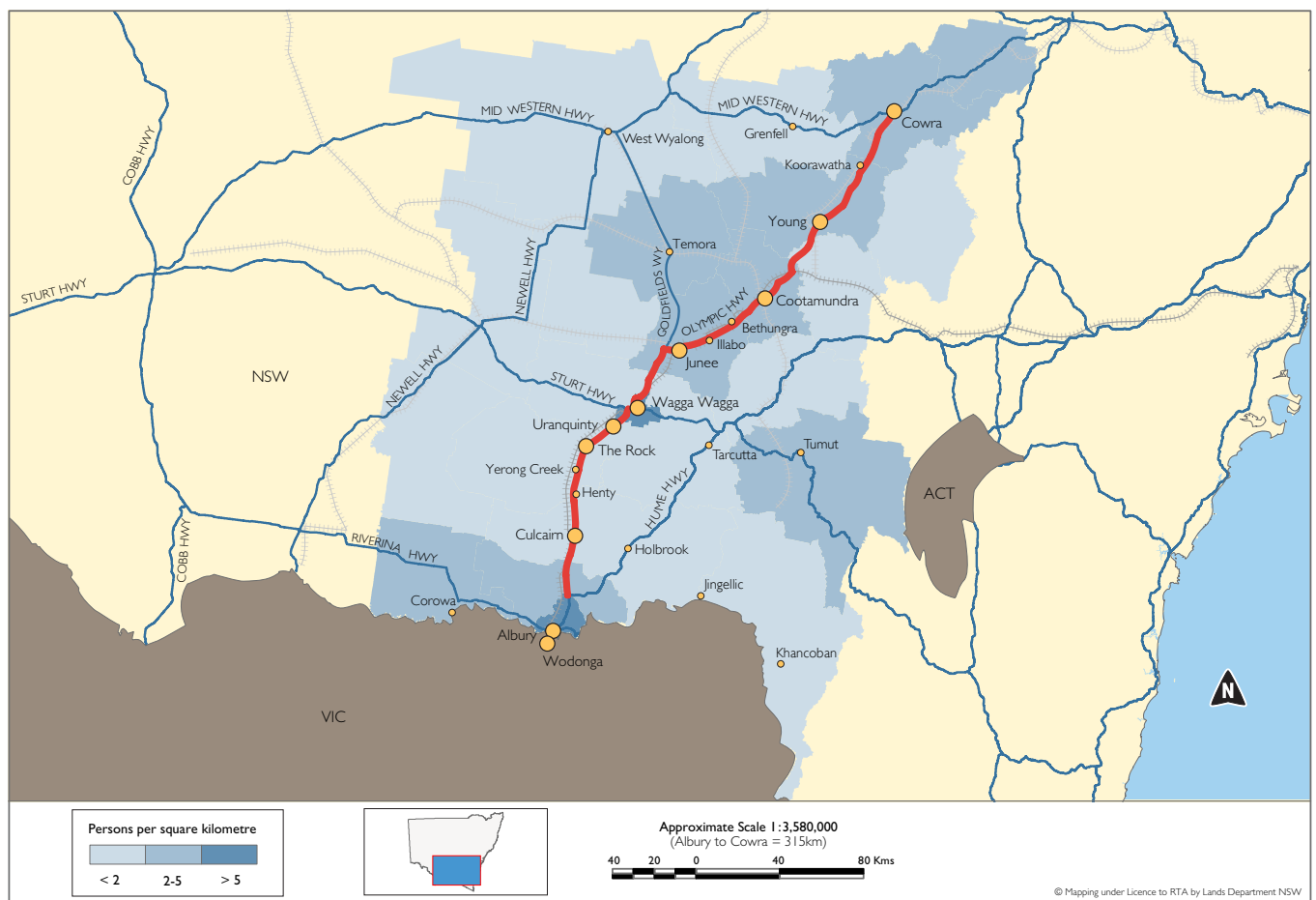


Figure 3.1. Population densities in statistical local areas along the Albury to Cowra corridor in 2006.

As Figure 3.2 illustrates, the main rural industry and major land use along the corridor is agriculture (6.5% of employed persons). Urban industries including manufacturing (11.7% of employed persons), health care and social assistance (11.6%), retail trade (13.3%), public administration and safety (9.5%), and education and training (8.7%). Unemployment in 2006 was 5.6% of the workforce compared with 5.2% nationally.¹

The proportion of persons employed in the various industries varies along the corridor. In the predominantly rural shires, agriculture employs the largest proportion of the workforce (34.2% in Greater Hume, 47.7% in Lockhart, and 21.7% in Junee), whereas in the large urban areas of Wagga Wagga and Albury the predominant employment industry is retail, reflecting the service centre roles of these cities. Health, education and service industries are also very strong in these centres. Education services are especially significant in Wagga Wagga with Charles Sturt University, Riverina Regional TAFE and two Defence Force recruit training bases.

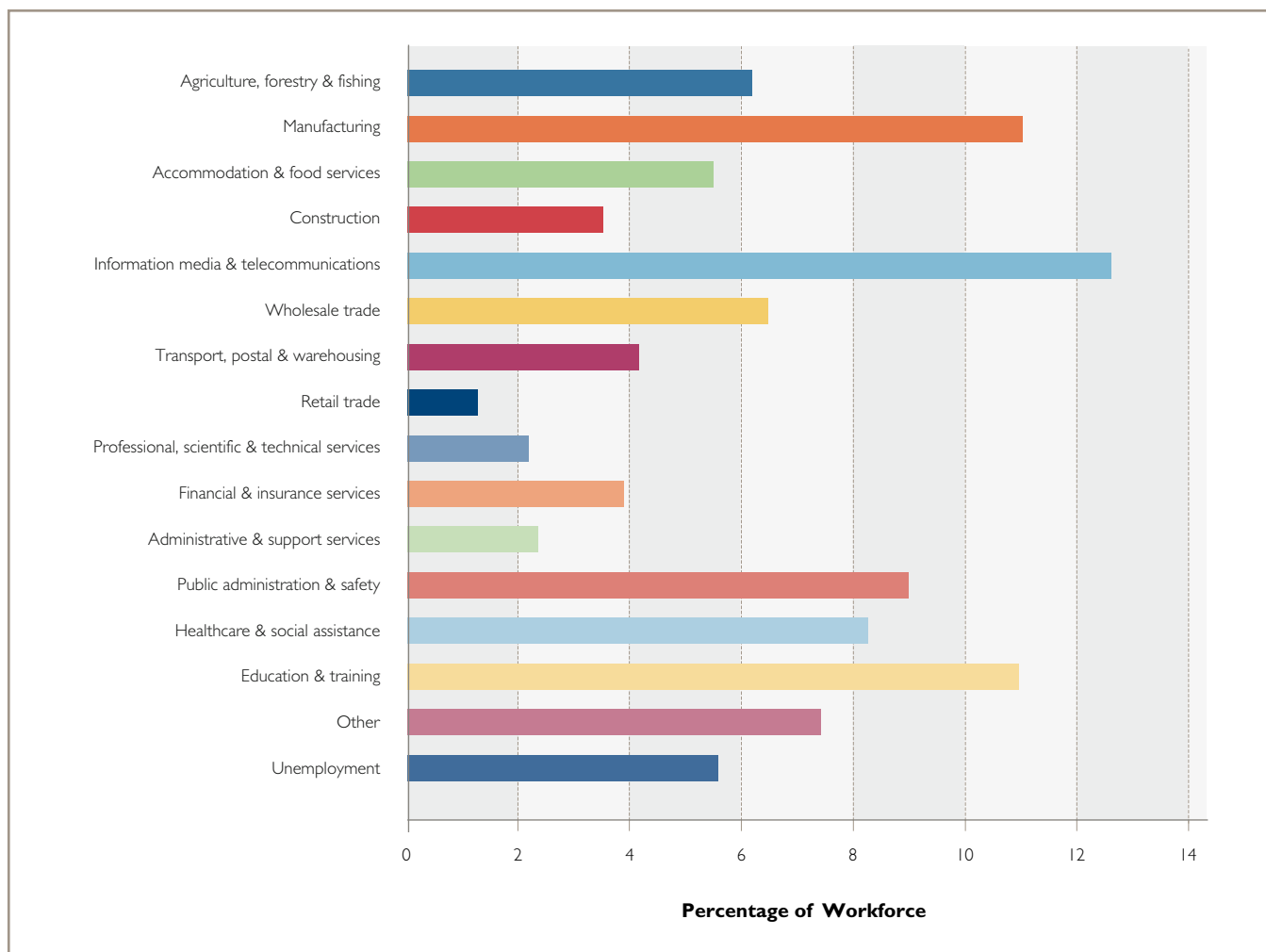


Figure 3.2. Employment in various industry categories among workforce residents of centres in the Albury to Cowra corridor 2006.

The average age of residents along the corridor varies considerably between local government areas (LGA), from an average age of 33 in Wagga Wagga LGA, to 44 in Cootamundra LGA. This compares with the national average age of 37.

Wagga Wagga and Albury in particular have a lower average population age. Both towns are home to defence force bases and universities which generally have a younger population. The more rural-based local government areas such as Cootamundra and Lockhart generally have fewer employment opportunities or attractions for younger people. The corridor is well positioned close to major transport corridors connecting to all of the south eastern Australia capital cities. This provides ready access to markets and services provided by these larger centres. In the foothills of the Snowy Mountains to the east, extensive areas of forestry are harvested with major related processing industries. To the west are the major irrigation areas of the Murrumbidgee and Murray Rivers producing citrus, cereal and other crops. This area has been referred to as the food bowl of Australia. All of these areas generate industry and attract populations along the Albury to Cowra corridor. They are key generators of travel in the corridor.



Albury/Wodonga

Located on the Hume Highway south of the Olympic Highway/Hume Highway intersection, the twin towns of Albury/Wodonga together form a major regional centre with a significant influence on the Albury to Cowra corridor. They had a combined urban centre population of about 79,000 in 2006¹, Albury (population 46,000) and its twin town of Wodonga (population 33,000) across the Murray River in Victoria have experienced strong average growth of around 1.2% per annum over the last 10 years¹. The twin cities are a major employment centre for the region. Manufacturing (13.9%), retail (13.1%), and health care (11.4%) are the major employment sectors with manufacturing stronger in Wodonga and retail and healthcare stronger in Albury.



Culcairn

One of the two main towns in the Greater Hume Shire, Culcairn serves the surrounding rural area and villages, providing an access point to the Southern Railway for grain and other agricultural produce. Culcairn's population is around 1,150 persons. By far the largest source of employment in Greater Hume Shire is the agricultural sector (34.2%).



Henty, Yerong Creek, The Rock and Uranquinty

These are small villages of a few hundred people each along the Albury to Cowra Corridor between Albury and Wagga Wagga. They have a limited number of services for through traffic (takeaway shops, fuel and some toilets) and create areas of reduced speed limits including school zones within Yerong Creek and Uranquinty. The Uranquinty Power Station, commissioned in December 2008, is the biggest and most modern gas-fired power station in NSW.

1. ABS July 2008



Wagga Wagga

The City of Wagga Wagga is the major regional centre within the corridor with an urban population of 51,200 and an LGA population of 59,900 in 2006¹. The Olympic Highway breaks at the Sturt Highway (part of the National Network) on the western side of Wagga Wagga and resumes approximately 3km to the east at the Edward St/Moorong St/Pearson St roundabout.

The city supports a major campus of Charles Sturt University and is a recruit training centre for the armed forces with an Army Recruit Training Centre at Kapooka and an Airforce Base at Forest Hill (Figure 1.2.1). The city has a large TAFE college, 7 public and private high schools and many primary schools. It also has an important base hospital and a private hospital with significant cancer treatment facilities servicing a large geographical area around the city. Many NSW Government departments such as the Department of State and Regional Development, the RTA and Department of Community Services have regional offices in the city.

Wagga Wagga is a significant regional transport hub due to its positioning between Brisbane, Sydney, Melbourne, Canberra and Adelaide and the interface with the southern railway line, the north-south Olympic Highway, and the east-west Sturt Highway putting it within reach of a large part of the Australian population. The city also provides major regional services to the surrounding rural area and villages.

The three largest employment sectors in Wagga Wagga are the retail (17.6%), health and community services (10.2%) and education (9.6%) industries.²



Junee

With an urban population of about 4,000 people and an LGA population of just over 6,000 people, Junee is a small but important town for the region. It was traditionally a railway service town but this has become a smaller part of its economy in recent years. The Council promotes the town as a "modern convenient lifestyle centre"³ and in this regard it is an important commuter town feeding Wagga Wagga via Byrnes Rd and the Olympic Highway. The town also serves the surrounding agricultural and horticultural industry. Two of the largest employment sectors in Junee Shire are the agriculture (21.1%) and transport and storage (10.2%) industries. The Junee Correctional Centre is also a major employer in the town.⁴



Illabo and Bethungra

These are small villages of a few hundred people along the Albury to Cowra corridor in Junee Shire between Junee and Cootamundra. They have a limited number of services for through traffic (takeaway shops and some toilets) and create areas of reduced speed limits including a school zone in Illabo.

1. ABS July 2008

2. <http://www.rddb.com.au/rivprofile/waggawagga.htm>

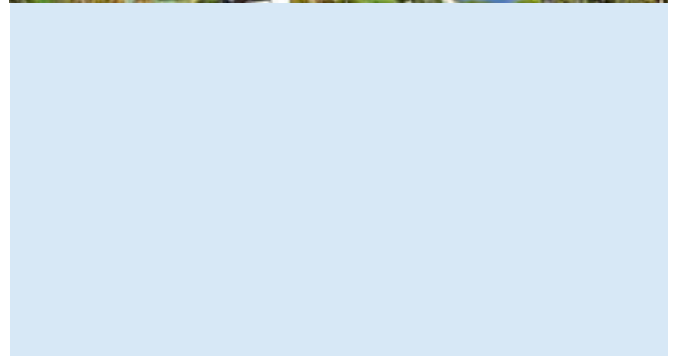
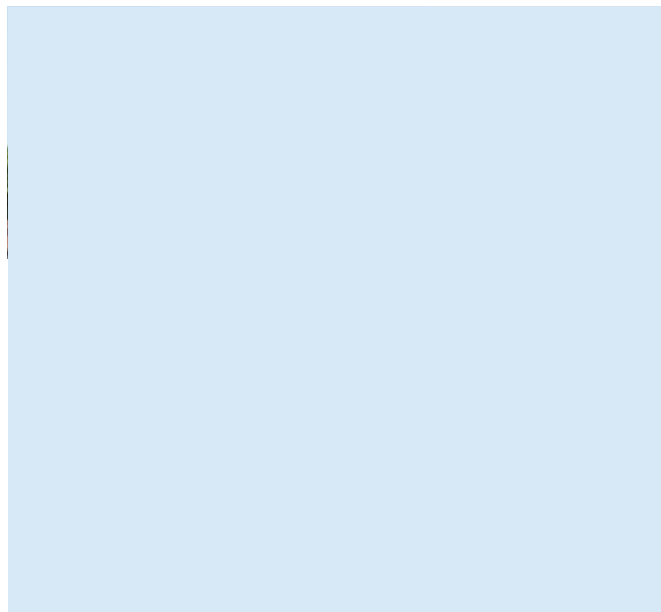
3. Junee Council 2009

4. <http://www.rddb.com.au/rivprofile/junee.htm>



Cootamundra

This is a major town serving the surrounding rural area with support businesses, a small hospital, basic government services and both public and private schools. Cootamundra's urban centre population is about 5,800 with around 7,600 in the shire. Two of the largest employment sectors in Cootamundra Shire are the agriculture (16.3%) and retail (14.7%) industries¹



1. <http://www.rrdb.com.au/rivprofile/cootamundra.htm>

3.2 Current transport roles of the corridor

The Olympic Highway serves a number of functions including:

- Serving corridor communities for local and regional trips, particularly the need to access higher order goods and services in the major centres of Wagga Wagga and Albury.
- Moving freight between regional centres and villages and to and from other regions.
- Serving as a detour route for all vehicles when a severe incident blocks traffic on the Hume Highway, as traffic is diverted from the Hume Highway and along the Olympic Highway north of Albury and then via Burley Griffin Way north of Cootamundra back to the Hume south of Yass.
- Providing for public transport, cycling and walking in the more densely populated parts of the corridor.
- A local commuter route between towns, for example Junee to/from Wagga Wagga, Culcairn to/from Albury/Wodonga, and to a lesser extent around Young and Cowra.
- A tourist route for regional travel offering a scenic alternative to the Hume Highway. Towns along the route have specific tourist attractions, such as Young in cherry season and the Japanese gardens and prisoner of war camp in Cowra.
- An access route for the support services and maintenance associated with the adjacent north-south rail corridor.

