CITY OF GREATER BENDIGO

GREATER BENDIGO ROAD SAFETY ACTION PLAN 2023 – 2027

CITY OF GREATER BENDIGO

APRIL 2023

CITY OF GREATER BENDIGO
ROAD SAFETY ACTION PLAN 2023 – 2027

PREPARED BY:

Suite 2.03, 789 Toorak Road
Hawthorn East, Victoria 3123

T: 61 3 9804 3610
W: obrientraffic.com
ABN 55 007 006 037

STUDY TEAM

Lisa Steinmetz
Jemima Macaulay
James Ramm
Matt Harridge

OBT JOB NUMBER: 21545

CONTENTS

1 INTRODUCTION

The City of Greater Bendigo has developed this Road Safety Action Plan for the period 2023 – 2027, with funding under the TAC Local Government Grants Program. The Action Plan will support the vision of providing 'safe travel for the Greater Bendigo community and its visitors'.

The Road Safety Action Plan seeks to align with the Victorian Road Safety Strategy 2021-2030, and set the framework for reducing fatal and serious injury crashes on Bendigo's roads over the coming years. The Action Plan seeks to identify strong, overarching goals that work towards zero fatalities and a decrease in all crash injuries on Greater Bendigo's road and path network, focusing on the following key principles:

- Safer roads through engineering and infrastructure
- Safer speeds by creating a culture where the community regards speeding as unacceptable as drink driving
- Safer people through a shared responsibility for the safety of all road users – cyclists, pedestrians, motorcyclists & drivers
- Safer shared paths and footpaths.

The Action Plan identifies actions required to improve road safety and guide the implementation of road safety activities within Greater Bendigo for a five-year period by:

- outlining key actions that meet the overarching goals
- providing input into prioritisation of Capital Works Programs by highlighting areas where new treatments should be installed.
- assisting COGB in applying for State and Federal funding for road safety and infrastructure improvement projects.

ACKNOWLEDGEMENT OF COUNTRY

The City of Greater Bendigo is on both Dja Dja Wurrung and Taungurung Country. We acknowledge and extend our appreciation for the Dja Dja Wurrung and Taungurung Peoples, the Traditional Owners of this land. We pay our respects to leaders and Elders past, present and emerging for they hold the memories, the traditions, the culture and the hopes of all Dja Dja Wurrung and Taungurung Peoples. We express our gratitude in the sharing of this land, our sorrow for the personal, spiritual and cultural costs of that sharing and our hope that we may walk forward together in harmony and in the spirit of healing.

2 STRATEGIC CONTEXT

2.1 THE SAFE SYSTEM, NATIONAL AND VICTORIAN ROAD SAFETY STRATEGIES

The Safe System approach seeks to create a safe street environment for everyone using the transport network, including people who walk and cycle, people travelling in motor vehicles, and people using public transport. Consideration is given to people of all abilities and experience (e.g. children, seniors, people with limited mobility, experienced vs recreational cyclists).

The Safe System approach recognises that people make mistakes, that crashes will continue to occur and that humans have a limited tolerance to impact forces. The approach seeks to eliminate the potential for fatal and serious injury crashes

Australia's *National Road Safety Strategy 2021–2030* and the *Victorian Road Safety Strategy 2021–2030* both reflect Safe System principles and seek to achieve zero deaths by 2050.

The Victorian Strategy outlines an intermediate objective of halving road deaths and reducing the incidence of serious injury by 2030.

2.2 COUNCIL POLICIES AND STRATEGIES

The Road Safety Action Plan is consistent with Council's aim to provide a safe road network for the community. It aligns with other Council policies and strategies, including:

- Council Plan 2021 – 2025, Mir wimbul
- Plan Greater Bendigo 2018
- Asset Plan 2022-2032
- Connecting Greater Bendigo (Integrated Transport and Land Use Strategy, ITLUS, 2015)
- Walk, Cycle Greater Bendigo (Walking and Cycling Strategy 2019)
- Community Access and Inclusion Plan 2015-2018
- Health and Wellbeing Plan 2021-2025
- Rural Communities Strategy 2016
- Bendigo City Centre Plan 2020
- Managed Growth Strategy (draft issues and opportunities paper 2022)
- Economic Development Strategy 2020-2030.

PLAN GREATER BENDIGO

Seeks to support sustainable population and economic growth for the benefit of all residents, creating a strong core and striving for a healthier, better connected and educated community

COUNCIL PLAN 2021 – 2025, MIR WIMBUL

Outlines community priorities, vision and considers legislative requirements as well as climate change and environmental goals. The Council Plan forms part of COGB's integrated strategic framework, with links to other key strategic documents

CONNECTING GREATER BENDIGO

Working together to be Australia's most liveable regional city

- strengthening connections between people and places
- improving public transport and active travel

WALK, CYCLE GREATER BENDIGO

Seeks to support people to walk and cycle more often

- *Comfort, convenience and connections*
- *Activating community, culture and capacity*
- *Information and awareness*

ASSET PLAN

Provides a strategic overview of how Council manage assets on behalf of the community. Challenges, opportunities, improvement actions and significant projects are identified for eight asset groups including Sealed roads, Pathways and Unsealed roads, such as:

- Balancing road safety with native vegetation retention
- Retrofitting on-road bike lanes
- Impacts of increased heavy vehicle traffic
- Issues relating to increasing traffic volumes, maintenance, renewal, and upgrades of unsealed roads
- Improving equitable access to pathways
- Addressing gaps in the path network
- Ensuring path crossings of roads meet regulatory standards

RURAL COMMUNITIES STRATEGY

Focuses on improving liveability, health and wellbeing, and providing fairer access to opportunities for more vulnerable community members

Promoting and supporting active transport is recognised as a key measure to improve community health and wellbeing

MANAGED GROWTH STRATEGY

Identifies:

- Desire for people to easily get around by walking, cycling, public transport or driving
- Need for easy access schools and kindergartens
- Safety concerns when riding a bicycle on roads
- Increasing car and truck volumes
- Lack of pedestrian and cycle connections and infrequent public transport in some areas

ECONOMIC DEVELOPMENT STRATEGY

- Transport infrastructure to support major jobs growth and investment
- Supporting connections for Bendigo Metro Rail project

BENDIGO CITY CENTRE PLAN

The Bendigo City Centre will be a vibrant regional mixed use destination for businesses, employment, recreation and a home for people

Creating an accessible space

- Pedestrian safety, access and amenity
- Cyclist safety & connections
- Motorist navigation and convenient parking

COMMUNITY ACCESS AND INCLUSION PLAN

Identified a need for:

- better public transport links and networks (accessible and affordable)
- improving accessible parking bays
- improving footpath networks

HEALTH AND WELLBEING PLAN

- *Healthy and well*
- *Safe and secure*
- *Able to participate*
- *Connected to culture and community*
- *Liveable*

3 TRAVEL IN GREATER BENDIGO

The City of Greater Bendigo is located in central Victoria, approximately 130 km north-west of Melbourne. It features the city of Bendigo, a number of townships including Heathcote, Elmore, Goornong, Marong, Redesdale, Raywood, Axedale, Lockwood, Neilborough, Sebastian, Woodvale, Raywood, Mia Mia and Redesdale, as well as large rural areas.

