

# SUMMERLAND WAY DRAFT CORRIDOR STRATEGY

September 2016



## EXECUTIVE SUMMARY

The Summerland Way Corridor is located in Northern NSW and extends from the Gwydir Highway and existing Pacific Highway at South Grafton to the Queensland border north of Woodenbong a distance of 197km. This corridor strategy sets out how the NSW Government will manage road transport along the Summerland Way over the next 20 years from Grafton to the Queensland border.

The Summerland Way strategy has been prepared by a multidisciplinary project team from Transport for NSW (TfNSW) and Roads and Maritime Services (Roads and Maritime) with expertise in road safety, traffic, asset management, land use, environment, planning and development. The strategy sets out the Government's long term plan to manage and guide the development of the road to improve safety, traffic efficiency and sustainability.

The purpose of this strategy is to identify:

- Objectives specific to the Summerland Way that support the NSW Long Term Transport Master Plan, Regional Transport Plans and other State and National plans (Chapter 2)
- The concerns, values and issues that are important to the community (Chapter 5)
- The sources of transport demand along the road corridor (Chapter 4)
- The performance of the corridor in meeting specific targets, standards and objectives (Chapter 3). Measures include road safety, traffic and travel, road design and geometry and road pavement condition

- How future transport demands that are likely to be placed on the corridor over the next 20 years can be managed and what improvements are therefore likely to be needed (Chapter 4)
- Current and future challenges in meeting the objectives for the corridor and short, medium and long term priorities and actions to address these challenges on the highway (Chapter 4).

In assessing the performance of the road corridor against performance measures and targets the corridor was segmented into six smaller sections.

The vision for the Summerland Way has been developed to explain what actions should be achieved over the next 20 years in order to improve its performance and meet the specific corridor objectives. The vision for the Summerland Way between Grafton and the Queensland border over the next 20 years is to:

- Become a safer route for all road users with the safe systems approach adopted
- Cater for the travel needs of all road users between Grafton and the Queensland border as well as within Grafton, Casino and Kyogle, providing an acceptable level of safety, efficiency and ride comfort
- Support heavy vehicles travelling between south east Queensland, Darling Downs and Northern NSW
- Provides high level of reliability by managing the pavement and slope stability issues along the entire corridor particularly between Kyogle and the Queensland border
- Supports the active transport needs of cyclists, pedestrians and public transport users with appropriate facilities and infrastructure in towns and between centres.

The corridor serves a variety of purposes—providing a route for commuters, public transport and heavy freight vehicles between Grafton and Kyogle. Dedicated walking and cycling infrastructure, as with bus services, tends to be focused on the more densely populated areas along the corridor.

Traffic volumes vary significantly along the length of the Summerland Way. Urban sections drop from nearly 24,000vpd adjacent to the Grafton Bridge, South Grafton to less than 4,000vpd in Kyogle where rural parts of the corridor drop from about 1,200vpd between Grafton and Casino to less than 400vpd near the Queensland border.

Key findings of the Summerland Way Corridor Strategy include road safety, traffic, freight productivity and asset performance.

To address the identified challenges of improving road safety and optimising travel times, providing maintenance solutions and to address community feedback, the following priorities have been identified:

## Short Term

- Construction of new bridge and associated road network over the Clarence River at Grafton
- Maintain and improve travel efficiency for local and regional road users by catering for the corridor's mix of heavy vehicles, light vehicles, tourist traffic, and vulnerable road users particularly through Grafton, Casino and Kyogle by upgrading intersections, and providing links between services for other road users
- Progressively improve formation widths to provide 3.5m lanes, sealed shoulders and edge lines particularly from Grafton to Junction Hill, Junction Hill to Casino and Dilkoon to Sportsman Creek
- Continue to manage pavement rehabilitation of locations reaching the end of its serviceable life and high priority slope stability locations between Kyogle and the Queensland border
- Investigate narrow bridges suitable for widening
- Upgrade priority intersections to appropriate standards
- Safety improvements to high risk areas and those with high crash rates, improvements to clear zones particularly at the northern end of the corridor, near Queensland and at priority intersections in Grafton, Casino and Kyogle.

## Medium Term

- Progressively upgrade narrow pavement to appropriate network targets, Burnett's Ck to Woodenbong road intersection.
- Continue to provide safety improvements to areas with high crash rates
- Continue to progressively improve formation widths to provide 3.5m lanes, sealed shoulders and edge lines
- Continue to maintain travel efficiency for local and regional road users by catering for the corridor's mix of heavy vehicles, light vehicles and tourist traffic, particularly through Grafton, Casino and Kyogle.
- Continue to manage pavement rehabilitation of locations reaching the end of its serviceable life and high priority slope stability locations between Kyogle and the Queensland border
- Progressively widen narrow bridges.

## Long Term

- Continue to provide safety improvements to areas with high crash rates
- Continue to maintain travel efficiency for local and regional road users by catering for the corridor's mix of heavy vehicles, light vehicles and tourist traffic, particularly through Grafton, Casino and Kyogle
- Continue to manage pavement rehabilitation of locations reaching the end of its serviceable life and high priority slope stability locations between Kyogle and the Queensland border.
- Progressively widen narrow bridges.

# CONTENTS

<b>1 INTRODUCTION AND CORRIDOR DESCRIPTION</b>	<b>5</b>
1.1 Why a corridor strategy?	6
1.2 Corridor function	7
1.3 Current population and employment in the corridor	8
1.4 Industry and economic development	12
1.5 Public and active transport in the corridor	13
<b>2 A VISION FOR THE FUTURE AND CORRIDOR OBJECTIVES</b>	<b>15</b>
2.1 Corridor vision	16
2.2 Corridor objectives	17
2.3 Future corridor changes	18
<b>3 CURRENT CORRIDOR PERFORMANCE</b>	<b>22</b>
3.1 Road safety	23
3.2 Traffic	29
3.3 Road geometry	35
3.4 Pavement condition	45
<b>4 CORRIDOR CHALLENGES AND PRIORITIES</b>	<b>50</b>
4.1 Short-term (0-5 years)	51
4.2 Medium-term (5-10 years)	52
4.3 Long-term (10-20 years)	53
<b>5 COMMUNITY CONSULTATION</b>	<b>56</b>
<b>REFERENCES</b>	<b>57</b>
<b>APPENDICES</b>	<b>58</b>
1 Austroads classification system	

# LIST OF FIGURES

<b>Figure 1-1</b> Summerland Way from Grafton to the Queensland border	7
<b>Figure 1-2</b> Truck profiles	12
<b>Figure 1-3</b> Regional Trains and Coaches network	14
<b>Figure 2-1</b> Roads and Maritime Services, 2015 Clarence River Crossing – key features	19
<b>Figure 3-1</b> Summerland Way Corridor Planning Sections	23
<b>Figure 3-2</b> Contributing crash factors on the Summerland Way corridor compared to the average classified country roads in NSW from 2010 to 2014.	24
<b>Figure 3-3</b> Crash locations from January 2010 to December 2014	25
<b>Figure 3-4</b> Rest Areas along the Summerland Way	27
<b>Figure 3-5</b> At Grade Railway Level Crossing sites along the Summerland Way	28
<b>Figure 3-6</b> Average Daily Traffic (ADT) and Heavy Vehicle (HV) volumes along the Summerland Way	30
<b>Figure 3-7</b> Traffic volumes along the Summerland Way	31
<b>Figure 3-8</b> Overtaking lanes and opportunities along the Summerland Way	33
<b>Figure 3-9</b> Heavy vehicle detour route in Grafton	34
<b>Figure 3-10</b> Curve radii along the corridor	35
<b>Figure 3-11</b> Sections of the Summerland Way without edge lines	37
<b>Figure 3-12</b> Sealed shoulder widths along the Summerland Way	39
<b>Figure 3-13</b> Rated culverts along the Summerland Way	41
<b>Figure 3-14</b> Rated slopes along the Summerland Way	42
<b>Figure 3-15</b> Locations subject to flooding along the Summerland Way	45
<b>Figure 3-16</b> Pavement health index for similar roads in NSW	46
<b>Figure 3-17</b> Pavement health index for Summerland Way	46
<b>Figure 3-18</b> Condition snapshot (Network)	47
<b>Figure 3-19</b> Condition snapshot (Summerland Way)	48

# **1 INTRODUCTION AND CORRIDOR DESCRIPTION**



# 1 INTRODUCTION AND CORRIDOR DESCRIPTION

## 1.1 Why a corridor strategy?

Network and corridor strategies to cover every State Road in regional NSW as a response to the challenge of how to best manage transport infrastructure to maximise benefits for our customers. Network and corridor strategies provide the following benefits for our State Road Network in regional NSW:

- A plan for network/ corridor improvements with consideration to all modes of transport
- Transparency to the community, councils and other government agencies with regard to planning and investment decisions
- Consistency in planning, management and operation of roads
- Facilitate the integration of road safety, traffic and asset maintenance projects.

This corridor strategy briefly outlines the objectives and vision for the Summerland Way corridor, identifies the road deficiencies against Roads and Maritime Network Planning Targets, and outlines and management strategy to prioritise actions required to address these deficiencies over the next 20 years. The corridor strategy is in line with the NSW Long Term Transport Master Plan (LTTMP), the NSW Freight and Ports Strategy (FPS), Regional Transport Plans (RTPs) and other State planning frameworks.

The Summerland Way is a south to north inland road between Grafton and the Queensland border. It runs parallel to the Pacific and New England Highways and has a total length of about 197 kilometres. The corridor is typically undivided and consists of two lanes with one in each direction, providing connections between the inland centres of Grafton, Casino and Kyogle and other smaller settlements.

The Summerland Way forms a key freight link between the timber, cattle farming and meat manufacturing industry in Kyogle and Casino, Darling Downs and the south east regions of Queensland via the Mount Lindesay Highway. It intersects with the Bruxner Highway at Casino and the Gwydir Highway in Grafton which are both State Roads that offer an important east to west connection in northern NSW. The Summerland Way also provides a network link to the Pacific Highway in Grafton.

“

The Summerland Way is a south to north inland road between Grafton and the Queensland border.

”

This corridor strategy outlines the objectives and vision for the Grafton to Queensland border corridor, identifies the road deficiencies against established targets, and describes a management strategy aimed to prioritise the actions necessary to manage these deficiencies over the next 20 years.

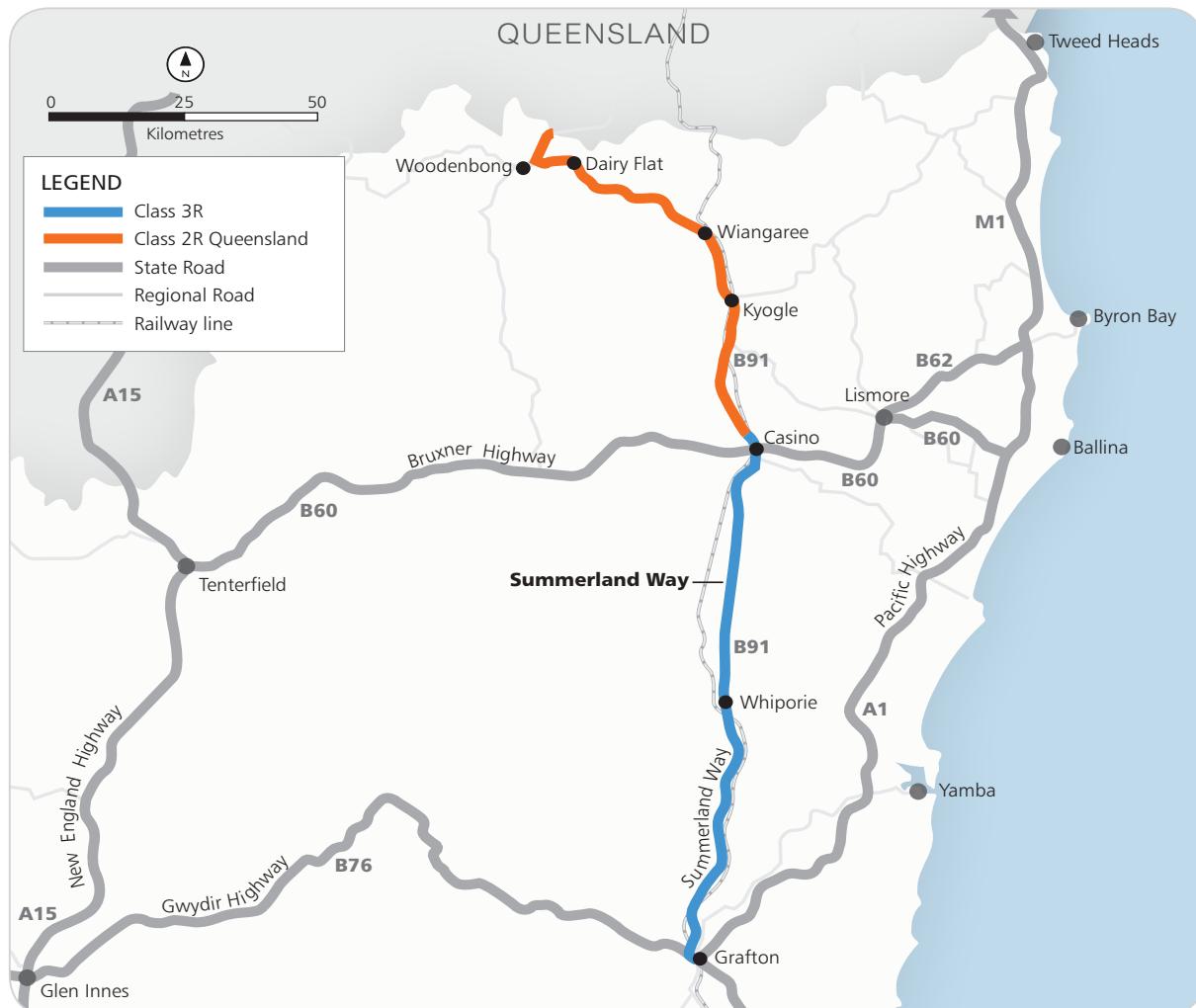
This document is aligned with the *NSW Long Term Transport Master Plan (LTTMP)*<sup>1</sup>, the *NSW Freight and Ports Strategy (FPS)*, *Mid North Coast*<sup>2</sup> and *Northern Rivers*<sup>3</sup> *Regional Transport Plans (RTPs)* and other State planning frameworks. These documents collectively identify the need to upgrade railway level crossings along the Summerland Way to improve safety (these upgrades have now been completed), and for an additional crossing of the Clarence River in Grafton to provide better access between Grafton and South Grafton.

1 Transport for NSW December 2012, *Long Term Transport Master Plan*, TfNSW Sydney

2 Transport for NSW, December 2013 *Mid North Coast Regional Transport Plan*, TfNSW Sydney

3 Transport for NSW, December 2013 *Northern Rivers Regional Transport Plan*, TfNSW Sydney

**Figure 1-1** Summerland Way from Grafton to the Queensland border



## 1.2 Corridor function

The Summerland Way (B91) is a State Road which stretches approximately 197 kilometres from the Gwydir Highway and Pacific Highway in South Grafton to the Queensland border north of Woodenbong, located in far northern NSW. It is an inland transport route that runs parallel to, and in between the Pacific Highway and New England Highway. It provides a connection to the inland centres of Grafton, Casino and Kyogle and other smaller settlements. The southern end of the route links the Gwydir Highway which continues west to Walgett and is the only gazetted 26 metre B-double' link across the Great Dividing Range north of Hexham. The route intersects with the Bruxner Highway at Casino, an important east-west highway.

The Summerland Way is an important link for local users, commuters and the primary production industry. It is an additional inland route for cross border distribution of goods and access to services. It provides an important link with the Woodenbong to Legume Road that provides for tourists and acts as a supporting freight route between the Southern Darling Downs Region in Queensland and the Northern Rivers of NSW.

The corridor is an important detour route when the Pacific Highway is closed between Grafton and Ballina. Traffic is diverted along the Bruxner Highway and Summerland Way in both directions before reconnecting with the Pacific Highway.

For strategic planning purposes, the Road Network Management Hierarchy is used to classify all roads across the State Road Network according to their relative importance, with Class 6 routes (6R) of the highest strategic importance and Class 1 routes (1R) of the lowest strategic importance.

The Summerland Way is classified as class 3 Rural (3R) for the section from South Grafton to Casino and a class 2 Rural (2R) for the section from Casino to the Queensland border. This hierarchy is the same as the asset management hierarchy within Roads and Maritime. Both the hierarchy and maintenance ranking systems are consistent in order to meet the objectives of providing an integrated road management framework.

The Summerland Way passes through The Mid-North Coast and Northern Rivers NSW Long Term Transport Master Plans regions and Clarence Valley, Richmond Valley and Kyogle local government areas. The region encompasses the traditional lands of the Gumbainggirr and Bundjalung people<sup>4</sup>.

As a rural State Road the corridor services urban and rural communities along the corridor for local and regional trips, particularly the movement of goods and access to services in Grafton, Casino and Kyogle. The Summerland Way facilitates mobility for the inter-regional commuter, as a tourist link and for business travel between inland Queensland, NSW, the Mid-North Coast and Northern Rivers.

The Summerland Way extends to the Queensland border north of Woodenbong and becomes the Mount Lindesay Highway in Queensland. The Mount Lindesay Highway is about 129 kilometres in length and provides an alternative link between New South Wales and Brisbane.

### 1.3 Current population and employment in the corridor

An estimated 81,000 people live in the Local Government Areas (LGA) along the Summerland Way corridor, with about 38 per cent of this number in major regional towns and centres including Grafton (and surrounds), Casino and Kyogle (2011 ABS Census).

Population and employment figures for each town in the corridor vary as shown in Table 1-1.

The median age is higher in all areas compared to the NSW State average, with Casino and Grafton having the lowest median age out of the four urban centres being 40. These towns also have a higher percentage of people aged over 65 years but a similar percentage of children aged between 0-14 years compared to the NSW State average with Junction Hill sitting the lowest at 15.2 per cent.<sup>5</sup>

All urban centres within Clarence Valley, Richmond Valley and Kyogle local government areas have a lower percentage of full time employed compared to the NSW State average. The main employment industries along the corridor are:

- School Education
- Meat and meat product manufacturing
- Agriculture including beef cattle and grain farming
- Tourism, cafes, restaurants and takeaway food services

“

The corridor services urban and rural communities along the corridor for local and regional trips

”

<sup>4</sup> David R Horton, Aboriginal Studies Press, AIATSIS and Auslig/xSinclair, Knight, Merz, 1996 <http://www.abc.net.au/indigenous/map/>  
<sup>5</sup> Australian Bureau of Statistics 2011, census data

**Table 1-1** Population and urban centre demographics by LGA (Australian Bureau of Statistics 2011, census data)

LGA	2011 LGA Population	Urban Centre statistics						Main employment by industry in the LGAs
		Urban Centres	2011 Urban Population	% Aged over 65 years	% Aged 0-14 years	Median age	% Labour force employed full time	
Clarence Valley	49,665	Grafton	16,598	20.4%	20.0%	40	51.8%	Education (5.5%), Food service industry (4.0%), Residential care services (3.5%), Retail (3.2%), Hospitals (3.0%)
		Junction Hill	1,177	22.1%	15.2%	49	55.6%	
Richmond Valley	22,037	Casino	9,629	21.8%	21.2%	40	53.8%	Meat and meat product manufacturing (7.2%), Education (5.4%), Food service industry (3.7%), Agriculture (3.6%), Residential care services (3.5%)
Kyogle	9,228	Kyogle	2,739	24.7%	18.9%	45	54.4%	Agriculture (10.7%), Education (6.7%), Hospitals (3.8%), Retail (3.3%)
Total	80,930		30,143					
NSW State average				14.7%	19.2%	38	60.2%	

The Department of Planning and Environment has used population, household and dwelling projections to help plan for service and infrastructure delivery for the community. Project data is available to the year for each of the Council areas (Clarence Valley, Richmond Valley and Kyogle) and can be compared against the Regional NSW annual growth rate population projections.<sup>6</sup>

Based on this data, the average annual per cent change for Clarence Valley and Richmond Valley are both 0.5 per cent where Kyogle shows no change (whether growth or decline). The average annual growth rate predicted for Regional NSW is 0.5 per cent, the same as Clarence Valley and Richmond Valley areas.