The southern part of the corridor is becoming increasingly popular as a heavy vehicle alternative to the Newell Highway south of Wyalong. Some vehicles travelling for long distances between Victoria and northern NSW and Queensland use the Olympic Highway and then Goldfields Way, which diverges from the Olympic Highway at Wallacetown just west of Junee and connects with the Newell Highway at Wyalong. This route has become popular with the completion of the Hume Highway Albury Bypass and the resulting reduction in travel time through Albury.

The function of the Main Southern rail line is primarily very long distance inter-state and inter-regional travel. There is considered to be very little opportunity to divert regional people and freight from the road corridor onto the rail corridor.



Heavy vehicle definitions

A **'heavy' vehicle** is one which has a gross vehicle mass of more than 4.5 tonnes. Heavy vehicles are identified as one of three general vehicle classes according to their size and number of axles.

Rigid heavy vehicles are those which have a one-piece chassis, such as tipper style trucks, small delivery vehicles or buses.

Articulated heavy vehicles are those which include a single trailer coupled to a drive vehicle, and include semi trailers and rigid trucks with one trailer.

Combination heavy vehicles, the largest heavy vehicles, are those with multiple trailers.

The most common of these are B-double vehicles. Generally, rigid heavy vehicles and articulated heavy vehicles operate in approximately equal numbers on the Olympic Highway with combination vehicles forming only a small proportion of total heavy vehicle numbers.

Higher Mass Limit (HML) vehicles are heavy vehicles that are specially permitted to operate with axle loads greater than general access vehicles. They can only operate on approved routes, must have special suspension to reduce the impact on the road surface, and must be regularly certified as suitable for carrying higher loads. The extra loads that these vehicles are able to carry means that fewer heavy vehicles are needed to carry a given mass of freight, thereby improving economic and traffic efficiency.

3.3 Current traffic volumes and heavy vehicles

Average annual daily traffic (AADT) counts are averages across both weekdays and weekend days, for the whole year. Actual daily traffic may have been higher or lower on individual days of the week and at different times of the year.

AADT volumes in vehicles per day are shown in Figure 3.3. Rural traffic volumes vary from 4,000 to 6,000 on the southern section of the route, to 1,100 to 2,000 on the northern section of the route. Along the route general traffic volumes increase in and near towns where local traffic movements increase the volumes. The urban centres in Wagga Wagga, particularly the Gobbagambalin Bridge over the Murrumbidgee River, and Young have an AADT of 13,000 vehicles per day and 11,000 vehicles per day respectively.

Along the length of the corridor, heavy vehicles average around 19% of all traffic. Heavy vehicles, as a proportion of overall traffic, typically increase between urban areas where light vehicle traffic volumes decrease, such as between Junee and Cootamundra, and between Young and Cowra. The actual volume of heavy vehicles generally decreases from around 830 per day at the Hume Highway intersection, to around 300 at Cowra, with isolated increases in urban areas largely due to local deliveries.

Overall traffic volumes drop by around a third north of Goldfields Way with the volume of articulated and multi-articulated vehicles decreasing by greater than 50% being a large contributing factor. Between Junee and Cootamundra the traffic volumes decrease a further 40% to around 1,900 vehicles per day, with similar decreases in all vehicle types except rigid heavy vehicles where the numbers remain fairly consistent. Between Cootamundra and Burley Griffin Way the heavy vehicle numbers increase slightly.

B-double vehicles are permitted to travel along the entire length of the corridor. High vehicles up to 4.6m in height are also permitted to use the length of the corridor, with the exception of the rail-over-road bridges 1.2km north of Junee and 3.1km south of Cootamundra.

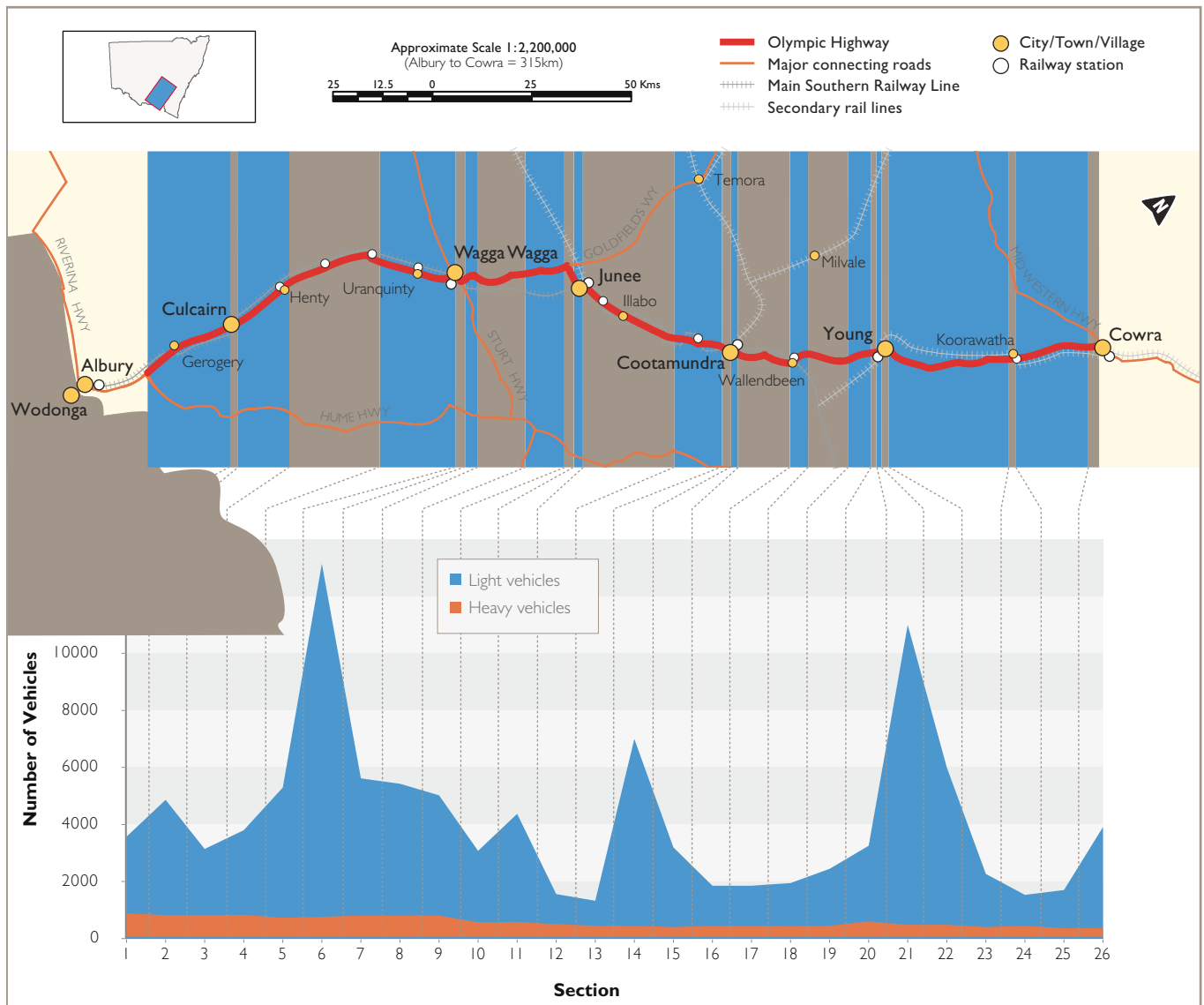


Figure 3.3. Average Annual Daily Traffic volumes of light and heavy vehicles on the Olympic Highway between the Hume Highway and Cowra in 2006.

Higher Mass Limit (HML) vehicles are permitted to use the length of the corridor with the exception of the Kapooka bridge around 8km south of Wagga Wagga as the bridge structure cannot support the increased weight HML vehicles carry. As the Olympic Highway serves as a detour route for major traffic diversions from the Hume Highway (see section 4.2), the removal of this restriction preventing HML vehicles from using the Kapooka Bridge would offer a traffic management benefit as well as a freight efficiency benefit.

The Olympic Highway has a close relationship with the main north-south railway line from Albury in the south to around Wallendbeen in the north. As the major rail link

between Sydney and Melbourne, the line regularly carries around 4 passenger trains and 10 freight trains per day, with additional freight trains during grain harvest season and for track maintenance. North of Wallendbeen, the railway line is currently not operational, hence no trains use this route.

Road/rail intermodal facilities are located at Ettamogah near Albury and at Bomen just north of Wagga Wagga. These facilities allow regional road freight to be transferred to rail for long distance travel and in turn reduce the impact on the road network. Another small scale facility exists at Cootamundra to serve local freight.



Regional airports

Regional airports are important infrastructure in regional Australia given the expanse of the nation. The southern end of the Albury to Cowra Corridor is well serviced with two domestic airports at, Wagga Wagga and Albury. The corridor provides landside access to both airports.

The following airlines service the two airports:

Regional Express Airlines (REX) operates up to five daily direct scheduled services in each direction between Wagga Wagga and Sydney and two daily direct scheduled services in each direction between Wagga Wagga and Melbourne. The Wagga Wagga to Sydney flights take 1 hour 10 minutes and the Wagga Wagga to Melbourne flights take 1 hour 5 minutes. The airline operates four daily direct scheduled services in each direction between Albury and Sydney and three daily direct scheduled services in each direction between Albury and Melbourne. The Albury to Sydney flights take 1 hour 20 minutes and the Albury to Melbourne flights take 50 minutes. REX also flies from Bathurst airport.

Qantaslink flies up to six daily direct scheduled services in each direction between Wagga Wagga and Sydney and up to four daily direct scheduled

services in each direction between Albury and Sydney. Flights from Wagga Wagga to Sydney take 1 hour 10 minutes, and flights from Albury to Sydney take 1 hour 20 minutes.

Virgin Blue flies seven daily direct scheduled services in each direction between Albury and Sydney, taking 55 minutes.

Brindabella Airlines flies up to two daily direct services between Albury and Canberra. Flights take 45 minutes between destinations.

Outside the corridor, Canberra and Bathurst both provide airport services for those in the northern sections such as Cowra and Young.

Canberra is around 2 hours 20 minutes by road from Young and Cootamundra. As a larger centre, it is serviced by Qantas, Virgin Blue, Brindabella Airlines and Tiger Airways and has direct flights to all capital cities, Townsville, Gold Coast, Newcastle and (as mentioned above) Albury.

Bathurst airport is around 1 hour 20 minutes drive from Cowra and 2 hours 20 minutes from Young. REX flies three daily direct services between Bathurst and Sydney, taking 45 minutes.

3.4 Public transport, walking and cycling

A number of urban bus services operate within Albury/Wodonga, Wagga Wagga and Cowra, providing feeder services between town centres and suburbs. While some of these routes use part of the corridor, the direct impact on the corridor is small. A greater use of the corridor comes from school bus services servicing all of the towns along the route including pick-up and drop-off of students in both urban and rural areas.

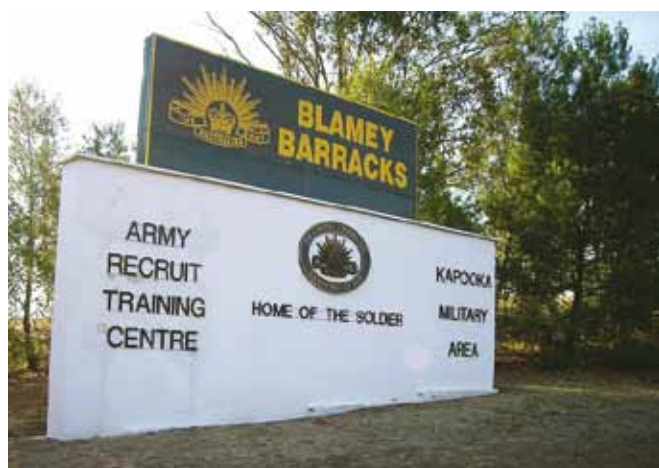
CountryLink currently runs two daily Sydney-Melbourne train services in each direction along the main southern line serving Harden, Cootamundra, Wagga Wagga, and Albury/Wodonga. Coaches connecting with these trains link to Canberra, Young and Cowra as well as the Riverina Region, Murray River towns and the central west of the state. There are also CountryLink train services from Sydney to Griffith and return via Cootamundra and Junee.

Dedicated walking and cycling infrastructure, as with bus services, tends to be focused on the more densely populated areas in the corridor. Local government areas (LGAs) along the route have developed bike plans as well as Pedestrian Access and Mobility Plans (PAMPs). These are largely focused on providing pedestrian and cyclist facilities within their respective urban areas although some LGAs have also identified road routes commonly used by cycling groups for training and recreation. Roadside sealed shoulders, where provided, serve as a cycling facility but are very limited along the corridor.

Two major attractors of cycling traffic are the Army Recruit Training Centre at Kapooka and Charles Sturt University in Wagga Wagga. In both cases, some cyclists use sections of the Olympic Highway to avoid off-road track unsuitable for certain bike types, or to avoid longer alternative routes. These sections of highway include narrow confined shoulders on the approaches to Kapooka and on the Gobbagombalin Bridge.



CountryLink train, Junee station



Kapooka Army Recruit Training Centre

4 Current corridor performance

In order for the RTA to understand the current challenges in the Albury to Cowra corridor, it is necessary to analyse current performance using safety, traffic and asset measures.

The RTA's *Road Design Guide* has been used as a basis for measuring key road design characteristics. It should be noted, however, that the Road Design Guide is intended for use by the RTA in designing new roads and not in designing upgrades of existing roads. In the latter case, satisfaction of the specified 'new road' criteria would generally not be economically feasible across the State Road network. The RTA uses companion guides to the *Road Design Guide* to assist with design of work on existing road alignments.