In common with all other municipalities, the City of Greater Bendigo's roads can be divided into two broad categories:

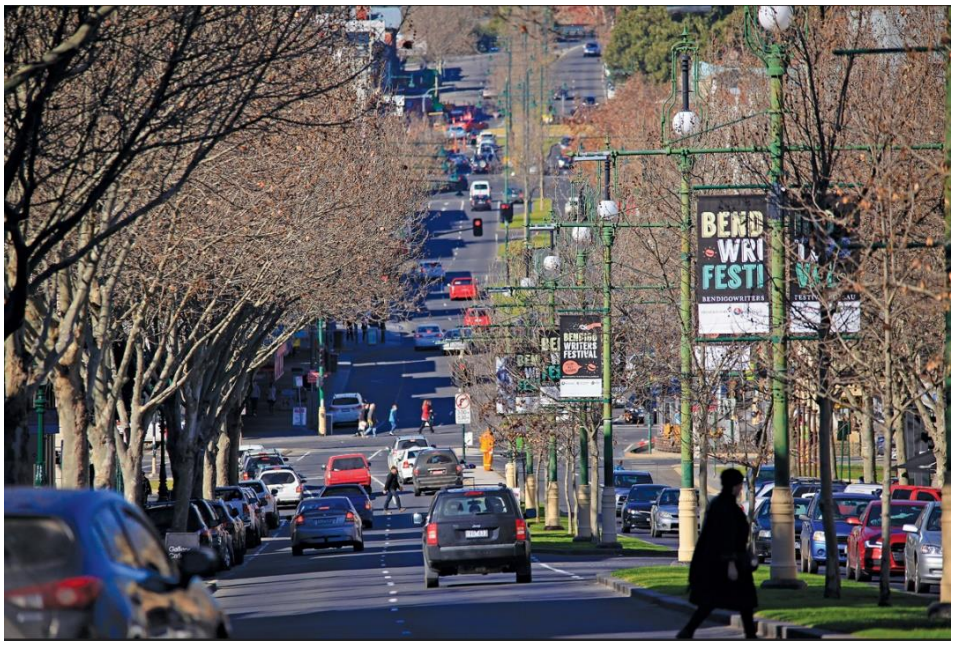
- Department of Transport and Planning (DTP) State Arterial Roads (including highways), and
- Council local roads.

The City of Greater Bendigo is responsible for looking after over 1,500km of sealed roads and 1,400km of unsealed (gravel) road.

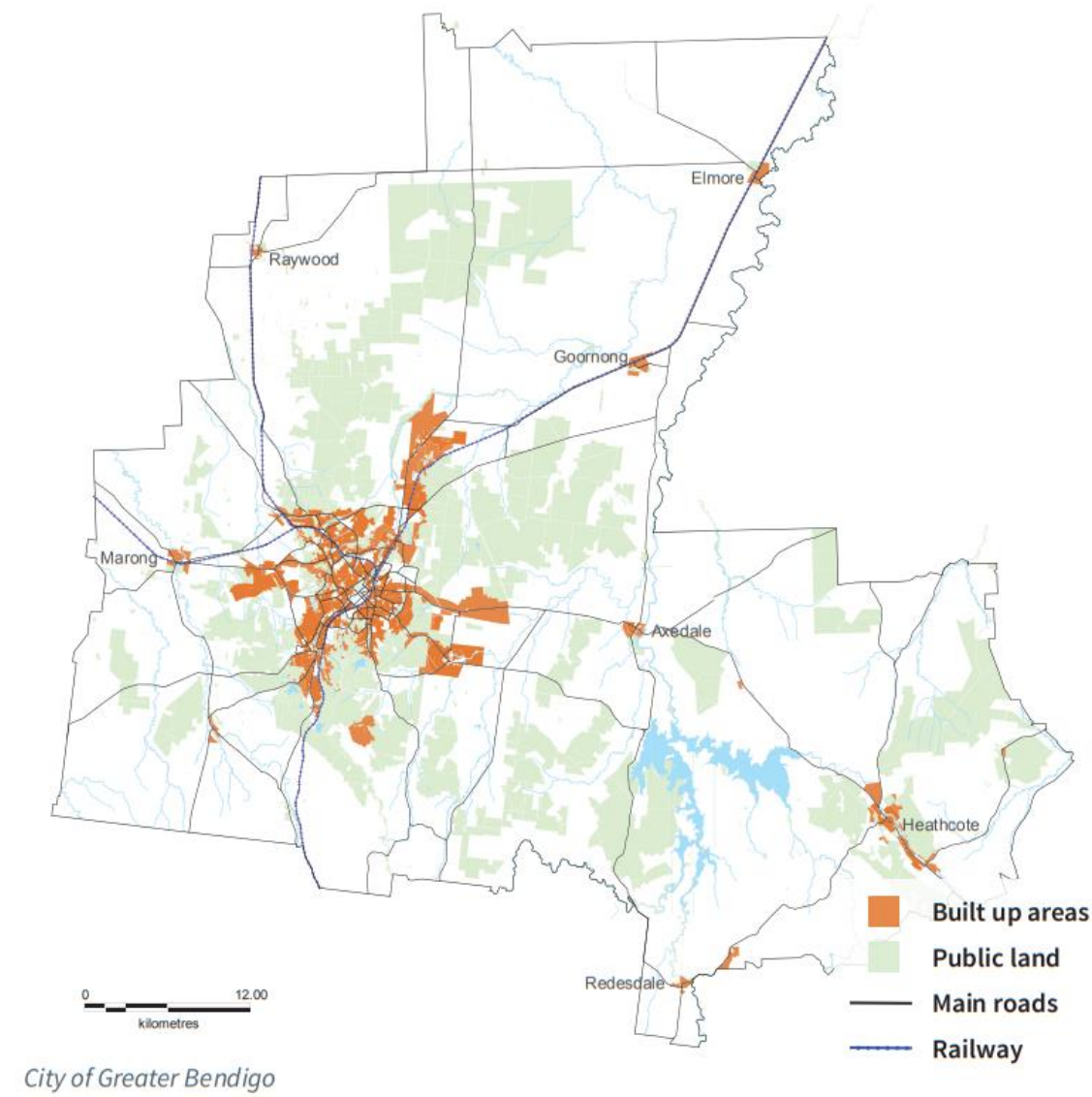
The estimated population for City of Greater Bendigo as of the 30th June 2021 is 121,221, with forecast population growth of over 20% by 2036[1].

The population is highly car dependant, with over 75% of trips to work involving car travel. Compared to regional Victoria, Greater Bendigo has a higher proportion of travel to work by car, and a lower proportion by active and public transport modes.

While many trips in Greater Bendigo involve cars, many active trips (walking and cycling) are also made. The City of Greater Bendigo seeks to encourage travel on the active transport network through improving paths and connections at key locations. Supporting increased travel choices for people leads to better health, wellbeing, road safety and social outcomes.



[1] id consulting Pty Ltd 2022, *City of Greater Bendigo Community profile* https://profile.id.com.au/bendigo; *City of Greater Bendigo population forecast* https://forecast.id.com.au/bendigo



SOURCE: CONNECTING GREATER BENDIGO, INTEGRATED TRANSPORT AND LAND USE STRATEGY 2015

FIGURE 1: CITY OF GREATER BENDIGO

4 THE CRASH PROBLEM IN GREATER BENDIGO

Over the most recent five-year period of crash data[2], there were 1,334 crashes where people were injured or died. There was a total of 30 fatalities and 401 serious injuries.

NUMBER OF PEOPLE KILLED	30
NUMBER OF PEOPLE SERIOUSLY INJURED	401
NUMBER OF OTHER INJURIES	1240

TABLE 1: ROAD TRAUMA IN GREATER BENDIGO (JULY 2015 – JUNE 2020)

The vast majority of casualties were adults. People aged 18-24 and 25-34, as well as those children aged 12-17, were over-represented in crashes relative to their percentage of the population[3].

