



# Gisborne Movement Network Study 2016

**Engineering, Infrastructure  
& Projects Department**

**Assets and Operations  
Directorate**



## Acronyms and Abbreviations

BSMR	Bike Safe Macedon Ranges
MRSC	Macedon Ranges Shire Council
GMNS	Gisborne Movement Network Study
ERIC	Engineering Requirements for Infrastructure Construction
IDM	Infrastructure Design Manual
ODP	Outline Development Plan
Ped	Pedestrian
GSC	Gisborne Secondary College
VIF	Victoria in Future
vpd	Vehicles per day
ABS	Australian Bureau of Statistics
RCIS	Road Crash Investigation System
DCC	Definitions for Classifying Crashes

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# 1 Introduction

In 2009 Council adopted the Gisborne Movement Network Study (GMNS). That document supported the traffic assessment of the 2009 Gisborne/New Gisborne Outline Development Plan (ODP). It played an important role in analysing the vehicular trend in Gisborne and New Gisborne.

The new 2016 GMNS is based on anticipated development yields from new growth areas contained within the OD. It addressed key changes since 2009 and in particular Council's adopted Strategic Planning Strategies.

The typical structure of this document aims to achieve the following in each section where applicable:

- Summarise key points from the previous GMNS;
- State what recommendations from the 2009 Study have been completed or still require completion in each section; and
- Highlight future recommendations in relation to forecast growth figures and improvement of existing infrastructure.

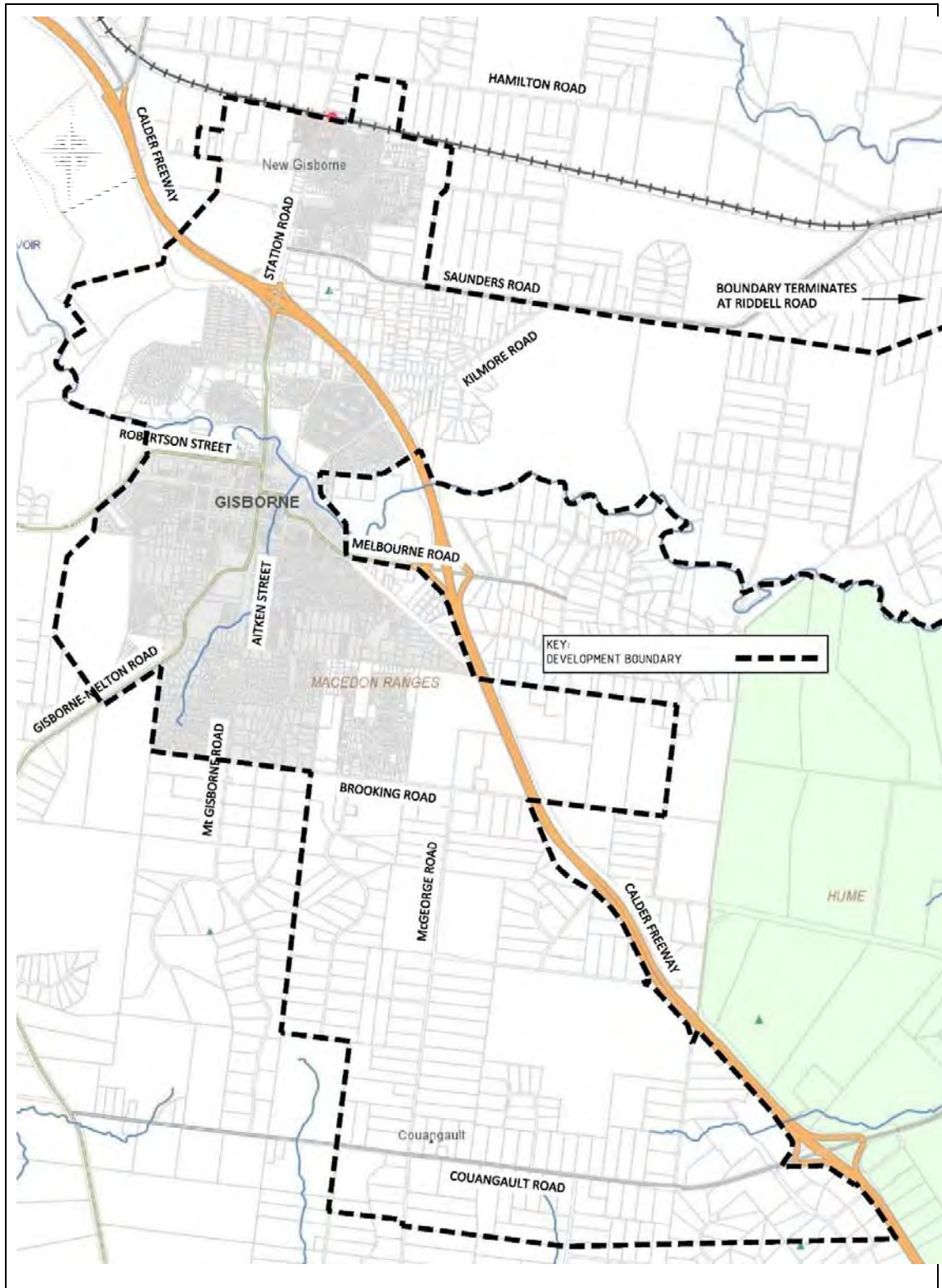
The Gisborne traffic study area remains relatively unchanged. It incorporates the growth boundaries extending to the north to include development along Hamilton Road in New Gisborne, to the east towards Riddell Road, to the south to include current and proposed development on Brooking Road and Mc George Road, Gisborne/Gisborne South and to the west along Gisborne-Melton Road (see Figure 1-1).

The primary purpose of this Study is supported by the following key objectives:

- After the interim and future requirements for infrastructure development to cater for growth in the Gisborne District that are defined as:
  - New and upgraded road infrastructure;
  - New connections for pedestrians and cyclists;
  - Public Transport future capabilities; and
  - Increased parking provisions for forecast parking needs.

# 1.1 Gisborne Study Area

Figure 1-1 Gisborne Study Area





## 2 Background information

The GWNS is informed by a range of background data. The major data inputs include:

- Crash Data
- Gisborne / New Gisborne ODP
- MRSC Walking and Cycling Strategy
- Current Engineering Standards
- Population Trends

These source documents when read in conjunction with traffic data provide the basis for the traffic modelling that forms the backbone of this report.

### 2.1 Crashes

Table 2-1 below shows the amount of crashes identified in the period between 1 July 2010 to 30 June 2015 and compares it against that period considered in the 2009 GMNS (1 Jan 2004 to 31 Dec 2008).

**Table 2-1 Crash Type Summary (Source VicRoads RCIS)**

	2009 GMNS	2016 GMNS
Severity	Crash Period	
	1/1/2004 – 31/12/2008	1/7/2010 – 30/6/2015
Fatality	2	1
Serious Injury	10	29
Other Injury	19	30
<b>Total</b>	<b>31</b>	<b>60</b>

Source: VicRoads RCIS

Detailed analysis of the possible reasoning behind this substantial increase in crashes will be covered in the revised Road Safety Strategy, expected to be completed in late 2016.

## 2.2 Gisborne/New Gisborne Outline Development Plan (ODP)

The 2009 ODP recommended a number of traffic related works as detailed in Table 2-2 shown below.

**Table 2-2 The ODP Recommendation Completion List**

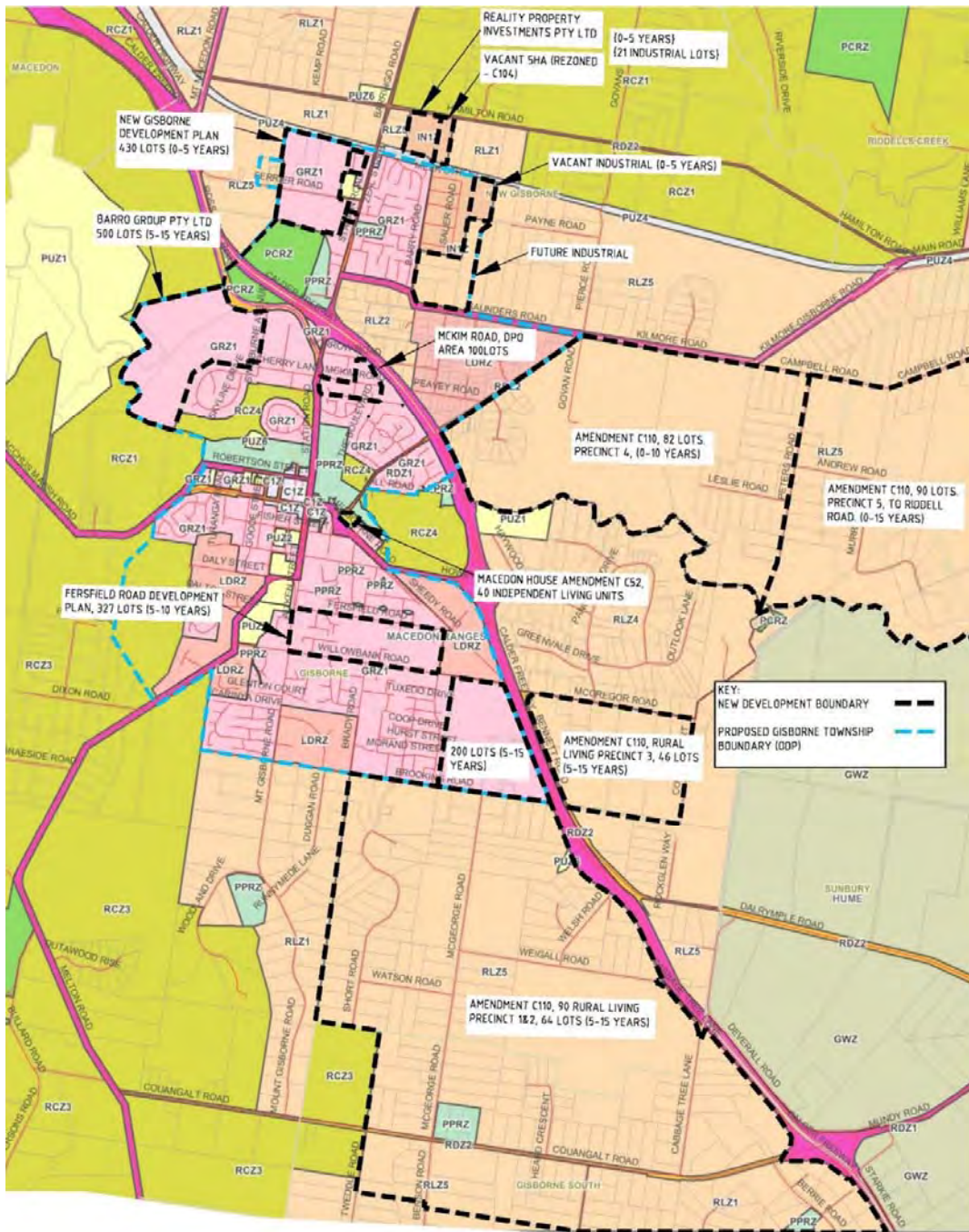
<b>Gisborne – Roads, Pedestrian &amp; Bicycle Networks</b>	
<b>2009 GMNS Recommendations</b>	<b>Current Progress &amp; Future Requirements</b>
<p>Key intersection upgrades:</p> <ul style="list-style-type: none"> <li>Willowbank Road / Aitken Street / Mt Gisborne Road</li> </ul>	<p>This crossroads intersection was upgraded in 2014 with a roundabout. New concrete footpaths were added to the north east of the roundabout to Fersfield Road and to the west including formalising of the existing bus stop</p>
<p>Indicative road networks to be provided for new development areas</p>	<p>Development plans have been prepared for development areas including:</p> <ul style="list-style-type: none"> <li>Fersfield Road</li> <li>New Gisborne – west of Station Road</li> <li>Brady Road</li> </ul>
<p>Key bicycle and pedestrian network developed along Mt Gisborne Road/Aitken Street spine through Gisborne</p>	<p>Pedestrian footpath facilities commence from Carinya Drive off Mt Gisborne Road and extend to Willowbank Road, then becoming shared pedestrian/cycle facilities to 130m past Fisher Street</p>
<p>Bicycle and pedestrian networks on all new linear links particularly through South Gisborne</p>	<p>Brooking Road and Willowbank Road subdivisions have shared networks on collector roads with only pedestrian facilities on internal distributor roads</p>
<b>New Gisborne – Roads, Pedestrian &amp; Bicycle Networks</b>	
<p>Retention of Station Road as the key north-south route</p>	<p>Station Road is earmarked by VicRoads for duplication. The first phase will include upgrading the diamond interchange in New Gisborne with dual roundabouts and off road pedestrian and shared path facilities over the Calder Freeway. Additionally Saunders Road intersection with</p>

<b>Gisborne – Roads, Pedestrian &amp; Bicycle Networks</b>	
	Station Road will be modified with either a signal controlled intersection or roundabout. The Barro-Land development of approx. 500 lots could see the redesign of the Ross Watt Road intersection to signal controlled or a roundabout to be justifiable
Development of a key collector street in conjunction with development west of Station Road	Collector roads have been identified to the North and South of Ferrier Road
New Gisborne industrial estate east-west connector to Payne Road and review of Barry Road and Saunders Road intersection	Future industrial expansion to Saunders Road and to the east still planned as per 2009 ODP
Bicycle path provision on Station Road to connect Gisborne to the train station	Cycle provisions from the Gisborne Secondary College (GSC) to the train station have been planned and implemented. The plan incorporated directional signage along the route through Gisborne and on-road markings on Chessy Park Drive. Pinch points still remain through the town centre and in sections along Station Road

### **2.2.1 Gisborne Development Growth Plans**

Figure 2-1 shows the future development areas in the Gisborne precinct within the next 20 years. It indicates the estimated population growth and consequent traffic generation that will utilise local and arterial roads (see Section 4.2 Traffic generation).

Figure 2-1 Existing and Proposed Growth and Change Areas



<b>Business</b>	<b>Public Use Zone</b>	<b>Rural</b>
BTZ Business 1 Zone	PUZ7 Public Use Zone Other Public Use	RC24 Rural Conservation Zone – Schedule 4
<b>Public Land</b>	PUZ1 Public Use Zone Service And Utility	RLZ1 Rural Living Zone - Schedule 1
PCRZ Public Conservation And Resource Zone	RCZ1 Road Zone Category 1	RLZ2 Rural Living Zone - Schedule 2
PPRZ Public Park And Recreation Zone	RDZ2 Road Zone Category 2	RLZ5 Rural Living Zone - Schedule 5
PUZ5 Public Use Zone Cemetery/Crematorium	<b>Residential</b>	<b>Special Purpose</b>
PUZ2 Public Use Zone Education	LDR2 Low Density Residential Zone	SUZ4 Special Use Zone 4
PUZ3 Public Use Zone Health And Community	R1Z Residential 1 Zone	
PUZ6 Public Use Zone Local Government	<b>Rural</b>	
	RCZ1 Rural Conservation Zone - Schedule 1	
	RCZ3 Rural Conservation Zone - Schedule 3	

The key change between the growth forecast in 2009 and 2016 relates to changes proposed to implement the recommendations of the adopted In the Rural Living Strategy, September 2015 as part of Planning Scheme Amendment C110. C110 proposes to reduce the minimum lot size in parts of the Rural Living Zone to allow greater lot yields in Gisborne South, south of McGregor Road, south of Kilmore Road and south of Campbell Road.

The major developments that may have bearing on population growth and traffic generation are as follows:

- 500 Lots – Barro Group Pty Ltd to the west of Swinburne Avenue;
- 430 Lots – Under the New Gisborne Development Plan, north and south of Ferrier Road;
- Expansion of the New Gisborne Industrial Estate to the east with a proposed connection to Payne Road as per the ODP recommendations;
- 327 Lots - Fersfield Road Development Plan; and
- 200 Lots – in Precinct 3 north of Brooking Road.

Additional expansion of the Commercial 1 Zone in the Gisborne Central Business District (CBD) is forecast to occur and is under consideration for the future by the Strategic Planning Unit.

## **2.3 MRSC Walking and Cycling Strategy 2014**

### **2.3.1 Background**

MRSC Waling and Cycling Strategy was released in 2014 and incorporates pedestrian access.