Across the State Road network the RTA ranks roads for planning purposes according to their relative importance in the network. The RTA has ranked the Olympic Highway as a Class 3 Rural road from the Hume Highway to Cowra.

The performance of the Olympic Highway against key measures has been compared to the average performance of all Class 3 Rural roads in NSW, to assist the RTA in identifying relative needs in this corridor and others in the state.



4.1 Road design and condition

Lane widths

Lane widths are generally to be in accordance with the RTA Road Design Guide. For the Olympic Highway the desirable lane width is 3.5m. This width will vary in situations of, for example, difficult topography such as hilly terrain. Lane widths on the Olympic Highway are generally narrower than this for about 149km (47%) of the route. Approximately 64km (20%) of the route has lane widths less than 3.25m. The sections of the corridor with the greatest proportion of lane widths less than 3.5m, with some less than 3.25m, are between Wagga Wagga and Junee, and between Cootamundra and Young. Between Cootamundra and Young in particular, lane widths are restricted by the nature of the terrain. Lane widths on the Hume Highway south of the Bells Road intersection are all 3.5m.



Lane widths left-right: less than 3.25m, between 3.25 and 3.5m, and 3.5m or greater.

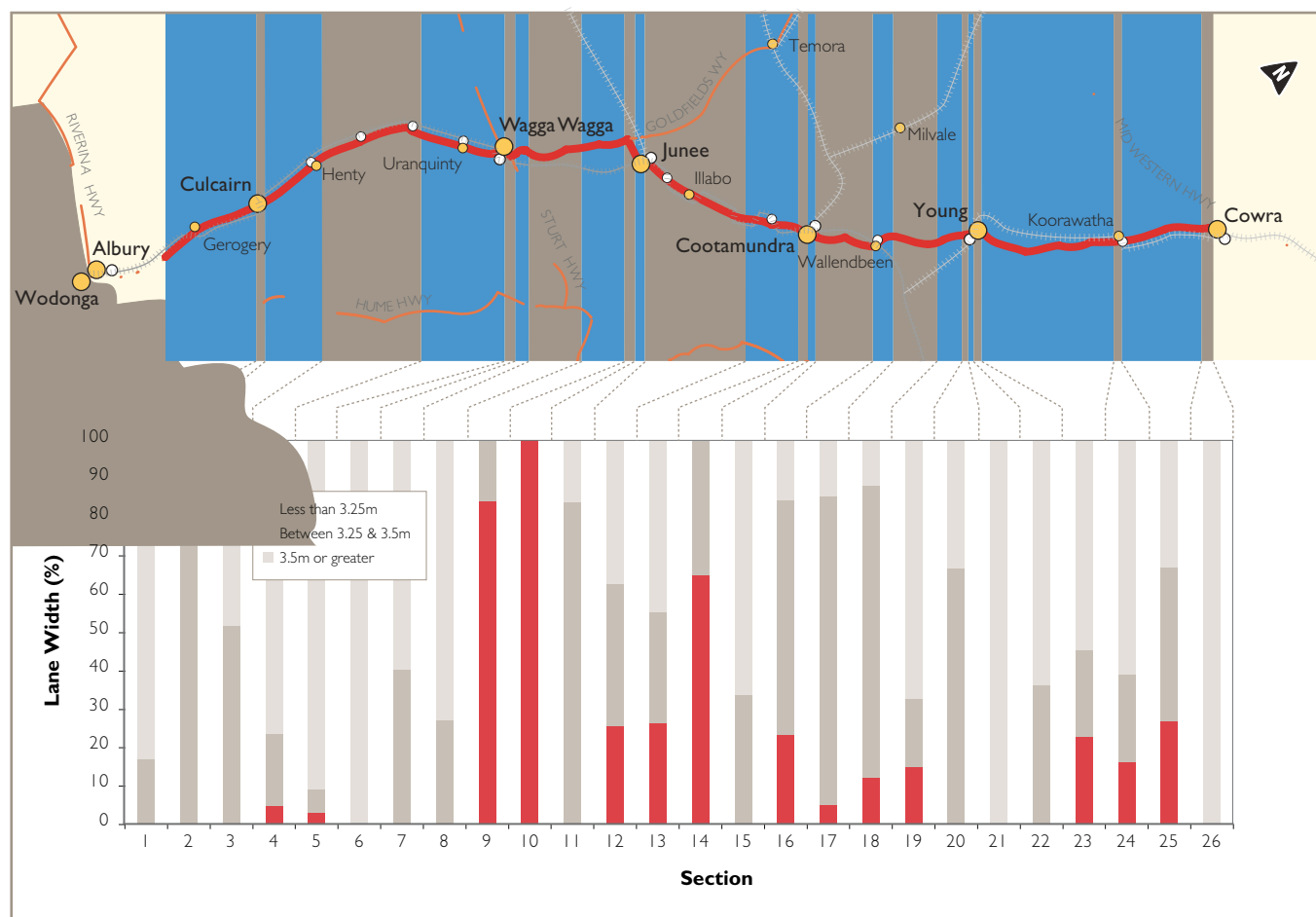


Figure 4.1. Lane widths on the Olympic Highway between the Hume Highway and Cowra.

Shoulder widths

Generally the functions of a shoulder are to provide support for the pavement and improved safety through increased distance from roadside hazards. Shoulder widths are generally to be in accordance with the RTA Road Design Guide, and the desirable shoulder width for the Olympic Highway is 2.0m with a 1.0m sealed shoulder. As with lane widths, there will be situations where the desirable shoulder widths will not be achievable.

87.5km (28%) of the Olympic Highway's sealed shoulders are less than the desirable sealed shoulder width of 1.0m (Figure 4.2), with approximately 59.5km (19.0%) between 0.5m and 1.0m and 28km (9%) less than 0.5m. This is similar to other Class 3 Rural roads where an average of 23% have a shoulder width below the desirable 1.0m width. The lengths with the highest percentage of narrow sealed shoulders (less than 1.0m) are between Wagga Wagga and Junee (37% of this section), Junee and Cootamundra (43% of this section) and Young to Cowra (38% of this section). Narrow shoulders exist where the width of the pavement surface is restricted by hilly terrain.

It is recognised that the provision of wider sealed shoulders can have an effect in reducing 'run off road' crashes across the network, particularly on lower radius curves. The wider sealed shoulders on the outside of low radius curves provide room for drivers to react and correct their path without having to deal with an unforgiving change of surface type. Noting that the most beneficial approach is to provide additional width on low radius curves in more heavily trafficked areas or where the topography allows, these areas would be targeted for shoulder widening and sealing.



Shoulder widths left-right: less than 0.5m, between 0.5 and 1m, and 1m or greater.

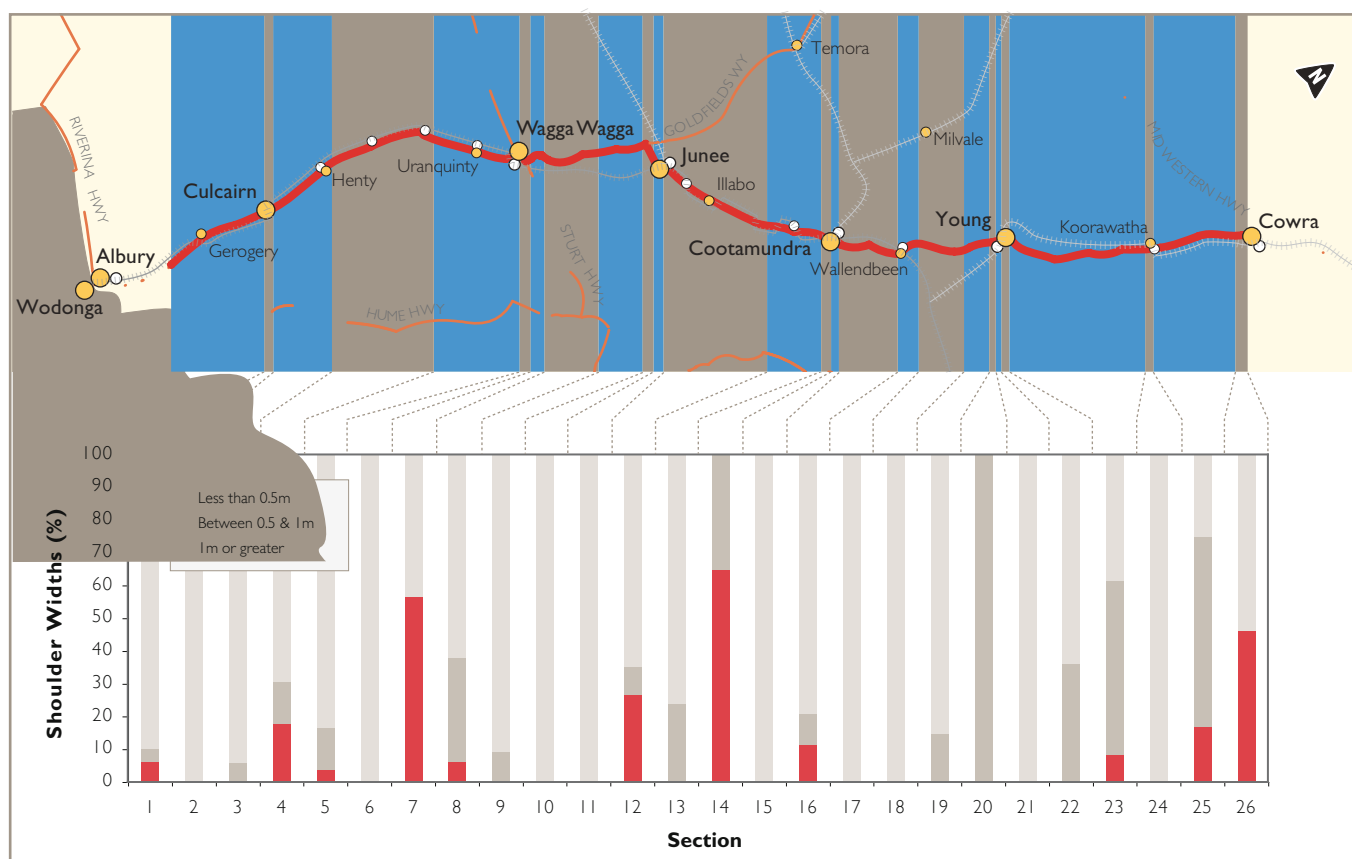


Figure 4.2. Shoulder widths on the Olympic Highway between the Hume Highway and Cowra.

Grades and curvature¹

From the Hume Highway near Albury, the Olympic Highway traverses fairly flat terrain to just south of Wagga Wagga and then varies between flat and rolling terrain for the remaining distance to Cowra. The more notable rolling hills are between Bethungra and Cootamundra.

The desirable maximum grades for new roads with different design speeds, as specified in the RTA's Road Design Guide, are:

Design speed (km/h)	Desirable maximum grade		
	Flat terrain	Rolling terrain	Mountainous terrain
60	6-8%	7-9%	9-11%
80	4-6%	5-7%	7-9%
100	3-5%	4-6%	6-8%

Between Albury and Cowra, around 51% of the corridor is classified as "flat" terrain and around 47% is classified as "rolling" terrain, with the remaining 2% of the corridor classified as "urban" terrain or "mountainous" terrain. Within these sections, only 1.6% of the Olympic Highway's grade exceeds the recommended maximum grade for the terrain type and design speed. This includes 0.6% of flat terrain maximum grades exceeded and 1.1% of rolling terrain maximum grades exceeded. These sections include the northbound approach into Junee, the hills near Bethungra and south of Cootamundra, and the northbound and southbound approaches to Young. These sections of steeper grade can at times contribute to overtaking delays due to slower moving heavy vehicles mixing with light vehicle traffic.



The RTA's Road Design Guide recommends the following minimum curve radii for new roads:

Design speed (km/h)	Minimum recommended curve radius
60	90m
80	240m
100	460m

From Albury to Cowra, around 15.1km (or 4.8%) of the corridor has a curve radius of less than 460m. Most of these curves are isolated and generally preceded and followed by straighter road alignment. Along the length of the corridor, around 22.4km (or 7.1%) between Albury and Cowra has curve radii of less than 600m (Figure 4.4). This compares with around 13% of the NSW Class 3 rural road network.

Some sections of the route have longer winding sections, particularly near Cootamundra and Young. By contrast the small number of low radii curves between Culcairn and Wagga Wagga is reflective of the flat plains in this section where long straight sections of road are achievable. Generally, the geometry is good south of Junee with the poorest sections between Wallendbeen and north of Young.

Of particular significance is the presence of low radius curves in the approaches to at-grade and grade separated railway crossings.

¹ Road grades are expressed in terms of percentages, for example a grade of 5% indicates a road that climbs 5 metres for every 100 metres of road. A road's curve alignment is expressed in terms of the radius, in metres, with smaller radii representing tighter curves.

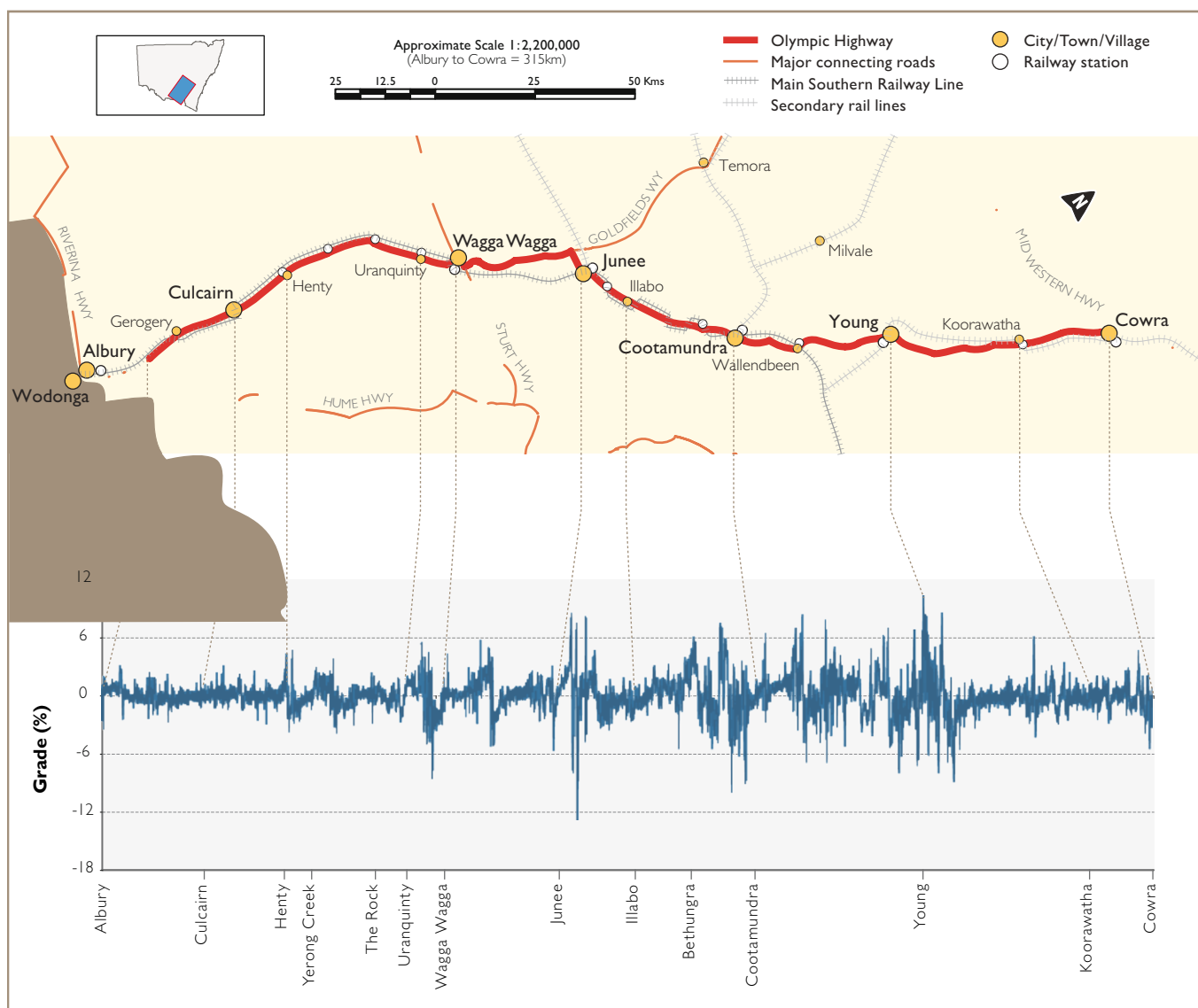


Figure 4.3. Gradients on the Olympic Highway between the Hume Highway and Cowra.