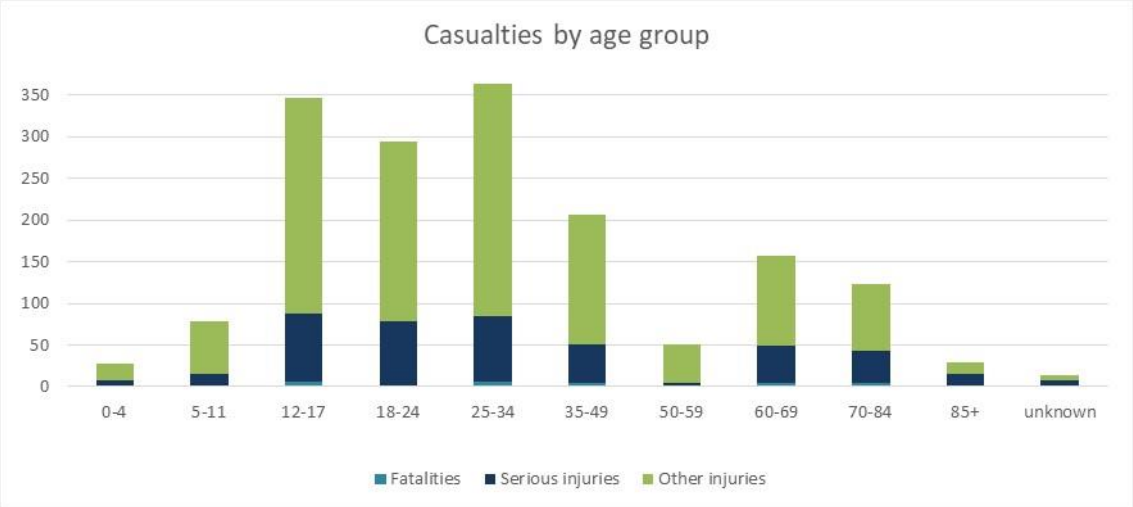
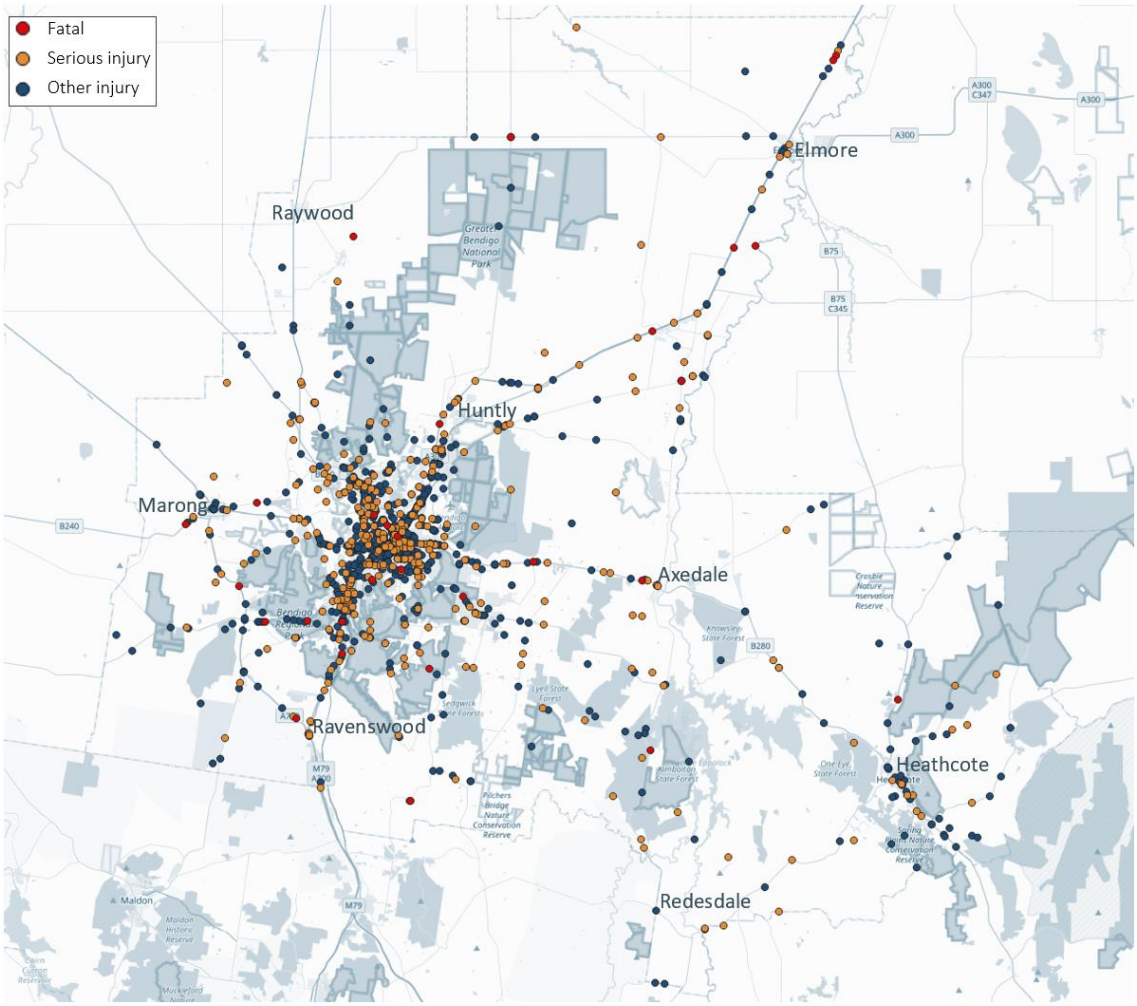


FIGURE 2: CASUALTIES BY AGE (JULY 2015 – JUNE 2020)

Crashes across Greater Bendigo are clustered around population centres, as well as along key arterial routes (including McIvor Hwy, Midland Hwy, Calder Hwy). Most crashes occurred on the arterial road network (55% of casualty crashes), while 44% of crashes occurred on local roads.

[2] Crash data published by the Victorian Department of Transport and Planning includes information about fatal and injury crashes in Victoria that have been reported to the police. Each crash record contains information about the crash such as crash type, time, location, conditions, severity, road user type, etc. The database is updated periodically to include recent data. It is noted that some casualty crashes may not be included in the dataset (for instance, if an incident was not reported to police).

[3] id consulting Pty Ltd 2023, *City of Greater Bendigo Service age groups* https://profile.id.com.au/bendigo/service-age-groups



SOURCES: STREET MAP © OPENSTREETMAP CONTRIBUTORS; CRASH DATA DEPARTMENT OF TRANSPORT AND PLANNING OPEN DATA, CRASHSTATS – DATA EXTRACT

FIGURE 3: CRASHES IN GREATER BENDIGO (JULY 2015 – JUNE 2020)

An analysis of the casualty crash data (July 2015 – June 2020) showed that:

- Across the whole network, around half of crashes (49%) occurred at mid-block locations (not at intersections) and 50% occurred at intersections.
- Most crashes occurred where the speed limit was ≤60 km/h, generally in our built-up areas. Crashes where the speed limit was 100 km/h were also common, generally on our rural road network.
- The majority of crashes on our high-speed rural roads were run-off-road type crashes.
- The majority of crashes in our built-up areas were at intersections (40% of crashes at cross-intersections and 18% at T-intersections).

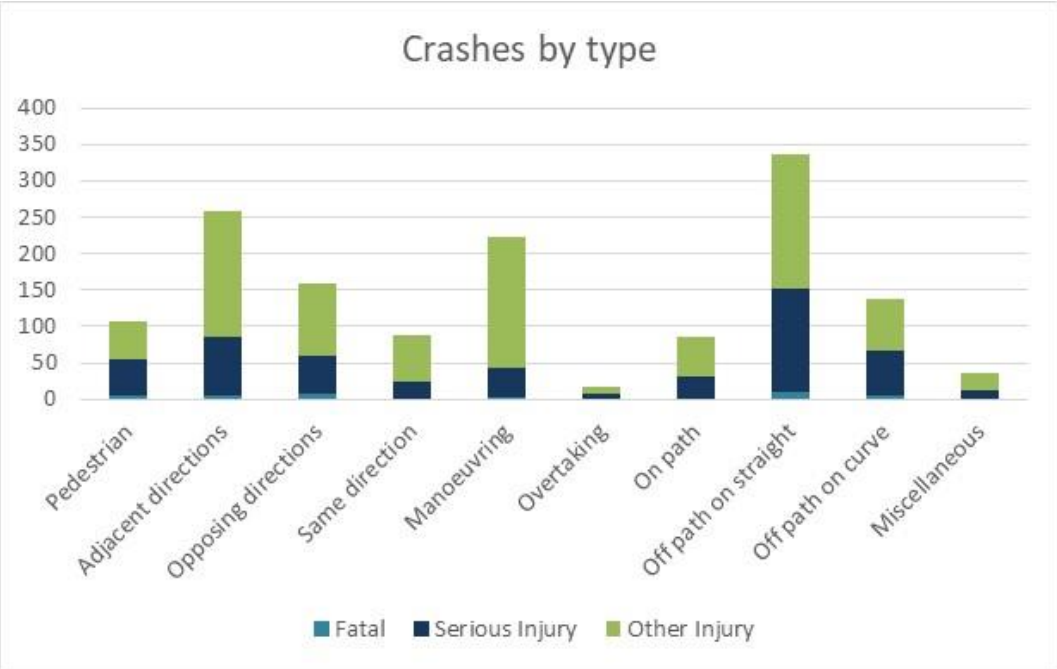


FIGURE 4: CRASHES BY TYPE

- Around 30% of crashes involved vulnerable road uses, of which:
  - 16% of crashes involved motorcyclists
  - 8% of crashes involved pedestrians
  - 7% of crashes involved cyclists.
- Males were more likely to be involved in casualty crashes than females, particularly on the high-speed rural roads (≥100 km/h).