The 2014 Strategy studied key issues, priorities, progress and future requirements.

The Walking and Cycling Strategy was developed from the high value placed on walking and cycling opportunities by the community and looks to provide clear priorities and guidelines for future action. Creating walking and cycle friendly environments within Macedon Ranges is seen as critical to achieving Council's stated vision for the shire.

The key objective of the strategy is to provide Council with strategic direction on ways to increase participation and improve the supportive infrastructure and resourcing for walking and cycling in the shire over the next ten years.

Community feedback saw the majority of respondents (89.4%) consider the provision of walking and cycling paths, tracks and trails as extremely important or important. Key recommendations to support community expectation and work to achieve Council's vision for the shire that are of importance to the 2016 GMNS are:



- Guidelines and standards;
- Connections between towns;
- Connections within towns;
- Tourism trails; and
- Support infrastructure.

### 2.3.2 Existing Pedestrian Network Provisions

Pedestrian traffic is becoming an increasingly important modal form of movement around Gisborne going forward.

The 2014 Walking-Cycling Strategy primarily responds to the high value the community places on walking and cycling in Gisborne. Council is aware of the range of social, recreational, health, economic and environmental benefits of walking and cycling.

Council is planning to address the concerns of the community in achieving these benefits over the next 10 years and thereby promoting walking and cycling as an alternative to driving within the township of Gisborne.

Table 2-3 below provides an existing inventory of the pedestrian network to date in the township of Gisborne.

**Table 2-3 Existing Pedestrian Network Inventory**

Road Type	Road Name	Footpath Provision (width)	
		North/East	South/West
Primary Arterial Roads	Aitken Street (Gisborne-Melton Road)	1.5m	2.0m
	Melbourne Road (Gisborne-Melbourne Road)	-	-
	Robertson Street (Bacchus Marsh-Gisborne Road)	1.5m	1.5m
	Station Road (Jacksons Creek to Ross Watt Road)	1.5m	-

Road Type	Road Name	Footpath Provision (width)	
		North/East	South/West
	Station Road (Ross Watt Road to Saunders Road)	2.0m	-
<b>Secondary Traffic Roads (RDZ2)</b>	Goode Street (Robertson Street to Hamilton Street)	2.1m	1.3m
	Hamilton Street	1.3-1.5m	1.3-1.5m
	Prince Street (Robertson Street to Hamilton Street)	1.5m	1.5m
	Kilmore Road	1.2-1.5m	1.4m
	Ross Watt Road	-	-
	Station Road (north of Ferrier Road)	1.5-1.8m	1.5-2.0m
	Hamilton Road	-	-
	Couangalt Road	-	-
	McGeorge Road	-	-
<b>Collector Roads (other)</b>	Aitken Street (south of roundabout)	2.5m	-
	Ferrier Road	1.6m (near school only)	-
	Brooking Road	2.5m	-

Road Type	Road Name	Footpath Provision (width)	
		North/East	South/West
	Mt Gisborne Road (south of Willowbank Road)	-	1.6m
	Brooking Road	2.5m	-
	Howey Street		1.3-1.5m
	Mt Gisborne Road		1.6m
	Childe Harold/Tasman Road	2.5m	2.5m
	Brady Road	1.2m	1.5m
	Willowbank Road		1.5m
Local Roads	Brantome Street (north of Hamilton Street)	1.2-5.1m	1.2-5.7
	Carinya Drive	1.2m	-
	Cherry Lane	-	1.5m
	Chessy Park Drive	-	2.0m
	Fersfield Road	-	2.5m
	Fisher Street (adjacent to schools)	1.3m	1.3m
	Fisher Street (west of Prince Street)	-	1.4m

Road Type	Road Name	Footpath Provision (width)	
		North/East	South/West
	Frith Road	-	1.2m
	Jonathan Road	-	-
	McKim Road	-	-
	Morrow Road	-	-
	Monaghan Road	-	-
	Skyline Drive	-	-
	Swinburne Avenue	-	-
	The Boulevard	1.5m	-

### 2.3.2.1 Previously Suggested Upgrades

Table 2-5 shows the 2009 GMNS recommendations for new and/or upgraded pathways that would be required to service Gisborne into the future.

**Table 2-4 Previously Recommended Pathways**

Recommendation	Status of Completion
Kilmore Road (one side) gravel path suitable	1.5m concrete path extends from Melbourne Road to 120m past the Calder Freeway on the north-west side
Aitken Street, between Willowbank Road and the Town Centre (one side)	Concrete footpath on the eastern side completed
Ferrier Road (both sides)	1.6m concrete footpath on north side only extending 110m west of Station Road

Recommendation	Status of Completion
Brooking Road – footpaths constructed as abutting land is developed	2.5m shared path constructed on the north side of Brooking Road encompassing the Brooking Road Estate
Fersfield Road (one side)	2.5m shared path constructed on the south side of Fersfield Road in conjunction with the Manassa Dr Estate.
Fisher Street – upgrade to 1.5m min footpath	Further works required to upgrade footpath to 1.5m wide between Prince Street and Aitken Street

### 2.3.3 Proposed Pedestrian Network Links

Macedon Ranges Shire Council has developed a living document titled Shire-Wide Footpath Strategy. This document provides a 10 year forward works Program for footpaths that are prioritised in relation to the service they provide the community and/or the connectivity they provide. The 10 year forward works Program for Gisborne is provided in Appendix A.

To connect pedestrians accessing services to east and west side of Aitken Street in the town centre it is recognised that pedestrian traffic would benefit from a mid-block pedestrian crossing between Robertson and Hamilton Streets.

### 2.3.4 Proposed Cycling Network Links

The 2014 Walking and Cycling Strategy includes maps that help illustrate the primary existing and proposed pedestrian and cycling routes that are contained in Appendix B.

## 2.4 Current Engineering Standards

Engineering Standards are based on several documents.

Infrastructure Design Manual (IDM). This manual was formulated in conjunction with multiple Councils, with the view of providing consistency across regional municipalities in terms of infrastructure development.

In 2009 MRSC adopted the Engineering Requirements for Infrastructure Construction (ERIC). Amongst others, this document specifies road design requirements. It assists developers constructing new road infrastructure within the shire to an acceptable and consistent standard. Whilst seven years old it is still current.



## 2.5 Population trends

### 2.5.1 Historical and Current Data

Clause 21.13-1 of the Macedon Ranges Planning Scheme states that the population of Gisborne and New Gisborne is expected to grow from some 6,400 persons in 2006 to approximately 12,070 people in 2031 (Gisborne ODP). Clause 21.13-1 also states that Gisborne and New Gisborne had a total combined population of 9,669 in 2011 (Australian Bureau of Statistics “Gisborne, Vic (SSC)” and “New Gisborne, Vic (SSC)”, 2011 Census QuickStats).

The Settlement Hierarchy vision introduced into the Planning Scheme at Clause 21.04, following Amendment C84 forecasts Gisborne growing from a Large District Town (6,000 to 10,000 residents) to a regional Centre by 2036 (10,000+ residents).

The Gisborne District recently assessed by *.id Consulting Pty Ltd* depicted in Figure 2-2 shows a 2016 statistical population of 13,198. It should be noted that the Gisborne District boundary in Figure 2-2 is much larger than the study areas that were used to determine population forecasts for the 2009 Gisborne / New Gisborne ODP and 2011 Settlement Strategy.

### 2.5.2 Population Projections

Table 2-6 shows the projected 2036 figures that are extrapolated from current data supplied by *.id Consulting Pty Ltd*.

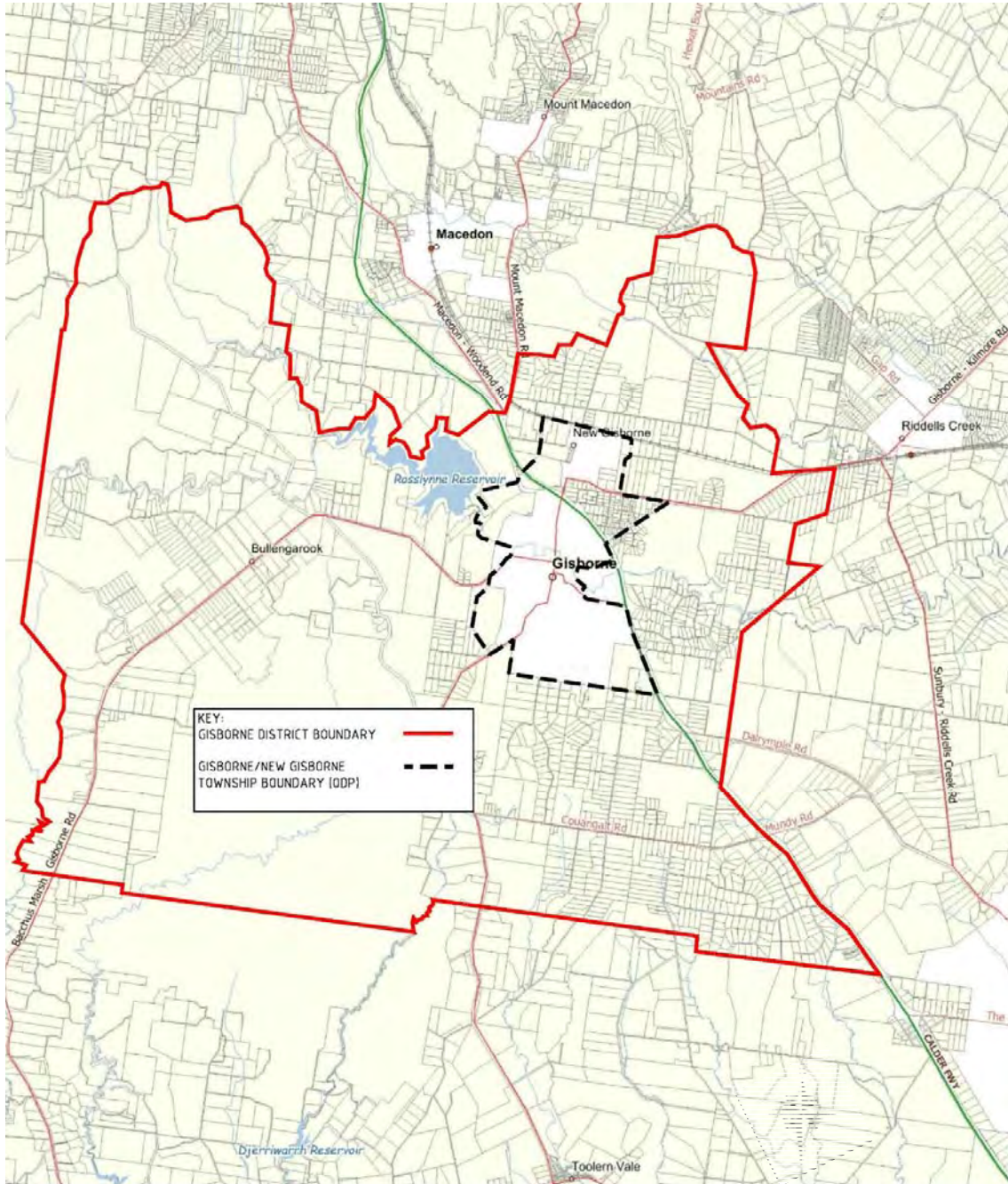
Table 2-5 Population Projections Table

Gisborne Movement Network Study - 2016						
Year	2011	2016	2021	2026	2031	2036
Population*	11,380	13,198	15,846	17,754	19,527	21,319

\*Data by *.id Consulting Pty Ltd*

Figure 2-2 below represents the Gisborne District boundary (shown in red) used for assessing population growth statistics. It is considered that 70% of the population is concentrated in the Gisborne and New Gisborne township boundary.

**Figure 2-2 2016 Forecast Area for Gisborne District**



## **3 Existing traffic conditions**

### **3.1 Roads hierarchy**

Roads in Gisborne are typically classified into three main categories.

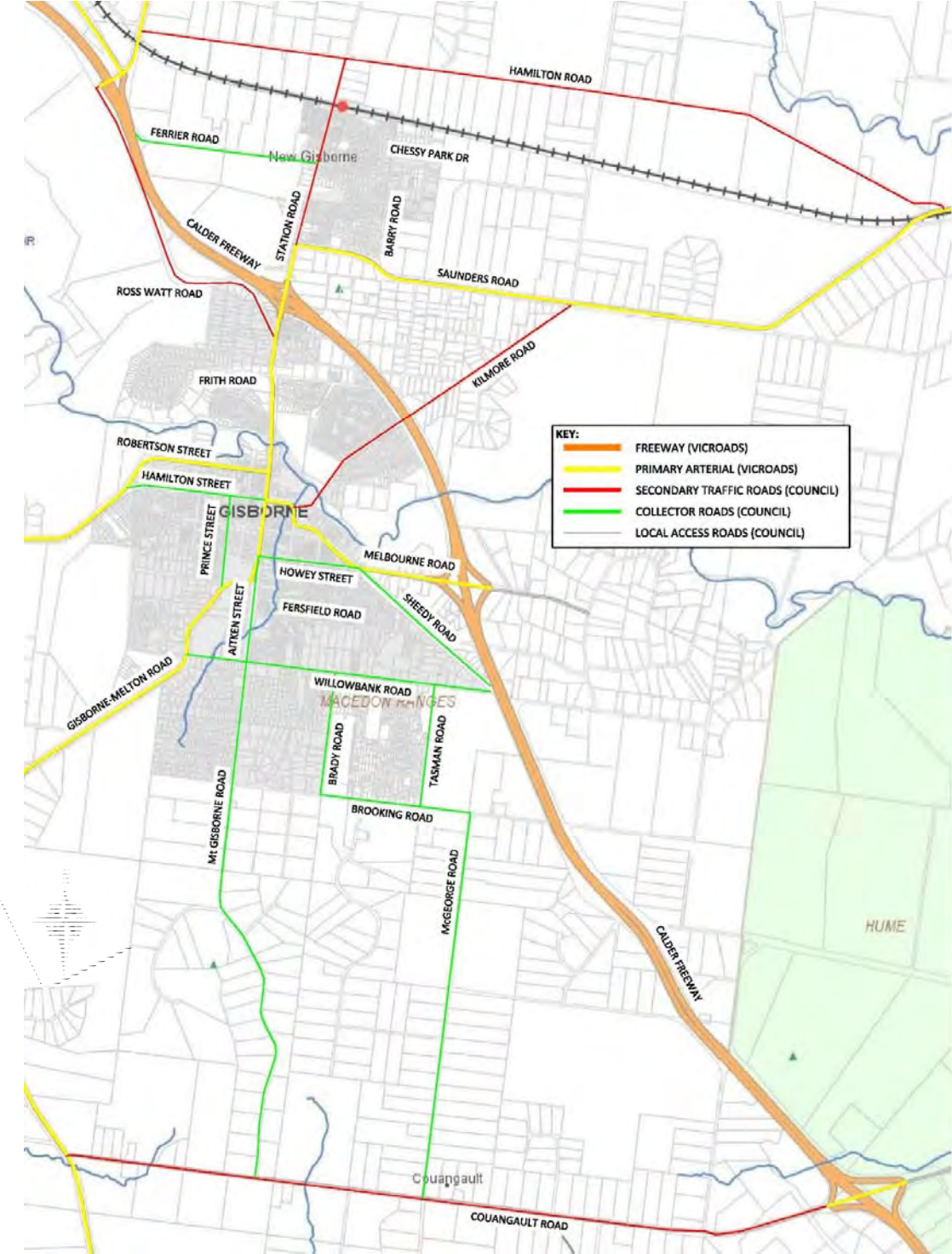
- VicRoads freeways
- VicRoads arterial roads
- Council local roads

Figure 3-1 below highlights the key roads as classified in these three categories.

MRSC further subdivides the local road classifications into five sub-categories for maintenance purposes, as shown in Table 3-1 below. The road categories are determined by traffic volume, purpose and level of service to the general public.