<sup>6</sup> Department of Planning and Environment, 2014 NSW population projection data, <http://www.planning.nsw.gov.au/Research-and-Demography/Demography/Population-Projections>

The corridor passes through or near the following towns:<sup>7</sup>

### Grafton and South Grafton

Grafton and South Grafton have a combined urban population of about 18,000<sup>7</sup> people. The main industry in the area includes light manufacturing, agriculture, farming and timber harvesting. Grafton acts as a regional centre for surrounding smaller towns, with a major hospital, government department offices and a number of school campuses including TAFE. The *Mid North Coast Regional Transport Plan*<sup>8</sup> maps Grafton as a Major Regional Centre with sufficient availability of land and infrastructure to greatly increase industrial capacity.



### Junction Hill

Junction Hill is a neighbourhood village that sits just north of Grafton. It consists mostly of residential development, as well as sporting amenities, a local service station, hotel and a light industrial area; Trenyar. The Summerland Way is the main link through Junction Hill and between surrounding centres.



<sup>7</sup> ABS 2011

<sup>8</sup> Department of Planning December 2013, *Mid North Coast Regional Transport Plan*,

<sup>9</sup> ABS 2011

### Whiporie

Whiporie is a small village located between Grafton and Casino. It has small scale general services, such as a general store, town hall and post office. Its primary connection to external services is the Summerland Way.



### Casino

Casino has an urban population of about 10,000<sup>9</sup> people and is the next main centre along the corridor. The regional service hub of Lismore is within short commuting distance of Casino and the Bruxner Highway is the main commuter route between the two. The dominant industry in Casino is beef production and the surrounding land uses are dominated by supply to this industry. Casino between Hare Street and Johnston Street (a total length of about 1.5 kilometers) is classified as the Bruxner Highway. Although this is not the Summerland Way, it is an important link for motorists travelling between Grafton and the Queensland border.



## Kyogle

Kyogle is a smaller centre with an urban population of around 3,000<sup>10</sup>. The main industries are agriculture, forestry, retail and light manufacturing. The Summerland Way is an important strategic route for continued viability of local industry. Kyogle Council have identified the importance of road safety and condition in retaining and attracting industry producers and suppliers and seeks to further develop its niche tourist market.



## Wiangaree

Wiangaree is a small rural based community north-west of Kyogle. It lies at the foot of the Border Ranges National Park, Toonumbar State Forest and the banks of the Richmond River. The main industries consist of dairy, beef farming and general horticulture activities. The settlement provides basic services and facilities, but relies mostly on Kyogle for higher order services. The Summerland Way is an important transport link which allows the community of Wiangaree to distribute and purchase goods and services.



## Woodenbong

Woodenbong is a rural village about 4.5 km west of the Summerland Way and situated within the Kyogle Shire. Woodenbong houses around 480<sup>11</sup> people and is located west of the Summerland Way and Mount Lindesay Road intersection. The village sits along the Woodenbong to Legume corridor and is considered an attractive route for motorists moving between NSW and Queensland. The main industries in the Woodenbong area are education followed by grain farming, forestry and cattle grazing.



## South East Queensland and Darling Downs

Darling Downs is the farming region in southern Queensland. Located west of South East Queensland and considered one of the major regions of the state. Agriculture, the emerging energy sector, and the retail and manufacturing industries that support them are some of the most economically significant sectors on the Darling Downs. South East Queensland offers a diverse range of lifestyles, from city living to beach and rural settings and is the state's most populated and fastest growing economic region. Its population is predicted to reach 4.4 million by 2031.<sup>12</sup> The Mount Lindesay Highway has been identified as one of Queensland's poorest safety performing roads and is predominately a two lane rural arterial road connecting several rural towns including Jimboomba, Beaudesert and Rathdowney.<sup>13</sup> The Summerland Way connects the Mount Lindesay Highway in NSW.

Although not on the corridor, the town of Lismore has a notable impact on the function and use of the Summerland Way. Lismore has an urban population of 27 000,<sup>14</sup> and holds primary educational, business, health and retail services for the surrounding communities including Southern Cross University, the Lismore Base Hospital, Lismore Regional Airport and Lismore Shopping Square.



**South East Queensland offers a diverse range of lifestyles, from city living to beach and rural settings and is the state's most populated and fastest growing economic region**



## 1.4 Industry and economic development

The corridor plays a key role in connecting farming areas and regional towns. The region is dominated by agriculture related to dairy, beef and forestry and subsidiary industries like abattoirs and timber mills. Access to surrounding regional or state industry is mostly by the Pacific or New England Highways as the preferred coastal or inland north south freight link.

In terms of heavy vehicles, the largest vehicle permitted to operate on the Summerland Way between Grafton and Kyogle is a 26 metre B-double. Due to the tight and winding alignment north of Kyogle, the route is restricted to General Access Vehicles (GAV) with the largest being a semi-trailer and 19 metre B-double (refer to Figure 1-2). Mount Lindesay Highway in Queensland which continues on from the Summerland Way, is also limited to GAV. Forestry harvesting periods are seasonal and infrequent and require special permits from Roads and Maritime. These permits

**Figure 1-2** Truck profiles



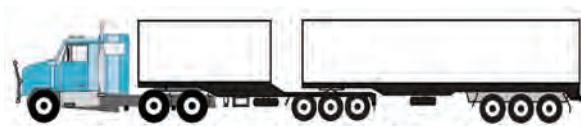
3 axle truck 3 axle dog trailer combination (truck and dog) up to 19 metres



Semi-trailer up to 19 metres



Performance Based Standards (PBS) 3 axle truck and four axle dog combination (quad dog) up to 20 metres



B double up to 26 metres

<sup>12</sup> South East Queensland Regional Plan South East Queensland Regional Plan <http://www.dilgp.qld.gov.au/resources/plan/seq/regional-plan-2009/seq-regional-plan-2009.pdf>

<sup>13</sup> Mount Lindesay Highway Safety Review completed by Department of Transport and Main Roads in March 2016

<sup>14</sup> ABS 2011

are provided for mass heavy vehicles with temporary connections north of Kyogle and into Southern Queensland.

The Northern Cooperative Meat Company in Casino employs in excess of 1,100 people and produces beef, wet blue leather and pork for both

the domestic and export markets. Up to 10 Twenty Foot Equivalent Units (TEU)<sup>15</sup> per day are transported from Casino to the Port of Brisbane for export. The meat works draw cattle from the New England and North West regions of NSW as well as Darling Downs in Queensland.<sup>16</sup>



## 1.5 Public and active transport in the corridor

### Public bus service

Public transport is used for local, regional and interstate travel. Public bus services along the Summerland Way corridor provide local and regional access typically from Monday to Friday<sup>18</sup> as well as a daily 'hail and ride' service within Grafton City, Casino and Kyogle.

### School buses

School buses operate on designated routes within each urban centre as well as offering connections between regions. Flexible community transport is provided in Grafton and Kyogle, either connecting users with transport interchanges or offering a door to door service.

Regional and interstate bus routes run along the Summerland Way.

**“**  
School buses operate on designated routes within each urban centre as well as offering connections between regions.  
**”**

<sup>15</sup> An approximate unit of cargo capacity often used to describe the capacity of container ships and container terminals.

<sup>16</sup> Transport for NSW, 2013 *NSW Freight and Ports Strategy 'Case Studies'*

<sup>17</sup> As noted in the Northern Rivers Transport Guide 2014, [http://www.wayfindit.com.au/pdf/northern\\_rivers\\_book.pdf](http://www.wayfindit.com.au/pdf/northern_rivers_book.pdf) Grafton also provides some Monday to Saturday and Tuesday to Friday services.

## Rail services

NSW Train Link operates between Sydney and Brisbane and services Grafton, Casino and Kyogle. Both Grafton and Casino have road and rail interchanges (Figure 1.3). These trips are generally limited to 2 or 3 per day in each direction.

**Figure 1-3** Regional Trains and Coaches network<sup>19</sup>



## Air services

The Clarence Valley and Lismore Regional airports are both located near the Summerland Way and provide domestic passenger services. Clarence Valley Regional airport is located southeast of Grafton and is accessed from the Pacific Highway. The Lismore Regional airport is located adjacent to the Bruxner Highway on the western approach to Lismore. These airports attract users from the Northern Rivers regions of NSW. Both airports are serviced by Regional Express (Rex) with daily flights to Sydney.

## Walking and Cycling

Walking and cycling are promoted as sustainable modes of active transport for short trips within the community. Councils develop bike plans and Pedestrian Access and Mobility Plans (PAMP) that consider the safe and efficient movement of pedestrians and cyclists.

Grafton and Casino have a combination of on and off road walking and cycling facilities. These aim to accommodate pedestrian and cyclist desire lines within urban centres and between regions. General access routes, regional cycling routes, local access routes and recreational/off road routes are all categories that make sure the needs of the user is appropriately considered given the access and mobility that is required.

A key aim of local Councils is to reduce the number of missing links and severance within the bike and pedestrian network including the provision of facilities for all pedestrian types including people with disabilities, commuters, children, seniors and recreational or professional users.<sup>20</sup> Connectivity is particularly an issue on the fringe of main centres as a result of urban sprawl.

A new bridge will link Grafton and South Grafton. This bridge will have shared pedestrian and cycleway facilities that will provide an additional crossing over the river. The existing Grafton Bridge will continue to provide pedestrian and cycle facilities and the facilities offered by each bridge will be linked.<sup>21</sup>

<sup>19</sup> Transport for NSW, NSW TrainLink, *Regional Trains and Coaches* 2014

<sup>20</sup> Clarence Valley Council August 2008, *Bike Plan and Pedestrian Access and Mobility Plan*

<sup>21</sup> Roads and Maritime project website <http://www.rms.nsw.gov.au/projects/northern-nsw/graftron-clarence-river-crossing/index.html>

## **2 A VISION FOR THE FUTURE AND CORRIDOR OBJECTIVES**



## 2 A VISION FOR THE FUTURE AND CORRIDOR OBJECTIVES

### 2.1 Corridor vision

The 20 year vision for the Summerland Way corridor between **Gwydir Highway at South Grafton and the Queensland border near Mount Lindesay** is to:

- Provide a safer route for all road users by adopting the Safe System approach to the design and management of the corridor.
- Cater for the travel needs of all road users between Grafton and the Queensland border and within Grafton, Casino and Kyogle, providing an acceptable level of safety, efficiency and ride comfort.
- Support the movement of goods between south east Queensland, Darling Downs and Northern NSW.

- Provide a high level of reliability by managing the pavement and slope stability issues along the entire corridor particularly between Kyogle and the Queensland border.
- Support the active transport needs of cyclists, pedestrians and public transport users with appropriate facilities and infrastructure in towns and between centres.

The current vision for the Summerland Way is to continue to carry out incremental road improvements to maintain or provide a safe and reliable route for local users and commuters within and between urban centres, and primary production industry. Grafton Bridge project is the exception with construction of an additional crossing over the Clarence River at Grafton planned to commence in 2016.



## 2.2 Corridor objectives

NSW Long Term Transport Master Plan objectives	Summerland Way corridor objectives
Improve liveability/ Reduce social disadvantage	<p>Improve and maintain travel efficiency for local and regional road users by catering for the corridor's mix of heavy vehicles, light vehicles and tourist traffic, particularly through Grafton, Casino and Kyogle.</p> <p>Address the active transport needs of cyclists, pedestrians and public transport users in the major towns and regional centres of Grafton, Casino and Kyogle.</p>
Economic growth / productivity	<p>Progressively rehabilitate pavements along the route as part of ongoing asset maintenance and renewal activities for ride quality, safe and reliable travel conditions including areas such as Unumgar to Queensland border.</p> <p>Provide reliable travel along the corridor for key freight chains and tourist movements between NSW and southern Queensland.</p>
Regional development / accessibility	<p>Continue to provide a consistent link between the Summerland Way and the Mt Lindesay Highway in Queensland</p> <p>Provide safe and efficient access to and from major regional facilities as well as between existing and developing residential and commercial areas which includes a second crossing of the Clarence River.</p> <p>Support regional freight movements along the corridor servicing agriculture, meat, forestry and emerging industries by providing safe and efficient access.</p> <p>Minimise disruption to road users resulting from planned and unplanned road closures, recognising in particular the needs of isolated communities and those sections of the route which have no alternate access.</p> <p>Manage access to accommodate new connections to the road whilst controlling the number of access points to maintain road safety and traffic efficiency.</p>
Improve sustainability	<p>Ensure environmental and cultural impacts are minimised during both construction and during maintenance of the corridor</p> <p>Ensure pavements and other assets are managed in a sustainable way to reduce whole of lifecycle costs.</p>
Safety and security	<p>Address current and emerging crash trends, particularly intersection related and rear end crashes in the urban centres of Grafton, Casino and Kyogle and off road crashes in the rural sections of the corridor.</p> <p>Enhance road safety for all users over the length of the corridor by implementing the safe system approach to the design and management of the road.</p> <p>Improve poor road alignment, steep grades and narrow pavements particularly between Grevillia and the Mount Lindsay Highway in Queensland.</p> <p>Continue to contribute to the safe management of rural rail level crossings at Koolkhan north of Grafton, Casino, north of Casino and Wiangaree north of Kyogle.</p> <p>Accommodate safe and efficient maintenance activities whilst maintaining journey reliability and traffic efficiency where possible.</p>
Improve transport integration process	<p>Work with Clarence Valley, Richmond Valley and Kyogle local governments, Department of Planning and Environment and other stakeholders to provide a road that meets current and future transport needs.</p> <p>Manage cross-border transport issues such as access, traffic management and maintenance with the Queensland State Government.</p>

## 2.3 Future corridor changes

### Grafton Bridge

Roads and Maritime will build an additional crossing of the Clarence River at Grafton. The NSW Government has reserved \$177 Million for this project under the Restart NSW program.<sup>22</sup> Early works commenced in February 2015 which include widening and reconstructing the Gwydir Highway (Charles Street) between the Pacific Highway and Bent Street to four lanes. The target completion date for this project is 2019.

The project aims to address short term and long term transport needs for the southern end of the Summerland Way. Key objectives of the crossing are to:

- Enhance road safety for all road users over the length of the project
- Improve traffic efficiency between and within Grafton and South Grafton, by providing a network that reduces delays between Grafton and South Grafton in peak periods to an acceptable level of service.
- Support regional and local economic development
- Involve all stakeholders and consider their interests
- Provide value for money
- Minimise impact on the environment.

Road traffic on the existing bridge and approaches is currently at or near capacity in peak periods with the dominant flow in the morning peak being northbound; from South Grafton to the Grafton central business district. Traffic queues can extend along the Summerland Way (Bent Street) to the intersection of the Gwydir Highway. Traffic queuing can also occur on the section of the Gwydir Highway locally referred to as Charles Street, which connects the Summerland Way with the Pacific Highway. Queuing at the intersection of Charles Street and the Pacific Highway also increases the road safety risk and reduces traffic efficiency on the existing Pacific Highway at South Grafton.

In the afternoon peak southbound traffic queues can stretch significant distances along Craig and Fitzroy Streets and northbound traffic to the Through Street roundabout. The situation is exacerbated by the nature of the road space on the bridge (two narrow lanes) and by two pronounced ‘kinks’ that interrupt the horizontal alignment of the bridge. The kinks effectively require heavy vehicles to intrude on the road space for oncoming traffic, thereby increasing crash risk, slowing traffic and adding to queue length on the approaches to the bridge.

In 2008, Prince Street in Grafton was reduced from two lanes in each direction to one. A heavy vehicle CBD detour was implemented in conjunction with this project; directing heavy vehicles down Villiers Street to Dobie Street from Fitzroy Street and rejoining the Summerland Way at Prince Street.

When the bridge is closed due to a traffic incident, there are significant time delays and travel restrictions for the entire community, noting Grafton is the major employment centre for the Clarence Valley area, with a major hospital, several high schools, government offices and a TAFE campus. The detour route for B-doubles is in excess of 200 kilometres. Incidents on the bridge cause interruptions to traffic accessing the hospital and / or emergency service vehicles such as Police, Ambulance and the NSW Rural Fire Service.

“

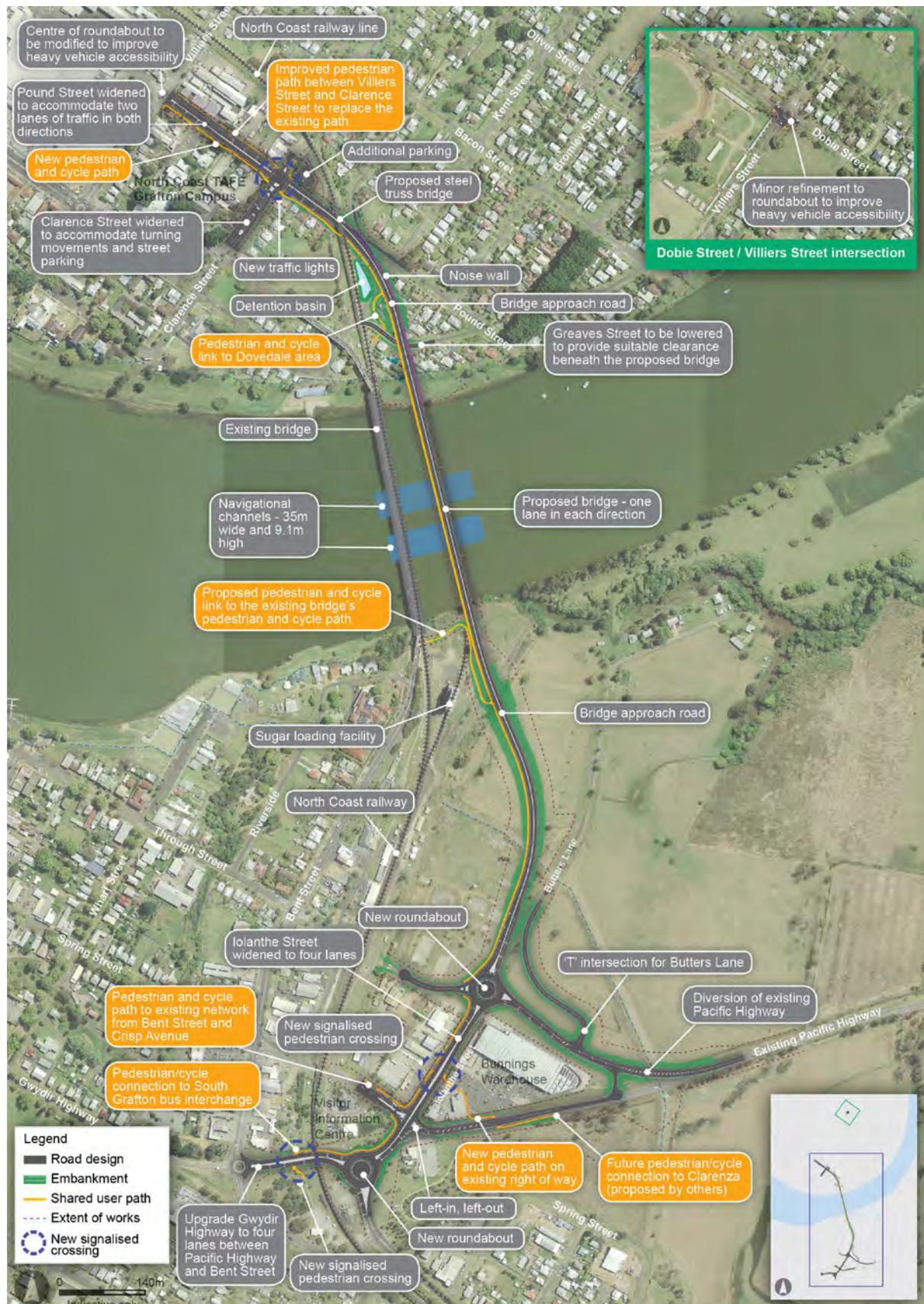
Roads and Maritime will build an additional crossing of the Clarence River at Grafton.