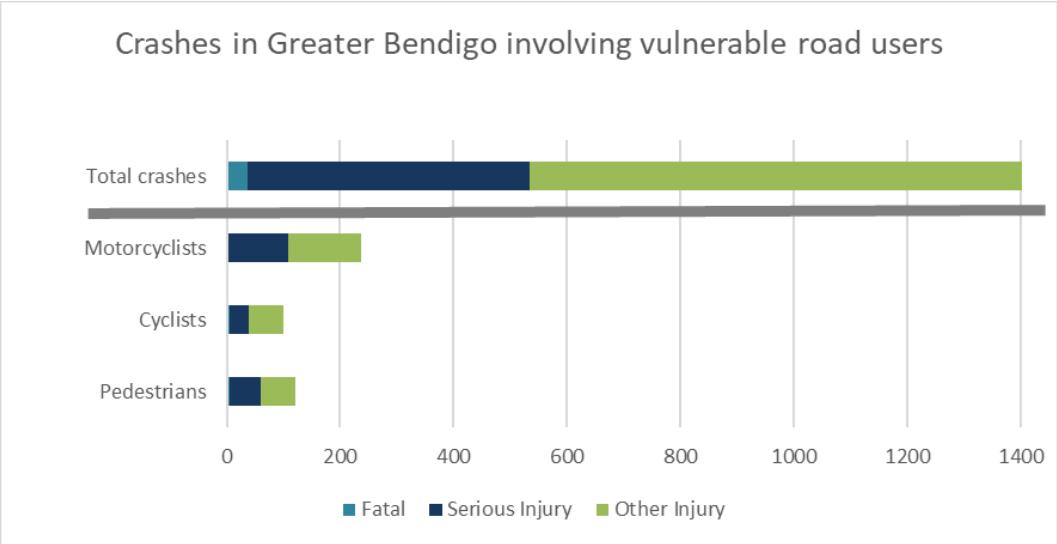


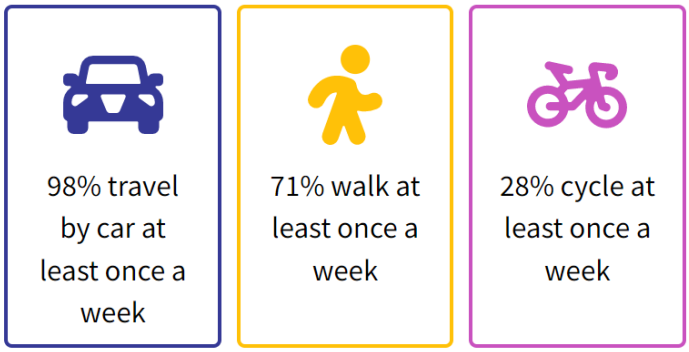
FIGURE 5: CRASHES INVOLVING VULNERABLE ROAD USERS

5 WHAT DID YOU TELL US?

Consultation was undertaken to gather input from the community about road safety across Greater Bendigo through listening posts and an on-line questionnaire[4].

The consultation found that:

- The community relies heavily on car travel
- Most of the community also participate in active transport (mostly walking)
- People consider ease/convenience and speed/efficiency the most important factors when choosing their travel mode. Safety and exercise were also considered important



- The community think the roads are relatively safe, although rural roads are not considered as safe as urban roads. People generally feel safe when travelling by car
- People generally think that footpaths are safe and feel safe walking and using public transport
- Many cyclists were concerned about the safety of on-road bike lanes; 65% of cyclists reported feeling unsafe when cycling
- 58% of motorcyclists reported feeling unsafe
- Three quarters of people said the speed limits on Greater Bendigo's roads are about right and should stay the same, although some people thought they should be lower near shopping areas (32%) and around schools (17%)
- In Bendigo's towns, people were concerned about vehicle speeds through town centres, provision of footpaths and pedestrian facilities.
- The highest priority safety issues were considered to be speeding drivers, distraction, aggressive drivers and cyclist safety.

[4] The online questionnaire ran from 28 February to 1 April 2022, and Listening Posts were held on 18 March 2022 at Elmore, Hargreaves Mall, Heathcote and Kangaroo Flat. Over 250 people provided input and feedback.