Figure 3-1 Gisborne Road Hierarchy



**Table 3-1 Council's Local Road Network**

<b>Category</b>	<b>Type</b>	<b>General Description</b>
1	Sealed Link	Sealed roads carrying high traffic volumes.
2	Sealed Collector	Sealed roads carrying low traffic volumes generally of a local nature. Provides access to properties on that particular road and adjoining roads.
3	Sealed Local	Sealed roads providing access to properties on that particular road. Generally dead-end roads.
4	Unsealed Collector	Unsealed roads carrying low traffic volumes generally of a local nature. Provides access to properties on that particular road and adjoining roads.
5	Unsealed Local	Unsealed roads providing access to properties on that particular road. Generally dead-end roads.

## **3.2 Road network**

The road network reflected in the 2009 GNMS remains relatively unchanged. It incorporates additional roads attributed to development to the south of Gisborne and in the north of New Gisborne. Other minor roads included relate to street scaping works in Gisborne's town centre. There is an increased volume of traffic in most strategic routes as a reflection of town growth. This is supported by traffic count data.

### **3.2.1 VicRoads Arterial Roads**

In 2013, VicRoads unveiled to the general public plans to duplicate the main north-south arterial road through Gisborne: Station Road. The proposal commences from the intersection with Melbourne Road/Aitken Street through to the intersection of Saunders Road and Station Road in New Gisborne. In February 2016 works started with the first stage of the project to upgrade the Calder Freeway full-diamond interchange with roundabouts and road widening of the bridge underpass.



The proposed carriageway width on the duplication project varies drastically over the project length remaining at 12.8m at the tie-in to existing south of the Melbourne Road end and increasing as follows:

- 18.5m between Melbourne Road and Robertson Street roundabouts utilising the wide outer separators;
- 19m to 33m between Robertson Street and the southern Calder interchange; and
- 24m to 10m from the Calder interchange to the tie-in to existing at Farrell Street.

Council is supportive of the next stage of works, Stage 2 to be an upgrade of the Station Road / Saunders Road intersection.

### **Gisborne Melton Road**

This road comprises an 8.5m carriageway carrying a single traffic lane in each direction, within a 60m road reserve. This arterial road provides access to the main entrance of the Gisborne Secondary College and has no formalised roadside parking. Footpaths exist on the north-west side of the road and provide access from the Gisborne CBD and residential areas to the school crossing.

Gisborne Melton Road in the Gisborne Township has a 60kph speed limit outside of school times.



Figure 3-2 Gisborne Melton Road (looking N)



Figure 3-3G Gisborne Melton Road (looking S)

### **Aitken Street (Gisborne Melton Road)**

Aitken Street comprises a central 12.8m wide carriageway within a 60m road reservation. Service lanes are provided on both sides, with the eastern service lane being 6.4m wide and the western service lane being 6.9m wide. The western service lane also contains 90-degree indented parking.

Aitken Street has a 60kph speed limit outside of school times and footpaths are provided on both sides (1.5m wide on the east and 2.0m on the outer separator and 1.5m wide on the west).



Figure 3-3: Aitken Street (looking N)



Figure 3-4: Aitken Street (looking S)

### **Melbourne Road (Gisborne-Melbourne Road)**

Melbourne Road provides the primary east-west connection between the Gisborne Township and the Calder Freeway.

To the west of the Calder Freeway, Melbourne Road comprises an 8.0m carriageway carrying a single traffic lane in each direction, within a 40m road reservation.

The speed limit on Melbourne Road is 80kph in the vicinity of the freeway, and reduces to 60kph on the approach to the Gisborne Township.



Figure 3-4: Melbourne Road (looking E)



Figure 3-5: Melbourne Road (looking W)

### **Robertson Street (Bacchus Marsh-Gisborne Road)**

Robertson Road (also known as Bacchus Marsh Road) extends approximately 32km between Gisborne and the Bacchus Marsh Township, and within Gisborne it comprises a 9.4m carriageway within a 30m road reserve.

Indented parking is provided on the north side abutting commercial uses and a 1.5m wide footpath is provided on both sides of the road.

Development at the Nexus Centre has seen increases in traffic movements in and out of the site and in the surrounding roads.

A 50kph speed limit applies along Robertson Street but increases to 60kph west of Goode Street.



Figure 3-6: Robertson Street (looking E)



Figure 3-7: Robertson Street (looking W)

### **Saunders Road (Gisborne-Kilmore Road)**

Saunders Road (also known as Gisborne-Kilmore Road) is a secondary arterial road (RZ1) and, in the vicinity of Station Road, is configured with a 7.0m carriageway in addition to sealed shoulders on both sides, within a 60m road reserve.

A 60kph speed limit applies on Saunders Road within the Gisborne Township.



Figure 3-8: Saunders Road (looking E)



Figure 3-9: Saunders Road (looking W)



### **Station Road (Gisborne-Kilmore Road)**

North of Jacksons Creek Bridge, Station Road comprises two northbound lanes and one southbound lane, with a 10.2m carriageway within a 60m road reservation. In the southbound direction Station Road narrows to a single traffic lane in each direction across the bridge.

Between the Calder Freeway and Saunders Road, Station Road comprises a 6.6m carriageway set within a 30m road reservation.

The speed limit on Station road has been reduced to 60kph, and incorporates a variable width shared path (1.5 to 2.0m wide) along the eastern side.



Figure 3-10: Station Road (looking N)



Figure 3-11: Station Road (looking S)

### **3.2.2 Secondary Traffic Roads**

Roads listed under this classification relate to roads that are maintained by Council and lie within a Road Zone Category 2 (RDZ2) as per the Department of Environment, Land, Water and Planning. This road classification should be considered as a secondary traffic route due to increasing urban development.

Secondary traffic Roads correlate to a Category 1 – Sealed Link Road as per Council's Road Management Plan 2013.

#### **Goode Street**

Goode Street is situated between Robertson Street and Hamilton Street, and extends further south as a local access street to Howey Street. It comprises a 7.8m wide carriageway within a 30m reservation with indented angle parking on both sides of the road and has a default speed limit of 50kph.

The east side of Goode Street has a 1.3m footpath and a 2.1m footpath on the eastern side.



Figure 3-12: Goode Street (looking N)



Figure 3-13: Goode Street (looking S)

### Hamilton Street

Hamilton Street extends approximately 1km between Aitken Street in the east and Robertson Street in the west, passing through the town centre and is by default 50kph.

Hamilton Street comprises a 10.0m wide carriageway within a 30m reservation, with indented angle parking on both sides. Footpaths (ranging from 1.3 to 1.5m wide) are provided on both sides of Hamilton Street.



Figure 3-14: Hamilton Street (looking E)



Figure 3-15: Hamilton Street (looking W)

Hamilton and Brantome Streets underwent a streetscape refurbishment project. The project increased the aesthetics and level of service of the footpaths by laying new stone pavers, reducing the advent of trip hazards but not increasing the existing path width.



## Prince Street

Prince Street is between Robertson Street and Hamilton Street, and extends further south as a local access street to Howey Street. It comprises a 7.5m wide carriageway within a 15m reservation, has a default speed limit of 50kph and has a 1.5m footpath on both sides of the road.



Figure 3-16: Prince Street (looking N)



Figure 3-17: Prince Street (looking S)

## Kilmore Road

Kilmore Road extends approximately 3km in a southwest-northeast direction between Melbourne Road and Saunders Road. It comprises a 7.0m wide carriageway within a 20m reservation. A 60kph speed limit applies within the general residential zone and extends to the last residential street, Joseph Avenue where the speed changes to 80kph.

Footpaths exist on both sides of the road, where on the northern side a 1.2-1.5m fragmented path that extends from Melbourne Road to the Calder Freeway overpass where the fragmented section lies across the Jacksons Creek bridge crossing. The southern side accounts for a segmented northern section with a 1.4m footpath over the Jacksons Creek bridge crossing.



Figure 3-18: Kilmore Road (looking E)



Figure 3-19: Kilmore Road (looking W)

## Ross Watt Road

Ross Watt Road runs adjacent to the Calder Freeway on the south-eastern side and provides an alternative route from Gisborne to Macedon. Intersecting with Station Road, Ross Watt Road is attributed with a 7.5m wide carriageway within a 50m road reserve. The speed limit is 80kph where it increases to 100kph at 120m past Swinburne Avenue. As part of the VicRoads planned Station Road duplication project, the intersection of Ross Watt Road is expected to be reconfigured.



Figure 3-20: Ross Watt Road (looking E)



Figure 3-21: Ross Watt Road (looking W)

## Station Road

To the north of Saunders Road, Station Road provides a secondary traffic route through New Gisborne. North of Hamilton Road, Station Road changes name to Barringo Road and provides a sealed/unsealed connection to Barringo, Mt Macedon and Riddells Creek.

In the vicinity of Ferrier Street, Station Road consists of a 10.5m wide carriageway within a 20.5m road reserve. Immediately north of the New Gisborne Primary School crossing there is a short term (P-5minute) parking that applies during school drop-off that becomes a bus zone in the afternoon.

Station Road has a speed limit of 60kph and a time-based 40kph zone during school times with a fragmented 1.5-1.8m wide footpath on the eastern side and a 1.5-2.0m wide footpath on the west.

Future provisions for footpaths on the western side are highlighted between Octagonal Court to Ferrier Road and from Argyle Street towards the Gisborne train station.



Figure 3-22: Station Road (looking N)



Figure 3-23: Station Road (looking S)

## Hamilton Road

Hamilton Road runs east-west and provides two distinct sections:

A western connection from New Gisborne to Macedon via Mt Macedon Road that accesses the Calder Freeway – southbound. This section services the Holy Cross Primary School and the Macedon Ranges Regional Netball Complex and lies within an 80kph speed zone with a time-based 60kph zone during school hours. Hamilton Road consists of a 7.4m wide carriageway within a 20m road reserve.

An eastern connection to Riddells Creek and on to Melbourne-Lancefield Road with a carriageway width of 6.5m within a 20m road reserve. This section contains an existing industrial zone with future capacity for an extra 21 lots in the next five years. The industrial zone just beyond Barringo Road lies within an 80kph zone that then defaults to 100kph.

On the corner of Hamilton Road East and Barringo Road Council is proposing to construct the Gisborne Sports Fields that will primarily contain two sporting ovals and the associated club facilities at a future time.



Figure 3-24: Hamilton Road East (looking E)



Figure 3-25: Hamilton Road East (looking W)





Figure 3-26: Hamilton Road West (looking E)      Figure 3-27: Hamilton Road West (looking W)

### **Couangalt Road**

Couangalt Road is an east-west connector between the Calder Freeway and Melton Road in Gisborne South. Couangalt Road provides a secondary traffic route from the residential developments to the south of Gisborne to the Calder Freeway.

Couangalt Road consists of a 6.3m wide carriageway within a 20m road reserve. An 80kph speed limit applies, that increases to 100kph in the vicinity of the Calder Freeway Interchange.



Figure 3-28: Couangalt Road (looking East)

Figure 3-29: Couangalt Road (looking west)

### 3.2.3 Recommended Secondary Traffic Roads

The following roads have increased or are forecasted to increase significantly in traffic due to urban development and are recommended to be under a higher classification.

#### McGeorge Road

It runs north-south connecting Brooking Road and Couangalt Road and hence Gisborne to Gisborne South. McGeorge Road predominantly consists of a 6.2m carriageway within a 20m road reserve set in a rural environment with no footpath facilities.

It has a speed limit of 80kph reflected by its rural road environment and recognising its direct link from Gisborne to Gisborne South and the Calder Freeway.



Figure 3-30: McGeorge Road (looking N)



Figure 3-31: McGeorge Road (looking S)



## Sheedy Road

Sheedy Road runs in an east west direction and is increasingly becoming an alternative access road used by new developments in the Willowbank Road and Brooking Road Estates to access Gisborne Central and the eastern Calder Interchange. It predominantly consists of a 9.0m carriageway within a 20m road reserve set in a mixed general/low density residential zone with no footpath facilities. It has a speed limit of 80kph reflected by its open road environment.



Figure 3-32: Sheedy Road (looking NW)



Figure 3-33: Sheedy Road (looking SE)

### 3.2.4 Collector Roads

Collector Roads correlate to a Category 2 – Sealed Collector Road as per Council's Road Management Plan 2013.

#### Aitken Street

South of Gisborne-Melton Road, Aitken Street is classified as a collector road and consists of a 6.4m wide carriageway within a 60m road reserve. Aitken Street observes a 60kph speed limit and has a 2.5m shared path on its eastern side with further shared facilities at the recently reconfigured roundabout controlled intersection with Willowbank Road. The 1.5m wide pedestrian facilities at the roundabout on the western side are in the form of access paths to and from the formalised public/school bus stop.



Figure 3-34: Aitken Street (looking N)



Figure 3-35: Aitken Street (looking S)

## Ferrier Road

Ferrier Road extends approximately 2km in an east-west direction between Station Road and Mount Macedon Road on the north side of the Calder Freeway. At its eastern end Ferrier Road abuts New Gisborne Primary School and is configured with a 6.3m wide carriageway within a 20m road reserve.

It should be noted that the New Gisborne Development Plan proposes to increase the road reserve of Ferrier Road to 24m to allow for boulevard planting.

Unrestricted indented angle parking is provided on both sides in the vicinity of the school with a 1.6m wide footpath provided on the north side abutting the school. Ferrier Road has an 80kph speed limit within Gisborne's residential zone and a time-based 40pkh zone during school times.



Figure 3-36: Ferrier Road (looking E)



Figure 3-37: Ferrier Road (looking W)

## Brooking Road

Brooking Road runs east-west in the south of Gisborne's residential zone and consists of a 6.2m carriageway within a 20.0m road reserve.

Brooking Road has a default speed of 100kph with a 2.5m shared path on the north side of Brooking Road spanning the length of the Brooking Road Estate.

It is expected that once development is completed and all lots are occupied, Council will then pursue VicRoads in applying for a Memorandum of Authority to have Brooking Road reduced to 60kph.

This recommendation was highlighted in a post construction road safety review of Brooking Road and Seville Road conducted in 2014.



Figure 3-38: Brooking Road (looking E)



Figure 3-39: Brooking Road (looking W)

### Howey Street

Howey Street comprises two sections. To the west of Aitken Street it is a local access street extending approximately 830m and terminating at a dead end. To the east of Aitken Street it serves as a collector road function, extending approximately 900m to Melbourne Road.

East of Aitken Street Howey Street drops away into a large sag curve to the South Gisborne Drain where the carriageway is 6.2m wide within a 20m wide road reserve. The sag curve transitions to a crest, where the carriageway widens to 9.8m (within a 30m road reserve) allowing for parallel parking on both sides from Worcester Street to Keily Road.

Along the south side of Howey Street, footpath facilities are provided ranging from 1.3m wide throughout the sag curve portion of the road to 1.5m thereon.

Howey Street is in a residential zone where a default speed limit of 50kph applies. Recent traffic data collected on Howey Street highlights an inherent speeding issue with an 85<sup>th</sup> percentile speed of 68.8kph, well above the default 50kph speed limit. It is a recommendation that some form of traffic calming be investigated to try to establish the true nature of the road as a residential street, along with signing the speed of the road to aid in enforcement by Victoria Police.



Figure 3-40: Howey Street (looking E)



Figure 3-41: Howey Street (looking W)



## **Mt Gisborne Road**

Mt Gisborne Road is the extension of Aitken Street and extends approximately 4.4km from Willowbank Road in the north to Couangalt Road in the South.

Recent modification of the intersection into a roundabout at Mt Gisborne Road and Willowbank Road sees a northbound approach lane of 4.9m and a southbound departure lane of 4.0m with kerb and channel on both sides. Mt Gisborne Road is attributed a 20m road reserve.

There is a 1.6m footpath on the western side from the roundabout to Glenton Court. Future proposed paths see connections from Glenton Court through to Wyralla Drive.

Within the residential zone Mt Gisborne Road is signed 60kph up until the last residential street Wyralla Crescent, from there the speed limit changes to 80kph to Couangalt Road.



Figure 3-42: Mt Gisborne Road (looking N)



Figure 3-43: Mt Gisborne Road (looking S)

## **Childe Harold Road/Tasman Road**

Childe Harold/Tasman Road is a newly constructed through-road connecting the subdivisions of Willowbank Road and Brooking Road and provides access to Couangalt Road and the Calder Freeway.

The carriageway width is 8.5m within a 20m road reserve with 2.5m wide shared paths on both sides of the road. This is a residential area hence the default speed limit is 50kph.