Road grades are expressed in terms of percentages, for example a grade of 5% indicates a road that climbs 5 metres for every 100 metres of road.

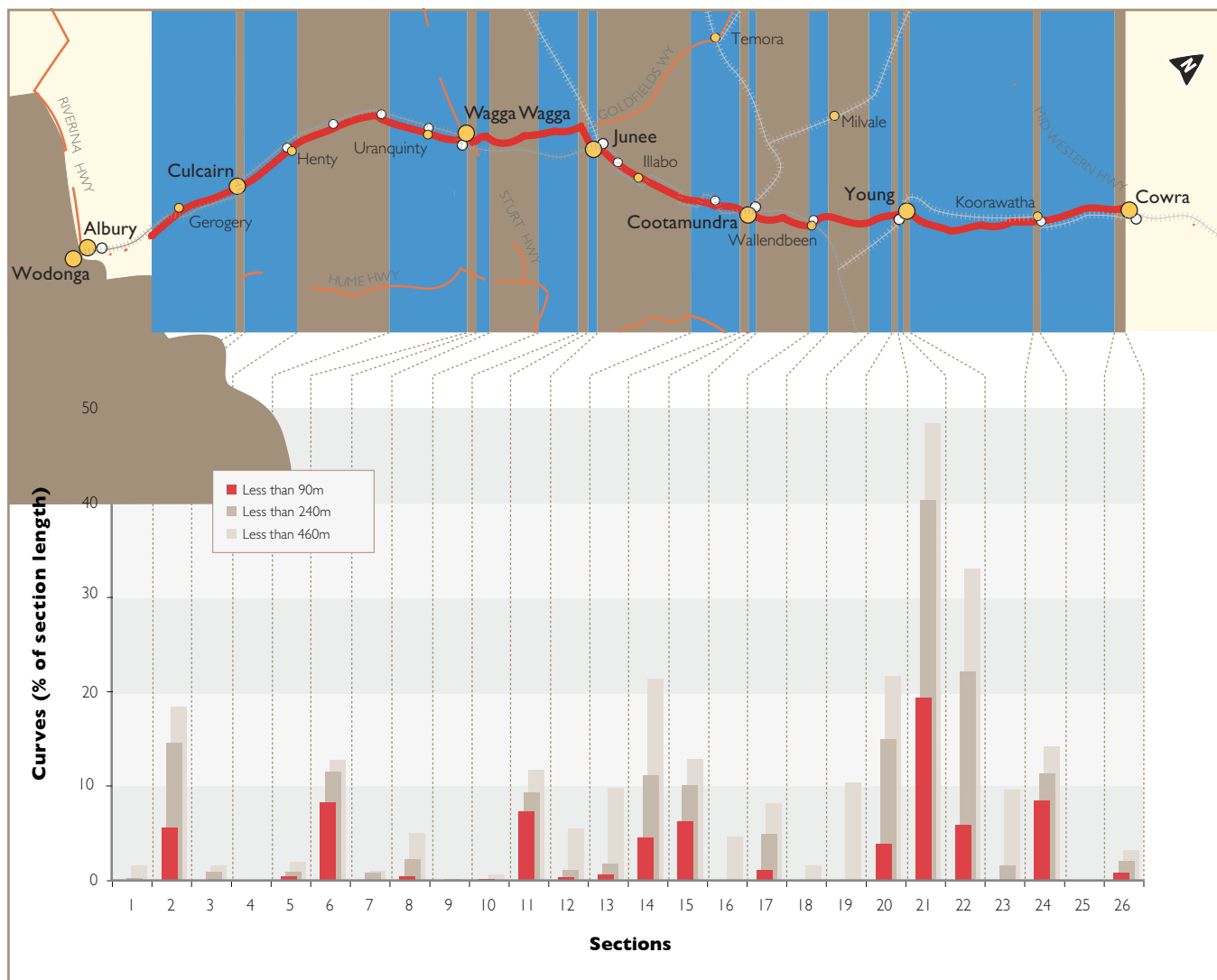


Figure 4.4. Horizontal curves on the Olympic Highway between the Hume Highway and Cowra.

A road's curve alignment is expressed in terms of the radius, in metres, with smaller radii representing tighter curves.

Railway crossings

Railway level crossings present a risk to the safety of road users within New South Wales. Whilst the number of crashes is relatively low, the potential for fatalities and serious injuries of road users as a consequence of a crash, combined with an extended delay to the operation of the road and rail networks, is high.

Individual rail and road authorities are responsible for the management of the various components of infrastructure associated with a railway level crossing. Regulatory oversight is provided by the Independent Transport Safety and Reliability Regulator (ITSRR) for rail operations and infrastructure and by the RTA, Councils and Police for roads.

The Level Crossing Strategy Council (LCSC) is an interagency forum created by the NSW Government to provide coordination between rail and road authorities in the management of safety at level crossings in NSW. The Local Government Association and Shires Association and RTA are members of the LCSC and are responsible for the management for the road component.

The RTA Railway Level Crossing Safety Improvement Program (SIP) is the State Government's contribution to infrastructure improvements and behavioural campaigns that improve safety at railway level crossings in NSW. The priority selection of railway level crossings for improvement is principally based on the nationally adopted ALCAM (Australian Level Crossing Assessment Model). NSW public road level crossings are ranked according to their ALCAM risk score and this list is used to help inform which level crossings are upgraded under the SIP. Level crossings may be upgraded out of ALCAM order as some sites have simpler development requirements than others. The SIP is approved by the LCSC. The RTA will provide allocations for improvements to individual railway level crossings depending on the availability of funds, project cost and the priority of project.



Railway crossing at Tanyinna (near Bethungra)



Kapooka Bridge near Wagga Wagga

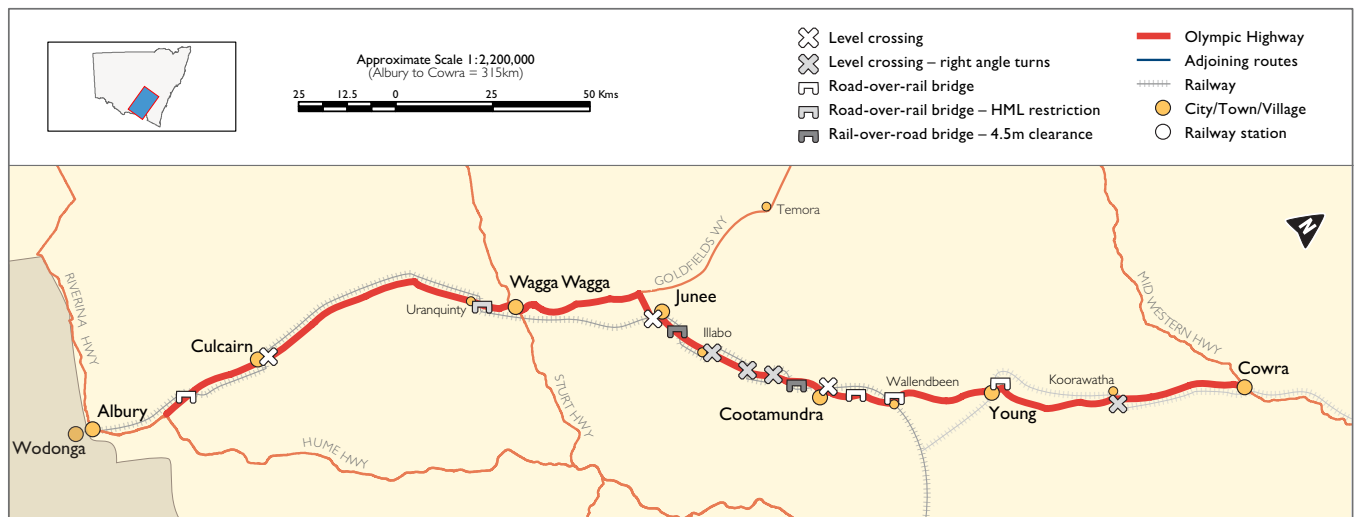


Figure 4.5. Railway level and grade separated crossings on the Olympic Highway between the Hume Highway and Cowra.

The Olympic Highway crosses railway tracks 14 times along its length between the Hume Highway and Cowra (Figure 4.5). There are 7 grade separated railway crossings (5 road over rail and 2 rail over road) and 7 at grade railway crossings along the corridor.

Nine of these crossings are in village or urban areas with 50 or 60km/h speed limits, one is in an 80km/h zone and four are in 100km/h zones. Most of the crossings are on curves or are at intersections which require a reduction of speed from the posted speed limit in order to safely negotiate the approach alignments. Drivers are notified by means of Advisory Speed Signs.

Of the seven level crossings, five are in urban areas or approaches to villages where the speed limit are reduced for the village prior to the crossing. These are Koorawatha, Cootamundra, Bethungra, Junee and Culcairn. Of these, Junee and Culcairn have intersections (roundabouts) that affect the flow of vehicles crossing the rail tracks.

Bethungra has intersections clear of the level crossing on both sides that also assist in reducing the speed of highway traffic. The remaining two level crossings at Harris Gates (near Illabo) and Tanyinna (near Bethungra) are in 100 km/h zones. Both have tight curves on both approaches along

with extensive traffic control devices and signage to warn motorists of the curves and the crossings. All of the railway level crossings along the Olympic Highway except the crossing at Koorawatha were on the ALCAM List of 300 prioritised sites throughout NSW as at June 2010. The respective rankings in the priority list as at June 2010 were Culcairn (32), Junee (57), Bethungra (85), Illabo (88), Tanyinna (106), and Cootamundra (162).

Bridges

There are 35 bridges (including bridge-sized culverts) on the Olympic Highway with a width of less than 9m. The highest frequency of these bridges occurs between Junee and Cootamundra, with 13 narrow bridges in this section of the corridor.

Of the road over rail bridges along the corridor, four of the five are owned by the Rail Infrastructure Corporation (RIC), while the “Five Mates” bridge is owned by the RTA. The RTA works closely with RIC on monitoring the condition of these bridges. Most of the road over rail bridges were constructed many decades ago. They are narrow and many of them have poor alignments on the approach. The Gerogery level crossing was replaced with “Five Mates” bridge in 2005 which is a high quality crossing appropriate to a modern 100km/h speed environment. The Zouch Street bridge in the urban area of Young has been replaced by railway authorities with a modern concrete structure that brings the bridge up to Higher Mass Limit (HML) standards. The remaining 3 bridges include the Wallendbeen bridge just north of the Burley Griffin Way which is narrow with poor sight distance on the approaches, Cootamundra North bridge which has tight curves on each approach with a narrow bridge structure, and Kapooka Bridge.

The Kapooka road over rail bridge is sited in rolling terrain and has sharp left bends on each approach and a narrow bridge pavement width combined with an adjacent intersection with Camp Access Road providing access into the Kapooka Army Barracks. The Kapooka Bridge is in a 100km/h speed environment but has 25km/h advisory speed signs upon approach. The site has been the location of several accidents with regular repairs to approach guard rails required. The bridge is also regularly inspected to monitor its structural capacity. It is currently the only restriction to HML vehicles using the Olympic Highway south of the Sturt Highway at Wagga Wagga. Since the replacement of the Zouch Street bridge at Young there are no restrictions to HML vehicles using the Olympic Highway north of Wagga Wagga.



Yerong Creek



Gap Bridge (low clearance), south of Cootamundra



Five Mates Crossing bridge

For most vehicles, the allowable height limit under the Road Transport (Vehicle Registration) Regulation 1998 is 4.3m. However, some vehicles are permitted to operate at a height not exceeding 4.6m. To improve their productivity, some operators request permission to operate their vehicles at heights up to 4.6m. Loads include livestock, motor vehicles and baled rural products, including wool and hay. Allowing these loads to operate up to 4.6 metres high on suitable routes improves productivity and efficiency.

The two rail over road bridges at Cootamundra and Junee impose height restrictions of 4.5m on vehicles travelling underneath, necessitating specific high vehicle detours on local roads including some unsealed roads. Both of these low bridges have poor road alignment on the approaches, especially Cootamundra which has a steep downgrade on the northbound approach, with a poorly aligned curve and narrow creek bridge under and immediately to the north of the rail bridge.



Gobbagombalin Bridge

Roughness

The RTA uses a 'roughness' measure as an indication of the quality of the longitudinal pavement surface. A measure of fewer than 70 counts per kilometre indicates a good surface condition, a measure between 70 and 110 counts per kilometre indicates a fair surface condition, a measure between 110 and 150 counts per kilometre indicates a poor surface condition and a measure of more than 150 counts per kilometre indicates a very poor surface condition.

The Olympic Highway has an overall average roughness measure of 74 (Figure 4.6), compared to a statewide average of 75 for Class 3 Rural roads in 2006.

The poorest sections are in the urban areas of Young and Cootamundra and have a roughness classification of 'Poor'. There are short rural lengths of very poor roughness that would be addressed as part of the RTA's ongoing maintenance program. The remainder of the route is generally classified as 'Fair' or 'Good'.