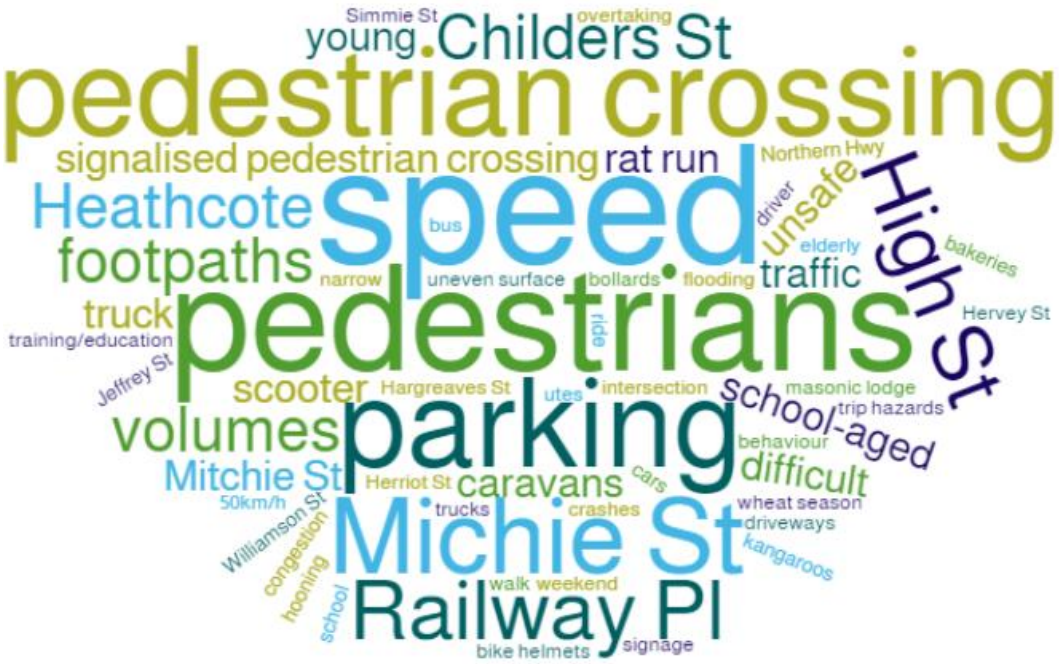


FIGURE 6: COMMUNITY'S ROAD SAFETY ISSUES AND CONCERNS

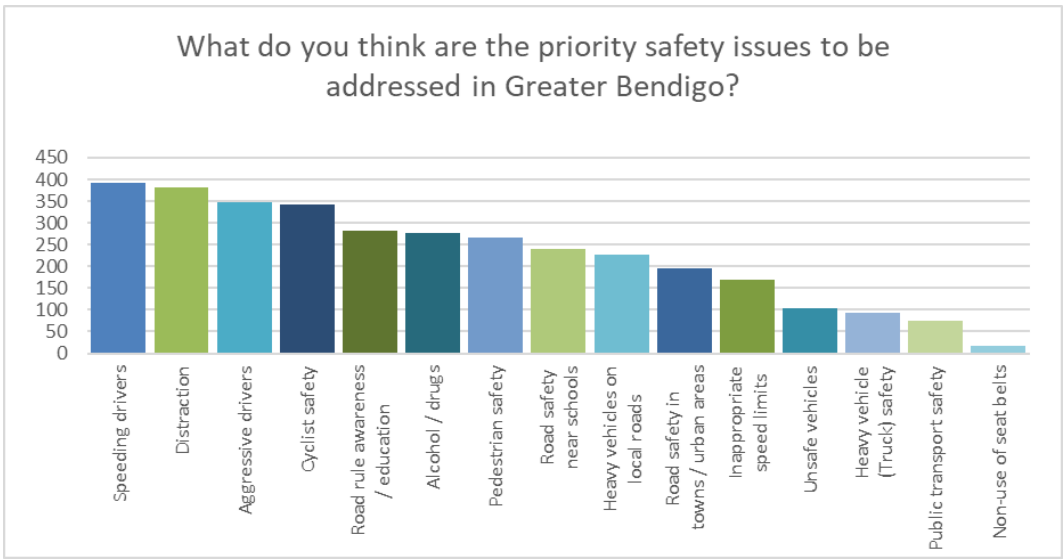


FIGURE 7: COMMUNITY'S PRIORITY SAFETY ISSUES

SOME OF THE THINGS YOU SAID...

"Roads in COGB are generally well designed and maintained to make them safe, but only for users of motor vehicles"

"I live outside the public transport grid, so drive my car to work"

"High truck volumes during wheat season. Truck drivers often don't give way"

"Narrow seal roads (with unsealed shoulders) are unsafe"

"When it's dark I feel safer travelling by car"

"Distracted drivers are a danger to cyclists"

"A freeway bypass will solve major issues of interface with large trucks"

"Too many car drivers lack patience"

"Many footpaths/ shared paths simply go nowhere, end, or don't connect with safe crossings"

"Work with police on areas that have high rates of poor driver behaviour"

"Road are so busy with big trucks and rising amount of traffic due to new subdivision in Epsom / Huntly"

"There aren't any bike lanes or walking tracks past the Epsom school to Huntly"

"40km/h in Bendigo on many of the road is way too slow"

"Various roads across the city are used as rat runs by cars and truck drivers to avoid the area"

"More separated bike lanes"

"There are multiple intersections along the Howard Street Epsom that are terribly dangerous and all are used by school children or traffic getting to and from busy places like the school, kinder, train station, shopping centre"

"Generally drivers are very considerate when I ride on a bike lane, but there have been a couple of occasions where drivers haven't done the right thing"

"Traffic is too fast in most residential areas"

"Numerous rural roads are not safe to be travelled on at the default 100 limit"

"Axedale-Kimbolton Rd is very busy with heavy vehicles and traffic"

"There needs to be a greater focus on the creation of bike paths/shared paths to allow connectivity throughout the municipality from outlying suburbs to the City Centre"

"Many surrounding areas of Bendigo have inadequate facilities for us to safely commute to work, school or even to a bus stop via walking or bike riding"

"Shared paths are safe but there aren't enough"

"Many potential cyclists are discouraged from cycling due to the gaps in cycling infrastructure"

"Build a better public transport system"

"40km/h in Bendigo is good, need to extend to other shopping areas"

"Riding a motorcycle is dangerous due to the decreased visibility for other motor vehicles on the road"

"Too many distracted drivers"

"Most roads around central Bendigo are unsafe for cycling"

"Large kangaroo mobs are dangerous"

"Changing speed limits will not fix the inherent issues"

"Bendigo city centre speeds should be no more than 40km/h and ideally 30km/h in highly pedestrianized areas"

"People drive faster than the limit around shopping areas"

"Road design needs to support proposed speed zones"

"Speeding drivers"

"Some dirt roads are 100 and are not safe to do this speed"

"Current speed limits are fine, people not paying attention to signage, not driving to conditions and being distracted are the cause of accidents"

"100 km/h on local rural roads is very unsafe particularly dirt roads at dusk where kangaroos are likely to jump out"

"Mobile phone usage when driving is the greatest risk to safety"

"Greatest safety issue is the high-speed rural road network"

"Hoon driving a real issue"

"Need campaigns to influence driver behaviour around schools"

6 PREVIOUS AND CURRENT SAFETY INITIATIVES

Much has, and continues, to be done to improve safety for all road users in Greater Bendigo. Council, Department of Transport and Planning and others are working both individually and collectively to improve the road environment. These initiatives include:

- City Centre 40 km/h limit implementation
- Local Area Traffic Management (LATM) (e.g. intersection improvements)
- Bicycle facility improvements and connections, including Ellis Street, low-line, etc
- Pedestrian crossing facility improvements, including new signalised crossings (e.g. Elmore) and zebra crossings (e.g. city centre)
- Speed limit reviews and reductions on local roads
- Separated cycling network - 10 year priority plan
- Annual funding for new footpaths and shared paths
- Blackspot funded road safety projects delivered annually
- Road Safety Product trials - LED tactiles, LED CAMS, Speed awareness monitors.

7 APPROACH, VISION, OBJECTIVES AND GOALS

7.1 APPROACH

The Road Safety Action Plan aligns with the National and Victorian Road Safety Strategies and supports objectives and goals of Council's integrated strategic framework. It recognises and supports Safe System objectives, and recognises that improving road safety requires a multi-faceted approach that targets the safety of the road environment, the vehicles in which people travel, and the behaviour of everyone on the road.

The Action Plan focuses on the following key principles:

- Safer roads – roads and roadsides to be made safer through engineering treatments targeting higher risk locations to help reduce the likelihood of crashes occurring and severity of crashes when they do occur.
- Safer speeds – identifying areas where reducing speed could result in a reduction in road trauma and supporting a culture where the community regards speeding as unacceptable. Supporting low vehicle speeds helps to reduce risks in areas where crashes involving pedestrians and/or cyclists may occur.

- Safer people – recognising a shared responsibility for the safety of all road users – cyclists, pedestrians, motorcyclists & drivers. Council will work with schools and other partners to support programs to encourage the community to make safe travel choices.
- Safer shared paths and footpaths – supporting safe travel on the active transport network supports road safety outcomes as well as improved health outcomes and increased travel choices for people.

The Road Safety Action Plan aims to improve safety for all road users – car drivers and passengers, motorcyclists, cyclists, pedestrians and heavy vehicle drivers.

7.2 VISION AND OBJECTIVES

VISION

Our vision is to provide safe travel for the Greater Bendigo community and its visitors.

The Action Plan objectives are to:

- Reduce the number of people killed or seriously injured on Bendigo's local road network as a result of road crashes, working towards halving road deaths and reducing serious injuries by 2030
- Improve safety to support active and sustainable transport
- Improve safe connections and accessibility for everyone.

7.3 KEY ISSUES AND GOALS

The following goals were informed by the City of Greater Bendigo's strategic goals, as well as the crash data analysis and consultation phase of the Action Plan development:

1. Safer walking
2. Safer cycling
3. Safer drivers
4. Safer roads
5. Safer travel to schools
6. Safer motorcycling

Goal 1: Safer walking

The City of Greater Bendigo seeks to encourage active transport network through improving paths and connections at key locations, in order to support people's travel choices, better health, wellbeing, road safety and social outcomes. The Action Plan aims to improve safety for pedestrians in townships and the Bendigo City Centre through infrastructure improvements. Walking safety improvements also supports the Safer Travel to School goal (Goal 5).

Goal 2: Safer cycling

The community consultation found 65% of those who cycle feel unsafe, particularly when using on-road bike lanes. The Action Plan aims to improve safety for cyclists on the on-road and off-road cycling network. Increasing cycling safety supports the vision of Bendigo 'making everyday walking and cycling easier for all ages and abilities' (Walk Cycle Greater Bendigo 2019).

Outcomes of the Victorian e-scooter trial (completion due early 2023) may result in changes relating to legal use of e-scooters. The Action Plan considers relevant changes following the trial and promotion of safe behaviour.

Goal 3: Safer Drivers

Driver behaviour is a significant contributing factor to road crashes. The consultation found speeding drivers, aggressive drivers and driver distraction are of concern to the community. The Action Plan aims to influence driver behaviour through education and enforcement.