”

<sup>22</sup> NSW Budget 2014-15, Infrastructure Overview, viewed 08/05/15 [http://www.budget.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0020/124373/2014-15\\_Infrastructure\\_Overview.pdf](http://www.budget.nsw.gov.au/__data/assets/pdf_file/0020/124373/2014-15_Infrastructure_Overview.pdf)

SUMMERLAND WAY DRAFT CORRIDOR STRATEGY  
SEPTEMBER 2016

**Figure 2-1** Roads and Maritime Services, 2015 Clarence River Crossing – key features



## Pacific Highway Upgrade

The Pacific Highway upgrade will significantly reduce the volume of traffic passing through the edge of South Grafton and will improve the flood immunity for the Pacific Highway to the north of Grafton. The Pacific Highway upgrade will limit the reliance on the Summerland Way. The Highway will be more attractive and reliable route given the flood immunity, travel condition and ability to manage traffic incidents.

The addition of the second carriageway will make the Pacific Highway much less vulnerable to closure as a result of a crash. As a result, the reliance on the Summerland Way as an emergency route between the Queensland border and Grafton will be significantly reduced.<sup>23</sup>

It is expected that the function of the Summerland Way as a detour route will remain the same once the Pacific Highway Upgrade is complete, however this detour will most likely be needed less frequently. Flood immunity of the Pacific Highway is being addressed as it is upgraded to a four lane divided road standard. The minimum flood immunity proposed is 1 in 20 year across major flood plains and 1 in 100 years elsewhere including

all bridge structures. This represents a significant improvement over the current highway where flood immunity is as low as 1 in 3 years in places. The provision of additional lanes, interchange points and strategically placed median cross overs will offer more flexibility for on Highway traffic management.

## Future freight demands

The Summerland Way is vital corridor for a number of industries particularly livestock, forestry and dairy. It is a 25 metre B Double Higher Mass Limit up to 68t approved Restricted Access Vehicle (RAV) route between Grafton and Kyogle. The provision to accommodate Higher Productivity Vehicles (HPV) such as Performance Based Standard (PBS) (L2B) 30 metre vehicles should be considered in the longer term vision for the Summerland Way. The PBS scheme offers the heavy vehicle industry the potential to achieve higher productivity and safety through innovative and optimised vehicle designs to perform their freight tasks. Introducing such vehicles however would rely on robust investigations into the provision of sufficient infrastructure.



<sup>23</sup> Roads and Maritime Services (2015) Additional crossing of the Clarence River at Grafton, Preferred Option and Submissions Report [www.rms.nsw.gov.au/documents/projects/northern-nsw/grafon-clarence-river-crossing/grafon-pref-option-and-submissions-rep-april2013.pdf](http://www.rms.nsw.gov.au/documents/projects/northern-nsw/grafon-clarence-river-crossing/grafon-pref-option-and-submissions-rep-april2013.pdf)

### **3 CURRENT CORRIDOR PERFORMANCE**



### 3 CURRENT CORRIDOR PERFORMANCE

TfNSW and Roads and Maritime measure and monitor roads performance against network performance measures and targets. Network measures enable current and future performance to be assessed. Network planning targets are either:

- Network wide targets – condition targets that apply to the entire network, unless otherwise specified.
- Rural planning targets that apply to regional NSW, not including Wollongong, the Central Coast, Newcastle and Sydney.

To assess the Summerland Way's current corridor performance, the following sources have been used:

- Network Performance Measures and Network Planning Targets<sup>24</sup>
- Network and Corridor Planning Practice Notes<sup>25</sup>

The Road Network Management Hierarchy organises the network into logical groupings to ensure roads can be managed according to their relative importance.

For strategic planning purposes, Transport for NSW classifies all existing roads across the network into distinct road classes. This means roads with the same classification can be compared in terms of average safety, traffic and asset performance.

In addition to the 3R and 2R road classification system, road segmentation is needed so planning targets can be tailored to specific areas to respond to changes in nearby land use, terrain and property access arrangements. Planning sections are manageable lengths of road that are uniform in nature. For the purpose of this analysis, the Summerland Way corridor has been divided into six corridor planning sections. These are shown in Table 3-1 (mapped in Figure 3-1).

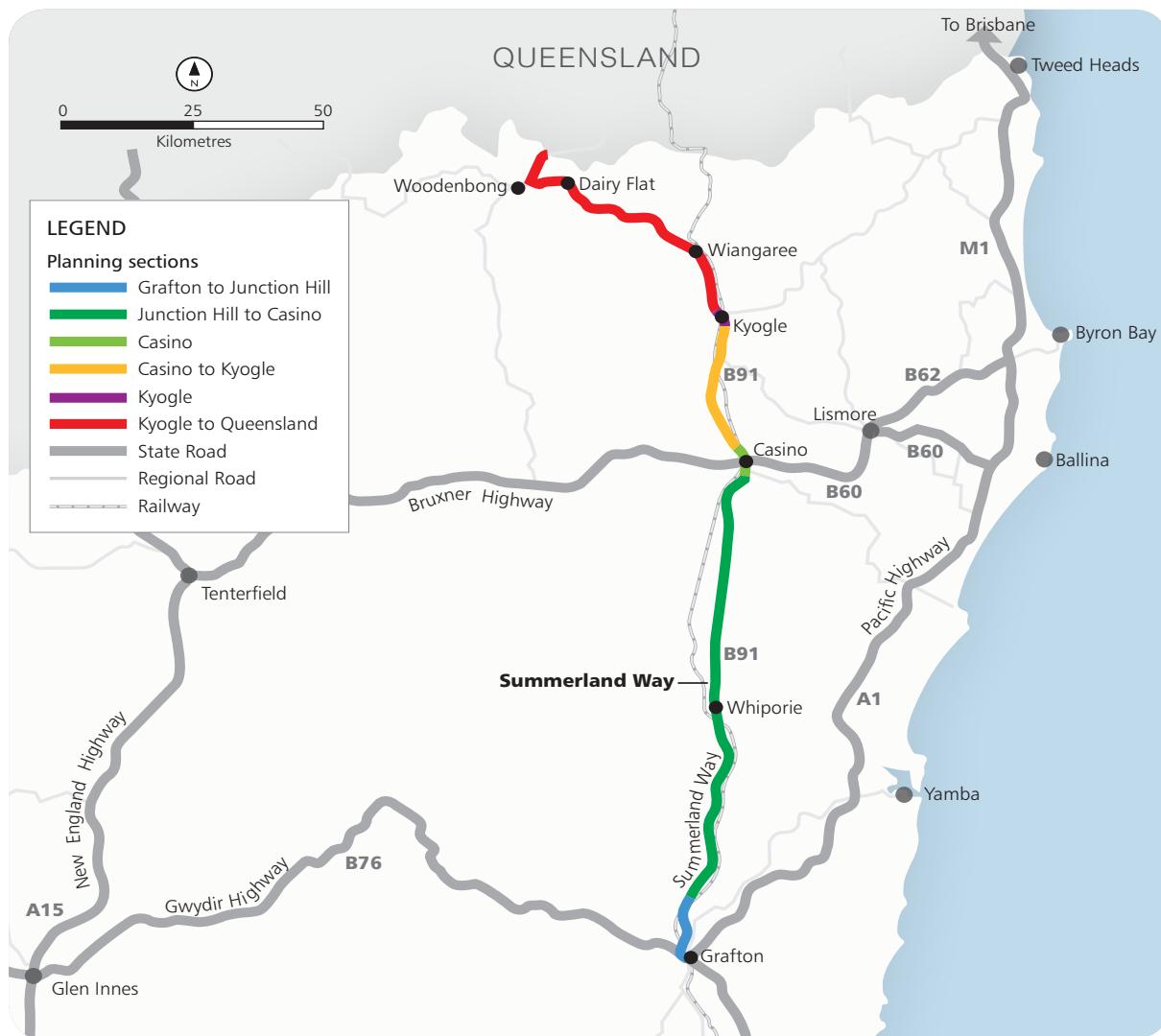
**Table 3-1** Summerland Way Corridor Planning Sections

Corridor planning section	Description	Land use	Chainage (km)		Length (km)	Road Hierarchy
			From	To		
1. Grafton	Charles Street Roundabout, South Grafton to Clarence Way, Junction Hill	U	0	13	13	3R
2. Grafton to Casino	Clarence Way, Junction Hill to Bennett Street, Casino	R	13	101	88	3R
3. Casino	Bennett Street, Casino to Rosewood Avenue, Casino	U	101	105	4	3R
4. Casino to Kyogle	Rosewood Avenue, Casino to Bridge over Fairmount Creek, Kyogle	R	105	130	25	2R
5. Kyogle	Bridge over Fairmount Creek, Kyogle to 514m north of bridge over Fawcetts Creek	U	130	134	4	2R
6. Kyogle to QLD border	514m north of bridge over Fawcetts Creek to Mt Lindesay Highway at the Queensland border	R	134	197	63	2R
<b>Total Corridor</b>			<b>0</b>	<b>197</b>	<b>197</b>	

24 Roads and Maritime Services 2010, *Network Performance Measures and Network Planning Targets*, Roads and Maritime Sydney

25 Roads and Maritime Services 2008, *Network and Corridor Planning Practice Notes*, RMS, Sydney

**Figure 3-1** Summerland Way Corridor Planning Sections



The following four sections provide a summary of the current corridor performance:

1. Road safety
2. Traffic
3. Road geometry
4. Pavement condition

### 3.1 Road safety

There were 310 reported crashes on the Summerland Way between January 2010 and December 2014. This resulted in 159 casualty crashes including seven fatal crashes. The corresponding crash rate of 0.16 casualty crashes/ per kilometre/ per year is lower than the average of 0.124 casualty crashes/ per kilometre/ per year on other comparable roads of this type across the State.

Two crash clusters have been identified along the corridor. The first is on a curve within planning section six located 3.5 kilometres south of the Queensland border where eight crashes occurred resulting in seven injuries. The second cluster is at

the intersection of Summerland Way and Oliver Street, Grafton where there was eleven crashes resulting in four injuries.

Other locations of road safety issues includes:

- Planning section two between Grafton and Casino is 88 kilometres in length and is predominantly straight and flat. All seven fatalities were in this section. The fatal crashes clustered in two main areas, with three located over a 7 kilometre section south of Casino and four fatal crashes over an 11 kilometre length around Whiporie. Fatigue was a factor in three of the seven fatal crashes
- Planning section six from Kyogle to the Queensland border is 63 kilometres long. This section is characterised by tighter and more frequent curves and steeper grades. Off road on curve crashes contributed to 33 out of the 61 overall crashes in this section.

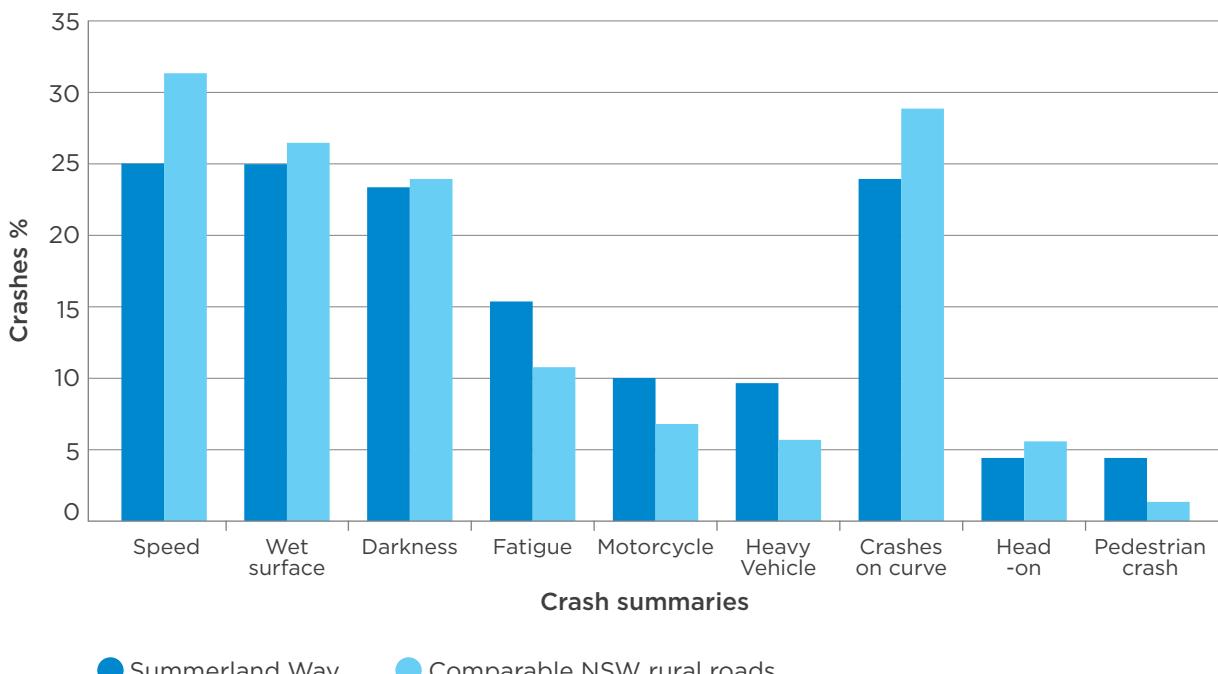
The Summerland Way (Figure 3.2). crash data was compared to other classified roads and State Highways in country New South Wales to identify

any crash trends or contributing crash factors specific to the Summerland Way. Both crash data-sets were based on all crash types in all speed limits from 1 January 2010 to 31 December 2014. This data includes urban and rural crashes combined across the Summerland Way and the comparable classified country roads for consistency of data comparison.

Crash types vary between the urban and rural sections on the Summerland Way. In the urban areas of Grafton, Casino and Kyogle the predominate crash types were intersection crashes (27 per cent or 37 of 136) and rear end crashes (23.5 per cent or 32 of 136). In the rural sections the predominate crash types were off-road on curve (34 per cent or 59 of 174), off-road on straight (29 per cent or 51 of 174) and hit animal (10 per cent or 17 of 174).

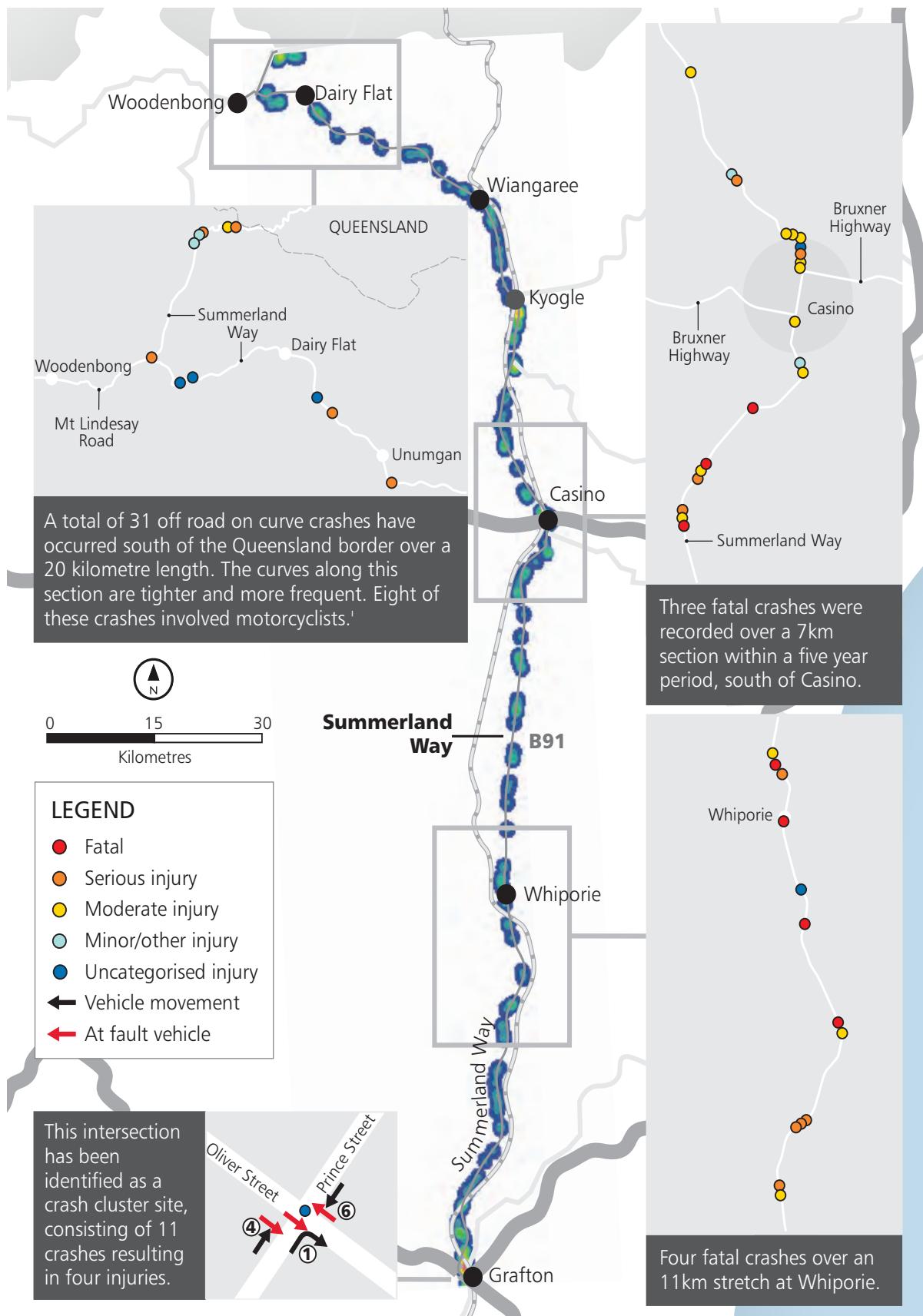
The analysis identified (as shown in Figure 3-3) pedestrian, fatigue, motorcycle and heavy vehicle crashes as being higher than the State comparison. Pedestrian crashes were significantly higher with 4.2% compared to 1.7% on comparable NSW roads.