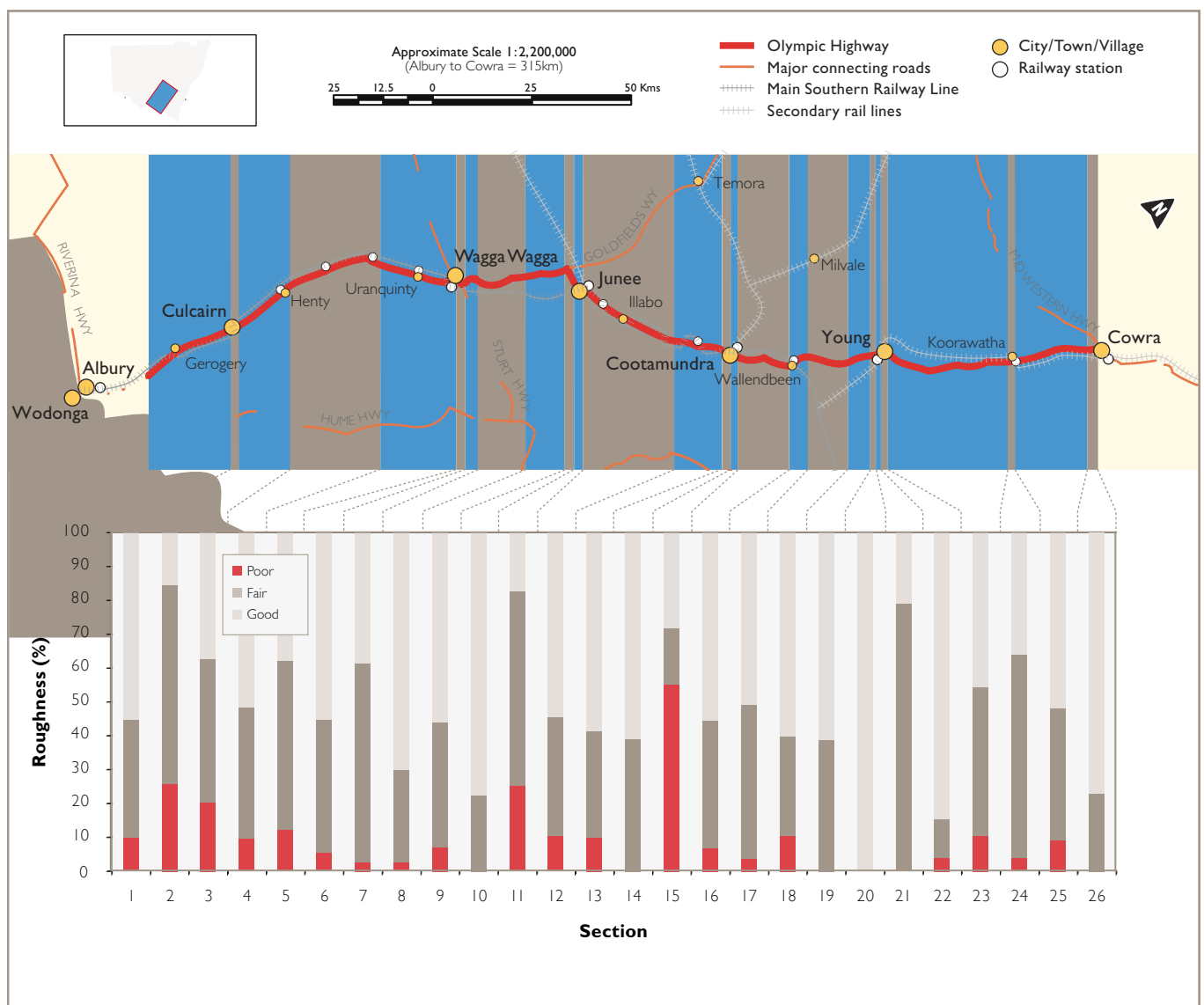


Figure 4.6 Roughness (2001) on the Olympic Highway between the Hume Highway and Cowra.

Pavements deteriorate and become rougher as they age. These ageing road pavements will need to be progressively treated in both the short term and the long term in order to maintain an efficient road system. Typical ongoing maintenance treatments will include heavy patching, shape corrections and resurfacing. While reducing the roughness of the road, more significant treatments such as pavement rehabilitation and shoulder widening works will provide opportunities for other improvements, such as improved sealed shoulder widths and geometry.



Rough pavements reduce traveller comfort and result in increased vehicle running costs.

Delineation

The term 'delineation' refers to lane guidance measures including line markings, roadside guide posts, raised pavement markers and signage.

The entire Olympic Highway has edge-line marking and centre-line markings. The signage and delineation does not generally conform to current guidelines in regards to intersection delineation and barrier line length and location. An intersection signage review has recently been completed with updated sign installation almost complete. A review of the remaining signage along the route would ensure conformance with current guidelines. Line marking is scheduled for review in the near future.



Harris Gates Railway Crossing

Speed Zones

Speed limits along the corridor are generally 100km/h between towns and 50-60km/h within towns. Within Wagga Wagga along the dual carriageway section and north of the Murrumbidgee River to Boorooma Street the speed limit is 80km/h in line with the roadside environment and the heavy commuter traffic in this section. On the southern approach to Cootamundra and the low rail-over-road bridge, the speed limit has been reduced to 80km/h due to the section's poorer safety performance. The southern approach to Cowra is also 80km/h due to the semi-rural development in the area and the higher number of accesses and minor side roads.

Where the corridor passes schools, 40km/h school zones are in operation during the morning and afternoon school peaks. A total of five school zones are located along the corridor; within Yerong Creek, Uranquinty, Illabo, and two in Young.



Clear Zones

The clear zone is the width of roadside, beginning at the edge of the travelled way, that is made available for the driver of an errant vehicle to take corrective action in an emergency. The clear zone distance is related to predicted traffic volumes and speed, and takes into account the widths of adjacent lanes, shoulders, medians, verges, footways and traversable batters. The desired clear zone for the rural sections of the Olympic Highway is 5 metres.

Generally, clear zones between the road and vegetation along the corridor are reasonable, with the majority of rural sections having a 4m clear zone. Some sections of the corridor have narrow clear zones with hazards including steep embankments or narrow culverts close to the travel lanes and culvert headwalls at driveways. Areas along the corridor with narrower clear zones include sections between Junee and Bethungra, and between Young and Koorawatha.



4.2 Traffic

Level of Service

The 'level of service' of a road is a measure used by road authorities to assess the ease with which traffic flows. It provides an assessment of the operating condition of a road based on various road and traffic factors including traffic volumes, the proportion of heavy vehicles, terrain and intersection frequency. Levels of service range from 'A' to 'F', with 'A' representing free-flowing traffic and 'F' representing severe congestion:

Level of service	Qualitative description
A	Free flow, low volume, high speed
B	Stable flow, operating speed slightly restricted
C	Stable flow, speed and manoeuvrability restricted
D	Approaching unstable flow, freedom to manoeuvre restricted
E	Unstable maximum flow at capacity, no freedom to manoeuvre
F	Forced flow, frequent stopping and queuing

The level of service for the Olympic Highway corridor is B or C over most of the length. This is consistent with other Class 3 Rural roads throughout NSW. In the central urban areas of Young, Cootamundra, and Wagga Wagga, the level of service falls to D. In Wagga Wagga this is primarily due to commuter traffic to and from Wagga Wagga CBD and Charles Sturt University. Traffic congestion and intersection delays are more common in this section, particularly during the morning and evening peaks. In Young the level of service is reduced by interaction with shopping centre traffic in the central areas of town. In Cootamundra the level of service reflects interaction with local traffic through the town.

There are designated heavy vehicle and high vehicle detours around Junee, Cootamundra and Young which remove heavy vehicles from main shopping precincts, reducing the conflict with the local access, amenity and pedestrian function of the town centres.

North of Albury, the junction of the Hume Highway with the Olympic Highway is grade separated, as is the southbound ramp onto the Olympic Highway from Estella (north of Wagga Wagga). All of the other intersections on the route are at grade within the single carriageway sections and range from no intersection treatment to providing dedicated bays for turning vehicles.

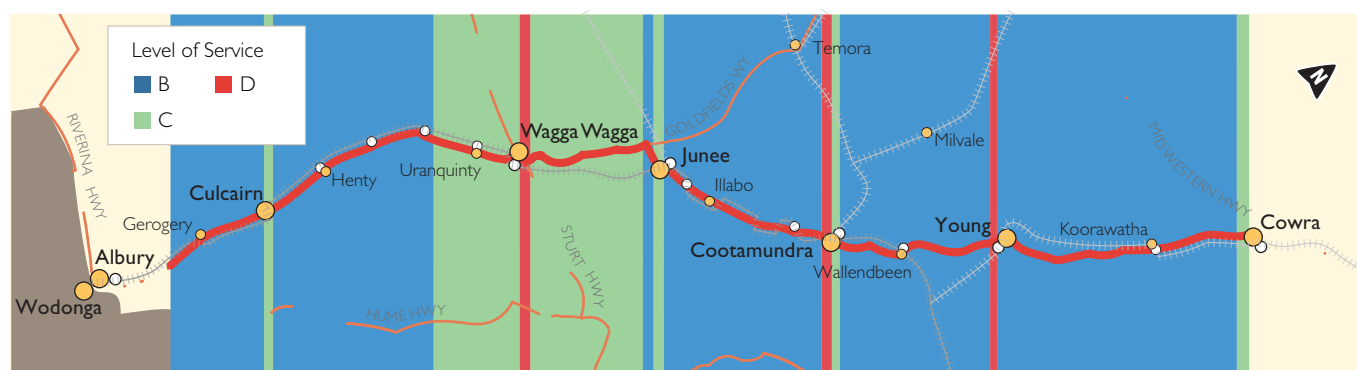


Figure 4.7 Level of service on the Olympic Highway in 2010

Overtaking opportunities

The RTA's *Road Design Guide* indicates that overtaking lanes are required where the demand for overtaking opportunities cannot be satisfied or where slow moving vehicles restrict the road operating speed. Overtaking lanes are designed to reduce the "bunching" of traffic along a section of road.

For a 2-lane undivided rural road, overtaking lanes, when required, are recommended to be placed at a maximum of 10-15km spacing.

The number of locations where overtaking is possible on the Olympic Highway, combined with measured traffic volumes, indicates that overtaking opportunities are limited in rural areas between the Hume Highway and Goldfields Way.

Typical traffic volumes drop from around 4,200 vehicles per day south of Goldfields Way to about 2,800 vehicles per day to the north, with articulated and multi-articulated vehicle volumes decreasing by greater than 50%. Between Junee and Cootamundra the traffic volumes decrease a further 50% to around the 1,100 to 1,400 vehicles per day range with similar decreases in all vehicle types except rigid heavy vehicles where the numbers remain fairly consistent. Between Cootamundra and Burley Griffin Way, heavy vehicle numbers increase slightly.

These traffic volumes combined with the predominantly flat terrain types and existing overtaking lanes in the northern part of the corridor mean that overtaking opportunities are generally sufficient north of Goldfields Way and do not warrant additional overtaking lanes.



Public transport, cycling and pedestrian facilities

Through urban centres, including many of the smaller villages an issue arises where there is interaction between corridor traffic and vulnerable road users such as pedal cyclists, pedestrians and horse riders. Given the growing number of elderly and vulnerable road users, the road environment and speed zonings need to be adapted to ensure that this interaction occurs in safety.

A similar conflict existed in Cootamundra until recently. In May 2009, the NSW Minister for Roads announced changes to the classified road network that included moving the Olympic Highway route out of the main street of Cootamundra and onto the local roads currently used for a heavy vehicle bypass. With updated signage installed to reflect this change, Cootamundra Shire Council will have the opportunity to improve conditions in the high pedestrian shopping area.

It is important that facilities offer safe and convenient opportunities for pedestrians to cross the Highway particularly in relation to safety around schools, shopping strips, and other pedestrian generators. Designated heavy vehicle and high vehicle detours around Junee and Cootamundra similarly reduce the impact on local access, amenity and pedestrian function of these town centres.

The safe pick-up and drop-off of school students using school buses is an issue in rural areas where school students of all ages catch buses to schools in nearby towns and villages. Many rural bus stopping locations are at property access driveways or quiet side roads. There are a number of bus bays and stops including some suitable for changeover of students between buses. The demand for

rural bus stops is monitored under the RTA's Bus Bay program. Within the larger urban areas an extensive system of school buses operate specifically for the transport of students independent of any scheduled town services.

There are short sections of the corridor in and near towns that have shoulders or kerbside lanes that are suitable for cyclists. However, as a whole the route is generally not suited for inexperienced cyclists.

Incident management

Incident response management is required whenever a traffic incident closes the Olympic Highway. In conjunction with NSW Police and local councils, the RTA responds to incidents by managing traffic around the incident site and by installing diversions and managing traffic across the broader network in the case of a full road closure.

Incident management along the Olympic Highway typically involves detours along suitable local, regional or state roads depending on the location of the incident and the likely duration of the road closure. Formal incident management response plans are being developed for the corridor.

The RTA has procedures to inform motorists of major incidents and any detours through media announcements, the RTA website, a traffic information line and variable message signs. When extensive delays are expected as a result of an incident, motorists are advised to avoid the area.

The Olympic Highway also forms part of a detour route for the management of incidents on the Hume Highway between Yass and Albury. Incident management plans and signage are in place for this eventuality with the details of any given detour dependent on the location of the incident and its duration.

Current constraints to managing Hume Highway detours via the Olympic Highway are rail-over-road bridges in Cootamundra and Junee restricting the passage of 4.6m high vehicles, and the Kapooka road-over-rail bridge which is unable to carry higher mass limit (HML) vehicles.



4.3 Road safety

Definitions

Crash statistics recorded by the RTA are confined to those crashes that conform to the national guidelines for reporting and classifying road vehicle crashes.

The main criteria are:

- The crash was reported to the Police.
- The crash occurred on a road open to the public.
- The crash involved at least one moving road vehicle.
- The crash involved at least one person being killed or injured or at least one motor vehicle being towed away.

Crash and casualty definitions are as follows:

- Fatal crash – a crash in which at least one person was killed (within the fatality definition below).
- Injury crash – a crash in which at least one person was injured but no person was killed.
- Casualty crash – a crash in which at least one person was killed or injured.
- Tow-away crash – a crash in which at least one vehicle is towed away but there was no fatality or person injured.
- Fatality – a person who dies within 30 days of a crash as a result of injuries received in that crash.
- Casualty – a person killed or injured as a result of a crash.

Casualty crashes

There has been a general decrease in recorded crashes since the late 1990s in the corridor. Casualties have decreased from a peak of 105 in 1999 to a low of 75 in 2005.

During the five year period from 2004 to 2008 inclusive there were 207 casualty crashes including ten fatal crashes and 197 injury crashes, representing an annual rate of 0.13 casualty crashes/km over the 315km route. The corridor average casualty crash rate is below the statewide average for Class 3 Rural roads of 0.37 casualty crashes per kilometre.

The range of annual average number of casualty crashes per kilometre on the Olympic Highway varies from sections with few or no recorded casualty crashes over the 5 year period such as within Cowra and Culcairn, to areas with higher casualty crash rates such as 1.55 casualty crashes per kilometre in the dual carriageway urban area of Wagga Wagga and 3.66 casualty crashes per kilometre in the main street of Young. It is noteworthy that the higher casualty crash rate in Wagga Wagga is predominantly a result of intersection crashes at two roundabouts that have recently been improved under the National Black Spot Program. Variations in casualty crash rates on different parts of the corridor generally reflect traffic volumes and associated crash risk exposure.