Goal 4: Safer Roads

The Action Plan aims to improve road safety across the network including:

- On rural roads - Rural Roads including Gravel roads represent a significant proportion of the COGB network and have a higher risk of crashes and a higher severity rate.
    - On rural roads – Run-off-road type crashes are prevalent (high speeds and fatigue contribute to crashes)
    - On unsealed roads around 14% of all crashes occur. These roads are challenging in terms of road safety as drivers may be inexperienced when driving on gravel roads and driving conditions can be changeable.
    - There is a risk of crashes involving animals (e.g. kangaroos), particularly on rural roads
    - There are concerns about the safety of slow-moving farm machinery and vehicles travelling on high-speed rural roads.
- In Bendigo's City Centre – due to the high volumes of different types of road users, a high number of crashes are clustered in and around Bendigo's City Centre
- In rural town centres – the community have raised safety concerns in rural town centres (unsafe behaviour including vehicle speeds, interactions with heavy vehicles, rat-running)
- On urban fringes – as developments occur along urban boundaries, the changing nature of the road environment can lead to road safety concerns.

Goal 5: Safer Travel to Schools

The Action Plan aims to improve safety for students travelling to schools whether they are walking, cycling or scooting, or travelling by car or bus. Providing safer walking, cycling and scooting to school encourages active transport, supports health objectives (including health and wellbeing outcomes), social and community connections[5] and environmental objectives, and aligns with Greater Bendigo's goal of increasing active transport participation.

Supporting safer travel to schools includes consideration of risks along school boundaries where there are often a mix of road users at busy school drop-off and pick up times – with vehicles parking to drop-off/collect children, people completing their active travel journey and others walking from parked vehicles into the school grounds.

Goal 6: Safer motorcycling

Approximately 14% of all crashes in Greater Bendigo involve motorcycles. The community consultation found that 58% of motorcyclists feel unsafe. Speed, rider training/experience, and road alignment/cross section are contributing factors which can be addressed. The Action Plan aims to improve safety for motorcyclists through infrastructure improvements and promotion of safe behaviour.

[5] Department of Education 2022, *Active Travel* www.education.vic.gov.au/school/teachers/teachingresources/discipline/physed/Pages/activetravel.aspx#:~:text=Strategies%20and%20approaches-,What%20is%20active%20travel,interactions%20with%20family%20and%20friends

8 OUR SHARED RESPONSIBILITY

8.1 WHERE WE WANT TO BE

- We want to ensure a safe environment for everyone of all ages and abilities (including our most vulnerable) using the transport network – pedestrians, cyclists, people travelling in motor vehicles or using public transport.
- Significantly reduce the impact of road crashes for our community – particularly deaths and serious injuries.
- We want to provide safe, accessible, and sustainable transport options that strengthen connections between people and places, improve liveability, health and wellbeing for the community.

8.2 CITY OF GREATER BENDIGO ROLE

The City will:

- Seek to improve road safety and support increased travel choices for everyone across the local road network
- Seek opportunities to deliver improved safety outcomes in conjunction with our maintenance programs
- Consider road safety impacts of planning decisions and new developments
- Advocate for road safety on the arterial road network
- Collaborate with key partners to support improved safety outcomes
- Seek funding for Government and other agency investment in road safety projects and infrastructure in line with the Asset Plan 2022-2032
- Work with the community to help identify road safety concerns and priorities
- Encourage safe travel behaviour
- Undertake regular monitoring and review, and adapt for future strategies
- Build on outcomes from other CoGB strategic documents and plans.

8.3 YOUR ROLE

We all have a shared responsibility for the safety of everyone on the road network – cyclists, pedestrians, motorcyclists & drivers. We all can:

- Make safe choices when considering transport mode and route
- Choose safe travel speeds and behaviours, for example low vehicle speeds where there are pedestrians and cyclists, not driving if fatigued, not using phones while driving, be mindful of other road users, safe e-scooter behaviour, etc
- Consider safety features when purchasing a vehicle
- Wearing appropriate personal protective equipment (helmets and safety gear) when on a motorcycle, scooter or bicycle
- Set a good example and teach the youngest members of our community safe travel choices and behaviours
- Let Council know about road safety concerns, for example hazards
- Report hoon behaviour to police.

9 ACTIONS

The following actions have been developed to guide Council and its partners in delivering targeted road safety initiatives to realise the above goals.

For each action, the lead department and partners have been nominated, along with a performance measure and time frame to allow implementation to be monitored.

The action plan also includes the resource required for implementation of each action. This may include internal staff allocation and/or funding. Some actions may be funded by partner agencies (e.g. DTP) or there may be opportunities to seek external funding (e.g. TAC funding). Where Council would be required to fund actions, indicative costings have been categorised as low (< $20,000), medium ($20,000-$50,000) or high (>$100,000).

LEADERSHIP

	ACTION	LEAD	PARTNERS	PERFORMANCE MEASURE	TIMEFRAME	RESOURCES
1	Champion to advocate establishment of internal road safety working group for monitoring and implementation of action plan (including annual review)	Engineering	Active and Healthy Community Engagement	Annual review of action plan	Ongoing	Internal staff
2	Collaborate with partners for re-establishment of multi-agency regional road safety group to contribute to safer roads, safer speeds, safer vehicles and safer people (e.g. through sharing resources & information, coordinating campaigns & works)	Engineering DTP	Victoria Police	Group established	Ongoing	Internal staff
3	Advocate for state-led community education campaigns focussed on local and regional road safety (e.g. e-scooter use, horse riding, pedestrians on rural roads)	Engineering	Active and Healthy DTP TAC Victoria Police	Raise potential education campaigns at multi-agency regional road safety group	At least once per year	Internal staff
4	Collaborate with relevant community groups on how they can contribute to the Safe System (safer roads, safer speeds, safer vehicles and safer people).	Engineering	Community Engagement	Community engagement on key safety issues (ensure Safe System aspects considered)	Ongoing	Internal staff
5	Ensure Safe System principles are incorporated into planning and delivery of both Council and developer funded road and transport infrastructure, including Road Safety Audits as relevant	Engineering	Statutory Planning	Consideration of Safe System principles as part of projects	Ongoing	Internal staff

6	Continue to seek opportunities for road safety program and grant funding (including Federal Blackspot funding and TAC Local Government Grant Program applications) for required road safety improvements	Engineering	DTP TAC	At least one funding application per year	Ongoing	Internal staff External funding
7	Provide regular road & transport safety messages in Council communications (including social media), including messaging on key themes such as safer vehicles, safe behaviour etc	Community engagement	Engineering	Quarterly	Quarterly	Internal staff
8	Monitor road safety across Bendigo's network based on crash data and community concerns	Engineering	Victoria Police DTP	List of high-risk locations and treatment strategy developed	Ongoing 6 monthly crash data review	Internal staff
9	Collaborate with partners (including PTV and DTP) to review public transport across Greater Bendigo to consider and adapt service to meet the community's needs and support active transport participation	Engineering	DTP PTV Active and Healthy	Annual liaison	Ongoing	Internal staff

SAFER WALKING

	ACTION	LEAD	PARTNERS	PERFORMANCE MEASURE	TIMEFRAME	RESOURCES
10	Review of all new subdivision works so that safe and appropriate pedestrian access and connection to existing network is provided (at Planning Stage)	Engineering	Statutory Planning	Review process maintained	Ongoing	Internal staff
11	Identify / review high-risk pedestrian crossing locations and key walking links across Greater Bendigo, including in the City Centre and townships	Engineering	Active & Healthy Strategic Planning DTP	List of high-risk locations developed 10 Year Priority list	Each year	Internal staff
12	Deliver improved pedestrian crossing facilities at high-risk locations across Greater Bendigo	Engineering	Active and Healthy Strategic Planning DTP	Submission of an annual budget to target highest risk sites	Each year	Low-High (potential external funding)
13	Undertake independent road safety audits of all major streetscape works for rural townships to improve safety outcomes for pedestrians	Engineering	DTP Public Space Design	Road safety audits of all major streetscape works	Ongoing	Low
14	Assess opportunities to improve safety and amenity of walking environments in conjunction with other planned works, particularly within activity centres	Engineering	Active & Healthy Public Space Design	Design referral process	Ongoing	Internal staff
15	Review DDA compliance of paths in the City centre and rural town centres in response to concerns raised by community Investigate creation of GIS layer for DDA compliance	Engineering	GIS and Assets	Submission of an annual budget to target highest risk sites Create GIS layer	Each year Year 3	Low - Medium Internal staff