Figure 3-44: Childe Harold/Tasman Road (looking N)



Figure 3-45: Childe Harold/Tasman Road (looking S)

### Brady Road

Brady Road provides a direct connection between Willowbank Road and Brooking Road and was heavily used by construction traffic during the recent Willowbank Road residential development. It comprises two specific sections:

- The first from Willowbank Road to the roundabout at Parkview Street has a carriageway width of 6.0m between kerb and channel within a 20m road reserve. There is a 1.2m wide footpath on the eastern side and a 1.5m wide footpath on the west. This section of road is residential and is by default a 50kph zone; and
- The second section from the roundabout at Parkview Street to Brooking Road has a carriageway width of 6.2m within a 20m road reserve. There is a small section of footpath on the western side of the road to access the last of the built up areas. This section of road is nestled between general and low density residential zones but the current adopted speed limit is still by default rural living and by default 100kph.



Figure 3-46: Brady Road (looking N)



Figure 3-47: Brady Road (looking S)



## Willowbank Road

This collector road runs east-west and services the Willowbank Road subdivisions and access to Gisborne Secondary College. It comprises two distinct sections:

- Section one, west of Aitken Street is in a general residential zone and provides a rear access to the secondary college and provides roadside parking for students. The carriageway width is 6.7m within a 20m road reserve and has a time-based 40kph limit during school hours where outside of that it reverts to 60kph. There is a 1.5m wide footpath on the southern side only.
- Section two, east of Aitken Street is in a general residential zone with a carriageway width of 7.4m in a 19m road reserve and a speed limit of 60kph. Footpath facilities are 1.5m wide but fragmented on both sides of the road. Future provisions to connect the fragmented sections are realised but are low priority at this stage.



Figure 3-48: Willowbank Road (looking E)



Figure 3-49: Willowbank Road (looking W)

### 3.2.5 Recommended Collector Roads

#### Fersfield Road

Fersfield Road runs east-west servicing the Fersfield Road Development Plan incorporating approximately 300 residential lots and is zoned general residential.

Fersfield Road is typically 7.1m wide within a 20m road reserve with a 2.5m shared path on the south side only as part of Fersfield Road subdivision (Manassa Drive).

There are future provisions for paths along the south side from Aitken Street to Lauren Court and on the north side from South Gisborne Drain to Aitken Street.

### 3.2.6 Local Access Streets

Table 3-2 below sets out dimensions and descriptions of a number of local access streets throughout Gisborne and New Gisborne, including rural, low density and residential local streets. These roads correlate to a Category 3 – Sealed Local Road as per Council's Road Management Plan 2013.

**Table 3-2 Local Access Streets**

Road Name	Carriageway Width	Reservation Width	General Description	Footpath Provision
Brantome Street	9.2m plus indented parking (north of Hamilton St)	30m	800m north-south, dead-end just north of Robertson St to Howey St (residential and retail)	1.2-5.1m (east side) 1.2-5.7m (west side)
Carinya Drive	6.4m	20m	430m east-west, Mt Gisborne Rd to dead-end (general residential)	1.2m (north side)
Cherry Lane	6.9m	20m	530m east-west, Station Rd to Swinburne St (general residential)	1.5m (south side)
Chessy Park Drive	6.3m	20m	1.2km circular, west of Station St in New Gisborne (residential)	2.0m (southeast side)

Road Name	Carriageway Width	Reservation Width	General Description	Footpath Provision
Fisher Street	11.5m (abutting schools)  6.7m  (west of Prince St)	30m	1.2 km east-west, Turanga Rd to Melbourne Rd (general residential), indented parking both sides at schools, kerb and channel west of Prince St	1.3m  (both sides, abutting schools only)  1.5m (west of Prince St)  Future proposed paths from Prince St to Turanga Rd (north side only).
Frith Road	9.0m	20m	1.1km circular, west of Station St north of Botanic Gardens (general residential)	1.4m  (one side)
Jonathan Road	6.4m	20m	750m, Brooking Rd to Mt Gisborne Rd (low density residential)	None
McKim Road	3.5m (gravel)	20m	660m east-west, Station Rd to dead-end (general residential)	None
Morrow Road	6.3m	20m	430m east-west, Station Rd to dead-end (general residential)	None
Monaghan Road	5.8m	20m	750m north-south, Saunders Rd to Peavey Rd (low density residential)	None

Road Name	Carriageway Width	Reservation Width	General Description	Footpath Provision
Skyline Drive	7.6m	20m	1.4km circular, west of Swinburne St (general residential)	None
Swinburne Avenue	6.5m	30m	600m north-south, Ross Watt Rd to Skyline Drive (general residential)	None
The Boulevard	6.6m	18.2m	800m extending north from Kilmore Rd (general residential)	1.5m (one side)

### 3.2.7 Industrial Streets

#### Barry Road

Barry Road is a No-Through Road providing access to Gisborne’s industrial estate north of Saunders Road. Barry Road comprises an 8.7m wide carriageway within a 20m road reserve and is in a 50kph zone. There is a small 1.5m wide section of footpath at the north-east end of Barry Road.



Figure 3-50: Barry Road (looking N)



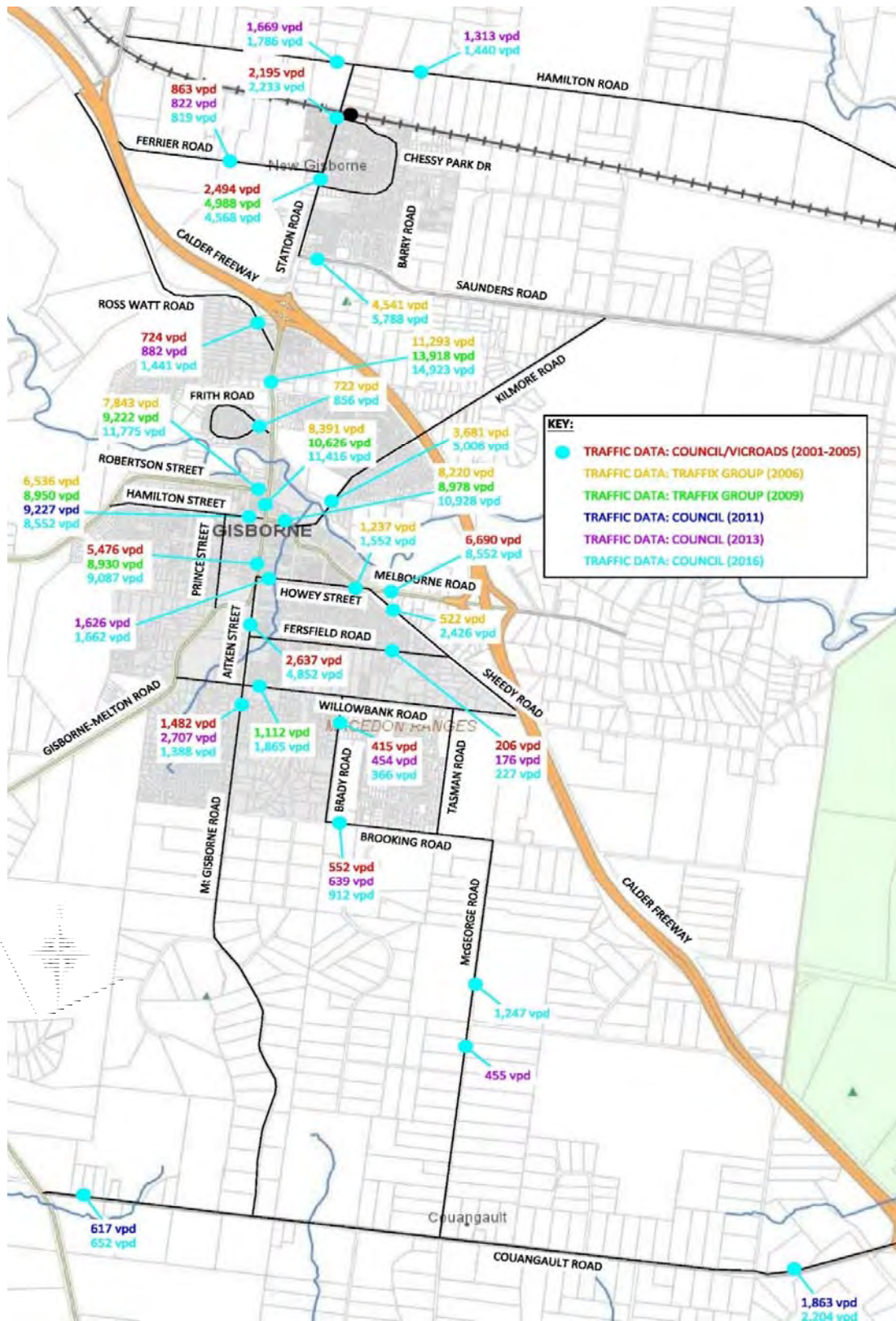
Figure 3-51: Barry Road (looking S)

## 4 Traffic volumes

Figure 4-1 below highlights the 24-hour two-way daily traffic counts ascertained from data presented in the previous traffic studies and comparing with the current Virtual Day Vehicle counts. The data was collected by Macedon Ranges Shire Council, VicRoads and Traffix Group.



Figure 4-1 24-Hour Two-Way Daily Traffic Volumes



#### 4.1.1 Traffic Count Comparison

Table 4-1 compares historic 2001-2005 counts from the previous 2009 study to more recent traffic count data as collected from Council's Metro Count Program specifically conducted for this study.

**Table 4-1 Traffic Count Comparison (Vehicles Per Day) 2011, 2013 and 2016**

Road	Location	2001-2005	2006	2009	2011	2013	2016	%	Annual Increase
Hamilton Road (west)	West of Barringo Road	-	-	-	-	1,669	1,786	7.01%	2.34%
Hamilton Road (east)	East of Barringo Road	-	-	-	-	1,313	1,440	9.67%	3.22%
Station Road	Just south of railway tracks	2,195	-	-	-	-	2,233	1.73%	0.16%
Station Road	Between Chessy Park Drive & Ferrier Road	2,494	-	4,988	-	-	4,568*	-8.42%	-1.20%
Ferrier Road	West of Primary School	863	-	-	-	822	819*	-0.36%	-0.12%
Saunders Road	100m from Station Road	-	4,541	-	-	-	5,788	27.46%	2.75%

Road	Location	2001-2005	2006	2009	2011	2013	2016	%	Annual Increase
Ross Watt Road	200m west of Station Road	724	-	-	-	882	1,441	63.38%	21.13%
Station Road	Between McKim Road & Ross Watt Road	-	11,293	13,918	-	-	14,923	7.22%	1.03%
Frith Road	40m west of Station Road	-	722	-	-	-	856	18.56%	1.86%
Robertson Street	Between Brantome Street & Station Road	-	7,843	9,222	-	-	11,775	27.68%	3.95%
Aitken Street	Between Robertson Street & Hamilton Street	-	8,391	10,626	-	-	11,416	7.43%	1.06%
Hamilton Street	Between Brantome Street & Aitken Street	-	6,536	8,950	9,227	-	8,552*	-7.32%	-1.46%
Melbourne Road	Between Kilmore Road & Aitken Street	-	8,220	8,978	-	-	10,928	21.72%	3.10%
Kilmore Road	70m south of Mill road	-	3,681	-	-	-	5,006	36.00%	3.60%

Road	Location	2001-2005	2006	2009	2011	2013	2016	%	Annual Increase
Aitken Street	Between Howey Street & Fisher Street	5,476	-	8,930	-	-	9,087	1.76%	0.25%
Howey Street	230m east of Aitken Street	-	-	-	-	1,626	1,662	2.21%	0.74%
Howey Street	Between Sheedy Road & Keily Road	-	1,237	-	-	-	1,552	25.46%	2.55%
Melbourne Road	East of Howey Street	6,690	-	-	-	-	8,552	27.83%	2.53%
Sheedy Road	100m southeast of Howey Street	-	522	-	-	-	2,426	364.75%	36.48%
Aitken Street	Between Fersfield Road & Howey Street	2,637	-	-	-	-	4,852	84.00%	7.64%
Fersfield Road	100m east of Carnegie Ct	206	-	-	-	176	227	28.98%	9.66%
Willowbank Road	Between Aitken Street & Belcher Way	-	-	1,112	-	-	1,865	67.72%	9.67%

Road	Location	2001-2005	2006	2009	2011	2013	2016	%	Annual Increase
Mt Gisborne Road	150m south of Willowbank Road	1,482	-	-	-	2,707	2,833	4.65%	1.55%
Brady Road	230m south of Willowbank Road	415	-	-	-	454	1,054	132.16%	44.05%
Brooking Road	100m east of Brady Road	552	-	-	-	639	912	42.72%	14.24%
McGeorge Road	Between Weigall Road & Watson Road					455	1,247	174.07%	58.02%
Couangalt Road	100m east of Gisborne-Melton Road	-	-	-	617	-	652	5.67%	1.13%
Couangalt Road	100m east of Cabbage Tree Lane	-	-	-	1,863	-	2,204	18.30%	3.66%
<b>AVERAGE vpd</b>								<b>42.60%</b>	<b>-</b>

\*Station Road count near Chessy Park Drive includes a public holiday and may not be completely accurate

\*Ferrier Road counts may be skewed due to counts ending on the lead up to a long weekend.

\*Hamilton Street count may be slightly less due to technical issues with equipment.



In analysis of Table 4-1, with consideration of the previous values derived in 2009 study locations that looked at traffic counts in a fixed 3 year period between 2006 and 2009, the following comparisons can be made:

- Station Road between Chessy Park Drive and Ferrier Road – Traffic data was compared between 2009 and 2016 (7 year period) highlighting a -8.5% decrease in traffic volumes that is significantly lesser than the 100% increase in the 2009 Study\*.
- Station Road between McKim Road and Ross Watt Road – Traffic data was compared between 2009 and 2016 (7 year period) highlighting a 7% increase as opposed to the 2009 Study that yielded a 23% increase in traffic volume;
- Robertson Street between Brantome Street and Station Road – Traffic data was compared between 2009 and 2016 (7 year period) highlighting a 28% increase in this period and a 10% increase above the 2009 Study period;
- Hamilton Street between Brantome Street and Aitken Street – Traffic data was compared between 2011 and 2016 (5 year period) highlighting a decrease in traffic volume of -7%, significantly down on the 37% increase derived from the 2009 Study\*\*;
- Melbourne Road between Kilmore Road and Aitken Street – Traffic data was compared between 2009 and 2016 (7 year period) highlighting a 22% increase in this period and a 13% increase above the 2009 Study period;
- Aitken Street between Howey Street and Fisher Street – Traffic data was compared between 2009 and 2016 (7 year period) highlighting a 2.0% increase in this period as opposed to a 61% increase during the 2009 Study period therefore displaying - 59% differential in growth;
- Willowbank Road between Aitken Street and Belcher Way – Traffic data was compared between 2009 and 2016 (7 year period) highlighting a 68% increase in traffic flows. The previous 2009 Study assumed an increase of 30% due to lack of survey data; and
- Jacksons Creek Way and Skyline Drive were omitted in this comparative analysis due to the locations being deemed as being not significant to the 2016 Study.

The previous 2009 Study assumed an overall average increase in traffic volumes for Gisborne's road network at 30%. Latest data comparisons that relate to actual data show an average traffic increase of 42.57%

## **4.2 Traffic generation**

The assumptions made in the 2009 Study with regard to traffic movements per standard residential dwelling, were recommended at 10 vehicle trip-ends per day. This recommendation will remain unchanged as it is deemed a realistic figure that is used in Council's Policy for Engineering Requirements for Infrastructure Construction 2009, to prepare traffic engineering assessments.

It should be noted that the effects of industrial and/or commercial movements will not be considered in preparation of the Road Network Traffic Model (see Section 5) as these trips are not deemed to be initiated from residential dwellings. Instead these industrial and commercial zones are treated as attractors generating traffic movements on the road network to and from the service provided.