Around 8.5% of the overall corridor's length is within areas considered to be urban, yet around 40.5% of casualty crashes over the 5 year period occur in these areas. These figures suggest that road safety improvements may provide greater road safety impacts in the urban sections rather than in the rural corridor sections, although the identification and treatment of isolated areas with poor safety records will continue along the whole corridor. Investment in road improvements needs to consider the greater severity of rural crashes due to the higher speeds involved.

Another way of measuring road safety casualty crashes is by taking into account the differing traffic volumes, and hence associated crash risks, on different sections of the road.

The annual average number of casualty crashes per 100 million vehicle kilometres (MVKT) for the period 2004 to 2008 on the Olympic Highway was 8.7 overall, ranging from 1.5 to 3.4 between Wagga and Junee, up to 91.2 in the main street of Young and 32.4 in Wagga Wagga. The casualty crashes per 100 MVKT travelled are higher in the urban Culcairn, Wagga Wagga, Cootamundra and Young sections of the corridor and are a result of the increased conflict at intersections, and especially in Young, increased pedestrian conflict.

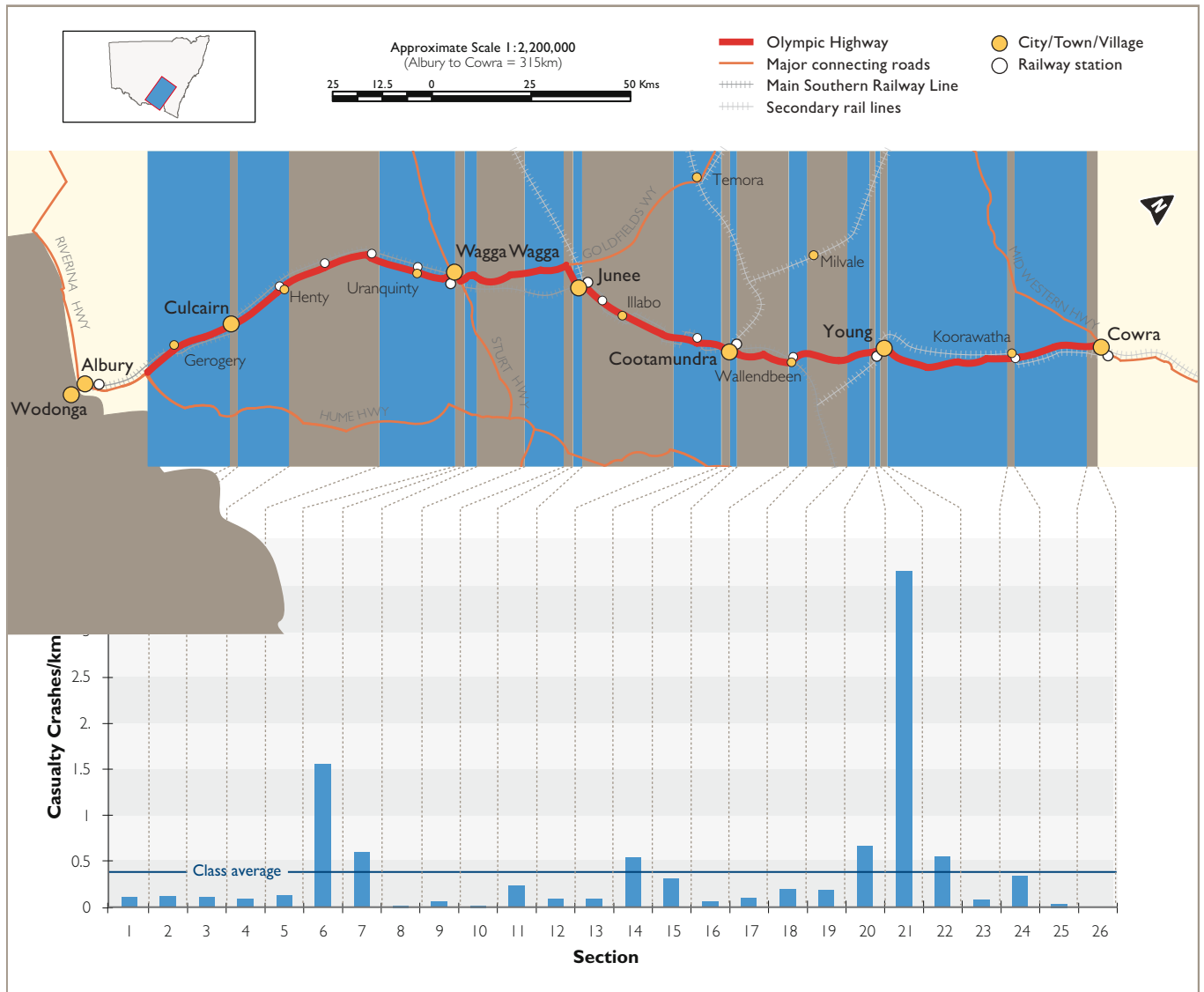


Figure 4.8. Average number of casualty crashes per carriageway kilometre (2004-2008)

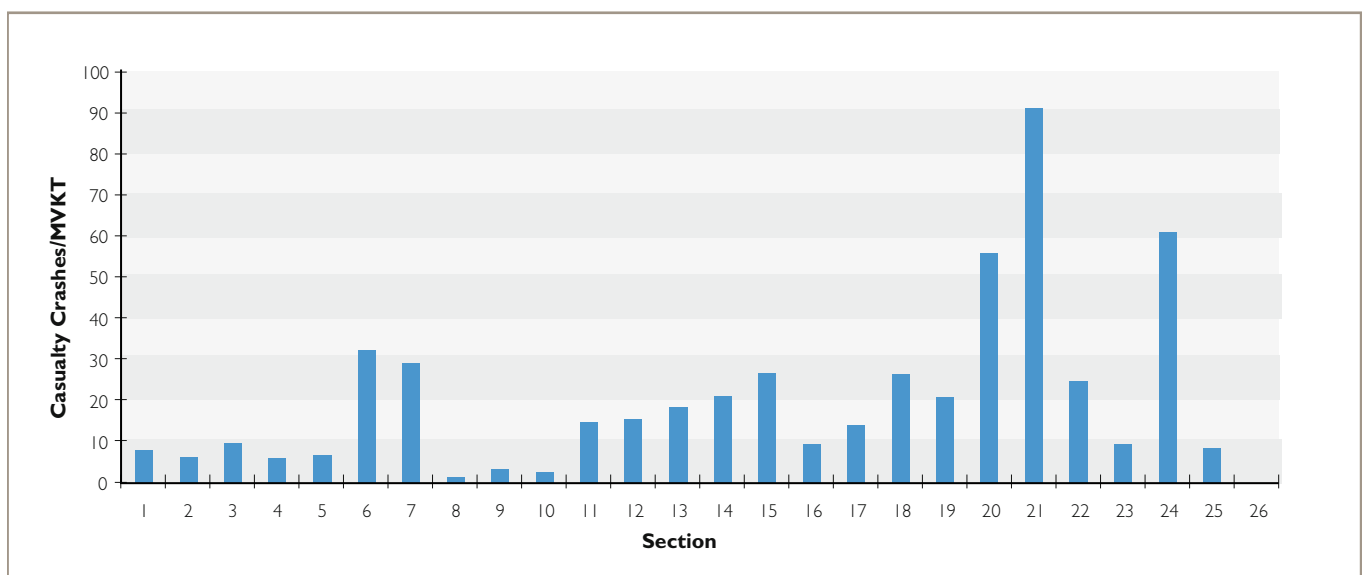


Figure 4.9. Average number of casualty crashes per 100 million vehicle kilometres travelled (2004-2008)

Crash types

A total of 389 crashes, including casualty crashes and non-casualty crashes, were recorded along the total length of the corridor between 2004 and 2008. Of these crashes, more than half (53.2%) were crashes where a vehicle left the road (24.7% on straight sections and a further 28.5% on curves). Areas where off-road crashes formed the highest proportion of total crashes include sections between Junee and Cootamundra, and between the Hume Highway and Culcairn.

Research indicates around 60% of off-road crashes on NSW rural roads occur on curves, mostly with a radius of 600m or less, and often on isolated curves or the first curve in a series of curves. This can sometimes increase the hazard as drivers may be surprised by unexpectedly tighter curves on relatively straight sections of road.

Railway crossings can also present road safety challenges. Crashes have occurred near both the Illabo and Bethungra level crossings, although none of the crashes were on the



Low light, a contributing crash factor

crossings themselves. All of the accidents have been of the 'off-road on curve' type on the crossing approaches. The 14 crashes (2004 to 2008) at these two sites (6 at Harris Gates and 8 at Tanyinna) have resulted in 1 fatality and 10 injuries from 6 casualty crashes. Kapooka bridge also has

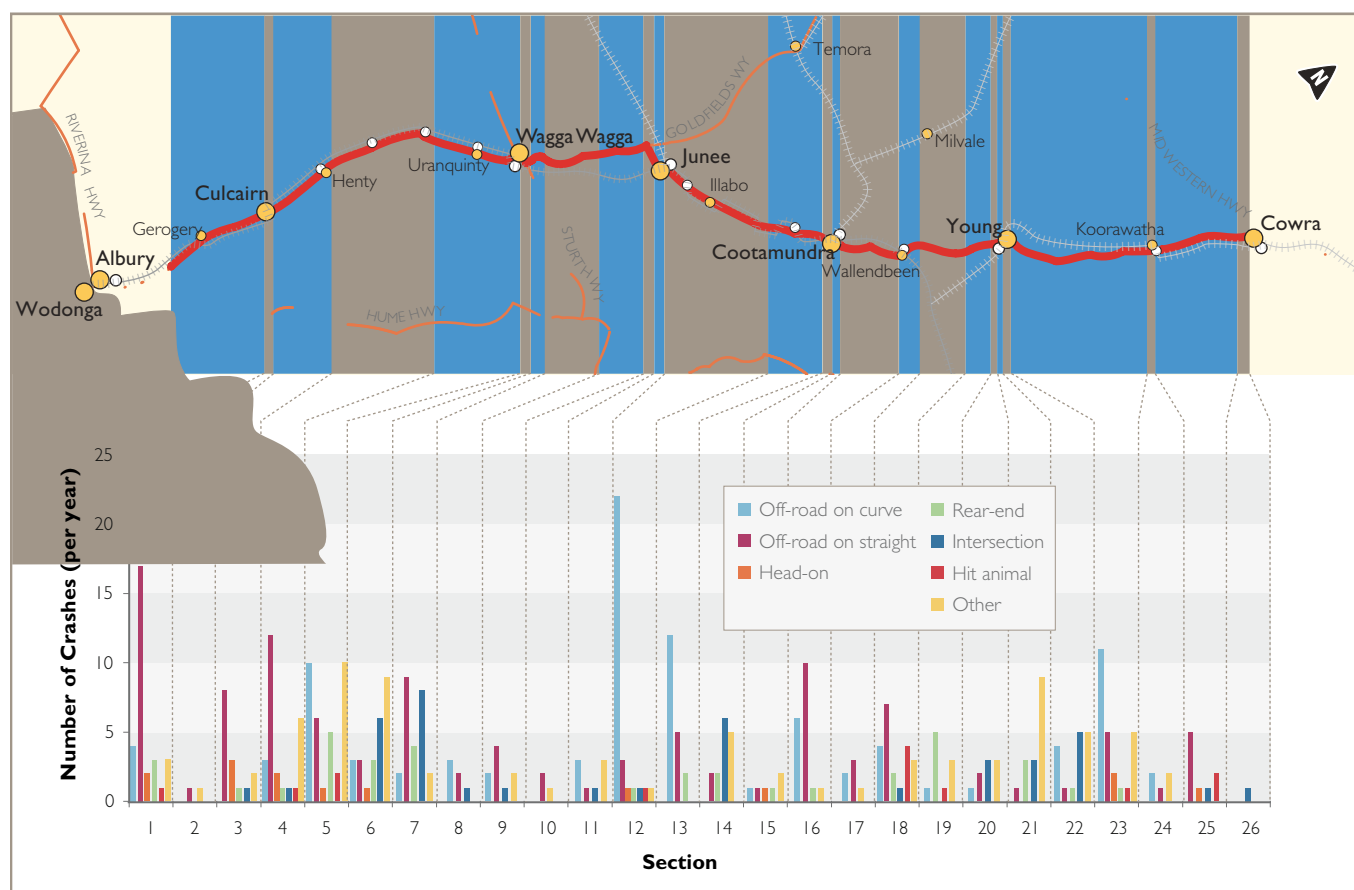


Figure 4.10. Number of crashes (including fatal, injury and non-injury crashes) of different types on sections of the Olympic Highway (2004-2008)

a poor accident history with 10 accidents including 4 injury crashes at the bridge in the five years from 2004 to 2008 inclusive, including recorded cases of vehicles or crash debris ending up on, or near to, the rail lines below. The combination of narrow width and poor approach alignment can make it difficult for heavy vehicles in particular to remain on the correct side of the road without hitting the bridge structure.

In urban areas, the most common types of crashes were intersection and rear-end type crashes which reflect the nature of the traffic system through towns. Within Young, there are a comparatively high number of pedestrian crashes, accounting for 6 of 16 accidents (37.5%) between 2004 to 2008 inclusive and reflecting that the corridor passes through the main street of town. Young also has two school zones with school crossing supervisors.

Crash factors

Around one third (33.9%) of all crashes along the corridor occurred in low lighting conditions (defined as dawn, dusk, or night time), particularly north of Young. A wet road surface contributed to around 15.7% of total corridor crashes, increasing to around 36% within Wagga Wagga.

The key behavioural factors contributing to the corridor's road toll between 2004 and 2008 were speeding and driver fatigue.