**Figure 3-2** Contributing crash factors on the Summerland Way corridor compared to the average classified country roads in NSW<sup>26</sup> from 2010 to 2014.



<sup>26</sup> Roads and Maritime Services, CRASHLINK database October 2015

**Figure 3-3** Crash locations from January 2010 to December 2014





## Rest areas

In 2005, the National Transport Commission released the National Guidelines for the Provision of Rest Area Facilities with guidelines for three categories of rest areas, including major and minor rest areas and truck parking bays:

*"Major rest areas – designed for long rest breaks, offering a range of facilities and separate parking areas for heavy and light vehicles where possible.*

*Minor rest areas – These areas are designed for shorter rest breaks, and at a minimum should provide sufficient parking space for both heavy and light vehicles. While it is not anticipated that these stops will be used for long rest breaks/sleep opportunities, separate parking areas for heavy and light vehicles may be required at some locations.*

*Truck parking bays – These areas are primarily designed to allow drivers of heavy vehicle to conduct short, purpose-based stops including load checks, completing logbooks and addressing associated operational needs."<sup>27</sup>*

There are six rest areas on the Summerland Way, two of which have access for heavy vehicles one located near Whiporie and the other near Wiangaree. The facilities available within the rest areas range from toilets and bins only to toilets, bins, shelters, and picnic tables. The Summerland Way between Grafton and Kyogle is a 26m B-Double route. Seasonal harvesting occurs north of Kyogle into Queensland. No adequate heavy vehicle pull over facilities exist along this length. The Summerland Way has sufficient rest areas in place to meet the National Guidelines by offering rest stops for heavy vehicles within the short distance between urban centres also provide for travel breaks.

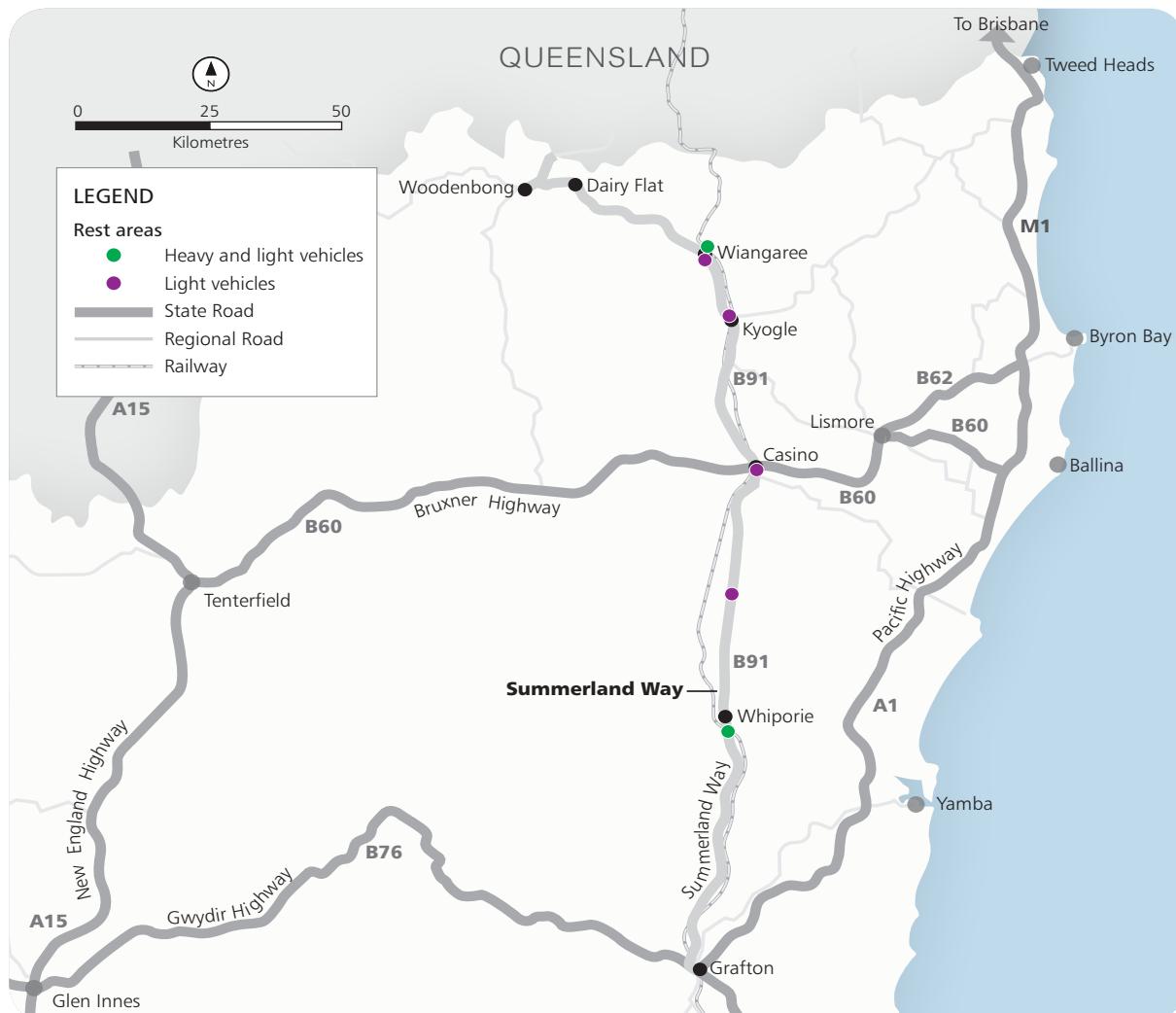
“

**The facilities available within the rest areas range from toilets and bins only to toilets, bins, shelters, and picnic tables.**

”

<sup>27</sup> National Transport Commission, 2005, National Guidelines for the Provision of Rest Area Facilities, Melbourne

**Figure 3-4** Rest Areas along the Summerland Way



The Safe-T-Cam program is an initiative that aims to reduce the risk associated with heavy vehicle driver fatigue in an effort to prevent heavy vehicle crashes. The Safe-T-Cam system is an automated monitoring system that uses digital camera technology to read heavy vehicles' number plates to enable Roads and Maritime to monitor heavy vehicle movements.

**“**  
**The Safe-T-Cam program is an initiative that aims to reduce driver fatigue in an effort to prevent heavy vehicle crashes.**  
**”**

Safe-T-Cam detects and provides data on heavy vehicle non-compliance relating to:

- Driver fatigue legislation
- Registration
- Failure to enter Heavy Vehicle Checking Stations.

The Safe-T-Cam network consists of 24 sites located on major routes throughout NSW, clearly marked with roadside signage. There is one Safe-T-Cam located on the Summerland Way at Casino and has recently been refurbished.

## Railway level crossings

Four railway level crossings are located along the Summerland Way at West Casino, Koolkhan, Nammoona and Wiangaree. These sites were upgraded recently in accordance with actions identified in the NSW Governments Regional Transport Plans for Mid North Coast<sup>28</sup> and Northern Rivers.<sup>29</sup>

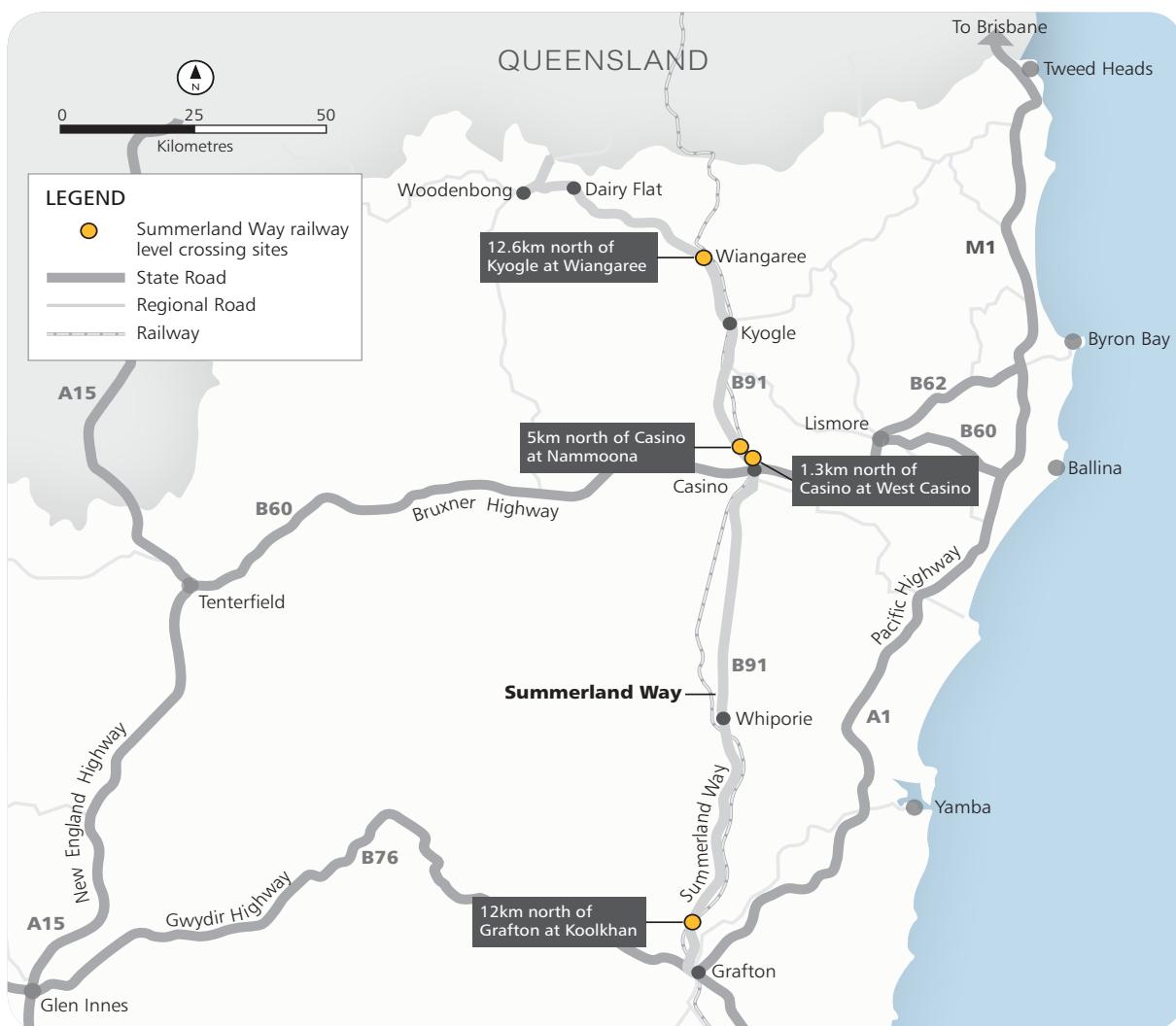
- All four are active sites consisting of flashing lights
- Railway level crossing at West Casino provides separated pedestrian and cyclist crossing facilities

- The sites at Koolkhan and Nammoona have boom gates.

A speed zone review of the Nammoona rail crossing site was carried out in 2012. As a result the posted speed limit along a 2.83 kilometre section of the road was reduced from 100km/h to 80km/h.

Data indicates that two crashes have occurred along this length within a five year period, however evidence suggests that those were related to the alignment rather than involve the railway level crossing site.

**Figure 3-5** At Grade Railway Level Crossing sites along the Summerland Way



28 Department of Planning December 2013 Mid North Coast Regional Action Plan 'Delivering Change, Traffic Management and Road Safety Program'  
29 Department of Planning December 2013 Northern Rivers Regional Action Plan 'Delivering Change, Traffic Management and Road Safety Program'

## 3.2 Traffic

### Traffic volumes and heavy vehicles

Average daily traffic (ADT) volumes collected from traffic surveys along the Summerland Way reveals a notable difference between the number of vehicles in the southern extent of the corridor compared to the northern, and between the urban and rural areas.

The Grafton Bridge carries around 25,000 vehicles per day<sup>30</sup> (2010 ADT at Grafton Bridge Abutment, South Grafton) with volumes dropping rapidly to around 1,200 vehicles per day to the north of Grafton (2015 ADT South of Clifden Road at

Warragai Creek). ADT volumes in Casino (north of McDougal Street) in 2014 were about 8,000 vehicles per day with Kyogle ADT less than 4,000 vehicles per day. ADT data collected in 2011 on the Summerland Way south of the Queensland border was recorded around 570 vehicles per day.<sup>31</sup> These are shown in Table 3-2.

These sites have been plotted along the Summerland Way in Figure 3-6 and have been graphed in Figure 3-7.

The percentage of heavy vehicle volumes along the Summerland Way vary between 6 per cent and 20 per cent. The largest percentage of heavy vehicles are along the section north of Grafton and south of Casino however the ADT in this section is under 1200 vehicles per day.

**Table 3-2** Average Daily Traffic (ADT) volumes along the Summerland Way

Highway planning section	Location	Year	ADT (vehicles per day)	Class 3 to 12 <sup>32</sup>		Class 7 to 12 <sup>33</sup>	
				Average Heavy Vehicles ADT	Percent HV	Average Heavy Vehicles ADT	Percent HV
Grafton	Grafton Bridge	2016	25428	1475	5.8	23	0.9
	North of North Street, Grafton	2015	6418	565	8.8	180	2.8
	North Grafton	2015	5932	629	10.6	190	3.2
Grafton to Casino	South of Clifden Road, Warragai Creek	2015	1183	235	19.9	122	10.3
	North of Two Mile Creek, North Whiporie	2015	1122	255	22.7	142	12.7
	Safe-T-Cam site, South Casino <sup>34</sup>	2015	3186	424	13.3	185	5.8
Casino	North of McDougal Street, Casino	2015	7925	713	9.0	174	2.2
Kyogle	South of Andrew Street, Kyogle	2015	3959	340	8.6	87	2.2
Kyogle to Queensland	South Wiangaree	2014	1640	190	11.6	41	2.5
	North of Mount Lindesay Road, near Queensland border	2016	382	80	20.9	44	11.5

<sup>30</sup> This is the only crossing of the Clarence River in Grafton therefore attracting all traffic crossing between Grafton and South Grafton.

Given there are numerous alternative routes from most origins and destinations volumes may be significantly less with a 2015 recorded ADT of about 6,500 vehicles per day near North Street, Grafton.

<sup>31</sup> Permanent station 04.596

<sup>32</sup> Refer Appendix 1-Austroads vehicle classification system

<sup>33</sup> Refer Appendix 1-Austroads vehicle classification system

<sup>34</sup> Roads and Maritime 'The Infra-Red Traffic Logger' (TIRTL) site. TIRTL is a high precision non-invasive device, designed for very accurate speed measurement, count and classification of vehicles. In this instance, it refers to a Safe-T-Cam site.

The Summerland Way can be considered as:

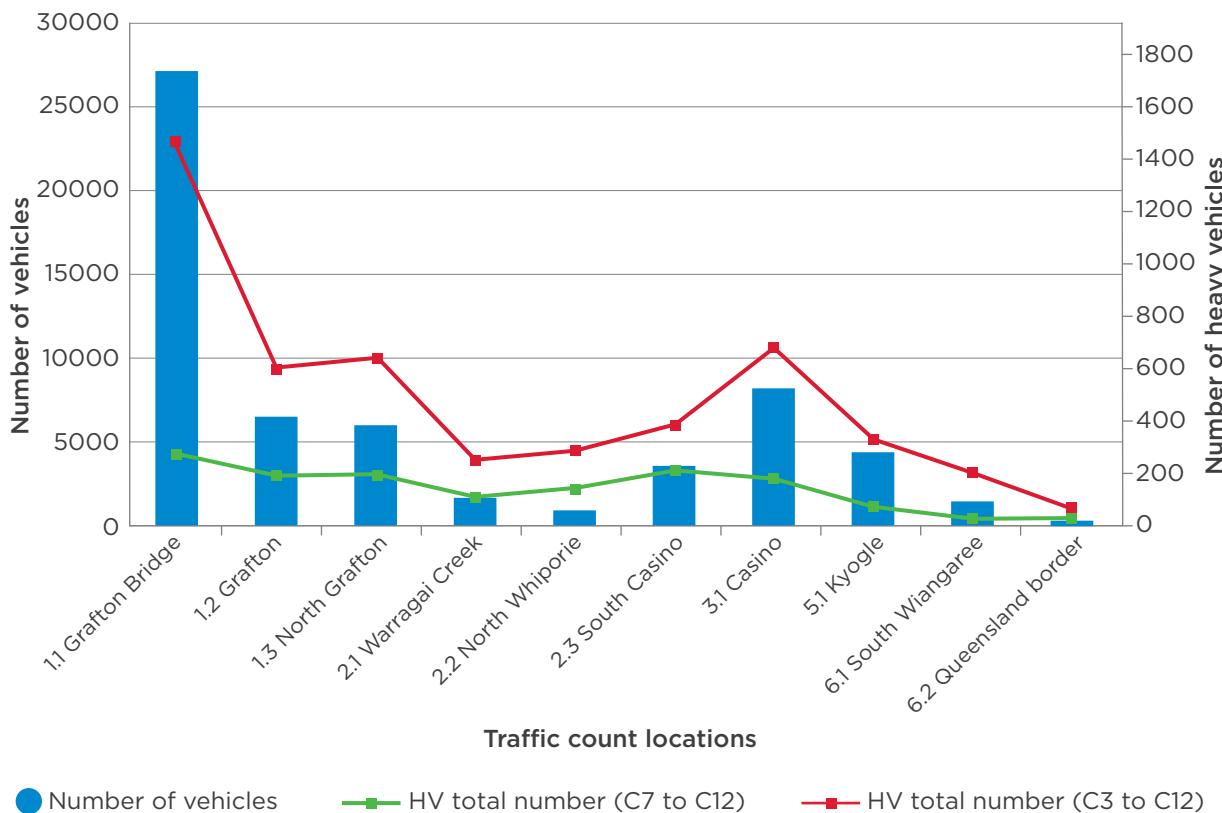
1. A corridor which provides for general access freight over its length from Grafton to the Queensland border. General access vehicles include semi trailers and 19 metre B doubles up to 50t.
2. A 25 metre B double Higher Mass Limit (HML) 68t approved Restricted Access Vehicle route (RAV) between Grafton and Kyogle. This section is an integral part of the HML network as it links the localities of Grafton, Casino and Kyogle to a broader HML network including the Bruxner Highway, Gwydir Highway and Pacific Highway.