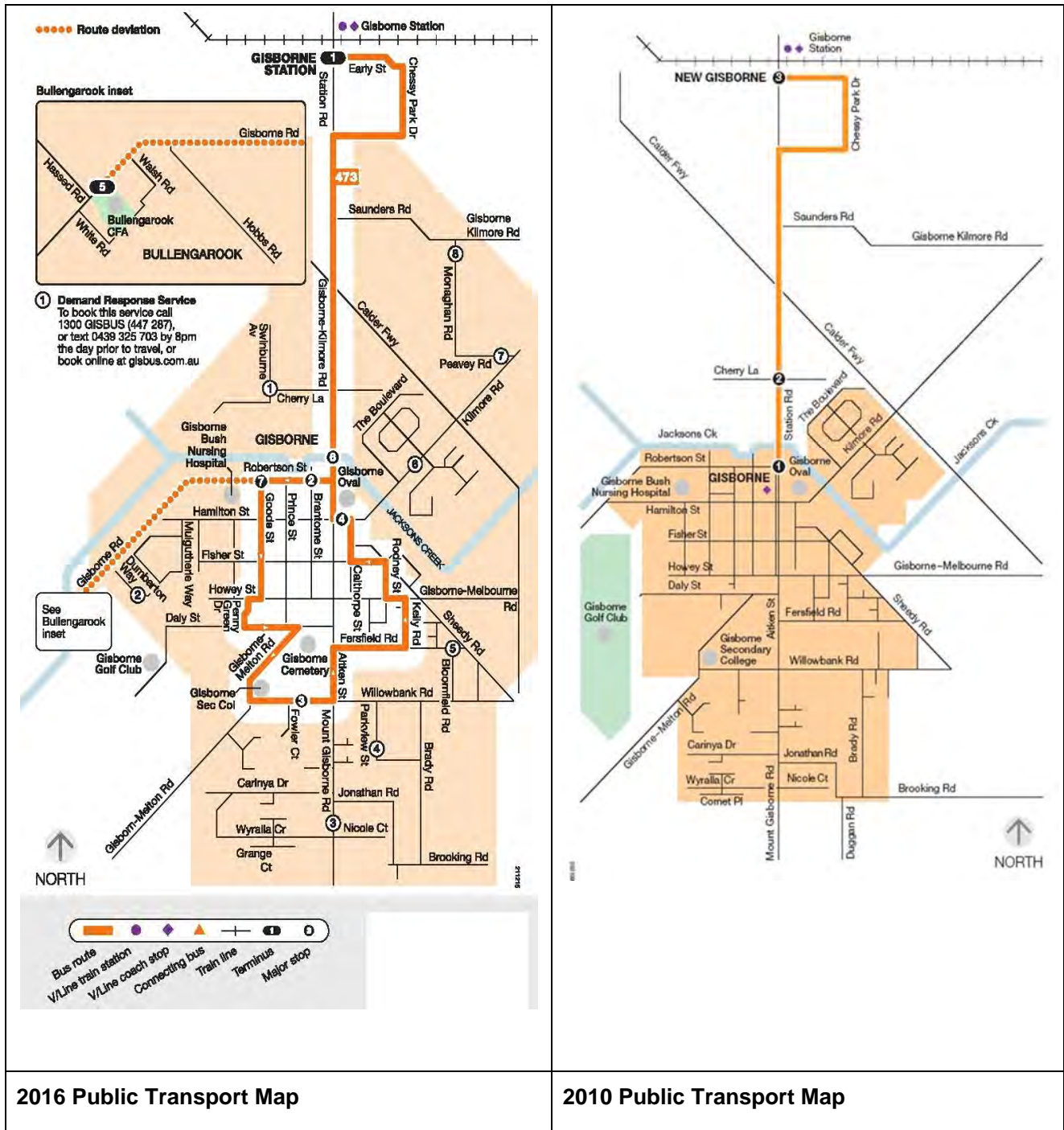
The Traffic Distribution Model in Section 5.1.3 apportions vehicles journeys to an activity area and is not service specific.

## **4.3 Public transport**

### **4.3.1 Local Bus Routes**

Figure 4-2 below shows the previous and current Gisborne Public Transport Network.

Figure 4-2 Gisborne Public Transport Comparison Map (GisBus)



Gisborne incorporates a bus service primarily from the train station into the town centre. This service called 'GisBus' was a trial service that was approved as a public service in 2014. Previously the GisBus network had three timing points or major stops at:

- The Gisborne Train Station;

- The intersection of Station Road and Cherry Lane; and
- The town centre - Station Road and Robertson Street.

The approved 2014 service now incorporates 7 major stops, a terminus in Bullengarook and 8 demand responsive pick-up points that increase the roaming area of that covered in the 2010 map.

The current GisBus service has further ability to be expanded in the future dependant on development and patronage by increasing the roaming distance travelled and/or incorporating the use of an intermittent taxi service that operates under the public transport umbrella and cost schedule that can be utilised between cycle times on the regular service timetable.

Gisborne has two route services:

1. The 473 from Gisborne to the Gisborne Station serving morning commuters starting at 5:55am. There are 13 services per day during weekdays that cater for the commuters to and from the train station starting at Robertson Street at 5:58am to 9:58am. There are 2 out of the 13 services that run only from the town centre to the Gisborne Station at 2:50pm and 4pm. Full services commences again from the Gisborne Station at 4:16pm to 7:25pm.
2. The 474 service is the Demand Responsive Service that provides 16 services to and from the Gisborne Station where the first service starts at 5:55am in the town centre through to 8:06pm terminating at the Gisborne Station. The Demand Responsive Service requires pre-booking of services the day before travel.

Note: Macedon Ranges Shire Council's ERIC states that new connector roads that are to cater for bus movements shall have a carriageway width of 8.5m in a 24m road reservation. The carriageway shall accommodate for 1 parking space off-carriageway for buses.

## **4.3.2 V/Line Services**

### **4.3.2.1 Weekday Timetable**

A total of 17 City-bound and 18 Bendigo-bound trains stop at New Gisborne Train Station each weekday where the first service commences at 5:36am (City-bound) from Gisborne and 7:10am (Gisborne-bound) from Melbourne.

The last train leaves Gisborne at 9:39pm (City-bound) and the last train arrives at Gisborne at 11:11pm (outbound) with a late service on Friday's at 12:40am.

### **4.3.2.2 Weekend Timetable**

A total of 13 and 12 City-bound services depart from Gisborne on Saturday and Sunday respectively. A total of 15 and 12 outbound trains from Melbourne stopping in Gisborne on Saturday and Sunday respectively.

## **5 Road Network Traffic Model**

The vehicular traffic model looks to address the impacts of additional development in Gisborne, New Gisborne and Gisborne South on the existing and proposed road network.

The purpose of the model is to highlight where required road linkages are needed on the existing roads and what may be required to be allowed for, given the future forecast traffic projections.

Largely, the assumptions from the previous Study have been adopted for generation of the traffic model. Accordingly the 'base case' model generally adopts the existing road network.

There are however some omissions to the traffic model as the model is based on trips being initiated within Gisborne's residential developments only, and not from traffic generated from new industrial or commercial developments as it is assumed that vehicular trips are not initiated from these areas.

### **5.1 Base case vehicular traffic model**

#### **5.1.1 Network Assumptions**

The layout of the Gisborne region is considered to already contain most of the primary road network required to serve the ultimate development scenario apart from a minor linkage for the New Gisborne Industrial Estate expansion and a possible corridor for a Gisborne bypass.

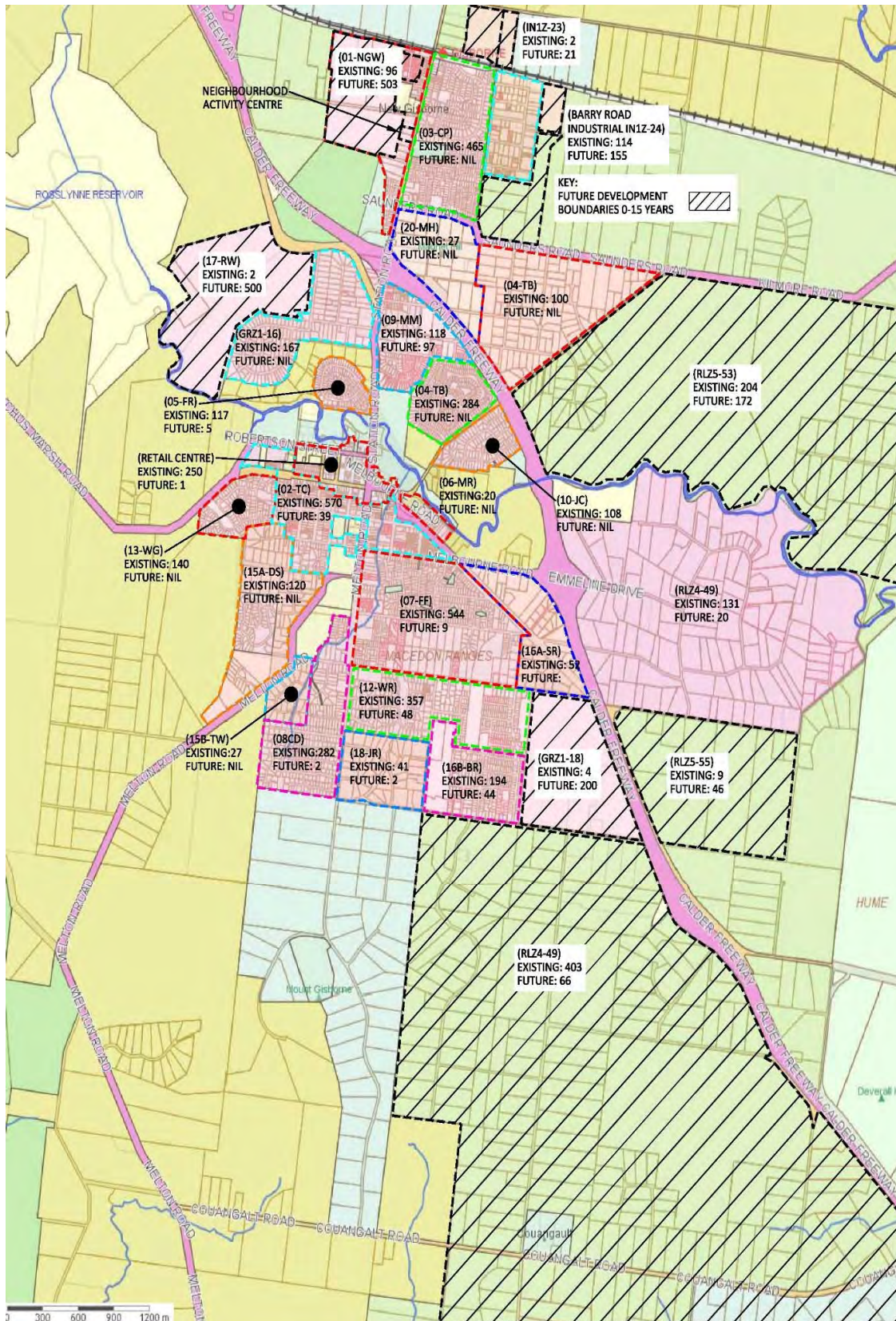
The traffic volumes assumed in the model are based on available information including existing numbers and locations of dwellings and traffic generation rates and locations of existing trip destinations. Comparisons have been made with existing traffic count data for validation purposes.



Figure 5-1 below splits Gisborne into regions based on Land Vic Planning Maps and the ODP. The regions contain existing and ultimately proposed residential lots as per Figure 2-1.

For modelling purposes a traffic generation rate of 10 vehicle trip-ends per day for residential lots will be utilised as stipulated under Section 4.2.

Figure 5-1 Regions within Gisborne and Lot Yields (for Modelling Purposes)



### **5.1.2 Externally Generated Traffic**

The external traffic volume methodology remains essentially unchanged except that the study area has been expanded to account for current increased movements from recent development and for forecast development.

Gisborne is currently classified as a Large District Town containing between 6,000-10,000 residents and is forecast in 2016 to expand its role into a Regional Centre containing 10,000+ residents.

Gisborne contains a multitude of services including schools, sporting and recreational facilities and shopping opportunities. It can be surmised that Gisborne serves a wider regional area including Gisborne South (assessed in this report), Bullengarook, Barringo, Macedon, Mount Macedon and Riddells Creek.

Gisborne contains a network of arterials that provide a through route from Melton and Bacchus Marsh travelling to the Calder Freeway or to Kilmore. These through movements account for at least a third of the overall traffic travelling on the arterial routes (Traffix Group Pty Ltd, 2009).

For modelling purposes additional traffic numbers have been assigned to through routes to allow for trips generated by persons who do not reside within the Gisborne study area.

### **5.1.3 Distributions and Traffic Assignment**

The assumptions from the 2009 Study have been largely maintained in the current report as it is believed that there has been little change to the distribution classifications of traffic flows. The classifications can be seen in Table 5-1 below.

The distribution assumptions state that 40% of all trips generated by residents will be to/from external destinations outside of the Gisborne study area. These trips are classified into the work commute, recreation and external shopping excursions.

Internally generated trips account for the remainder 60% and relate to local shopping, primary and secondary education, community and sporting activities and local attractions. For modelling purposes distribution classifications are split into the aforementioned areas plus the railway station and New Gisborne Industrial Estate.

The method used to distribute traffic journeys is via the shortest, most direct route between each of the residential areas and activity centres. Where there is two possible route choices dependant on the origin of the journey then a percentage of the traffic has been assigned to each route.

**Table 5-1 Traffic Distribution Assumptions**

Region	Calder (N) Station Rd	Calder (E) Melbourne Rd	Calder (S) Couangalt Rd	Secondary College	Gisborne Primary Schools	New Gisborne Primary Schools	Town Centre	Railway Station*	Industrial	TOTAL
01-NGW	40%			10%	2%	8%	25%	10%	5%	100%
02-TC	10%	30%		10%	10%		25%	10%	5%	100%
03-CP	40%			10%	2%	8%	25%	10%	5%	100%
04-TB	5%	35%		10%	5%	5%	25%	10%	5%	100%
05-FR	30%	10%		10%	5%	5%	25%	10%	5%	100%
06-MR		40%		10%	10%		25%	10%	5%	100%
07-FF	5%	30%	5%	10%	10%		25%	10%	5%	100%
08-CD	5%	30%	5%	10%	10%		25%	10%	5%	100%
09-MM	35%	5%		10%	3%	7%	25%	10%	5%	100%
10-JC	5%	35%		10%	5%	5%	25%	10%	5%	100%
12-WR	5%	30%	5%	10%	10%		25%	10%	5%	100%
13-WG	10%	30%		10%	10%		25%	10%	5%	100%
15A-DS	5%	30%	5%	10%	10%		25%	10%	5%	100%
15B-TW	5%	30%	5%	10%	10%		25%	10%	5%	100%
16A-SR		40%		10%	10%		25%	10%	5%	100%
16B-BR	5%	30%	5%	10%	10%		25%	10%	5%	100%

Region	Calder (N) Station Rd	Calder (E) Melbourne Rd	Calder (S) Couangalt Rd	Secondary College	Gisborne Primary Schools	New Gisborne Primary Schools	Town Centre	Railway Station*	Industrial	TOTAL
17-RW	40%			10%	3%	7%	25%	10%	5%	100%
18-JR	5%	30%	5%	10%	10%		25%	10%	5%	100%
19-MG	20%	20%		10%	2%	8%	25%	10%	5%	100%
20-MH	40%			10%	2%	8%	25%	10%	5%	100%
ADDITIONAL FUTURE DEVELOPMENT ZONES										
GRZ1-16	35%	5%		10%	3%	7%	25%	10%	5%	100%
RLZ5-53	20%	20%		10%	2%	8%	25%	10%	5%	100%
RLZ5-55		30%	10%	10%	10%		25%	10%	5%	100%
GRZ1-18		30%	10%	10%	10%		25%	10%	5%	100%
RLZ4-49		40%		10%	10%		25%	10%	5%	100%

**\* Railway Station includes trips to the station as well as trips further north of the railway line**



## 5.2 Future vehicular traffic model

### 5.2.1 Description

The 'future traffic' model utilises the same road network and directional splits in relation to trip destinations as the 'base case' model but assumes the ultimate number of dwellings in each region as per the 'Future Lots' in Figure 2-1.

The proposed number of future dwellings in Figure 2-1 is based on information supplied by Council's Strategic Planning Department and the current C110 Planning Scheme Amendment which implements the directions from the in the Rural Living Zone Strategy.