Speed zones along the corridor are implemented as a speed management tool to improve road safety, while maintaining the efficiency of the road network. To achieve these objectives, speed zones are designed to be:

- Credible and compatible with road user expectations
- Consistently applied along the corridor, and
- Clear and unambiguous

Inappropriate vehicle speed was a significant factor in crashes in rural areas, particularly Junee and

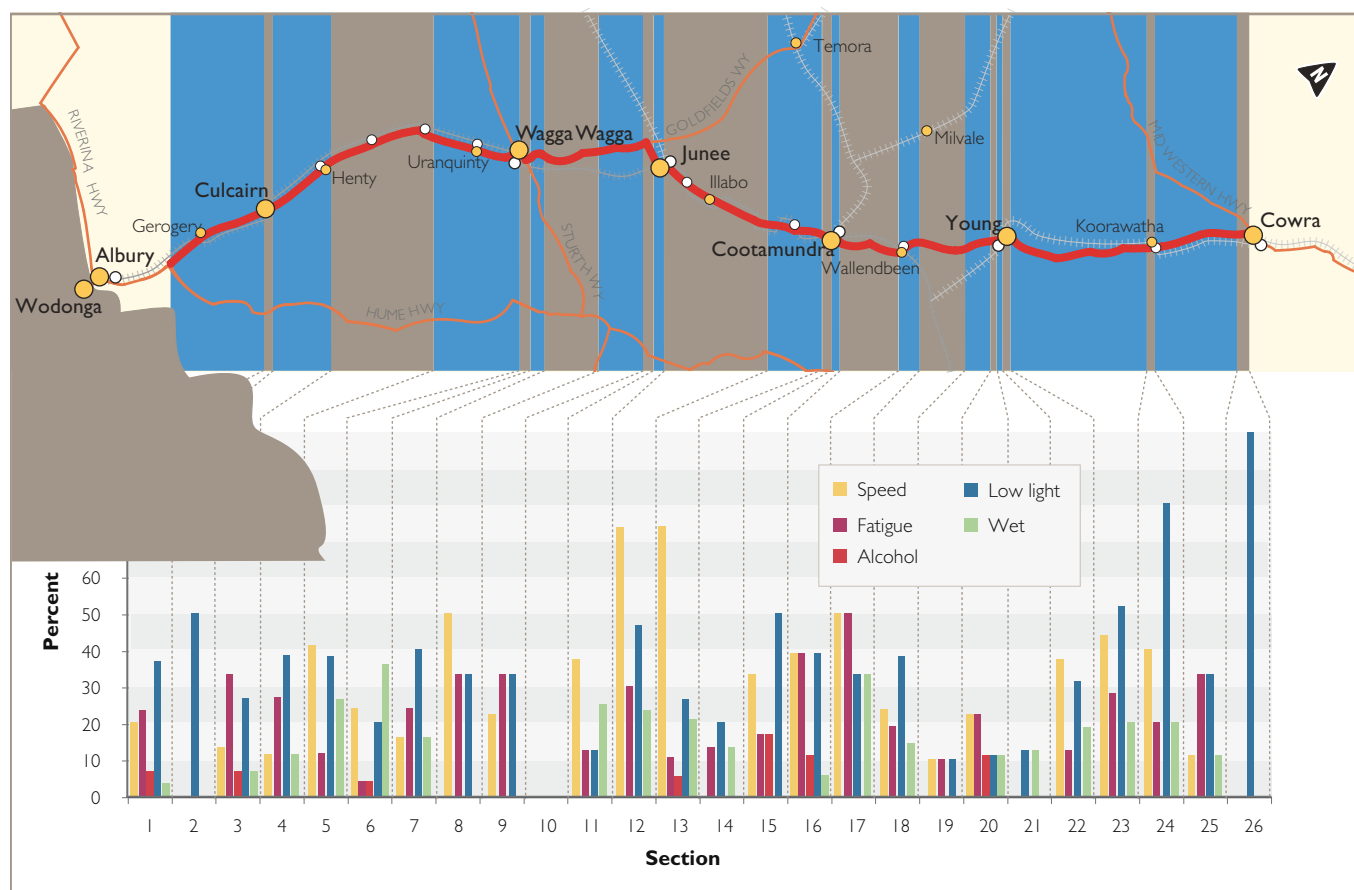


Figure 4.11. Identified factors contributing to crashes on the Olympic Highway (2004-2008)

Cootamundra, being a factor in more than half of all crashes. In the more urban areas, the factors contributing to crashes were more evenly distributed between wet road surfaces, low light conditions and vehicle speed.

Speed

Speeding was the major behavioural factor for crashes along the Olympic Highway corridor, being a contributing factor in 65 casualty crashes and 119 total crashes (30.6% of all crashes) between 2004 and 2008. Between Junee and Cootamundra, speeding was a contributing factor to almost three quarters (73.3% to 73.7%) of all crashes.

Over the same period of time, speed was a factor in a greater proportion of total crashes on the Olympic Highway in comparison to the RTA South West Region (25% of all crashes) and across NSW as a whole (16.9% of all crashes). The NSW Police and the RTA's South West Region continue to work together to improve road safety in the south west of NSW. Joint activities involve the RTA and Police conducting high profile road safety campaigns.

The role of speed in crashes increases significantly between Junee and Cootamundra, between Young and Cowra, and between The Rock and Wagga Wagga. Speed was also a greater factor in all crashes in rural areas with a speed limit of 80km/h or more (32.7%) compared to all crashes in urban areas with a speed limit of less than 80km/h (24.2%).

It should be noted that when speed is recorded as a factor in a crash it does not necessarily mean the driver was exceeding the speed limit but may have been travelling at an excessive speed for the prevailing road conditions.

Fatigue

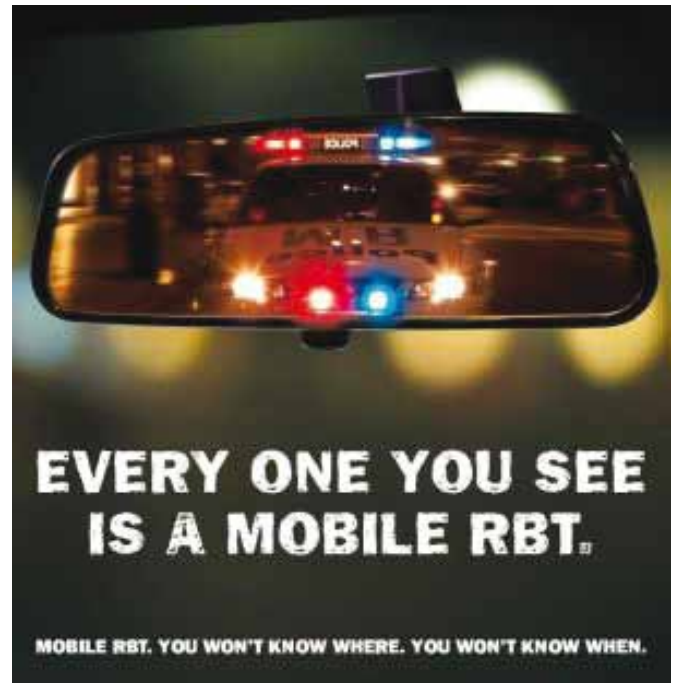
Over the period from 2004 to 2008, fatigue was a contributing factor in 20.6% of all crashes along the Olympic Highway corridor, compared to 13.5% of crashes across RTA South West Region and 8.0% across NSW over the same period. Fatigue as a contributing factor was greatest between Cootamundra and Young, and between the Hume Highway and Wagga Wagga. This is reflective of connections with other long-distance routes in these areas.



Drivers travelling along the Olympic Highway are encouraged to recognise the early warning signs of fatigue and to use available rest areas along the route

Alcohol

The alcohol related crash profile of the Olympic Highway corridor compared favourably to the rest of RTA South West Region and NSW as a whole. Over the period from 2004 to 2008, 2.3% of all crashes along the Olympic Highway were alcohol related, compared to 5.4% across the RTA South West Region and 4.1% across NSW. The involvement of alcohol in crashes in the Albury (5.3%), Greater Hume (5.2%), Lockhart (5.1%), Wagga Wagga (5.3%), Junee (6.3%), Cootamundra (6%), Young (6.2%), and Cowra (6.6%) LGAs were marginally higher than the overall NSW figure, while Junee (3.1%) and Harden (3.2%) were lower. Alcohol related crashes along the Olympic Highway occur at a much lower rate than for the LGAs as a whole, suggesting that the majority of crashes where alcohol is a factor are happening on local roads.



The 'Mobile RBT' campaign, together with 'Police Now Targeting' signage reminding motorists that targeted enforcement is being conducted in the area

Rest areas

A total of ten sign-posted rest areas are provided along the length of the corridor. The areas include rubbish bins and shaded parking areas, separated parking areas for cars and heavy vehicles in some cases, and some provide toilet facilities. A number of informal rest areas, used predominantly as heavy vehicle parking bays, are also located along the length of the corridor. Most towns along the corridor (see section 3) provide service facilities including food outlets and petrol stations, although few facilities operate throughout the night.

The rest areas on the Olympic Highway have been progressively upgraded over the last ten years which is bringing them in line with the National Transport Commission's 2005 Guidelines for the Provision of Rest Area Facilities. Advance signage for each rest area specifies the distance to the rest area and the distances to following rest areas.

Rest areas are sign posted at 5 kilometres, 2 kilometres and 500 metres ahead so that road users can have enough time to make a decision to stop. Driver Reviver sites operate at Culcairn and Wallendbeen during peak holiday travel periods.



Rest area at Wallacetown



Rest area in Cowra

5 Likely changes in the future

5.1 Future demographic, land use and climate changes

Population increases and decreases

Population data released by the Australian Bureau of Statistics for the period 2001-2006¹ show that annual growth rates for LGAs varied along the route with the larger population centres growing at above the NSW average of 0.7% while lesser populated LGAs had negative or small positive growth. Changes in the lesser populated rural shires must be viewed over the longer term, as movements of small numbers of people in absolute terms can have a significant influence on the percentage change in population. However, the strong growth in the larger centres has given a relatively strong overall growth rate for the corridor as a whole.

Population projections released by the NSW Department of Planning estimate that the corridors' population will increase by about 18,500 over the next 25 years, reaching a total of 183,000 by 2036. Population growth is forecast to be centred around the regional centres of Albury and Wagga Wagga. The major town of Young is also forecast to experience modest growth over the next 25 years, while all other centres are predicted to see a fall in population.

These projections are not targets. They do not necessarily reflect policy positions and may well differ from policy targets expressed in the Department's Metropolitan and Regional Strategies. It is important to recognise that projections reflect the outcome of certain assumptions about the future of fertility, mortality and migration – assumptions which may or may not eventuate. The projections should not be interpreted as precise predictions of the demographic future.

Because of the inter-regional and inter-state function of this corridor, it should be recognised that population and economic growth beyond this corridor, extending to Melbourne and Brisbane, will impact on the future transport needs in this corridor.

Population and growth rate projections for local government areas along the Albury to Cowra corridor

LGA	1996	2006	2016	2026	2036
Albury	43,300	48,500	52,100	55,000	56,600
Greater Hume	11,000	10,100	9,600	9,100	8,400
Lockhart	3,600	3,300	3,100	2,900	2,600
Wagga Wagga	56,100	59,600	64,200	68,900	72,800
Junee	6,000	6,100	6,000	5,800	5,700
Cootamundra	7,800	7,600	7,400	7,000	6,500
Harden	3,900	3,700	3,500	3,300	3,000
Young	11,400	12,400	13,900	13,900	14,400
Cowra	12,400	13,000	13,200	13,200	12,900
TOTAL	155,500	164,300	172,200	179,100	182,900

Figure 5.1 Population Projection

LGA	1996-2006	2006-2016	2016-2026	2026-2036
Albury	1.1%	0.7%	0.5%	0.3%
Greater Hume	-0.9%	-0.5%	-0.5%	-0.8%
Lockhart	-0.9%	-0.6%	-0.7%	-1.1%
Wagga Wagga	0.6%	0.7%	0.7%	0.6%
Junee	0.2%	-0.2%	-0.3%	-0.2%
Cootamundra	-0.3%	-0.3%	-0.6%	-0.7%
Harden	-0.5%	-0.6%	-0.6%	-1.0%
Young	0.8%	0.6%	0.5%	0.4%
Cowra	0.5%	0.1%	0.1%	-0.2%
TOTAL	0.6%	0.5%	0.4%	0.2%

Figure 5.2 Population Growth Rate

1. ABS, 2009

2. April 23, 2009

Further ageing of the population

Projections released by the NSW Department of Planning for the local government areas along the corridor forecast that the median age of the population will increase from 36 to 44 between 2006 and 2036. The highest median age forecast is 53 in Cootamundra, while the lowest is 39 in Wagga Wagga. The biggest changes in median age are forecast to occur in both Cowra (41 to 52) and Albury (35 to 46), an increase of 11 years between 2006 and

2036. The smallest change in median age is forecast to occur in Harden, with an increase of only 3 years from 43 to 46. The percentage of the population aged 0-14 will decrease from 21% to 17%, while the percentage of the population aged 65 and over will increase from 14% to 26% between 2006 and 2036. This represents an increase in the dependency ratio¹ from 55 to 77 over the forecast period.

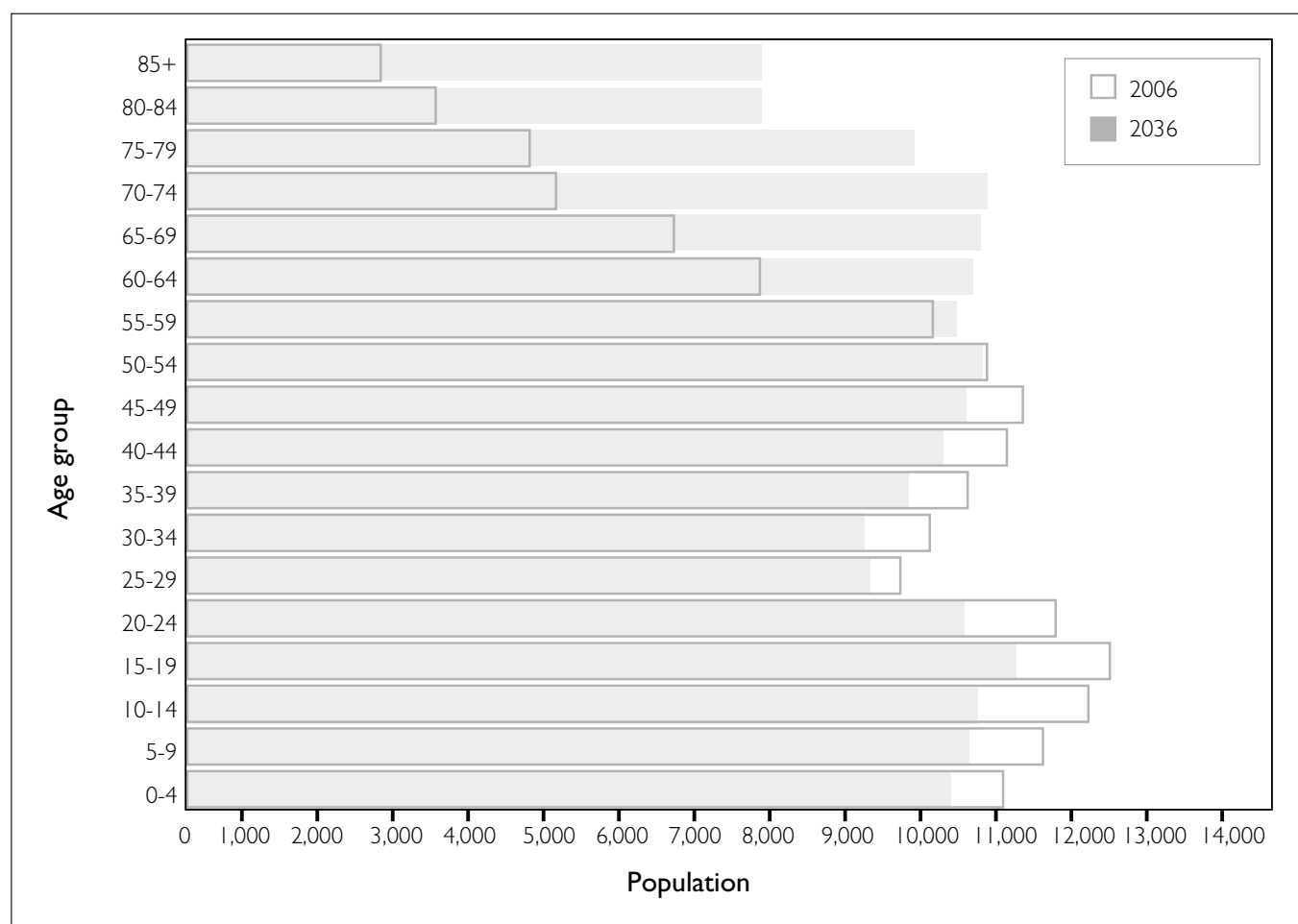


Figure 5.3 Age Distribution of Albury to Cowra Corridor 2006 vs 2036

1. Dependency ratio is the number of people aged 0-14 and 65+ per 100 people aged 15-64.

Land use strategies

The councils along the corridor are in the process of updating their local environmental plans (LEPs) to conform to the NSW Department of Planning's template and following some council amalgamations in the southern part of the corridor in 2004. Most of the discussion points for the draft LEPs identify the need to encourage and attract industries and businesses to the area. In the rural shires this generally involves industries that value add to the produce grown in the surrounding agricultural areas. In both Albury and Wodonga large intermodal industries have recently opened or are planned to take advantage of their strategic location on the Hume Highway.