The Summerland Way moves many goods from the northern region to both domestic and international markets, in turn contributing to the

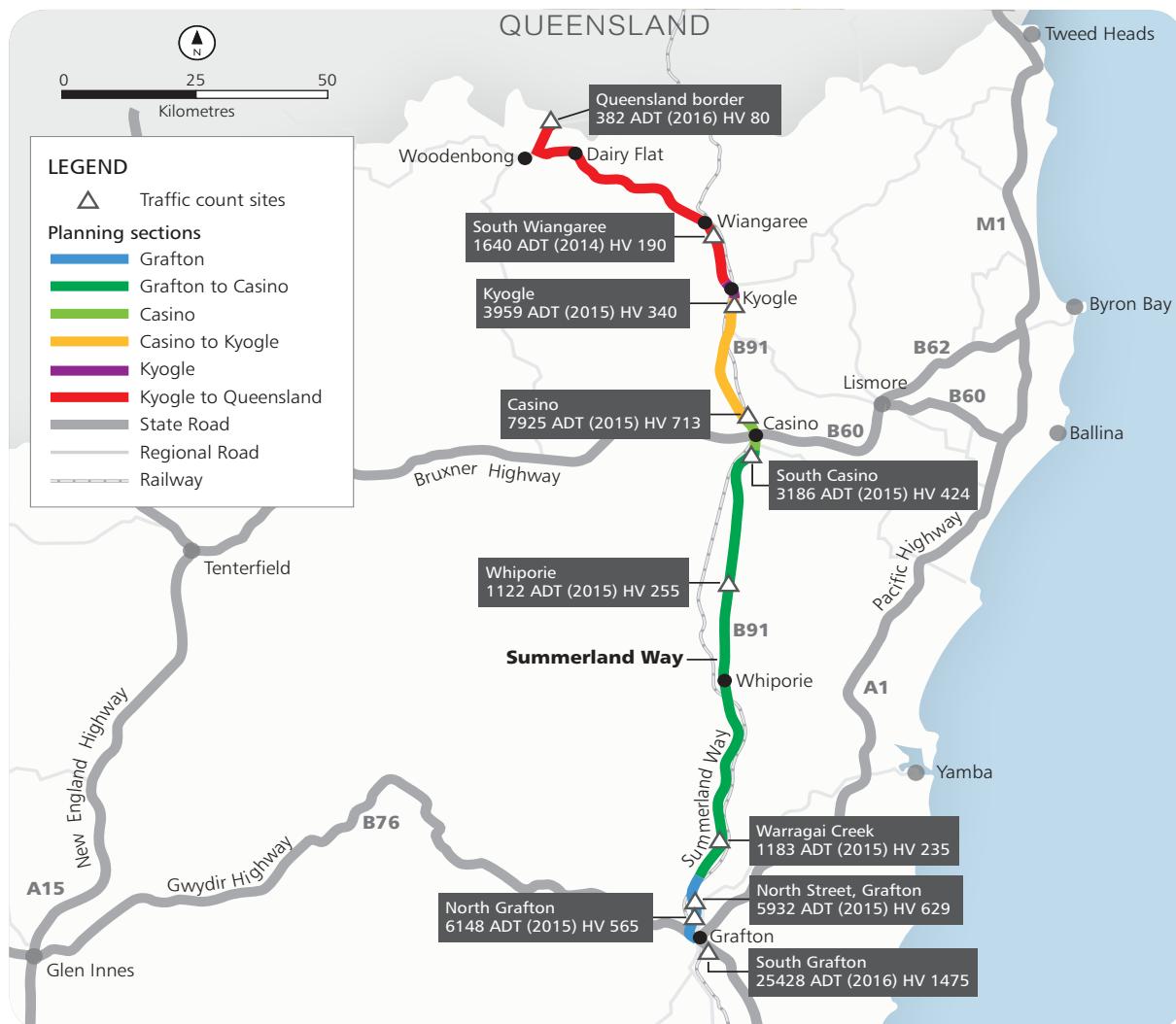
NSW economy. Casino holds one of the states largest abattoirs and meat processing plants. The movement of livestock and subsequent refrigerated produce contributes significantly to the overall freight task movement numbers for the state. The area is also renowned for its dairy, agriculture and timber production.

The Grafton Bridge is located at the southern end of the Summerland Way and motorists experience some delays during the morning and afternoon weekday peak period. Roads and Maritime have enforced a 26 metre B-double curfew from Monday to Friday between 7:30am to 9:30am and from 3:00pm to 6:00pm. Heavy vehicle drivers manage their journeys around these curfews by taking alternative routes, or arriving outside of the curfew period. This will be reviewed as part of the Grafton Bridge project.

**Figure 3-6** Traffic volumes along the Summerland Way



**Figure 3-7** Average Daily Traffic (ADT) and Heavy Vehicle (HV) volumes along the Summerland Way



### Future traffic volumes

Traffic growth can be forecast by considering historical average annual daily traffic (AADT) data. However consideration should also be given to significant changes in regulation or land use or industry that may change the forecast growth rate.

Measuring the volumes of traffic travelling along a route through time can be used to determine a growth rate and forecast a future traffic volume. Vehicle growth rates along a corridor are generally

linear unless they are impacted by a significant change in adjacent land use (such as an airport, a freight terminal or a new residential subdivision) or regulatory changes (such as the gazettal of new higher productivity vehicles).

The traffic growth rates are shown in Table 3.3 and represent a fairly consistent growth rate (per cent per annum) over the length of the Summerland Way.

**Table 3-3** Summerland Way forecast traffic volumes<sup>35</sup>

Highway planning section	Location	Year	Approximate AADT (vehicles per day)	% Growth per annum	Predicted 2035 (vpd)
Grafton	South Grafton	2016	27150	1.3%	32998
	North Grafton	2015	6418	1.5%	10520
Grafton to Casino	South Casino	2015	4670	1.8%	5982
Casino	South of Hare Street, Casino	2015	7925	1.3%	8960
Kyogle	Kyogle	2015	3959	1.1%	4740
Kyogle to Queensland	South Wiangaree	2014	1640	1.1%	2230

### Overtaking lanes and opportunities

Providing overtaking lanes and other opportunities to pass slower vehicles improves travel time and level of service. In addition, overtaking opportunities reduce driver frustration and unsafe behaviour, also reducing the risk of head on crashes.

Overtaking opportunities are available for 89 per cent (176 kilometres) of the corridor. There are eight northbound and seven southbound overtaking lanes which in total contributes to 16.2 kilometres. The remaining 159.8 of the 176 kilometres consists of informal overtaking opportunities for both north and southbound.<sup>36</sup>

The separation distance between overtaking lanes along the corridor is on average about 12 kilometres. The location of each overtaking lane is shown in Figure 3-8.

### Level of service

The Summerland Way corridor from north of Kyogle to the Queensland border is expected to perform at a satisfactory level of service. This rudimentary assessment is based on various factors such as traffic volumes, proportion of heavy vehicles, speed limit and overtaking opportunities. The available 85th percentile speed data indicates more than 85 per cent of traffic travelling north of Kyogle (using sites shown in Figure 3-6 Average Daily Traffic (ADT) and Heavy

Vehicle (HV) volumes along the Summerland Way) do so at a speed at or below the posted speed limit.

The Grafton Bridge is the only crossing of the Clarence River for at least 15km in either direction. Detailed traffic modelling was carried out during the development of the Grafton Bridge project. This modelling shows that one additional lane in each direction would cater for predicted traffic volumes through to 2049. The modelling also shows that with the new bridge in place, the existing bridge would flow freely in the morning and afternoon peaks in 2019, and by 2049 traffic volumes would still be lower than they are today prior to the construction of a new bridge.

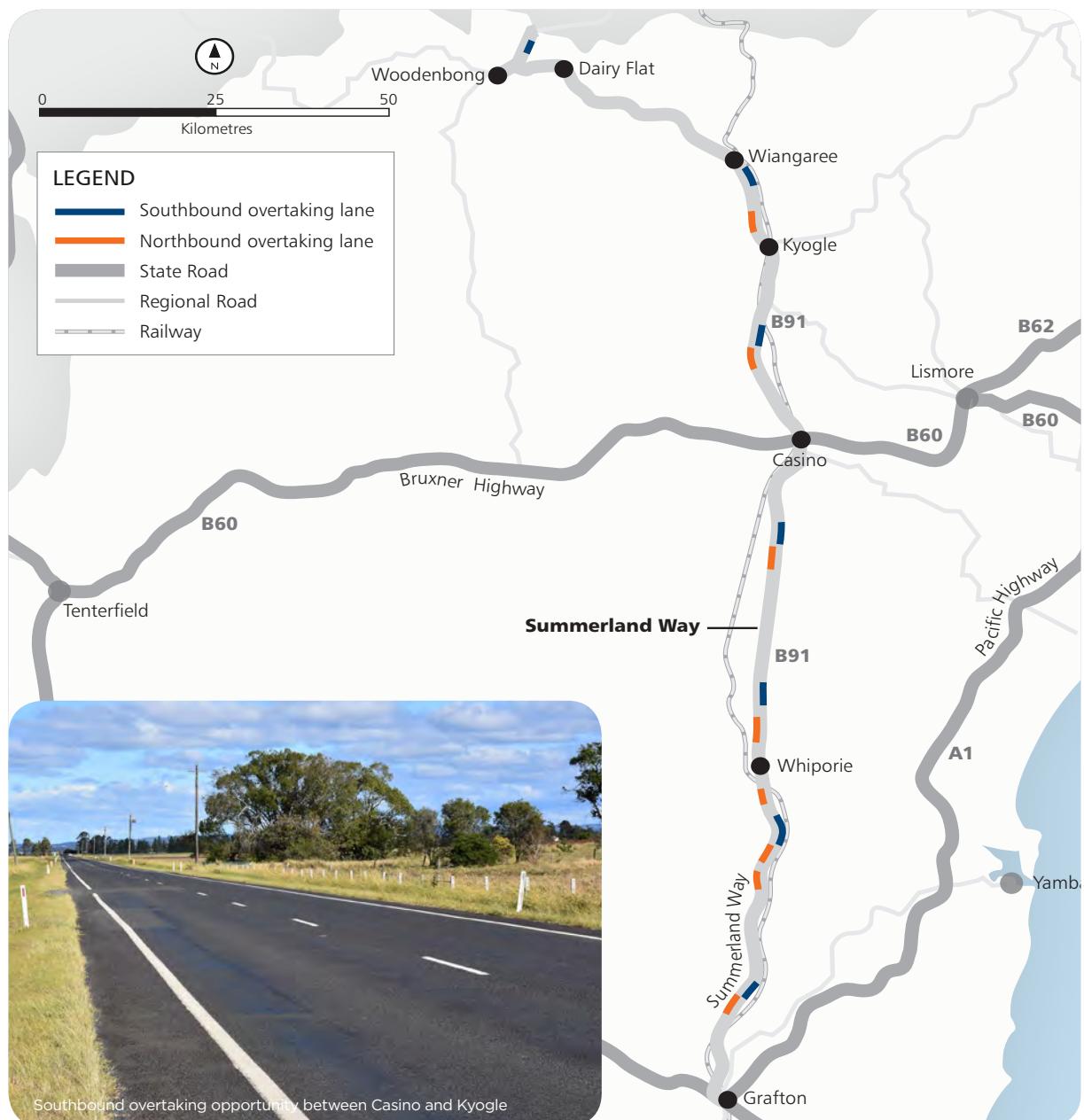
### Heavy Vehicles

There is currently a heavy vehicle curfew on the bridge from Monday to Friday between 7:30am to 9:30am and from 3:00pm to 6:00pm. 26 metre B-doubles are not permitted to cross the bridge during this time. This prevents additional congestion during the typical morning and afternoon peaks experienced in Grafton. Once the Grafton Bridge project is complete, heavy vehicles will be restricted from using the existing bridge and the curfew will be removed. The existing Grafton Bridge will be reclassified to a local road, with restrictions in place that limits its use to light vehicles and buses only. The new crossing will become part of the Summerland Way.

<sup>35</sup> Traffic forecasts predicted using historical data available within the 'location' referenced and calculated using linear trends from this data. All figures shown are approximate only.

<sup>36</sup> Roads and Maritime GIPSICAM Road Asset Viewer data dated September 2015\*

**Figure 3-8** Overtaking lanes and opportunities along the Summerland Way



The Summerland Way north of Kyogle is gazetted for General Access Vehicles (GAV) only, with occasional permits allowed to industry to operate longer vehicles following assessments in accordance with Roads and Maritime guidelines. The alignment of the Summerland Way north of

Kyogle consists of tighter curves and steeper grades as it approaches the Queensland border. The usage, alignment and vehicle types permitted on the Mt Lindesay Highway in Queensland are consistent with that on the Summerland Way. The NSW and Queensland governments will continue to work collaboratively on the long term planning of this cross border route.

**Figure 3-9** Heavy vehicle detour route in Grafton



### Incident Management

The Summerland Way functions as an important local services, commuter and primary production link, including an additional north to south inland route for cross border distribution of goods and access to services. It currently serves a vital role as a detour route during incident management when the Pacific Highway is closed between Grafton and Ballina; diverting vehicles along the Bruxner Highway toward Casino. Once the Pacific Highway duplication is complete (forecast by 2020) the need to use the Summerland Way as a detour route will reduce.

### 'Grafton Heavy Vehicle Alternative Route'

The NSW Long Term Transport Master Plan sets out a framework for the assessment of town bypasses and alternative routes on State Roads where the road travels through the main commercial centre of the town. A Town Centre alternate route for Heavy Vehicles and other corridor users has been encouraged in Grafton. Motorists are directed away from the main street through Grafton City (Summerland Way) along an alternative route via Villiers and Dobie Streets. Following construction of the Grafton Bridge project the Summerland Way between Villiers Street and Dobie Street will be reclassified to state road status and the Heavy Vehicle Detour route shown in Figure 3-9 will form the Summerland Way corridor. Fitzroy and Prince Streets will revert to local roads.

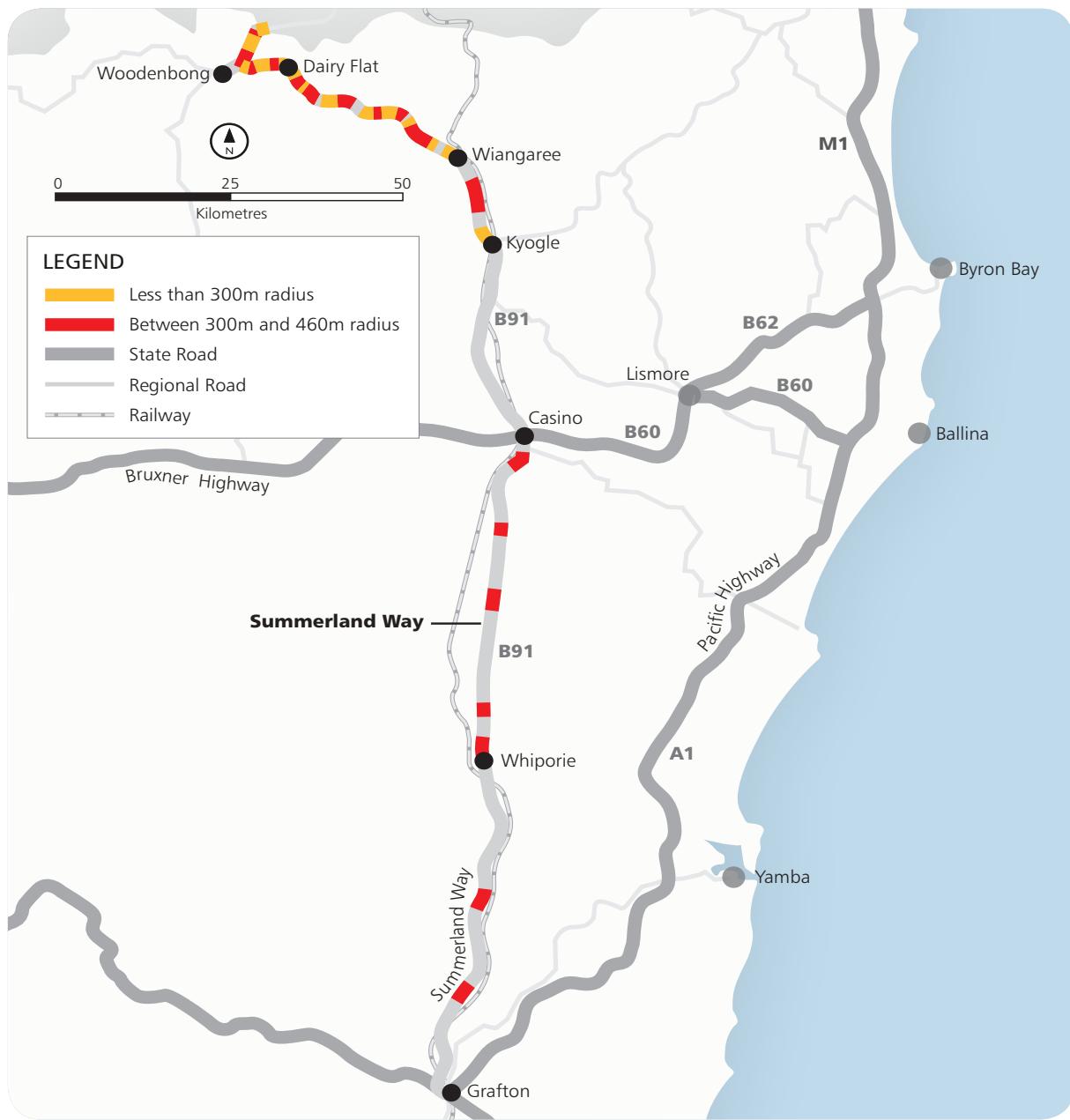
### 3.3 Road geometry

Road geometry includes anything which describes the road formation including the grade, curvature and lane and shoulder widths, and the clear zones. It may also cover bridges and railway level crossings points. These characteristics are important to consider when assessing the road safety, traffic efficiency and freight performance of the road.

#### Grade

The Summerland Way has about three per cent of its length with grades greater than six per cent. The worst section is between Kyogle and the Queensland border, a total of 63 kilometres. Of this length, just over 5 kilometres consists of grades greater than six per cent and less than 8 per cent. The Roads and Maritime Network Performance Measures and Network Planning Targets<sup>37</sup> set a maximum of 10 per cent for this type of corridor.

**Figure 3-10** Curve radii along the corridor



<sup>37</sup> Roads and Maritime Services 2010, Network Performance Measures and Network Planning Targets, Roads and Maritime Sydney

## Curves

The Summerland Way mostly consists of straight sections, a total of 135 kilometres or nearly 69 per cent. Overall along the corridor horizontal curves are not a major issue. The worst section is between Kyogle and the Queensland border, where 34 per cent of the road length consists of curve radii less than 460m<sup>38</sup> (about 22 kilometres). This is where most off road on curve crashes are occurring.

A major issue for drivers are curves with a radius of between 300 metres and 460 metres occurring in 100km/h speed zones and exacerbated by steep downgrades. Of the total 197 kilometre length of the Summerland Way, about 30 kilometres (or 15 per cent) consists of curves with a radii below 460m.

## Road width

Road width influences road capacity, comfort and safety. Sufficiently wide lanes allow large vehicles to pass or overtake, or be passed or overtaken, without the overtaken vehicle needing to move sideways towards the lane's outer edge. Wider lane widths increase clearance between opposing vehicles and therefore have potential to reduce the incidence of head-on and 'run off road' crashes.

Where lane widths are restricted, the ability of heavy vehicles to access a route can also be affected, reducing freight productivity.