SAFER CYCLING

	ACTION	LEAD	PARTNERS	PERFORMANCE MEASURE	TIMEFRAME	RESOURCES
16	Review cycling network and prioritise improvements to provide a complete protected network (outlined in *Walk, Cycle Greater Bendigo*)	Engineering	Active and Healthy Strategic Planning DTP	Adoption of 10 Year priority plan	End of 2023	Internal staff
17	Design/seek funding for low line cycling connection between Golden Square and Lake Weeroona within Bendigo Creek	Active and Healthy	Engineering Strategic Planning DTP	Complete detailed designs Secure funding	Ongoing	High External Funding
18	Develop suite of standard treatments for priority road crossings for reference for new developments (from *Walk, Cycle Greater Bendigo*)	Engineering	Statutory Planning	Standard crossing treatments developed	Year 2	Internal staff
19	Look for opportunities to improve safety and amenity of cycling environments in conjunction with other planned works, for example improving bicycle parking opportunities, improvements in the Bendigo City Centre and other activity centres, along cycling corridors and popular trails (e.g. O'Keefe trail), etc	Engineering	Active and Healthy Public Space Design Strategic Planning	Design referral process	Ongoing	Internal staff
20	Identify and review infrastructure on popular rural cycling routes and consider provision of improvements	Engineering	Active & Healthy	Review completed Improvements installed	Ongoing	Internal staff Low-High
21	Promote safe behaviour for on-road and off-road cycling, including usage of e-bikes and e-scooters. Consider relevant messaging following completion of Victorian e-scooter trial	Community Engagement	Engineering	Social Media Campaign completed	Every year	Internal staff

SAFER DRIVERS

	ACTION	LEAD	PARTNERS	PERFORMANCE MEASURE	TIMEFRAME	RESOURCES
22	Run a Social Media Campaign around promoting driver safety on key issues (e.g. distraction, speeding, drink driving, fatigue, etc). Use Speed trailer/Speed Awareness Monitors (SAM's), VMS boards to promote key safety messages and tie in social media campaign to be run in conjunction with VMS messaging each year. Campaigns coordinated with partners such as Victoria Police, DTP, TAC Encourage improved safety for older drivers and cyclists (e.g. social media campaign, Wiser Driver program)	Community Engagement Engineering	Victoria Police DTP TAC	Social Media Campaign completed	Every year	Internal staff
23	Advocate for funding to secondary schools for driver education programs for students (see examples in Appendix A)	Engineering	DTP Schools Department of Education	Driver education programs funded	Ongoing	Internal staff
24	Meet with police to identify locations for enforcement (speed, distraction etc.) together with any potential improvements at key crash locations	Engineering	Victoria Police	Meeting twice per year	Ongoing	Internal staff
25	Seek funding to facilitate installation of additional large variable message signs (VMS) on key routes to display targeted safety messages throughout the year	Engineering	TAC Victoria Police	Liaison with relevant funding agencies undertaken	Year 2	Internal staff

26	Locate Speed Awareness Monitors (SAM's) on local roads that experience speeding. SAMs to be rotated to other high-risk sites as required	Engineering	Victoria Police	SAMs deployed at least once per year	Each year	Internal staff
27	Encourage improved safety for children in vehicles (via community engagement through MCH network, schools)	Engineering	DTP MCH TAC Community Engagement	Community engagement campaign undertaken	Ongoing	Internal staff
28	Explore collaborative solutions for a safety education campaign with the freight industry, government and responsible authorities	Engineering DTP	TAC Others	Liaison with relevant agencies undertaken	Year 3	Internal staff

SAFER ROADS

	ACTION	LEAD	PARTNERS	PERFORMANCE MEASURE	TIMEFRAME	INDICATIVE COST/RESOURCE
29	Consider and prioritise need for road improvements and Traffic Calming infrastructure based on factors outlined in Traffic Calming guidelines DTP to assist with review of locations adjacent/ along arterial transport corridors and support traffic calming in the local area network	Engineering	DTP	Priority list of Traffic Calming locations developed	Each year	Internal staff
30	Identify potential impacts of recent and new LATM treatments on surrounding network (avoiding rat-running, etc), and develop mitigating treatments as appropriate (including Elmore, White Hills, North Bendigo) DTP to assist with review of locations adjacent/ along arterial transport corridors	Engineering	DTP	Identify mitigation measures Traffic counts and site safety assessments	Ongoing	Internal staff
31	Seek opportunities to improve Temporary Traffic Management and safety for major events (such as Easter Festival, Bendigo Blues & Roots Music Festival and Bendigo Agricultural Show)	Engineering Tourism and Events	Events committees	Assess potential safety risks and update relevant plans for future events each year	Each year	Internal staff
32	Advocate for increased police presence and surveillance on hooning locations, along with education programs	Engineering	Community Engagement Victoria Police	Engage with Police on key issues at least twice per year	Ongoing	Internal staff

33	Review speed limits across local road network to identify opportunities to improve consistency and safety, particularly on rural roads and near shopping areas and schools DTP to assist with review of locations adjacent/ along arterial transport corridors	Engineering	DTP	Review complete	Ongoing	Low
34	Look for opportunities to undertake pilot / trials of treatments to test new/innovative treatments and ascertain community support (such as tactical urbanism, pop-up bike lanes, increased space for pedestrians, urban greening, traffic calming, LED tactile paving, photo-luminescent delineation treatments, measures to address fatigue, and technology to reduce the risk crashes involving animals)	Engineering	DTP TAC	Identify candidate location for treatment trial and commence trial	Ongoing	Low-Med Potential external funding
35	For new infrastructure works (where design changing) during the planning and approval process: - identify Road Safety requirements - consider Movement and Place context - undertake Stage 3 audit for major intersection upgrades, new intersections, new collectors etc – on level 1 / level 2 roads / arterial	Engineering	Statutory Planning	Stage 3 audit undertaken for all relevant infrastructure works	Ongoing	Low

36	Support safer speeds on unsealed and rural sealed routes: - provide warning signs at start of popular unsealed routes (e.g. road conditions changeable, choose appropriate speed) - identify and submit rural road speed zone changes where deemed appropriate - advocate for default 80 km/h speed limit on gravel roads and identified rural roads	Engineering	Victoria Police DTP	1 high-risk location treated	Each year	Low Internal staff
37	Identify / review high-risk locations (based on crashes, feedback, risk assessment (proactive) across Greater Bendigo, including the City Centre, townships on rural local roads and across the arterial network. This also includes locations that may be hot-spots for crashes involving animals	Engineering	DTP	List of high-risk locations developed	Each year	Internal staff
38	Develop and implement treatments for highest priority sites across Greater Bendigo	Engineering	DTP TAC	2 high-risk locations treated	Each year	Med-High
39	Advocate to the Department of Transport and Planning to action Bendigo Freight Study 2017 recommendations, for example: – Sailors Gully Rd / Bendigo–Pyramid Rd, Eaglehawk North – Howard St/Midland Hwy, Epsom – Hattam / Allingham Streets, Golden Square – Calder Hwy / Calder Alternative Hwy, Marong	Engineering	DTP	Meetings and advocacy with DTP	Ongoing	Internal staff External funding
40	Advocate and work with DTP to seek opportunities to improve / increase rest stops, heavy vehicle parking and trailer exchange/storage facilities	Engineering	DTP	Meetings with DTP	Year 3	Internal staff