A draft masterplan for the Bomen Industrial Estate in Wagga Wagga has been exhibited. This plan will open up around 2,000 hectares of land adjacent to the Olympic Highway for industrial development including large intermodal facilities. The area is proposed to take advantage of the road and rail connections to become the "South East Australia Logistics Hub", with a focus on logistics industries. Through this process it will be important to limit any impact of ribbon development on the functioning of the highway.

Wagga Wagga's draft LEP also identifies large areas of residential development on the northern side of the Murrumbidgee River that will impose traffic impacts on the Olympic Highway. This residential development combined with the Bomen Industrial Estate development will put traffic pressure on the Gobbagombalin Bridge and adjacent sections of the Olympic Highway.

Where land use changes are occurring, appropriate contributions by developers would assist in ensuring that their impacts on traffic flows are adequately addressed.



Bomen Industrial Estate

Climate change

The *Summary of Climate Change Impacts: Riverina Murray Region – NSW Climate Change Action Plan*¹ projects the following climate changes for the region by 2050:

- Decreased overall rainfall.
- Less autumn, winter and spring rainfall.
- Increased summer rainfall.
- Increased daytime temperatures and to a lesser extent, night time temperatures leading to increased evaporation.
- Flood-producing rainfall events are likely to increase in frequency during wetter years.
- Changes to flood levels will depend on prevailing catchment conditions at the time of the event.

The impact of these changes on the maintenance and construction practices used in the RTA South West Region including the Olympic Highway are likely to be manageable within existing maintenance regimes.



Flood-producing rainfall events are likely to increase in frequency during wetter years.

5.2 Forecast traffic growth

Traffic volumes are expected to continue to grow around the major regional centres of Wagga Wagga, Albury/Wodonga and Young as a result of the steady growth of these centres. The future growth of these major centres will involve land use changes including higher residential densities and increased commercial and industrial development. Most of the increased traffic is expected to be commuter or general traffic. However, heavy vehicle traffic both servicing the corridor's centres and transporting goods through the region will rise in line with the expected general growth in the national freight task over the next twenty years.

The Gobbagombalin Bridge was constructed in the mid 1990s as part of the deviation of the Olympic Highway to the west of Wagga Wagga. The traffic volume on the bridge, especially during peak periods, is forecast to increase with the development of residential and industrial areas north of the Murrumbidgee River. The performance of the bridge will need to be monitored over time as demands increase.

5.3 Planned major road network changes

There are no major road network changes currently planned for the corridor. However, the following projects could improve the general operation of the corridor.

Hume Highway Albury Bypass

The southern part of the corridor is increasingly becoming popular as a heavy vehicle alternative to the Newell Highway south of Wyalong. Vehicles use the Olympic Highway and then Goldfields Way, which diverges from the Olympic Highway at Wallacetown just west of Junee and connects to Wyalong on the Newell Highway. This route has become popular with the completion of the Hume Highway through Albury and the resulting reduction in travel time through Albury.

The completion of the duplication of the Hume Highway by 2012, will improve its attractiveness for Melbourne/Brisbane traffic and may have a minor reduction on Olympic Highway traffic volumes.

Bells Road Intersection

The Bells Road/Olympic Highway Intersection with the Hume Highway at grade had a poor accident history. It was upgraded in 2009 into a grade separated interchange as part of the Hume Highway duplication. This will increase the attractiveness of the Olympic Highway route to through freight traffic and will also assist in facilitating the commuter function of the southern end of the Olympic Highway.

Zouch Street Bridge

In 2009, this road-over-rail bridge in the urban area of Young replaced a substandard bridge that was in a poor state of repair. It also removed the only restriction to HML vehicles in the northern section of the corridor.



The substandard Zouch Street Bridge, shown here, was replaced in 2009.



Hume Highway Albury Bypass

5.4 The 'most likely' future scenario

In summary, the most likely future scenario for the Albury to Cowra corridor may be described as:

- Steady growth in Albury/Wodonga, Wagga Wagga and Young generating increased commuter traffic around these centres as well as increased freight movements to and from other regions.
- Steady growth in Melbourne and Brisbane will generate traffic growth on parts of the Olympic Highway where it functions as an inter-regional connector.
- An increase in the proportion of elderly people living along the corridor, especially in the rural centres. Many of these people will be vulnerable road users with potential road safety management needs that will need to be monitored.
- Increased demands on the Gobbagombalin Bridge over the Murrumbidgee River in Wagga Wagga as future residential land releases in the suburbs of Boorooma and Estella expand and as the Bomen Industrial Estate expands.
- There are ongoing discussions about grain rail line branch closures in the region. These potential closures may result in a shift to road transport and an increase in traffic volumes in the corridor. This could lead to increases in the proportion of B-doubles (compared with semi-trailers), and increased pressure for higher productivity vehicles such as Higher Mass Limit Vehicles. Any accompanying safety, traffic, environmental and social impacts would need to be managed.
- The major upgrade to the Hume Highway through and north of Albury, combined with a new interchange at the intersection of the Olympic and Hume Highways may result in some shift in Melbourne to Brisbane heavy vehicle traffic away from the southern end of the Newell Highway and onto the Olympic Highway/Goldfields Way route from Albury on the Hume Highway to Wyalong on the Newell Highway.
- There is an ongoing need to respond to community expectations to improve road safety and ensure that traffic flows efficiently along the corridor.



Hume Highway detour route

6 Corridor challenges

Corridor challenges are identified in line with the strategy's objectives and outline the issues that need to be addressed in order to maintain and improve the corridor's transport roles and the services the corridor provides for the community.

Corridor challenges include those currently evident and those that are expected to emerge as a result of future changes.

Challenges identified in the Albury to Cowra corridor are:

Road design and condition

- Extensive lengths of narrow shoulders along the corridor, most notably between Junee and Cootamundra, affecting pavement condition and safety.
- Sections of the corridor with narrow lanes particularly between Wagga Wagga and Junee and between Cootamundra and Young.
- Poor curve alignment near Cootamundra and within Young.
- Hazards within clear zones, particularly between Junee and Bethungra.
- A number of narrow bridges with poor clearances between passing vehicles, particularly between Junee and Cootamundra.
- The combination of curve alignment, intersection location and heavy vehicle mass limitations on the Kapooka bridge.

Road safety

- Prevalence of off road on curve crashes particularly between Junee and Cootamundra and on curves approaching railway level and grade separated crossings.
- Prevalence of intersection crashes in urban areas, particularly within Wagga Wagga, Cootamundra and Young.
- High incidence of pedestrian crashes within Young.
- Prevalence of speed and fatigue related crashes in rural areas between towns, particularly between Junee and Cootamundra, which are considerably higher than regional and state averages.
- Conflicts between trains and road vehicles at level crossings along the length of the corridor.
- Inadequate vehicle space for very long vehicles between the Olympic Highway and the railway line at local road intersections and property accesses.

- Conflicting needs of regional and local traffic through urban areas, particularly Wagga Wagga, Cootamundra, and Young.
- Improving safety for rural bus stop users, particularly school students.
- Increasing numbers of vulnerable road users, including the elderly, pedestrians and cyclists.

Traffic

- Growing freight task on the southern sections of the corridor increasing the demand for associated facilities including heavy vehicle rest areas.
- Physical restrictions on access for higher productivity vehicles, including rail-over-road bridges with limited clearances at Junee and Cootamundra, and a limited load capacity bridge at Kapooka.
- Managing the traffic demands, particularly heavy vehicles, arising from the proposed Bomen Industrial area north of Wagga Wagga.
- Peak period delays caused by increasing traffic volumes limiting overtaking opportunities particularly on the approaches to Wagga Wagga.
- Demand for direct access to the Olympic Highway from new residential and industrial developments, particularly around Wagga Wagga, potentially constraining the safety and efficiency of its operation.
- Increasing and forecast traffic demands on the Gobbagombalin Bridge at Wagga Wagga and at adjacent intersections causing peak period pinch points and commuter traffic delays.

Other

- Increasing connectivity between urban areas and nearby local active transport attractors, such as Kapooka Military Area and Charles Sturt University in Wagga Wagga.
- Managing increased demand from land use changes and achieving appropriate funding contributions for the provision of road improvements.
- Changing climatic conditions over the longer term, potentially affecting the road's assets and their management and operation, as well as the potential industry and population changes as a result of changing rainfall conditions.

7 Strategic responses

As a supporting north-south corridor for the NSW South West, it is important for the RTA to effectively manage the corridor to serve community needs. The RTA's strategic responses are divided below into short-term priorities over the next five years (to 2015) and longer term priorities (beyond 2015). These priorities respond to the identified challenges for the corridor and aim to meet the stated corridor objectives over the longer term.

The corridor has distinct areas requiring different responses. The rural sections require a focus on the road itself; to improve its condition and safety. Regional centres and larger towns along the corridor, in particular Albury, Wagga Wagga, Cootamundra and Young, have distinctly urban characteristics and in these areas the main focus needs to be more on urban issues, including traffic management and road user safety.

7.1 Short-term priorities (2010-2015)

The RTA's short-term priorities primarily address road safety and traffic issues on the corridor. However, most address, either directly or indirectly, more than one of the corridor objectives as set out in the table on the opposite page. The priorities are all recognised as desirable initiatives that will be progressed dependent on their priority within the state and on funding availability.

Short-term priorities	Corridor objectives (see Section 2)						
	Safety	Traffic	Access	Freight	Assets	Cycling, walking & public transport	Environment
<ul style="list-style-type: none"> ● A direct link with this corridor objective ● An indirect link with this corridor objective 							
S1 Continue to integrate traffic, road safety, asset management, land use and development initiatives to maximise community benefits.	●	●	●	●	●	●	●
S2 Continue to implement road safety initiatives to address identified and emerging crash types and locations.	●	●			●	●	●
S3 Continue to address locations of 'run off road on curve' crashes by using a safe systems approach including improved clear zones, widened shoulders and hazard protection.	●				●		●
S4 Continue to monitor and treat pavement condition on a priority basis to retain the life of the asset and provide safe travel conditions.	●				●		
S5 Continue to identify and progressively address sections with poor alignment, delineation, narrow lane and shoulder widths on a priority basis particularly between Wagga Wagga and Junee and between Cootamundra and Young, and at the Cootamundra rail-over-road bridge.	●	●	●	●	●	●	
S6 Monitor the effectiveness of rest areas along the corridor in relation to accessibility and adequacy of facilities. Undertake inventory to assess current level of provision and for the purpose of identifying any gaps.	●		●	●	●	●	●
S7 Continue to identify and treat areas of high pedestrian activity conflicting with traffic within Young and other urban areas and ensure planned intersection treatments cater for all road users.	●	●			●	●	
S8 Continue to work closely with NSW Police and other stakeholders to align road user safety behavioural programs with enforcement operations, particularly in relation to alcohol, speeding and driver fatigue.	●	●				●	
S9 Work with the Department of Planning, Councils, developers and the community to control access onto the Olympic Highway from the proposed Estella development and Bomen Industrial Estate and avoid ribbon development.	●	●	●	●	●	●	●
S10 Continue to assess parts of the route for their suitability for higher productivity vehicles.	●	●	●	●	●		●
S11 Commence planning for the long-term improvement of road/rail interfaces especially in relation to high productivity vehicles, with an initial focus on Kapooka Bridge to determine the preferred alignment for a new crossing.	●	●	●	●	●		●
S12 Continue to work with Councils to support appropriate pedestrian, cyclist and public transport initiatives.	●		●			●	●
S13 Continue to ensure appropriate environmental assessments are carried out for all road work projects and implement environmental requirements.							●
S14 Develop an Integrated Incident Management Plan for the Olympic Highway and adjoining routes.	●	●	●	●	●		●
S15 Monitor growth in traffic demands across the Gobbagombalin Bridge over the Murrumbidgee River at Wagga Wagga.	●	●	●	●	●		●
S16 Monitor changes in travel patterns on the Olympic Highway as a result of Hume Highway Albury Bypass and Highway Upgrade.							
S17 Review speed zones along the route for conformity with the updated RTA Speed Zoning Guidelines.	●	●		●			

Figure 7.1. The RTA's short-term priorities and how they address the Albury to Cowra Corridor objectives.

7.2 Longer-term priorities (beyond 2015)

Longer-term priorities focus on the challenges which are developing or will arise in the next two decades. Road safety and traffic efficiency will remain key priorities for the management of the corridor, but emerging freight needs and the changing environment will require considered management over the longer term.

Over the longer term the RTA will:

Longer-term priorities	Corridor objectives (see Section 2)						
	Safety	Traffic	Access	Freight	Assets	Cycling, walking & public transport	Environment
<ul style="list-style-type: none"> ● A direct link with this corridor objective ● An indirect link with this corridor objective 							
L1 Continue to monitor safety, traffic and asset performance, pavement, bridge and road conditions, as well as targeting identified priority sections for improvement.	●	●	●	●	●	●	●
L2 Monitor the environmental and climatic conditions in the corridor and develop effective strategies that respond to these changes and minimise their impacts.	●	●		●	●		●
L3 Investigate measures of addressing conflicts between through and local traffic in towns, particularly in the major towns of Junee, Cootamundra and Young, but also in smaller villages and towns such as the grain loading villages between Culcairn and Wagga Wagga.	●	●	●	●		●	
L4 Implement the statewide, prioritised program of upgrades to railway level crossings (as coordinated by the Level Crossing Strategy Council), including the crossings at Harris Gates (north of Illabo), Bethungra, Tanyinna and Koorawatha in consultation with third party asset owners.	●	●	●	●	●		
L5 Progressively undertake road/rail grade separation upgrades including upgrades to existing grade separated facilities in consultation with rail asset owners on a priority basis.	●	●	●	●	●		
L6 Review the likely performance of the Highway with regard to future traffic conditions and overtaking needs, including passing opportunities at intersections to formulate a prioritised works program.	●	●	●	●	●		

Figure 7.2. The RTA's longer-term priorities and how they address the Albury to Cowra Corridor objectives.

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Department of State and Regional Development

Draft Bomen Master Plan

ALCAM *List of prioritised sites (1-300)*

Available at http://www.transport.nsw.gov.au/sites/default/file/levelcrossings/ALCAM_List.pdf

Roads and Traffic Authority

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