Roads and Maritime Network Performance Measures and Planning Targets<sup>39</sup> recommend a minimum lane width for a Class 3R and 2R road to be 3.5 metres where traffic volumes are greater than 1,000 vpd, or 3.25 metres where traffic volumes are less than 1,000 vpd.<sup>40</sup> Most of the corridor holds volumes greater than 1,000 vpd with the exception of the final few kilometres of the Summerland Way near the Queensland border.

A total of 36 per cent of the Summerland Way has lane widths between 3 and 3.5 metres with the remainder of the lane widths above 3.5 metres. There are no lanes along the road with widths less than 3 metres. Lengths of road with consistently very poor or poor surface width is between Grafton and Casino (particularly Dilkoon to Myrtle Creek), south of Casino, south of Kyogle and south of Dairy Flat to the Queensland border.

## Edge lines

About 10 kilometres (or 5 per cent) of the 197 kilometre corridor is currently without edge lines. The two longest lengths without edge line are about 2 kilometres in total and are north of Whiporie and near Legume to Woodenbong Road, as seen in Figure 3-11.

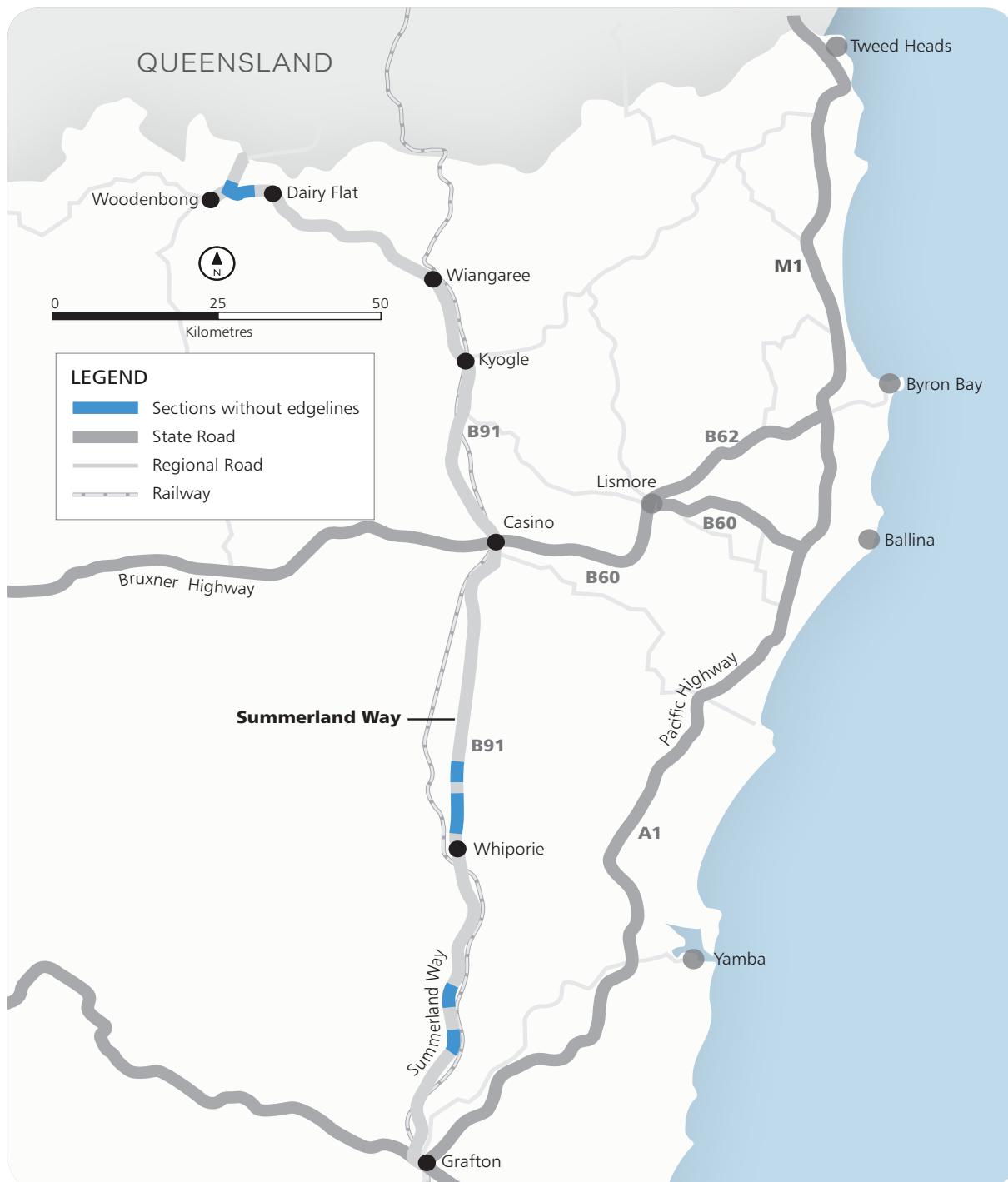


38 Austroads Guide to Road Design Part 3: Geometric Design, Austroads, Sydney

39 Roads and Maritime Services 2010, *Network Performance Measures and Network Planning Targets*, Roads and Maritime Sydney

40 Roads and Maritime Services 2010, *Network Performance and Network Planning Targets*, RMS, Sydney, p.43

Figure 3-11 Sections of the Summerland Way without edge lines



“

About 10 kilometres (or 5 per cent) of the 197 kilometre corridor is currently without edge lines.

”

## Sealed shoulder widths

Sealed shoulder widths are the portion of the road that extends beyond the marked traffic lanes. Pavement with sealed shoulders last longer than road sections without it. Sealed shoulders improve the pavement structure and reduce moisture ingress. Sealed shoulders also provide road safety benefits, providing room which can allow a driver to correct an errant vehicle. A sealed shoulder can assist in reducing the potential likelihood and severity of a crash. Extra shoulder width is required on the outside of curves.

As a guide the Roads and Maritime Network Planning Targets<sup>41</sup> recommended minimum sealed shoulder widths depending on the rural class road (Table 3.4).

**Table 3-4** Network Planning Targets for sealed shoulders

Hierarchy Class	Sections	Target sealed shoulder width (m)
3R From Grafton to Casino	AADT>3000	2.0
	AADT<3000	1.0
2R From Casino to Queensland border	AADT>3000	2.0
	AADT<3000	1.0

## Culverts, Slopes and bridge Sized Structures

Assessment ratings are applied to culverts, slopes and bridges to assist with the determination of maintenance priorities. The risk for culverts and slopes is measured in terms of an Assessed Risk Level (ARL). 'Highest Priority' are those with a rating ARL 1 or 2, 'Medium Priority' are those with a rating ARL 3 and 'Lowest Priority' are those with a rating ARL 4 or 5. Culverts are inspected routinely as part of maintenance activities and higher priority culverts are reassessed within three year period.

There are 32 bridges, about 572 culverts and 49 recorded slopes on the Summerland Way. Of these 32 bridges, 21 have a pavement width of less than 8.4 metres, and 13 less than 7.0 metres. These are shown in the table below. A review of the bridges

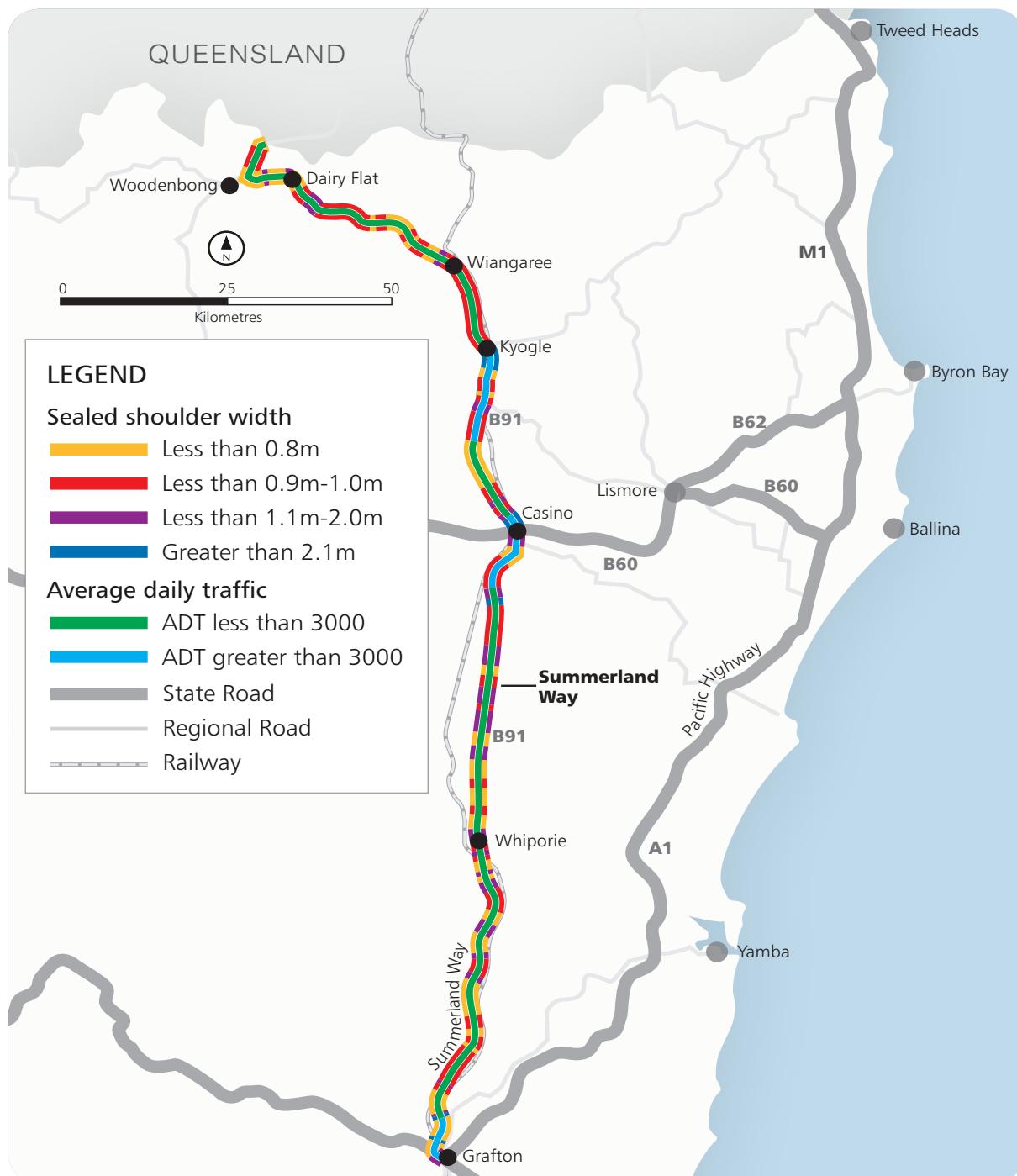
Figure 3-12 shows the lengths of the Summerland Way that typically hold less than, or greater than 3000 vpd. This was used to identify locations where shoulder widths do not meet the targets shown in Table 3-4. This data confirms that all sections with volumes greater than 3000 vehicles does not meet the target shoulder width of 2.0m. This includes sections of road from Grafton to Junction Hill, length from Casino to the south and Kyogle. Although sections of the corridor have scattered areas with less than 1.0m shoulder widths, the consistently narrow sections are north of Whiporie and south of the Queensland border.

including the approach and departure geometry has been completed. The major types of deficiencies include no edge lines and no three beam transition. Sportsmans Creek is not approved to carry HML vehicles<sup>37</sup> and the Bridge over Burnetts Creek requires further structural investigations before carrying heavier loads.

Roads and Maritime are responsible for about 70,000 culverts across the State Road network in New South Wales. There are 572 culverts on the Summerland Way. These include 543 pipe culverts, 27 box culverts, and 2 composite culverts. Only culverts identified with defects undergo a formal assessment rating. Of the 572 culverts 239 required a formal assessment rating and 80 were assessed as highest priority (5 ARL1 and 75 ARL2 culverts).

<sup>41</sup> Roads and Maritime Services 2010, *Network Performance Measures and Network Planning Targets*, Roads and Maritime Sydney

**Figure 3-12** Sealed shoulder widths along the Summerland Way



“  
Sealed shoulders improve the pavement structure and reduce moisture ingress.  
”

These are mostly located north of Kyogle, north of Wiangaree and Woodenbong as shown in Figure 3-13 below.

Annual maintenance on the Mount Lindesay range and sections adjacent to the Richmond River require higher focus due to higher rain fall and potential for damage to the road from drainage system failure. Of particular focus is the ongoing work on table and catch drains on the Mount Lindesay range section of the Summerland Way.'

There are about 160,000 slopes (road cuttings and fill embankments) across the NSW State Road Network. Roads and Maritime actively manages around 7,000 of the slopes which have been identified as having significant potential impact on the safety of road users. There are 47 identified slopes along the Summerland Way. These can consist of embankments or cuttings. Of these 45 slopes have been assessed and six have a high

priority rating, which are mostly located between Wiangaree and Diary Flat. Slope risk management plans are in place for all higher priority slopes and these are linked to routine maintenance inspections. The locations of rated slopes are provided in Figure 3-14.

There is one site on the Summerland Way that is considered complex and will require significant funding to remediate. This site extends for about 3 kilometres from the Queensland border and has a history of landslides.

Remote monitoring is in place near the Queensland border to capture real time rain fall. Other instruments are installed at several sites on Mount Lindesay range to assist with monitoring and slope management.'

**Table 3-5** Narrow bridges with a pavement width of less than 8.4 metres along the Summerland Way

Bridge Number	Description	Location	Total width (m)
BN2326	Bridge over Warragai Creek	21 kilometres north of Grafton	7
BN2327	Bridge over unnamed Creek	24 kilometres north of Grafton	7
BN2329	Bridge over Dilkoon Creek	29 kilometres north of Grafton	7
BN2330	Bridge over Sportsman Creek	31 kilometres north of Grafton	7
BN2331	Bridge over Sheep Creek	37 kilometres north of Grafton	7
BN2333	Bridge over Railway	50 kilometres north of Grafton	7
BN7272	Bridge over unnamed Creek	53 kilometres north of Grafton	8
BN2341	Bridge over Battens Bight	64 kilometres north of Grafton	7
BN2342	Bridge over Selection Flat	68 kilometres north of Grafton	8
BN2344	Bridge over Two Mile Creek	71 kilometres north of Grafton	8
BN2345	Bridge over Myrtle Creek	73 kilometres north of Grafton	7
BN2347	Bridge over Sandy Creek	84 kilometres north of Grafton	7
BN2348	Bridge over Branch Creek	88 kilometres north of Grafton	8
BN2351	Bridge over Deep Creek	94 kilometres north of Grafton	7
BN2356	Bridge over Reynolds Creek	20 kilometres north of Casino	7
BN2357	Bridge over Black Gully	22 kilometres north of Casino	7.5

Bridge Number	Description	Location	Total width (m)
BN2358	Bridge over Fairymount Creek	28 Kilometres north of Casino	7
BN2359	Bridge over Railway	30 kilometres north of Casino	7
BN2373	Bridge over Georges Creek	31 kilometres north of Casino	8
BN7629	Bridge over Hixsons Creek	47 kilometres north of Casino	8
BN2381	Bridge over Burnetts Creek	50 kilometres north of Casino	7.5

Figure 3-13 Rated culverts along the Summerland Way'

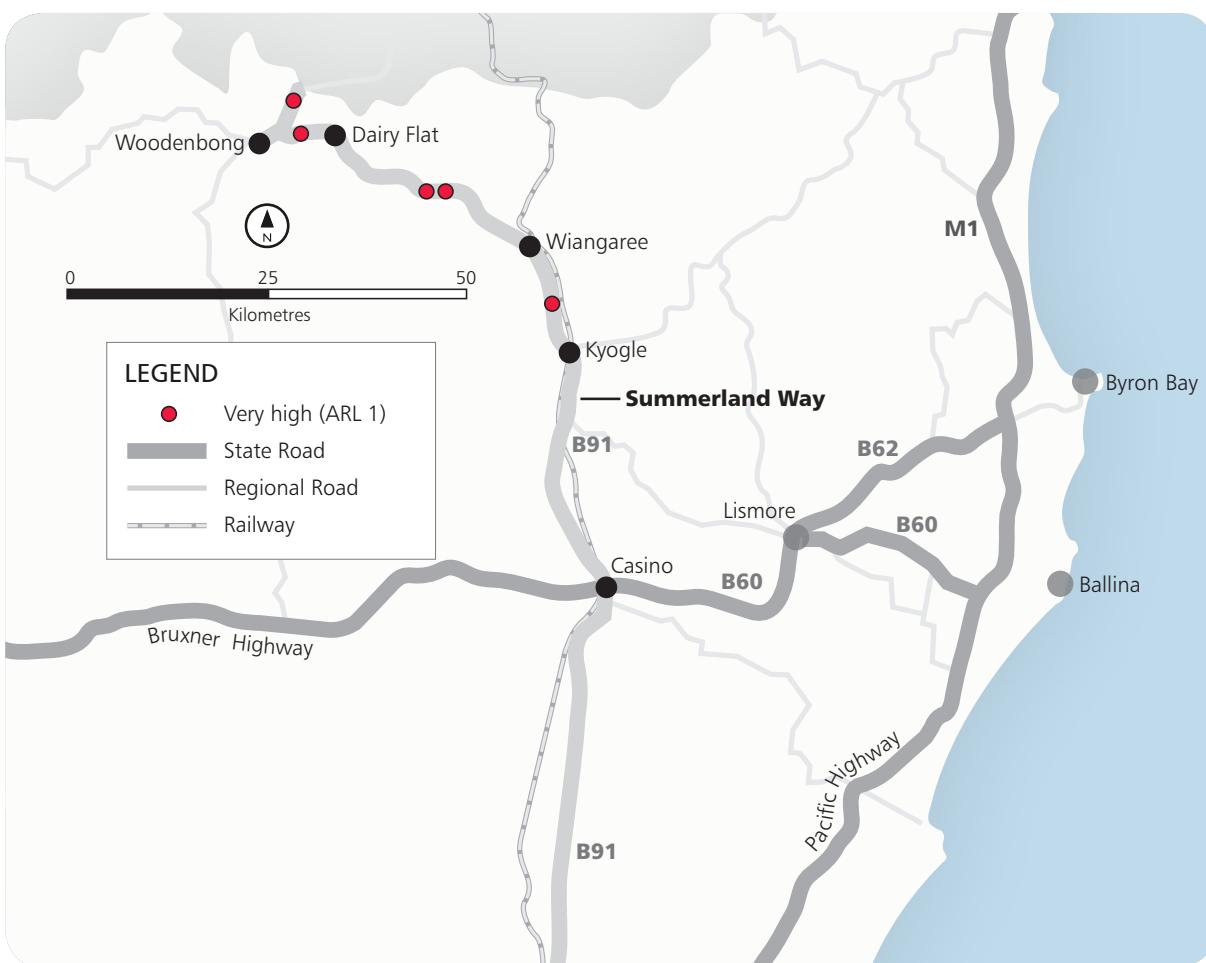


Table 3-6 Rated culverts along the Summerland Way

Very Low (ARL 5)	Low (ARL 4)	Medium (ARL 3)	High (ARL 2)	Very High (ARL 1)
5	10	144	75	5

**Figure 3-14** Rated slopes along the Summerland Way<sup>1</sup>



**Table 3-7** Rated slopes along the Summerland Way

Very Low (ARL 5)	Low (ARL 4)	Medium (ARL 3)	High (ARL 2)	Very High (ARL 1)
10	21	8	6	

## Clear zones and safety barriers

A clear zone is a width of roadside without any obstructions available for drivers to take corrective action in an emergency. The minimum desirable width of a clear zone depends on the traffic volumes, traffic speeds and road geometry. Roads and Maritime Network Performance Measures and Network Planning Targets indicate that for a Class 3R and 2R road, the width of the clear zone varies depending on the speed limit (Table 3-8).