### 5.2.2 External Traffic Growth Rate

It is assumed that the externally generated traffic on the arterial and collector roads in Gisborne and New Gisborne will not increase at the same rate as the local road network. The reasoning behind this is primarily due to the new residential development being concentrated within township boundaries. It is assumed that externally generated traffic may increase slightly if surrounding towns experience minor growth.

For the purposes of deriving the future traffic volumes, it is assumed that the external traffic component will increase by approx. 1% per annum over a 20 year time frame. This equates to a 22.3% increase in externally generated traffic from 2016 to 2036.

### 5.2.3 Modelled Traffic Volumes

Existing and future forecast traffic volumes are displayed in Table 5-2 below showing the comparison of traffic volumes on key road links modelled in the 'base case' and the 'future traffic' scenario.

It should be noted that the model assumes that the majority of shopping trips (internally within Gisborne/New Gisborne) are still to/from the town centre and that any future shops outside of the town centre are expected to be local/neighbourhood shops, and the current town centre (Hamilton Street, Aitken Street, Robertson Street) is proposed to remain the main shopping precinct.

**Table 5-2 Existing and Future Traffic Volume Comparison**

Location	Surveyed Existing Daily Traffic Volumes (vpd)	Modelled Daily Traffic Volumes (vpd)	% Traffic Increase (includes external traffic growth if applicable)
	Existing 2016	Future - 2036	
Hamilton Road (west)	1,786	3,144	98%
Hamilton Road (east)	1,440	2,627	105%

Location	Surveyed Existing Daily Traffic Volumes (vpd)	Modelled Daily Traffic Volumes (vpd)	% Traffic Increase (includes external traffic growth if applicable)
	Existing 2016	Future - 2036	
Station Road (near Railway)	2,233	4,517	125%
Station Road (near Ferrier)	4,568	13,028	207%
Ferrier Road	819	1,612	119%
Saunders Road	5,788	7,944	60%
Ross Watt Road	1,441	6,762	392%
Station Road (near McKim)	14,923	28,798	115%
Frith Road	856	906	6%
Robertson Street	11,775	18,730	81%
Aitken Street (near Robertson)	11,416	25,430	145%
Hamilton Street	8,552	19,118	146%
Melbourne Road (near Hamilton)	10,928	18,333	90%
Kilmore Road	5,006	7,101	64%
Aitken Street (near Howey)	9,087	14,762	85%
Howey Street (near Aitken)	1,662	1,731	4%
Howey Street (near Sheedy)	1,552	1,594	3%
Melbourne Road (near Howey)	8,552	12,165	65%
Sheedy Road	2,426	3,704	53%
Aitken Street (near Fersfield)	4,852	8,180	91%

Location	Surveyed Existing Daily Traffic Volumes (vpd)	Modelled Daily Traffic Volumes (vpd)	% Traffic Increase (includes external traffic growth if applicable)
	Existing 2016	Future - 2036	
Fersfield Road	227	310	37%
Willowbank Road	1,865	4,816	180%
Mt Gisborne Road	2,833	3,466	45%
Brady Road	1,054	1,610	53%
Brooking Road	912	1,852	103%
McGeorge Road	1,247	2,192	76%
Couangault Road	2,204	2,754	47%

### 5.3 Summary of future traffic volumes

Figure 5-2 below maps the forecast future traffic volumes for roads in the Gisborne road network in 2036.

Many of the local precincts within the township of Gisborne are currently fully developed and hence will only be subject to minor traffic growth over the next 20 years. There are however a number of roads that will experience a significant increase in traffic volumes due to development areas in New Gisborne and South Gisborne.

Roads that are expected to receive significant growth by 2036 are discussed below.

#### Hamilton Road West

Hamilton Road, west of Barringo Road carries an average of 1,786 vehicles per day (vpd) and is classified as a Secondary Traffic Route accounting for a portion of externally generated traffic volumes. Hamilton Road west services two key traffic generators:

1. Main entrance to the Holy Cross Primary School; and
2. The Macedon Ranges Regional Netball Complex.

The future forecast traffic volume is estimated at 3,144 vpd.

## **Hamilton Road East**

Hamilton Road east of Barringo Road carries an average of 1,440 vpd and is classified as a Secondary traffic Route accounting for a portion of externally generated traffic volumes. Hamilton Road east services a direct link to Gisborne-Kilmore Road and on to Riddells Creek. Future development bordering Kilmore Road may see traffic utilising Pierce Road and hence Hamilton Road as:

- A link to the New Gisborne Industrial Estate;
- New Gisborne schools;
- Future industrial development on Hamilton Road; and
- The proposed Gisborne Sports Fields.

Forecast traffic volumes are significant and in the order of 2,267 vpd.

## **Station Road (Railway)**

The railway crossing on Station Road in New Gisborne will be subject to the same key traffic generators as Hamilton Road. Currently Station Road carries 2,233 vpd. Future forecast traffic volumes for are significant and in the order of 4,517 vpd.

## **Station Road (near Ferrier Road)**

This section of Station Road provides the main trunk line into residential New Gisborne, and access to the train station and New Gisborne Primary in addition to the destinations stated above. Station Road currently carries 4,568 vpd with a significant future forecast volume of 13,028 vpd.

## **Ferrier Road**

Ferrier Road currently carries 819 vpd and primarily services the New Gisborne Primary School and acts as Secondary Traffic Route that attracts externally generated traffic from nearby Macedon and Woodend. Ferrier in future is estimated to carry a significant increase in traffic in the order of 1,612 vpd.

## **Saunders Road**

Saunders Road is classified as a Vic Roads Arterial and carries 5,788 vpd. This road provides a direct connection to and from Riddells Creek, access to the New Gisborne Industrial Estate and an alternative route to the Calder Freeway. Future forecast traffic is estimated at 7,944 vpd.

## **Ross Watt Road**

Ross Watt Road is classified as a Secondary Traffic Route that carries 1,441 vpd and serves as an access road to the proposed 'Barro Lands' development and an alternative access road to and from Macedon and Mt Macedon. Ross Watt Road is expected to carry a significant increase in traffic of 6,762 vpd.

### **Station Road (Near McKim Road)**

This section of Station Road is classified as a Vic Roads Arterial carrying 14,923 vpd and provides multiple connections to the greater road network. This section of Station Road will ultimately increase to 28,798 vpd warranting the works in converting the norther Calder Interchange into dual lane roundabouts.

### **Robertson Street**

Robertson Street is classified as a Vic Roads Arterial carrying 11,755 vpd and provides a key heavy transport route through Gisborne to Bacchus Marsh and beyond. It also serves as a direct access point to many of Gisborne's amenities including the CFA, Gisborne Police and the MRSC offices.

Robertson Street is forecast to significantly increase to 18,730 vpd.

### **Aitken Street (near Robertson Street)**

Aitken Street is at the centre of Gisborne and is an extension of Station Road that serves as a Vic Roads Arterial providing a link through Gisborne in all directions. Aitken Street carries 11,416 vpd and is expected to significantly increase to 25,430 vpd.

### **Hamilton Street**

Hamilton Street provides a direct link to Gisborne's shopping precinct and residential areas of Gisborne West carrying 8,552 vpd. This volume is expected to increase significantly to 19,118 vpd.

### **Melbourne Road (near Hamilton Street)**

This section of Melbourne Road is a Vic Roads Arterial and provides a direct link to the eastern Calder Freeway interchange. Melbourne Road may become an increasingly popular route into Gisborne Central from new developments in the south of Gisborne around Willowbank and Brooking Roads. Melbourne Road conveys 10,928 vpd and is forecast to increase to 18,333 vpd.

### **Kilmore Road**

Kilmore Road provides an alternative access to New Gisborne and Riddells Creek and may be attributed traffic flows that are externally generated. Kilmore Road carries 5,006 vpd currently and is estimated to carry 7,101 vpd.

### **Aitken Street (near Howey Street)**

This section of Aitken Street is classified as a Vic Roads Arterial providing access to; developments south of Gisborne, Gisborne Secondary College, Gisborne Primary Schools and to Melton. Aitken Street carries 9,087 vpd and is estimated to increase to 14,732 vpd.



### **Gisborne Melton Road**

This section of Gisborne Melton Road Street is classified as a Vic Roads Arterial providing access to and from the nearby village of Toolern Vale and the City of Melton. The stretch of road assessed provides vehicle access to the Gisborne Secondary College travelling from either Aitken Street or Willowbank Road. Currently traffic counts are being collected for this road and will be added to this document once completed. Previously collected data on this roads shows a significant portion of heavy vehicles at 13% (443 vpd).

### **Melbourne Road (near Howey Street)**

This section of Melbourne Road is a VicRoads Arterial providing access to the eastern Calder Freeway Interchange and carries 8,552 vpd, with a future traffic volume of 12,165 vpd.

### **Sheedy Road**

Sheedy Road is considered as a local access street carrying 2,426 vpd. Sheedy Road had shown a rapid increase in usage when comparing 2006 to 2016 traffic data (see Table 4-1). Over the 10 year period Sheedy Road has increased by more than 300%. This is largely due to increased development south of Gisborne in the Willowbank Road and Brooking Road Estates. Sheedy Road is becoming a desirable alternative access road into Gisborne Central and the eastern Calder Interchange.

Sheedy Road is currently an 80km/h zone and is estimated to carry 3,704 vpd. It is recommended that Sheedy Roads hierarchy be upgraded to a Secondary Traffic Route, given its usage and attributed road environment.

### **Aitken Street (near Fersfield Road)**

This Section of Aitken Street is classified as a Vic Roads Arterial providing access to developments south of Gisborne, Gisborne Secondary College and Gisborne Primary Schools. Aitken Street carries 4,852 vpd and is estimated to carry 8,810 vpd.

### **Willowbank Road**

Willowbank Road acts as a collector road providing direct access to Aitken Street, the North-South main trunk line through Gisborne. It also serves as an access road to Gisborne Secondary College and to Gisborne-Melton Road. Willowbank Road is the primary collector road currently servicing dwellings from the Willowbank Road Estates and carries 1,865 vpd. It is forecast that this road will significantly increase in traffic to 4,816 vpd.

### **Brady Road**

Brady Road provides an alternative route to and from Brooking Road and Willowbank Road through a predominantly sparsely developed general residential zone. Brady Road carries 1,028 vpd and is expected to increase to 1,584 vpd.

### **Brooking Road**

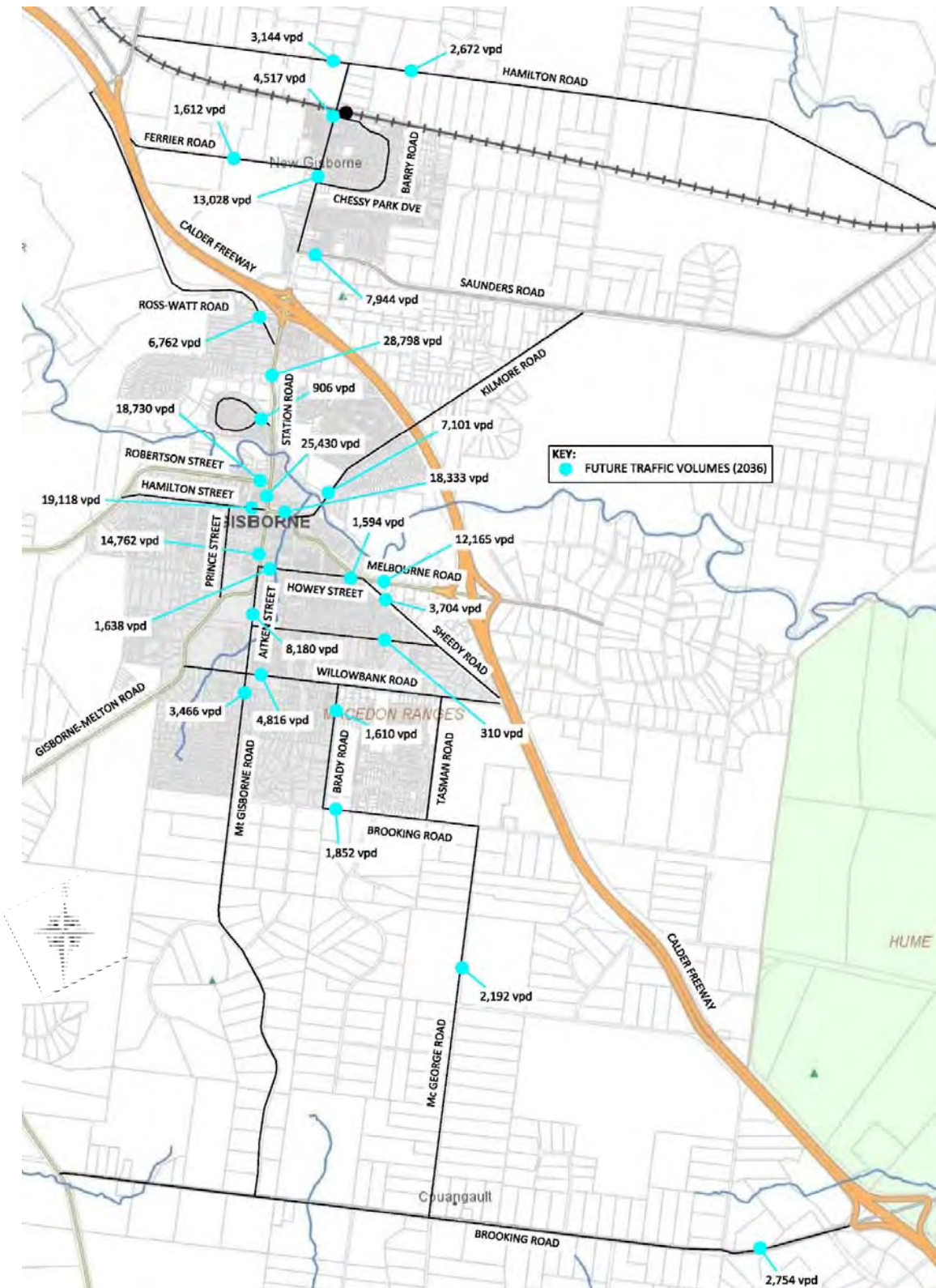
Brooking Road provides a connection to the Calder Interchange in Gisborne South and will largely retain its classification as a residential collector road. Brooking Road carries 912 vpd and is expected to increase significantly to 1,852 vpd due to proposed development in the Gisborne South area.

### **McGeorge Road**

McGeorge Road provides a connection to the Calder Interchange in Gisborne South and due to its 80km/h speed limit will form part of a secondary traffic route for the growing Gisborne South developments that would access Gisborne Central Amenities.

McGeorge Road carries 1,247 vpd and is expected to increase to 2,192 vpd.

Figure 5-2 Future Traffic Volumes - 2036



## 6 Road infrastructure

This section highlights the infrastructure works required to assist in catering for the future traffic volumes on Gisborne's road network. Any new infrastructure works that are initiated by Council are subject to implementation processes consisting of but not limited to; Environmental, and Urban Design assessments.

### 6.1 Proposed recommendations

The following proposed road infrastructure projects are diagrammatically represented in Figure 6-1.

#### 6.1.1 Intersection treatments

##### Station Road – Duplication (Vic Roads)

The future proposed duplication project planned for Station Road will address a number of the intersection improvements mentioned in the previous Study, these include:

- Station Road/Robertson Street –By sheer number increase in traffic, this intersection will continue to receive the greatest increase in traffic volumes approaching 2036. Possible traffic signals could provide gaps for vehicles exiting from side streets;
- Station Road/Ross Watt Road – realignment of the intersection be perpendicular including a left turn slip lane from Station Road;
- Station Road/Saunders Road – Intersection upgrade to become a roundabout or signals.

The first stage of this project is underway. It comprises of the construction of two roundabouts and the widening of the bridge underpass at the full diamond interchange with the Calder Freeway. This first stage is expected to be completed early 2017.

Council officers, in liaison with VicRoads, have suggested the second stage of this project to include the Saunders Road and Station Road intersection.

##### Melbourne Road/Kilmore Road

Intersection upgrade in the form of a roundabout is recommended to provide greater gap selection time for traffic exiting Kilmore Road.

##### Willowbank Road/Fersfield Road

The current Fersfield Road Development Plan removes the suggestion for a fourth leg and roundabout and alternatively provides for a through road from Willowbank Road to Fersfield Road, midblock between Parkview Street and Brady Road.