Ideally, clear zones should be designed in accordance with the Austroads Guide to Road Design<sup>42</sup>. Many existing roads, such as the Summerland Way, were developed prior to implementing minimum requirements for clear zones. There are also a number of sections with challenging topography such as cut and fill batter constraints toward the northern end of the corridor. Priority lengths along the Summerland Way include sections between:

- Grafton and Casino including Grafton to Junction Hill, and Whiporie to Old Tenterfield Road
- Kyogle to Queensland border.

A need for safety barrier is usually assessed where the minimum clear zones cannot be achieved. Particular sections of the Summerland Way were identified to contain non frangible objects or hazards adjacent to the travel lane and include:

- North Street, Grafton to Junction Hill
- Unprotected narrow culverts between Grafton and Junction Hill
- Whiporie to Old Tenterfield Road
- North of Wiangaree to the Queensland border.

**Table 3-8** Network Planning Targets for clear zones

Hierarchy Class	Speed Limit	Target clear zone width (m)
3R From Grafton to Casino	Less than 60km/h	3.0
	Between 60-80 km/h	4.0
	Between 80-110 km/h	5.0
2R From Casino to Queensland border	Less than 60km/h	3.0
	Between 60-80 km/h	4.0
	Between 80-110 km/h	5.0

<sup>42</sup> Austroads Guide to Road Design Part 3: Geometric Design, Austroads, Sydney

<sup>43</sup> Oliver Street will remain part of the Summerland Way until likely changes to the route through Grafton following Grafton Bridge construction

## Intersections

Within the rural length of the Summerland Way there are a total of 171 intersections. These intersections consist of 145 three way intersections and 26 four way intersections. In 2015, Roads and Maritime carried out a road safety review of these rural intersections. Some of the most common deficiencies that exist along the corridor include:

- Safe Intersection Sight Distance (SISD) not achieved
- Incorrect use of sign postings
- Incorrect or missing line marking
- No pavement arrows for some of the auxiliary left turns and channelised right turns.

The layout of most intersections along the corridor is considered satisfactory in accordance with design guidelines. This assessment was carried out using available and calculated traffic volumes and SISD.

Some intersections which could be improved in terms of safety, and should be further investigated include:

- The Clarence Way, Junction Hill
- West Street, Casino
- McDougal Street, Casino
- Kyogle Road, Kyogle
- Oliver Street, Grafton<sup>43</sup>

As part of the additional crossing of the Clarence River, parts of the Summerland Way through Grafton are likely to revert to local or regional road status. This would include the Prince and Oliver Streets intersection, Grafton CBD.

## Flooding

The Summerland Way crosses a number of floodplains as well as waterways subject to flooding.

Flooding can result in corridor closures at multiple locations for hours and, at times, for several days.

The impacts of flooding on the Summerland Way can be measured in terms of:

- Flood volume – This contributes to flood duration and level.
- Speed the water moves – Faster flowing water causes a greater risk to human life, erosion and infrastructure damage.
- Flood duration – Flood events can isolate people and communities, increase travel times and reduce productivity for industry and other road users.
- Extent of flooding – Flooding that affects a larger area often causes greater impact.

There are a range of flood types. These include:

- Nuisance flooding – Causes public inconvenience, but little or no property damage. Water is typically not deep, is stagnant and generally localised. Nuisance flooding events may last several hours and may slow or prevent access along the corridor.

- Flooding caused by rising water ways – This type of flooding restricts access. To manage it, water is either directed under the road through culverts and pipes, or over the road through causeways and floodways, or in the case of defined water ways, road structures such as bridges, are specifically built over the water way. During flooding, approaches to these bridges can be cut off even though the bridge is still above water. Flooding may also be localised, but the scale and volume of water may cause damage to property and infrastructure.
- Sheet flooding where landscape is flat – In places such as western NSW, sheet flooding can occur when large volumes of water travel across the landscape gradually, causing significant damage to embankments, culverts and other infrastructure. This damage can occur even if the water is not particularly deep

The current Average Recurrence Interval (ARI) along the corridor is generally unknown however based on the behaviour of flood prone sections we can assume one year or less. Any future work would target a ten year ARI.

As shown in Figure 3-15, most major flood locations are south of Casino and between Casino and north Kyogle.



**Figure 3-15** Locations subject to flooding along the Summerland Way



### 3.4 Pavement condition

Roads deteriorate over time due to wear from traffic and environmental effects. Rough roads have higher travel costs and vehicle maintenance costs, particularly for trucks. Maintenance works can provide an opportunity for cost-effective changes to the road before problems become too large and require costly reconstruction.

Pavements provide structural support for vehicles travelling along a route. Weaker or older pavements may become uneven, rutted or rough, leading to inferior travel conditions. Road pavements are classified as either flexible or rigid. Flexible pavements generally consist of a number

of layers of gravel, unbound granular materials, with a bitumen surface. Some flexible pavements incorporate cement-bound or asphalt layers, referred to as composite pavements. The rural pavements along the Summerland Way generally consist of a granular pavement type.

Rigid pavements are Portland cement concrete pavements. They may or may not be surfaced with asphalt over the concrete base. A small percentage of the overall road corridor has rigid pavement, with this being located in the South Grafton, Grafton and Casino areas.

Effectively managing the Summerland Way's pavement condition for the long term is a key task that involves estimating the pavements remaining service life to ensure appropriate rates of pavement rebuilding.

With an inadequate rate of pavement rebuilding, the network will deteriorate until the service level is eventually compromised. Alternatively, if the pavement rebuilding rate is too high, resources are spent unnecessarily and inefficiently.

To understand how pavement is performing and to forecast future pavement condition, the following three measures are considered:

- Overall pavement health.
- Pavement remaining life.
- Road surface roughness.

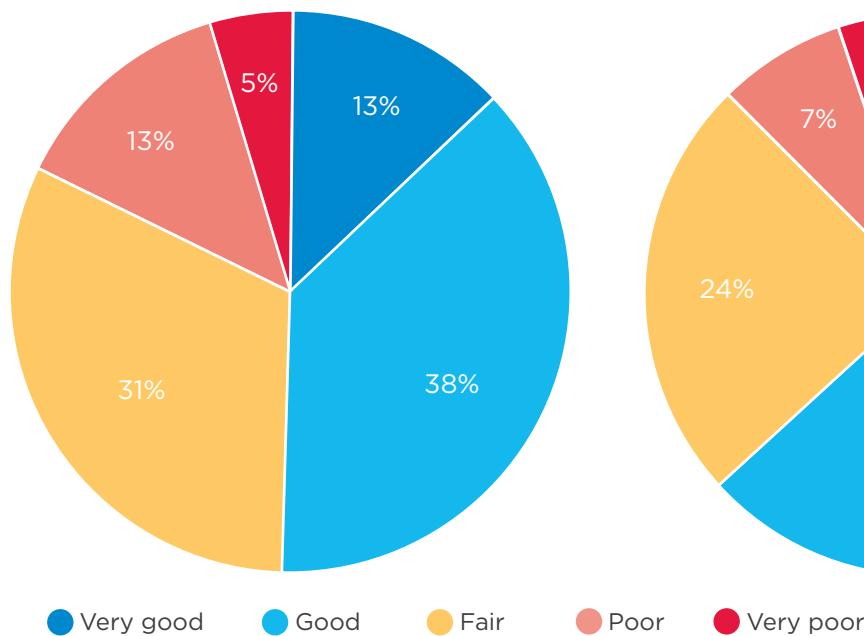
#### Pavement health index

The pavement health index comprises a number of pavement and surface conditions to express an overall indication of pavement and surface performance of the road. The surfacing performance conditions comprises of cracking, texture and surface remaining life. The pavement performance conditions comprises of remaining pavement structural life, roughness and rutting. All

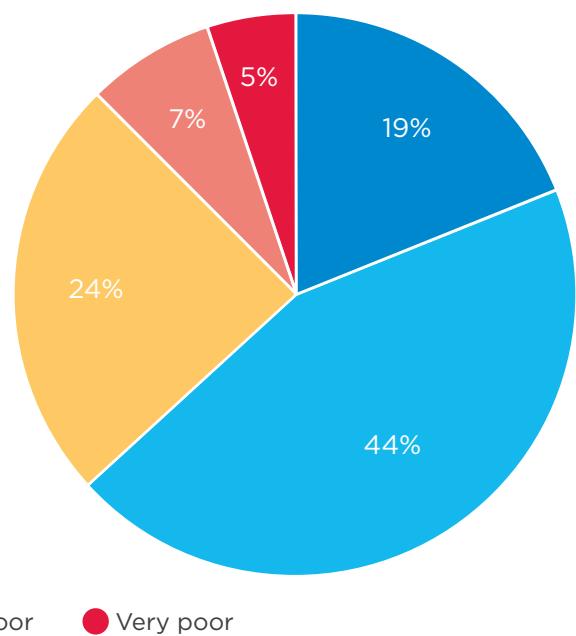
of these are included in the pavement health. Details relating to some of the conditions comprising the pavement health index include:

- The surfacing layer on the road serves two main purposes, that of acting as a wearing course for vehicle movement, and serving as a waterproofing layer to protect the pavement layers underneath from damage due to water ingress.
- Road surfaces are designed for expected traffic and environment conditions with the consideration of the function of the road. These surfaces have expected performance lives for the given environment under which they need to perform. When the age of the surface exceeds this expected life, the risk of failure increases.
- Rutting is one of the major pavement performance indicators and occurs in the wheel paths of the road surface. The wheel paths represent areas of the road surface and pavement which is carrying the highest loads and the most vehicle/ tyre movement. Due to the concentrated loading of the surface and pavement in these areas, the wheel paths have the highest risk to structural deformation of the pavement. This deformation is caused by densification in the pavement layers due to the loading and in worst cases leads to pavement failures. Rutting is the visual representation of

**Figure 3-16** Pavement health index for similar roads in NSW



**Figure 3-17** Pavement health index for Summerland Way



this pavement condition. In addition to the pavement performance aspects of high rutting, it also poses safety risks with regards to surface water ponding and vehicle aqua planning.

The Summerland Way consists of subnetwork rankings two and three, and has therefore been compared to similar roads in the NSW network with the same subnetwork ranking.

This data is shown in Figure 3-16 (Network 2R and 3R). The Summerland Way indicates a slightly better overall condition than its state wide counterparts with 63 per cent (about 124 km) of the corridor with a pavement health index of good or higher. The main contributors to the poor and very poor categories (12 per cent or nearly 24 km) are surface related (old surfaces and cracking) with some roughness issues present. Currently the pavement health for the Summerland Way is mostly in fair to very good condition.

Figure 3-16 represents the general condition of roads across NSW which are considered similar to the Summerland Way. This data is used to

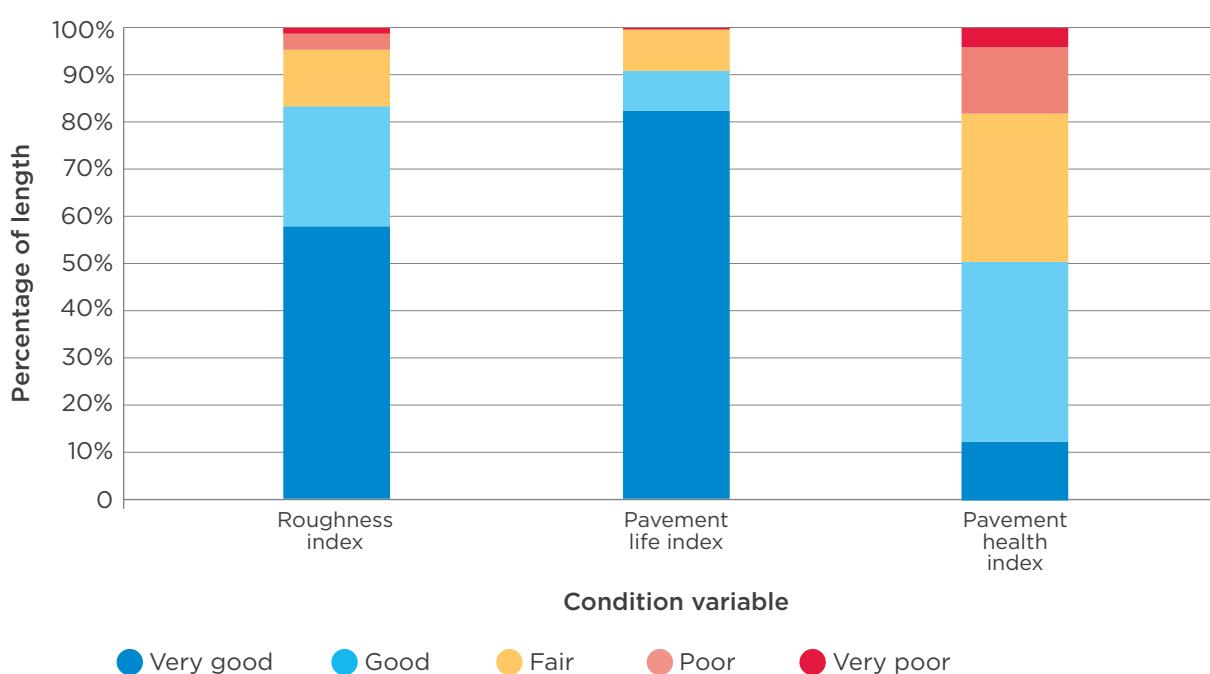
compare the results in Figure 3-18 which focuses only on the condition of the Summerland Way. The key variables in these figures are roughness, pavement life and pavement health.

Compared to similar roads in the wider NSW network, the surfaces along the Summerland Way appear to be slightly older particularly south of Casino and from Unumgar to the Queensland border, however the overall pavement condition appears to be good to very good. Some pavement roughness exceeds the acceptable threshold although the pavement remaining life index indicates low to no risk of pavement failures in the foreseeable future.

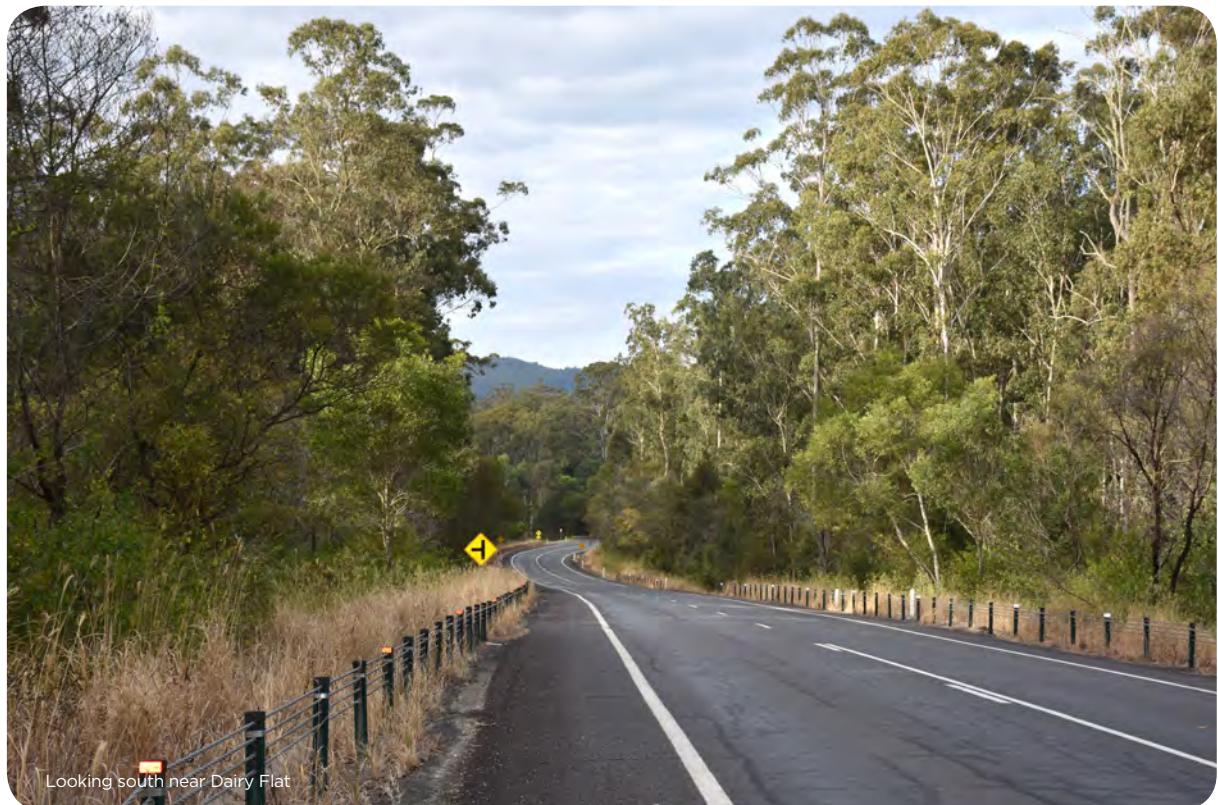
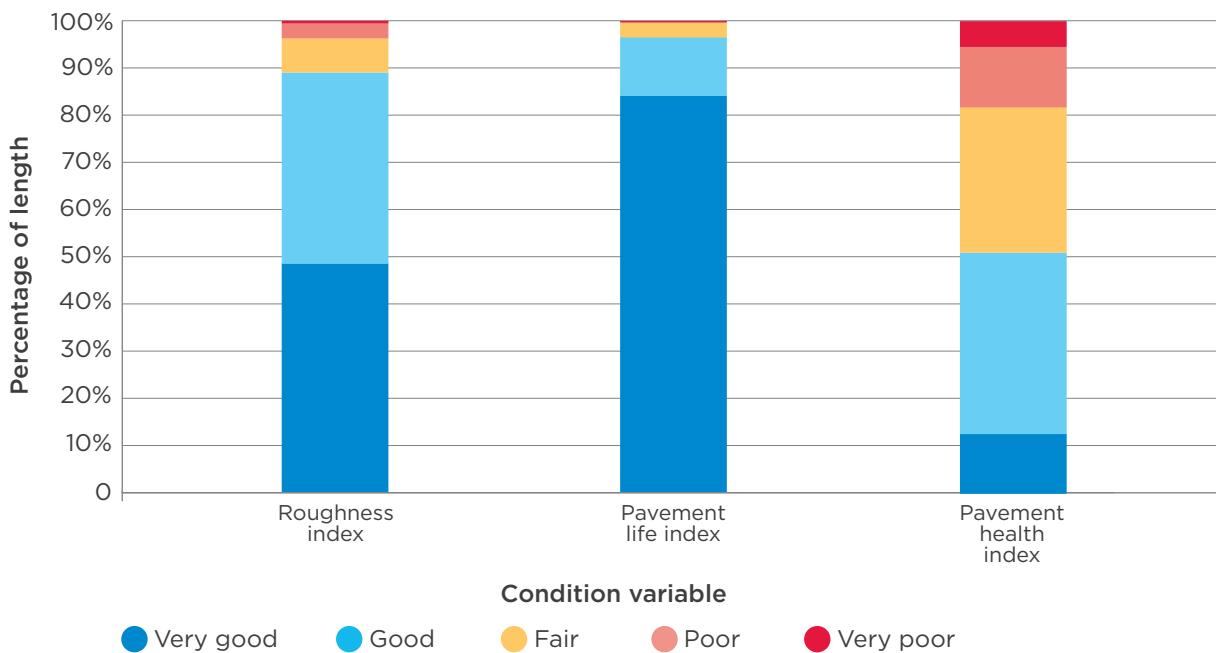
The texture appears to be better than the network averages and pavement indicators reveal the structural capacity remaining in the pavement is sufficient during this time.

The overall results indicate the Summerland Way consists of about 59 per cent (about 116 km) of 'very good' pavement condition.

**Figure 3-18** Condition snapshot (Network)



**Figure 3-19** Condition Snapshot (Summerland Way)



## 4 CORRIDOR CHALLENGES AND PRIORITIES



## 4 CORRIDOR CHALLENGES AND PRIORITIES

Corridor challenges are the main issues that need to be overcome to maintain or improve transport roles and services that the Grafton to Queensland corridor provides for the community. They include challenges already evident and others that are expected to emerge as the result of future changes in land use and demographics, industry needs and the economy as discussed. These challenges have been mapped below in this strategy. NSW Government priorities for responding to these challenges are also outlined below.

The priorities are divided into short, medium and long term actions. Implementing these actions will improve road safety, traffic efficiency and reliability, offer whole-of-life economic benefits and increase the productivity of freight and other business travel on the Summerland Way.

Regular monitoring of this corridor strategy will be undertaken, with a progress report being prepared every three years to review progress and to identify any issues that require addressing. Monitoring will also help to identify new actions or tasks that may be required to ensure ongoing opportunities along the Summerland Way are being considered.

The Strategy will be targeted for review every five years. Implementation of the final strategy will be a shared responsibility with the NSW Government in partnership with Councils and with other State agencies including the Queensland Government.



## 4.1 Short-term (0-5 years)

**Table 4-1** Key challenges and short-term priorities

Corridor planning section	Specific challenges	Specific priorities	Strategic response reference
1	Existing lane and intersection configuration <b>limit efficiency</b> of access to and from the network, in and between urban centres	<p>Investigate opportunities to improve the capacity and standard of key intersections and access links, incorporating heavy vehicles turning paths where necessary to increase efficiency and safety including but not limited to:</p> <ul style="list-style-type: none"> <li>Additional crossing of the Clarence River between Grafton and South Grafton</li> <li>Reclassification of Summerland Way in Grafton to local or regional road status once the additional crossing of the Clarence River is constructed</li> <li>Intersection upgrades as part of the Grafton Bridge project, including Clarence/ Villiers Street, Grafton and new intersections in South Grafton</li> <li>Turf and Dobie Streets, Grafton.</li> </ul>	2.3 Grafton Bridge 3.2 Traffic
2	<b>Poor guidance, delineation and night time visibility</b> for road users along the Summerland Way	<p>Investigate and install edge lines between Grafton and Casino particularly north of Whiporie, and near Legume to Woodenbong Road.</p> <p>Upgrade delineation along the curve at the southern approach to Sportsman Creek and review curves between Grevillia and the Queensland border.</p>	3.3 Road Geometry
All	Reduce road toll by addressing <b>crash</b> cluster sites along the corridor within and between urban areas specifically <ul style="list-style-type: none"> <li>intersection, and</li> <li>off road on curve crashes</li> </ul>	<p>Investigate and implement improvements on a priority basis at:</p> <ul style="list-style-type: none"> <li>Bacon Street and Prince Street, Grafton</li> <li>Oliver Street and Prince Street, Grafton</li> <li>Red Lane, Koolkhan</li> <li>The Clarence Way, Junction Hill</li> <li>Mongogarie Road - To Busbys Flat (Leeville School), Leeville</li> <li>Between Grafton and Whiporie particularly casualty and fatal crashes where fatigue was considered a factor</li> <li>Leeville School intersection</li> <li>Johnston Street and West Street, Casino</li> <li>McDougal Street and West Street, Casino</li> <li>Access to Casino saleyards (Reynolds Road), Casino</li> <li>Lismore – Cedar Point Road (MR544), Kyogle</li> <li>Hillyards Road, Cedar Point south of Kyogle</li> <li>Kyogle Road and Bridge Street, Kyogle</li> <li>The tight curves toward the northern end of the corridor, near Queensland</li> <li>Intersection of Summerland Way, Tenterfield - Woodenbong Road, Mount Lindesay Road, and east of Woodenbong</li> <li>Intersection of Summerland Way with Mount Lindesay Highway, at Queensland/ New South Wales border.</li> </ul>	3.1 Road Safety
6	Seasonal harvesting periods toward the top of the Summerland Way allow temporary gazettal of <b>B-doubles</b> <b>north of Kyogle</b> to the Queensland border without necessary facilities to manage movements by heavy vehicle Inspectors	Develop and construct heavy vehicle pull over facilities between Woodenbong and the Queensland border to cater for resting operators and heavy vehicle inspections	3.2 Traffic
1, 2	<b>Road widths</b> (shoulder and/ or lane widths) do not meet the network targets for this type of road and limits the available traversable area for errant vehicles	<p>Investigate and implement on a priority basis road widening at sites:</p> <ul style="list-style-type: none"> <li>Grafton to Junction Hill</li> <li>North of Whiporie</li> <li>South of Casino</li> <li>South of Kyogle</li> <li>South of Queensland border.</li> </ul>	3.3 Road Geometry

Corridor planning section	Specific challenges	Specific priorities	Strategic response reference
1, 2	<b>Non frangible objects</b> adjacent to the travel lane increases the severity of crashes and does not meet current minimum standards	<p>Assess and prioritise sites to achieve a traversable clear zone along sections:</p> <ul style="list-style-type: none"> <li>North Street, Grafton to Junction Hill</li> <li>Unprotected narrow culverts along the corridor, particularly between Grafton and Junction Hill</li> <li>South of Whiporie (near rest area) to Tenterfield Road, South of Casino</li> <li>South of the Queensland border.</li> </ul>	3.3 Road Geometry
All	Management of <b>roadside drainage and slope stability</b> issues particularly north of Wiangaree	<p>Continue to address high risk slopes (ARL 1 and 2) along the corridor</p> <p>Carry out slope stability and roadside drainage improvements particularly south of the Queensland border.</p>	3.3 Road Geometry
All	Maintain the corridor and provide <b>safe and reliable travel conditions</b> for all vehicles.	Progressively rehabilitate pavements along the route as part of asset maintenance and renewal programs. Sections will be prioritised based on annual condition surveys and use of a pavement management system, in order to maintain the corridor and provide safe and reliable travel conditions for all vehicles in particular, from Leeville to Casino.	3.4 Pavement condition
All	There are a number of <b>defective culverts</b> along the Summerland Way	Continue to rehabilitate defective culverts on a priority basis particularly south of the Queensland border	3.3 Road Geometry

## 4.2 Medium-term (5-10 years)

Table 4-2 Key challenges and medium-term priorities

Corridor planning section	Specific challenges	Specific priorities	Strategic response reference
6	<b>Poor road geometry</b> along some stretches of the corridor result in reduced travel speeds, increased travel times and road safety risks.	<p>Investigate options to improve the safety and alignment at:</p> <ul style="list-style-type: none"> <li>Grevillia curves</li> <li>Curves south of Queensland border for a length of about 4 kilometres</li> <li>Section between Burnetts Creek and Woodenbong turn off</li> <li>The geometry at the railway level crossing site at Wiangaree.</li> </ul>	3.3 Road Geometry
6	<b>Poor guidance, delineation and night time visibility</b> for road users along the Summerland Way	Investigate and install edge lines between Burnett's Creek and Queensland border	3.3 Road Geometry
4, 6	<b>Road widths</b> (shoulder and/ or lane widths) do not meet the network targets for this type of road and limits the available traversable area for errant vehicles	Continue to investigate and implement on a priority basis road widening projects at sites: <ul style="list-style-type: none"> <li>Grafton to Junction Hill</li> <li>North of Whiporie</li> <li>South of Casino</li> <li>South of Kyogle</li> <li>South of Queensland border.</li> </ul>	3.3 Road Geometry
All	Management of <b>roadside drainage and slope stability</b> issues particularly north of Wiangaree	Continue to address high risk slopes (ARL 1 and 2) along the corridor	3.3 Road Geometry

Corridor planning section	Specific challenges	Specific priorities	Strategic response reference
All	Maintain the corridor and provide <b>safe and reliable travel conditions</b> for all vehicles.	Progressively rehabilitate pavements along the route as part of asset maintenance and renewal programs. Sections will be prioritised based on annual condition surveys and use of a pavement management system, in order to maintain the corridor and provide safe and reliable travel conditions for all vehicles in particular, from Unumgar to Queensland border.	3.4 Pavement condition
All	<b>Narrow bridge widths</b> pose a significant challenge, because they are generally the narrowest point along any route. A review of the adequacy and consistency of treatments provided at narrow bridges is required and improvements are required on a priority basis.	Review and improve the adequacy and consistency of treatments provided at narrow bridges, specifically regarding the alignment approaches including but not limited to: <ul style="list-style-type: none"> <li>• Warragai Creek, Junction Hill</li> <li>• Dilkoon Creek, Junction Hill</li> <li>• Sportsman Creek, Junction Hill</li> <li>• Sheep Creek, Junction Hill</li> <li>• Battens Bight, Casino</li> <li>• Myrtle Creek, Casino</li> <li>• Reynolds Bridge, South Kyogle.</li> </ul>	3.3 Road Geometry
All	Reduce road toll by addressing crash cluster sites along the corridor within and between urban areas.	Continue to investigate and implement improvements on a priority basis at intersections and lengths of road with crash clusters.	3.1 Road Safety

### 4.3 Long-term (10-20 years)

Table 4-3 Key challenges and long-term priorities

Corridor planning section	Specific challenges	Specific priorities	Strategic response reference
All	Reduce road toll by addressing crash cluster sites along the corridor within and between urban areas including intersections with possible road safety risks.	Continue to investigate and implement improvements at high risk locations including intersections and on curves.	3.1 Road Safety
6	<b>Poor road geometry</b> along some stretches of the corridor result in reduced travel speeds, increased travel times and road safety risks.	On a priority basis implement options to improve the safety and alignment at: <ul style="list-style-type: none"> <li>• Grevillia curves</li> <li>• Alignment south of the Queensland border over a length of about 4 kilometres</li> <li>• Section between Burnetts Creek and Woodenbong turn off</li> <li>• The geometry at the railway level crossing site at Wiangaree.</li> </ul>	3.3 Road Geometry
All	Maintain the corridor and provide <b>safe and reliable travel conditions</b> for all vehicles.	Continue to progressively rehabilitate pavements along the route as part of asset maintenance and renewal programs. Sections will be prioritised based on annual condition surveys and use of a pavement management system, in order to maintain the corridor and provide safe and reliable travel conditions for all vehicles.	3.4 Pavement condition

Corridor planning section	Specific challenges	Specific priorities	Strategic response reference
All	<b>Narrow bridge widths</b> pose a significant challenge, because they are generally the narrowest point along any route.	Continue to review and improve the adequacy and consistency of treatments provided at narrow bridges, specifically regarding the alignment	3.3 Road Geometry
	<b>Low flood immunity</b> resulting in road closures, particularly around Myrtle Creek, Branch Creek, Shannon Creek and Reynolds Creek.	Identify cost effective solutions to improve flood immunity along the corridor.	
6	There may be an increase in demand for heavy vehicles to travel along the Summerland Way following improvements to surrounding road networks (such as Mount Lindesay Road) for access between development in southern Queensland and areas in northern NSW.	Carry out investigations and assess freight network demands and constraints for higher productivity vehicle access.	2.3 Future corridor changes 3.2 Traffic



## 5 COMMUNITY CONSULTATION



## 5 COMMUNITY CONSULTATION

During the development of the Summerland Way corridor strategy, local councils and other government agencies were consulted and feedback has been included in the strategy. Issues raised were:

- Road safety and travel efficiency particularly in urban areas, at intersections and locations with a higher incidence of crashes.
- Future land use changes.
- Conflicting vehicle movements between local and through traffic.

- Pedestrian and cyclist connections.
- Improving the road surface.
- Future demand from freight industry.

Feedback from the community during a public display period of this draft corridor strategy will be invaluable in completing a final strategy that meets the needs of the local communities and all other road customers. Issues raised from the community feedback will be considered for inclusion in the final corridor strategy.



## REFERENCES

**Note:** All documents and references to Roads and Traffic Authority (RTA) have been replaced with Roads and Maritime Services (RMS).

Transport for NSW December 2012, *Long Term Transport Master Plan*, TfNSW Sydney

Transport for NSW, December 2013 *Mid North Coast Regional Transport Plan*, TfNSW Sydney

Transport for NSW, December 2013 *Northern Rivers Regional Transport Plan*, TfNSW Sydney

David R Horton, Aboriginal Studies Press, AIATSIS and Auslig/xSinclair, Knight, Merz, 1996 <http://www.abc.net.au/indigenous/map/>

Australian Bureau of Statistics 2011, census data

Department of Planning and Environment, 2014 NSW population projection data, <http://www.planning.nsw.gov.au/Research-and-Demography/Demography/Population-Projections>

Department of Planning December 2013, *Mid North Coast Regional Transport Plan*,

South East Queensland Regional Plan <http://www.dilgp.qld.gov.au/resources/plan/seq/regional-plan-2009/seq-regional-plan-2009.pdf>

Mount Lindesay Highway Safety Review completed by Department of Transport and Main Roads in March 2016

Transport for NSW, 2013 *NSW Freight and Ports Strategy 'Case Studies'*

TNSW Government Department of industry Resources and Energy <http://www.resourcesandenergy.nsw.gov.au>

Northern Rivers Transport Guide 2014, [http://www.wayfindit.com.au/pdf/northern\\_rivers\\_book.pdf](http://www.wayfindit.com.au/pdf/northern_rivers_book.pdf)

Transport for NSW, NSW TrainLink, *Regional Trains and Coaches 2014*

Clarence Valley Council August 2008, *Bike Plan and Pedestrian Access and Mobility Plan*

Roads and Maritime project website <http://www.rms.nsw.gov.au/projects/northern-nsw/grafon-clarence-river-crossing/index.html>

NSW Budget 2014-15, Infrastructure Overview, viewed 08/05/15 [http://www.budget.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0020/124373/2014-15\\_Infrastructure\\_Overview.pdf](http://www.budget.nsw.gov.au/__data/assets/pdf_file/0020/124373/2014-15_Infrastructure_Overview.pdf)

Roads and Maritime Services (2015) Additional crossing of the Clarence River at Grafton, Preferred Option and Submissions Report [www.rms.nsw.gov.au/documents/projects/northern-nsw/grafon-clarence-river-crossing/grafon-pref-option-and-submissions-rep-april2013.pdf](http://www.rms.nsw.gov.au/documents/projects/northern-nsw/grafon-clarence-river-crossing/grafon-pref-option-and-submissions-rep-april2013.pdf)

Roads and Maritime Services 2010, *Network Performance Measures and Network Planning Targets*, Roads and Maritime Sydney

Roads and Maritime Services 2008, Network and Corridor Planning Practice Notes, RMS, Sydney

Roads and Maritime Services, CRASHLINK database October 2015

National Transport Commission, 2005, National Guidelines for the Provision of Rest Area Facilities, Melbourne

Department of Planning December 2013 *Mid North Coast Regional Action Plan 'Delivering Change, Traffic Management and Road Safety Program'*

Department of Planning December 2013 *Northern Rivers Regional Action Plan 'Delivering Change, Traffic Management and Road Safety Program'*

Roads and Maritime 'The Infra-Red Traffic Logger' (TIRTL) site. Roads and Maritime GIPSICAM Road Asset Viewer data dated September 2015'

Roads and Maritime Services 2010, *Network Performance Measures and Network Planning Targets*, Roads and Maritime Sydney

Austroads Guide to Road Design Part 3: Geometric Design, Austroads, Sydney

Roads and Maritime GIPSICAM Road Asset Viewer data dated September 2015'

Roads and Maritime Services 2010, *Network Performance Measures and Network Planning Targets*, Roads and Maritime Sydney

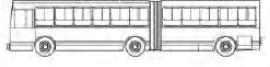
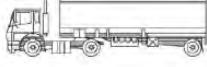
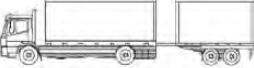
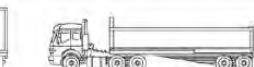
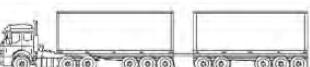
Roads and Maritime Services 2010, *Network Performance and Network Planning Targets*, RMS, Sydney, p.43

Roads and Maritime Services 2010, *Network Performance Measures and Network Planning Targets*, Roads and Maritime Sydney

Austroads Guide to Road Design Part 3: Geometric Design, Austroads, Sydney

## APPENDICES

### Appendix 1 – Austroads vehicle classification system

VEHICLE CLASSIFICATION SYSTEM AUSTROADS			
CLASS	LIGHT VEHICLES		
<b>1</b>	SHORT Car, Van, Wagon, 4WD, Utility, Bicycle, Motorcycle		
<b>2</b>	SHORT - TOWING Trailer, Caravan, Boat		
HEAVY VEHICLES			
<b>3</b>	TWO AXLE TRUCK OR BUS *2 axles		
<b>4</b>	THREE AXLE TRUCK OR BUS *3 axles, 2 axle groups		
<b>5</b>	FOUR (or FIVE) AXLE TRUCK *4 (5) axles, 2 axle groups		
<b>6</b>	THREE AXLE ARTICULATED *3 axles, 3 axle groups		
<b>7</b>	FOUR AXLE ARTICULATED *4 axles, 3 or 4 axle groups		
<b>8</b>	FIVE AXLE ARTICULATED *5 axles, 3+ axle groups		
<b>9</b>	SIX AXLE ARTICULATED *6 axles, 3+ axle groups or 7+ axles, 3 axle groups		
LONG VEHICLES AND ROAD TRAINS			
<b>10</b>	B DOUBLE or HEAVY TRUCK and TRAILER *7+ axles, 4 axle groups		
<b>11</b>	DOUBLE ROAD TRAIN *7+ axles, 5 or 6 axle groups		
<b>12</b>	TRIPLE ROAD TRAIN *7+ axles, 7+ axle groups		



## **Summerland Way Draft Corridor Strategy**

September 2016  
ISBN: 978-1-925507-61-4

© State of New South Wales through  
Transport for NSW, 2016

**Transport for NSW**  
18 Lee Street, Chippendale NSW 2008

### **Disclaimer**

While every reasonable effort has been made to ensure that this document is correct at the time of printing, the State of NSW, its agents and employees disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance upon the whole or any part of this document.

**For more information, visit [www.transport.nsw.gov.au](http://www.transport.nsw.gov.au)**