### **Brantome Street/Hamilton Road/Robertson Street**

Increased traffic numbers accessing the Gisborne Central Business District via Robertson Street and Hamilton Street will increase dramatically at 81% and 146% respectively by 2036. In order for the local road infrastructure to cope with the forecast influx of traffic it is proposed that Brantome Street become one-way from North to South with roundabouts installed at either intersection.

### **Ferrier Road/Station Road**

Significant traffic growth in the New Gisborne area will be attributed to a number of new residential developments, extension of the New Gisborne Industrial Estate and future sporting precincts. Station Road is the main north-south trunk line from New Gisborne to Gisborne and is expected to carry an additional 8,460 vehicles in 2036 equating to a 207% increase. Ferrier Road traffic will increase by 120% highlighting that the now already congested intersection during morning and afternoon peak will require treatment. It is recommended to install a signalised intersection at Ferrier Road and Station Road.

### **Brady Road/Willowbank Road**

Brady Road traffic movements are set to increase 50% by 2036 and Willowbank Road by 180%. The intersection of Brady Road would benefit greatly by being modified to a roundabout as its width is currently restrictive. Additionally it is recommended that with further development east of Brady Road that the full length be upgraded to reflect its residential nature and the speed zone be reduced from rural default 100kph to residential default 50kph.

The proposal to create a fourth leg on the roundabout at Parkview Street still stands once development is approved on the eastern side of Brady Road.

### **Sheedy Road/Fersfield Road/Bloomfield Road**

Sheedy Road traffic movements are expected to increase by more than 50% due to the proposed residential development in the south of Gisborne from the Brooking Road, Fersfield Road and Willowbank Road Estates. The recommendation is for intersection upgrades at the subject intersections in the form of roundabouts or other formalised treatments.

## **6.1.2 Existing Road Infrastructure Upgrades**

### **Aitken Street**

The section of Aitken Street between Gisborne-Melton Road and Willowbank Road is expected to increase by over 90% (3,328 vpd) in reaching 2036. It is recommended to upgrade this portion of road once traffic figures are reached to justify duplication.

### **Willowbank Road**

Willowbank Road is proposed to be upgraded largely being Developer funded, where Council will do further minor upgrade works upon completion.



### **6.1.3 New Road Infrastructure**

#### **Gisborne Bypass**

Station Road provides a north-south main trunk line through Gisborne and carries significant volumes of traffic from New Gisborne and the northern Calder Freeway off-ramp.

In particular heavy vehicles heading south through Gisborne to Bacchus Marsh and beyond, is assumed to be in the order of 6.2% (726 vpd) of all traffic travelling along Station Road and Robertson Street.

If constructed, the Gisborne Bypass would divert this portion of heavy vehicles off of Station Road and Robertson Street.

Additionally if the Gisborne Bypass were to also extend further south to connect with Gisborne – Melton Road, there is potential to relieve Station Road of a further 13% (443 vpd) heavy vehicles.

It should be noted that the above figures include all heavy vehicles Class 3 and above. Class 3 vehicles are described as a two axle truck or bus.

#### **New Gisborne Development**

Residential development west of Station Road in New Gisborne will see Station Road traffic numbers increase to 13,028vpd by 2036, an increase of 207%. In order to distribute this traffic a future road link connecting the New Gisborne west development to Ferrier Road and to connect with Octagonal Court and ultimately Station Road, see Figure 6-1.

#### **Payne Road Extension to New Gisborne Industrial Estate**

The New Gisborne Industrial Estate is forecast to expand by 155 lots. This expansion justifies the requirement to extend Payne Road to connect with Sauer Road.

#### **Pierce Road Upgrade**

Due to expansion of the New Gisborne Industrial Estate and with further industrial lots planned for Hamilton Road East, it is envisaged that Pierce Road will receive increased traffic flows seeking an alternative route to Station Road to and from New Gisborne.

Proposed development precincts 4 and 5 (see Figure 2-1) equate to 172 lots where a proportion can be assumed to access New Gisborne services via Pierce Road.

It is therefore recommended that Pierce Road undergo some minor widening by adding unsealed shoulders and linemarking. Where Pierce Road intersects with Hamilton Road and Gisborne-Kilmore Road, suitable intersection upgrades will be necessary.

## **6.1.4 Omitted/Completed Recommendations**

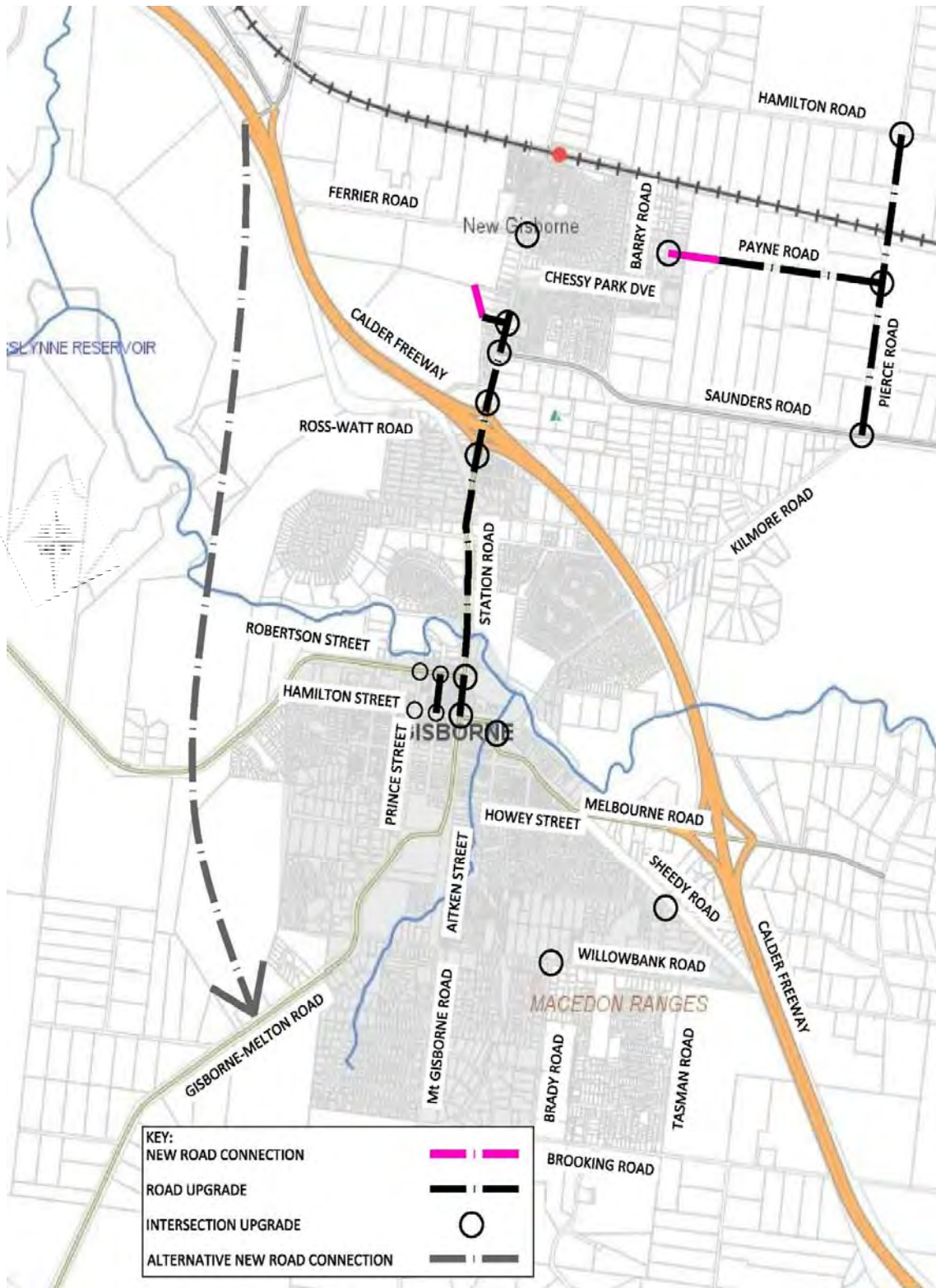
### **Willowbank Road/Aitken Street/Mt Gisborne Road**

To cater for the previously forecast traffic volumes a roundabout was recommended and installed in April 2013.

### **Willowbank Road/Gisborne-Melton Road**

The requirement for an extension to the west of Gisborne-Melton Road for Willowbank Road that would ultimately serve future residential development is no longer required as residential development west of Gisborne-Melton Road is no longer in the Gisborne Development Plan.

Figure 6-1 Recommended Road Infrastructure Upgrades



## 6.2 Indicative funding for road infrastructure works

Table 6-1 below organises recommended infrastructure works by:

- Responsible authority; and
- Timeframe for the treatment

**Table 6-1 New Road Infrastructure Indicative Costs**

Location	Authority	Potential identified issues	Timeframe	Est. Cost
Brantome Street and intersection with Hamilton Street	MRSC/ VicRoads	Vehicular and pedestrian traffic conflicts and congestion	2-3 years+	\$700K
Brady/Willowbank Road intersection	MRSC	Insufficient width, traffic congestion at the intersection	3 years	\$150K
Station Road - Duplication (VicRoads) Further stages	VicRoads	Traffic congestion	5 years+	Unknown
Station Road / Saunders Road intersection	VicRoads	Traffic congestion, numerous low speed crashes	ASAP	\$2M
Kilmore/Saunders Road	VicRoads	Potential Blackspot intersection layout	1 year	\$800K
Melbourne/Kilmore Road intersection (VicRoads)	VicRoads	Intersection congestion	5 years+	\$1M
Willowbank/Fersfield Road (Council)	MRSC	Connectivity	5 years+	\$840K

Location	Authority	Potential identified issues	Timeframe	Est. Cost
Aitken Street	MRSC	Narrow road, intersection treatments	5 years+	\$800K
New Gisborne Development	MRSC	Connectivity between Octagonal Court and intersecting with Ferrier Road	5 years+	\$2.8M
Connection – second access to New Gisborne Industrial Estate	MRSC	Substandard condition (for industrial access and heavy vehicular traffic), connectivity to the New Gisborne Industrial Estate	5 years+	\$2M
Ferrier/Station Road intersection	MRSC	Traffic conflict at the intersection, congestion	5 years+	\$350K
Sheedy/Fersfield/Bloomfield Road intersections	MRSC	Traffic congestion at the intersections, unsafe vehicular conditions	5 years+	\$250K
Pierce Road	MRSC/ VicRoads	Vehicular congestion and unsafe traffic conditions at the intersections	2031+	\$4M
Gisborne Bypass	VicRoads	Heavy truck traffic through Station Road and connectivity to Gisborne-Melton Rd	15 years+	\$120M



## 7 Town Centre Car Parking

### 7.1 Summary

In December 2014 Macedon Ranges Shire Council conducted a peak occupancy of on-street and off-street parking spaces in the town centre of Gisborne that yielded the following results:

- There are a total of 1539 car spaces
- 667 of these spaces are located on-street (43%)
- 872 spaces are located off-street (57%)
- A variety of restrictions apply to the parking within the survey area, however, there is no paid parking.

In order to identify typical peak conditions, detailed parking demand surveys were conducted in Gisborne on:

- Thursday 4<sup>th</sup> of December 2014 and Friday 5<sup>th</sup> of December 2014 between 9:00am and 5:00pm.
- Saturday 6<sup>th</sup> of December 2014 between 9:00am and 2:00pm.
- Thursday's and Friday's weather condition was clear
- Saturday's weather condition was wet

The average occupancy rate for Gisborne over the three consecutive days surveyed was found to be 56%. The overall peak time was observed to occur between 1.00pm and 2.00pm on Thursday and between 11.00am and 12.00pm on Friday and Saturday (including both on-street and off-street parking).

The most critical areas surveyed for on-street parking with an average occupancy rate above 80% were observed to be:

- Goode Street (A11) on Thursday and Friday
- Hamilton Street (A8) on Thursday, Friday and Saturday
- Brantome Street (A13) on Saturday
- and Aitken Street (A2) on Saturday

The most critical areas surveyed for off-street parking with an average occupancy rate above 80% were observed to be:

- AAMI Building/Nexus Centre (A21) on Thursday
- Real Estate Agent (A23) on Thursday and Friday

The Gisborne parking survey map below in Figure 7-1 depicts the area for surveyed on and off-street parking.

Figure 7-1 Gisborne Parking Survey Map



Table 7-1 below relates the parking demand figures to the survey area map in Figure 7-1 above. The Parking Demand Table shows the peak occupancy rates for the surveyed range from Thursday to Saturday (highest usage days), and the allocated disability parking space at each location.

**Table 7-1 Gisborne Parking Demand**

STREET		THURSDAY			FRIDAY		SATURDAY	
ON-STREET	Total Capacity	Allocated Disabled Spaces	Average Occupancy Rate	Peak Occupancy Rate	Average Occupancy Rate	Peak Occupancy Rate	Average Occupancy Rate	Peak Occupancy Rate
A1 - AITKEN STREET (West Side) Service Road	64	4	43%	56%	38%	66%	68%	89%
A2 - AITKEN STREET (West Side) Service Road	66	3	63%	89%	63%	85%	91%	98%
A3 - AITKEN STREET (East Side) Service Road	32		30%	41%	41%	72%	41%	53%
A4 – MELBOURNE ROAD (North Side) Service Road	46		42%	52%	52%	80%	45%	57%
A5 – MELBOURNE ROAD	40	1	58%	70%	68%	78%	58%	60%
A6 - AITKEN STREET (East Side) Service Road	26	1	29%	73%	36%	65%	25%	35%
A7- AITKEN STREET (West Side) Service Road	39	1	51%	67%	46%	56%	43%	51%
A8 - HAMILTON STREET	39	2	89%	95%	85%	97%	91%	95%
A9 - BRANTOME STREET	13		72%	85%	64%	77%	48%	77%
A10 - HAMILTON STREET	20		41%	50%	63%	80%	63%	75%
A11 - GOODE STREET	76		96%	100%	91%	95%	18%	20%

STREET		THURSDAY			FRIDAY		SATURDAY	
ON-STREET	Total Capacity	Allocated Disabled Spaces	Average Occupancy Rate	Peak Occupancy Rate	Average Occupancy Rate	Peak Occupancy Rate	Average Occupancy Rate	Peak Occupancy Rate
A12 - PRINCE STREET	43		48%	65%	48%	63%	48%	60%
A13 - BRANTOME STREET	72	2	76%	88%	80%	90%	87%	92%
A14 - BRANTOME STREET	58	4	65%	79%	56%	74%	66%	79%
A15 - ROBERTSON STREET	8		48%	75%	75%	88%	80%	100%
A16 - ROBERTSON STREET	25		59%	88%	57%	76%	69%	84%
A17 - COLES	89	2	45%	65%	45%	53%	72%	88%
A18 - GISBORNE PARK	43	2	40%	58%	38%	58%	31%	40%
A19 - CHILDRENS PLAYGROUND	35		27%	46%	27%	46%	7%	11%
A20 - Mc DONALDS	52	1	40%	52%	31%	40%	39%	48%
A21 - AAMI BUILDING/NEXUS CENTRE	72	3	87%	97%	76%	89%	25%	31%
A22 - IGA	249	8	70%	84%	67%	79%	63%	67%
A23 - REAL ESTATE AGENT	27		86%	100%	82%	100%	61%	74%
A24 - GARDINER RESERVE PARK	121	5	32%	43%	23%	34%	24%	33%
A25 - LIBERTY	11		57%	64%	67%	82%	27%	36%
A26 - HERITAGE WAY	66	1	65%	76%	70%	82%	67%	79%
A27 - FOODWORKS	32	2	63%	78%	72%	97%	77%	97%

STREET		THURSDAY			FRIDAY		SATURDAY	
ON-STREET	Total Capacity	Allocated Disabled Spaces	Average Occupancy Rate	Peak Occupancy Rate	Average Occupancy Rate	Peak Occupancy Rate	Average Occupancy Rate	Peak Occupancy Rate
A28 - ROOF + SIDE CARPARK	57		36%	42%	29%	35%	8%	11%
A29 - PRIVATE PROPERTY	18	1	41%	44%	40%	44%	22%	22%



## **7.2 Anticipated future parking trends**

There are currently 6,488 dwellings within the Gisborne Township that are contained within the proposed development boundaries as depicted in Figure 5-1.

The future forecast residential development in 20 years' time in 2036 will see the estimated future number of dwellings reaching up to 8,221. This represents an increase of 27%.

The current peak parking demand in Gisborne town centre is 1,102 spaces. If we adopt the percentage increase of dwellings forecast for 2036 and apply that to the future parking demand, we see a parking requirement in 2036 of 1,400 car parks.

The parking requirement suggests a parking space shortfall of 300 spaces by 2036.

To satisfy the future forecast parking requirements, any new retail development that generates additional demand shall be provided for on-site by the developer.

## **7.3 Recommendations**

The road network in the Gisborne town centre cannot cater for large numbers of new car parks to satisfy the shortfall forecast in 2036. Alternative parking provisions will need to be provided either by the body corporate of existing private off street car parks or by Council acquisition of land.

There are a number of opportunities within the Gisborne Central Business District that should be explored in the following years.

## 8 References

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## Appendix A – Gisborne footpath forward works program

Table A-1 Footpath Forward Works Program

Asset Sub Type	Asset Name	Location	Locality	Surface Type	Length (m)	Width (m)	Proposed Construction Date
High Priority	Scenic Court	Scenic Court from Mountain View Way to Hilltop Way (south side)	Gisborne	Concrete	20.00	1.5	Complete
High Priority	Mount Gisborne Road	Mount Gisborne Road (west side) between Carinya Drive and Glenton Court	Gisborne	Concrete	120.00	1.5	Complete
High Priority	Fisher Street	Fisher Street from Calthorpe Street to Rodney Street	Gisborne	Concrete	200.00	1.5	Complete
High Priority	Fersfield Road	Preparation works for future path over Howey Creek on Fersfield Road between Aitken Street and where existing path ends.	Gisborne	Concrete	50.00	2.5	Complete
High Priority	Barringo Road	Barringo Road from existing school crossing to Netball complex entrance Hamilton Road	New Gisborne	Concrete	150.00	2.5	Under Construction
Medium Priority	Station Road	Station Road between the footpath stops at property boundary of 269/271 and	New Gisborne	Concrete	215.00	1.5	2016/17

Asset Sub Type	Asset Name	Location	Locality	Surface Type	Length (m)	Width (m)	Proposed Construction Date
		connecting existing footpath near the school					
High Priority	Wyralla Crescent	Wyralla Crescent from Morilla Court to existing path on northern boundary of 4 Collis Court.	Gisborne	Concrete	110.00	1.5	2017/18
Medium Priority	Kilmore-Gisborne Road	Kilmore-Gisborne Road (east side) from where the current footpath stops to opposite to The Boulevard	Gisborne	Concrete	275.00	1.5	2018/19
Medium Priority	Barry Road	Barry Road from where the footpath extension coming from the estate to Ladd Road	New Gisborne	Concrete	200.00	1.5	2018/19
Medium Priority	Fisher Street	Fisher Street (E) from Aitken Street service road to Calthorpe Street (north side)	Gisborne	Concrete	225.00	1.5	2019/20
Medium Priority	Doriemus Court	Doriemus Court from the Court bowl end (where the footpath stops) to Early Street	New Gisborne	Concrete	182.00	1.5	2019/20

<b>Asset Sub Type</b>	<b>Asset Name</b>	<b>Location</b>	<b>Locality</b>	<b>Surface Type</b>	<b>Length (m)</b>	<b>Width (m)</b>	<b>Proposed Construction Date</b>
Medium Priority	Station Road	Station Road from Colwyn Estate to Ferrier Road (west side)	New Gisborne	Concrete	510.00	1.5	2022/23
Medium Priority	Kensei Court	Kensei Court from where the footpath stops at the Court bowl (this footpath coming from the Galilee Court and Comic Court) to Chessy Park Drive	New Gisborne	Concrete	160.00	1.5	2025/26



# Appendix B – Primary pedestrian and cycling network maps

Figure B-1 New Gisborne Network Map

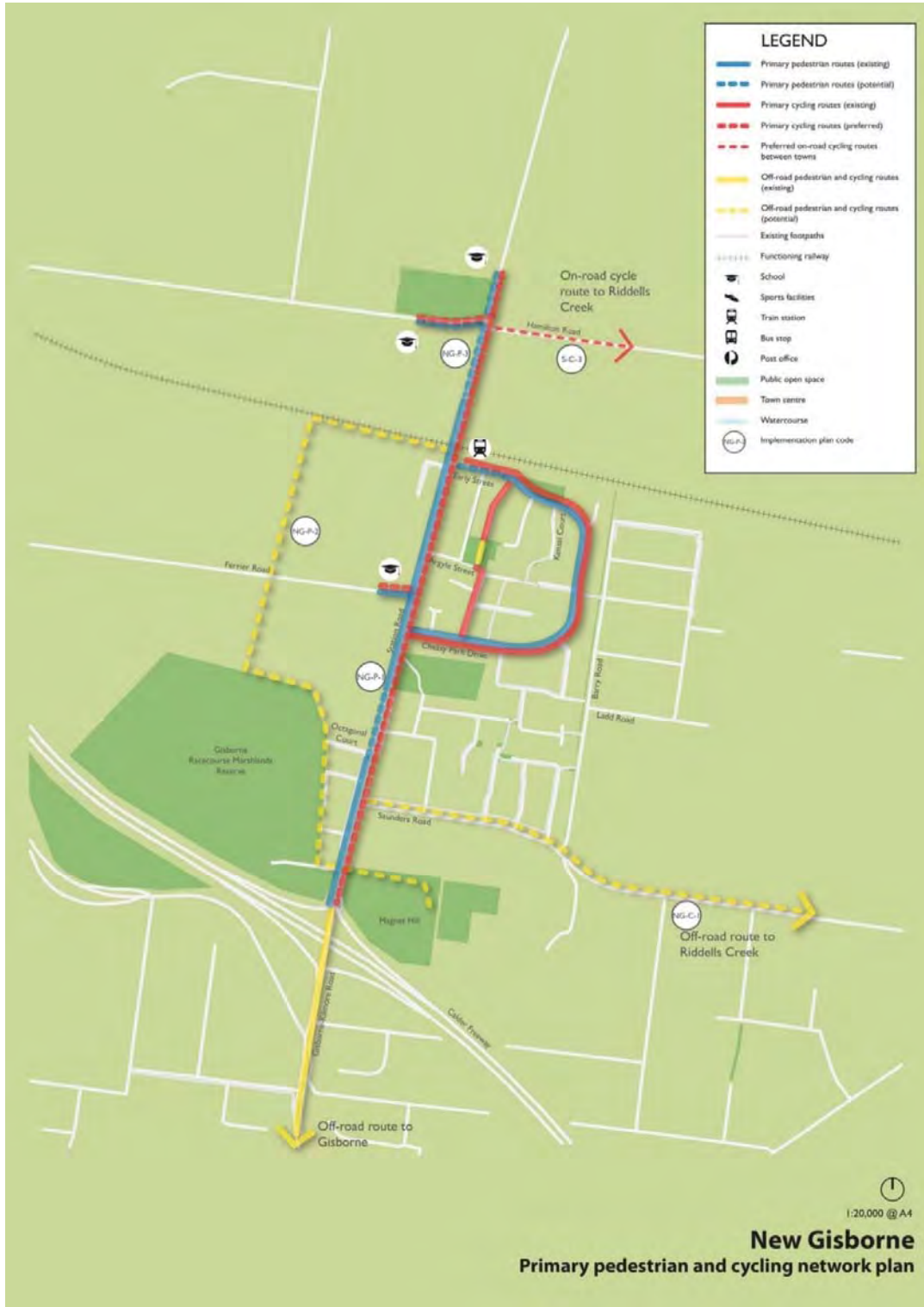
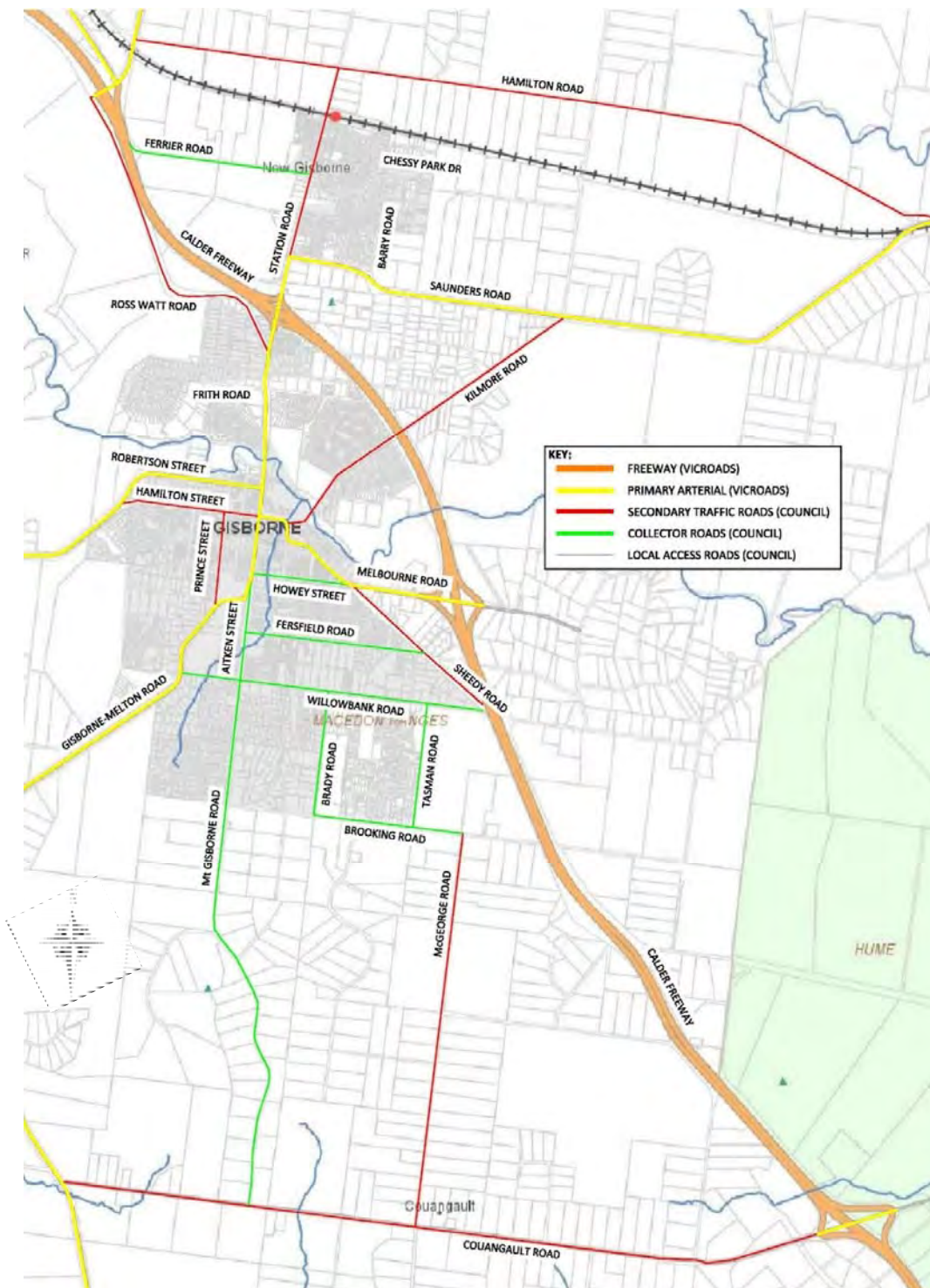


Figure B-2 Gisborne Network Map



# Appendix C – Future Road Hierarchy

Figure C-1 Future Road Hierarchy Map



# 2016 GISBORNE MOVEMENT NETWORK STUDY

MACEDON RANGES SHIRE COUNCIL



## EXECUTIVE SUMMARY

The 2016 Gisborne Movement Network Study (GMNS) analysed the existing and future impact of various modes of traffic on the road and footpath network in the Gisborne District. It identified future infrastructure requirements to cater for its growth and assesses the existing provisions for vehicular, pedestrian and cyclist traffic with the future requirements (as stated in the 2009 Outline Development Plan) that are needed to allow for effective multi-modal distribution to and from new developments in the district.

Provisions are recommended for pedestrians and cyclists as highlighted in Council's Walking and Cycling Strategy 2014. This strategy complements Council's Shire-wide Footpath Strategy that identifies and prioritises footpaths according to their connectivity to local services.

The Settlement Strategy defines a Regional Centre as having over 10,000 residents. Population data in 2011 placed the Gisborne district as a Regional Centre. This condition strengthens the requirement for multi-modal traffic infrastructure.

Additional infrastructure requirements can be recognised by the forecast population statistics that will shape the extent at which the Gisborne public transport systems develops.

Increases in population may be attributed to surges in the need for the day to day necessities provided by the town centre. By 2036 it is predicted that Gisborne will have a shortfall of nearly 300 parking spaces for residents to access Gisborne's town centre services.

### Major findings

#### 1. Population Projections

The forecast population projections assessed in the Gisborne District study area highlight a 61.5% increase from 2016 to 2036 with an average annual population growth of 2.5%.

Population Projections Table						
GMNS - 2016						
Year	2011	2016	2021	2026	2031	2036
Population*	11,380	13,198	15,846	17,754	19,527	21,319

\*Data by .id Consulting Pty Ltd

#### 2. Traffic

Traffic on Gisborne's road network will increase in excess of 100% by 2036. The main roads impacted are:

Road	Forecasted Volume 2036	% vs 2016
Hamilton Road (east)	2,627	105
Station Road (near railway)	4,517	125
Station Road (near Ferrier)	13,028	207
Ferrier Road	1,612	119
Ross Watt Road	6,762	392
Station Road (near McKim)	28,798	115
Aitken Street (near Robertson)	25,430	145
Hamilton Street	19,118	146
Willowbank Road	4,816	180
Brooking Road	1,852	103



### 3. Recommendations

The following recommendations relate to road related infrastructure upgrades to be managed by VicRoads, Macedon Ranges Shire Council (MRSC) or both.

Location	Authority	Potential identified issues	Timeframe	Est. Cost
Brantome Street and intersection with Hamilton Street	MRSC/ VicRoads	Vehicular and pedestrian traffic conflicts and congestion	2-3 years+	\$700K
Brady/Willowbank Road intersection	MRSC	Insufficient width, traffic congestion at the intersection	3 years	\$150K
Station Road - Duplication (VicRoads) Further stages	VicRoads	Traffic congestion	5 years+	Unknown
Melbourne/Kilmore Road intersection (VicRoads)	VicRoads	Intersection congestion	5 years+	\$1M
Station Road / Saunders Road intersection	VicRoads	Traffic congestion, numerous low speed crashes	ASAP	\$2M
Kilmore/Saunders Road	VicRoads	Potential Blackspot intersection layout	1 year	\$800K
Willowbank/Fersfield Road (Council)	MRSC	Connectivity	5 years+	\$840K
Aitken Street	MRSC	Narrow road, intersection treatments	5 years+	\$800K
New Gisborne Development	MRSC	Connectivity between Octagonal Court and intersecting with Ferrier Road	5 years+	\$2.8M
Connection – second access to New Gisborne Industrial Estate	MRSC	Substandard condition (for industrial access and heavy vehicular traffic), connectivity to the New Gisborne Industrial Estate	5 years+	\$2M
Ferrier/Station Road intersection	MRSC	Traffic conflict at the intersection, congestion	5 years+	\$350K
Sheedy/Fersfield/Bloomfield Road intersections	MRSC	Traffic congestion at the intersections, unsafe vehicular conditions	5 years+	\$250K
Pierce Road	MRSC/ VicRoads	Vehicular congestion and unsafe traffic conditions at the intersections	2031+	\$4M
Gisborne Bypass	VicRoads	Heavy truck traffic through Station Road and connectivity to Gisborne-Melton Rd	15 years+	\$120M

## **Footpaths and cycling infrastructure**

The study acknowledges opportunities for improvement that are covered in the Shire-Wide Footpath Strategy. It also highlights opportunities identified in Council's Walking and Cycling Strategy 2013.

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