41	Seek opportunities to improve loading zone options. Consider early morning loading (where possible) to minimise impact on parking	Engineering	Parking Local laws	Implementation of changes to loading zones	Year 2	Low Internal staff
42	Review current level crossings and develop priority level crossings improvements to facilitate safe vehicle and pedestrian movements (safe road alignment, pedestrian crossing demand), (e.g. at Station St, Golf Course Rd)	Engineering	VLine Victrack	Develop priority locations in collaboration with VicTrack	Ongoing	Internal staff
43	Collaborate with Greater Bendigo Farming Advisory Committee to identify risks and improve safety associated with slow-moving farm machinery and vehicles travelling on high-speed rural roads	Engineering	Greater Bendigo Farming Advisory Committee	Meeting with Greater Bendigo Farming Advisory Committee	Ongoing	Internal staff
44	Review findings and outcomes of Victorian e-scooter trial. Implement actions and changes to local laws enforcement (if required). Undertake campaign to communicate outcomes coordinated with partners such as Victoria Police, DTP	Engineering	DTP Victoria Police Local laws Community Engagement	Review findings and e-scooter trial (when available) Develop community guidance	Year 2-3	Internal staff

SAFER TRAVEL TO SCHOOLS

	ACTION	LEAD	PARTNERS	PERFORMANCE MEASURE	TIMEFRAME	RESOURCES
45	Improve road safety near schools: - Continue to enforce parking around schools - Continue to enforce speed regulations around schools - Conduct road safety investigations around schools	Engineering	Victoria Police Parking Local Laws DTP	Liaise with police at least-twice per year Undertake 1 road safety investigation per year	Ongoing Each year	Internal staff Low-Med
46	Trial new school crossing safety assessment toolkit at key crossings in Greater Bendigo (and use when adopted, assessment program)	Engineering	DTP	Trial complete	Year 1	Internal staff
47	Seek funding for electronic 40 km/h signs at schools for high-priority sites Review consistency in application for school based 40 zones to ensure credibility for road users (permanent vs time-based)	Engineering	DTP TAC	Liaison with DTP Review complete	Year 2	Internal staff Low-Med
48	Encourage schools to provide traffic safety education for parents via school newsletters, particularly regarding safe walking to and from school and safe drop-off/pick up practices	Engineering	Department of Education Active & Healthy	Liaise with schools 1-2 times per year	Ongoing	Internal staff
49	Commission Road Safety Audits with an active transport focus for routes to schools	Engineering	Schools	Undertake audit of routes for one school per year	Each year	Low TAC Grant Funding
50	Promote safe walking and cycling to school through active travel events (e.g. 1 day in five join the ride, Walk to School Day and Ride2 School Day)	Active & healthy	Department of Education Bicycle Victoria DTP Schools	Support schools to promote 1 – 2 active travel events per year	Each year	Internal staff

SAFER MOTORCYCLING

	ACTION	LEAD	PARTNERS	PERFORMANCE MEASURE	TIMEFRAME	RESOURCES
51	Run a Social Media Campaign around promoting motorcycle safety on key motorcycling routes. Use VMS boards to promote key safety messages for motorcycle safety. Tie in social media campaign to be run in conjunction with VMS messaging each year	Community Engagement Engineering	DTP TAC	Social Media Campaign completed	Every 2 years	Internal staff
52	Identify and review road surface maintenance programs on the popular motorcycle routes	Engineering	DTP	Review completed	Year 2	Internal staff
53	Review existing guard rail and line marking along popular motorcycle routes to identify required works Seek external funding to install motorcyclist protection rails and improve line marking as appropriate Seek improvements to line marking through reseal program	Engineering	DTP	Review completed Improvements installed	Year 2	Internal staff External funding Low-Med

APPENDIX A

EXAMPLE COMMUNITY ROAD SAFETY PROGRAMS

Target	Program/Resource	Source
Early childhood	Starting Out Safely	Early Learning Association Australia
	Parents (resource)	TAC
	Using child restraints (brochure)	RACV
Primary school children	Safety Squad	RACV
	Being safe on public transport and understanding commuters with special needs (resource)	Road Safety Education Victoria
	Safe and unsafe places to cross the road (resource)	Road Safety Education Victoria
	Bike Ed	DTP
	Walk to school	VicHealth
	Ride to school	Bicycle Network
Young drivers	Looking After Out Mates (Year 12)	Road Safety Education Victoria
	Year 11 Workshop (Year 11)	Fit2Drive Foundation
	Steer Right (Year 11)	Fit2Drive Foundation
	Road Smart (Year 10)	DTP
	Carpool (Teens 15+)	Fit2Drive Foundation
	L2P Program	TAC
	DriveSmart (online tool)	TAC
	Keys to drive	Australian Government
	Vanessa (promotes road safety messages at events)	TAC
Older drivers	Ageing and safe driving (factsheet)	DTP
	Wiser Driver	DTP / Access Health and Community
Drink/drug driving	Good Sports Program	Australian Drug Foundation
	Looking After Out Mates (Year 12)	Road Safety Education Victoria
Speeding drivers	Not So Fast	DTP
Motorcyclists	Discover Safe Riding (resource)	DTP
	Spokes (website)	TAC
Cyclists	Bike Ed	DTP
	Ride2Work Day	Bicycle Network
	Super Tuesday and Super Sunday active transport data collection	Bicycle Network
Pedestrians	Pedestrian community resources (factsheets and resources)	DTP
	Seniors Stepping Out Safely	Community program
	Walk to work day	Pedestrian Council of Australia
Hoon offenders	Safe driving program	DTP

APPENDIX B

TRAFFIC CALMING GUIDELINES

CITY OF GREATER BENDIGO TRAFFIC CALMING GUIDELINES

1 PURPOSE AND SCOPE

The purpose of this guideline is to outline a framework that ensures an objective, consistent and comprehensive process for investigating and evaluating traffic calming requests on roads under the management of the City of Greater Bendigo.

The guideline seeks to define and measure existing traffic conditions and apply a warrants-based system for evaluating the need for traffic calming to be implemented. It can be applied in a reactive or proactive manner.

Traffic calming involves a range of engineering treatments that aim to influence driver behaviour, typically focused on reducing vehicle speed. This improves safety for all road users, creates a more comfortable environment for pedestrians and cyclists, and can have a positive impact on amenity and placemaking.

This guideline seeks to establish a balance between engineering solutions (including the Safe System approach), community consultation, road user education and enforcement.

It is noted that this guideline should be considered alongside the judgement of Council officers and other local or municipal policies, as appropriate.

This guideline applies to the provision of traffic calming treatments on Council managed roads, comprising local roads and collector roads. It could be utilised for Local Area Traffic Management schemes or targeted interventions based on community feedback or Council officer discretion.

2 POLICY CONTEXT

2.1 CURRENT BEST PRACTICE

Austroads' ***Guide to Traffic Management Part 8 – Local Street Management*** is typically considered the Australian industry standard to local area traffic management and traffic calming policy and procedure. It outlines an objective decision-making process based on a system of quantitative warrant criteria that can be used in both a 'threshold' context, whereby once a criterion reaches a certain state it is identified that action needs to be taken, and in a 'prioritisation' context, whereby once problem areas are identified they can be ranked in accordance of importance based on a weighted scoring system applied to the warrant criteria. It also highlights the importance of community participation in establishing the needs and priorities of traffic calming measures.

The guide provides a comprehensive toolkit of traffic calming devices based on their application, advantages and disadvantages. Specific design guidance on these devices is provided in the VicRoads *Supplement to AGTM Management Part 8 – Local Area Traffic Management*.

The guide also presents an Objective Decision Process for LATM, including warrant-based systems (Section 5).

AS 1742.13-2009 Manual of uniform traffic control devices Local area traffic management describes a series of commonly used local area traffic management devices used on non-arterial roads in built-up areas, including perimeter treatments, road humps,

roundabouts, driveway links, slow points (one lane and two lane), modified t-intersections, road closures (partial and full closures), and one-way streets. It also specifies appropriate signs, delineation and pavement markings to be used in association with each device to achieve uniformity of practice in LATM schemes (drawn/adapted from scope of AS 1742.3).

2.2 APPLICATION IN OTHER MUNICIPALITIES

City of Melton established a Traffic Calming Policy in 2019 that aims to "*maintain amenity in local, residential access streets, and to specify a consistent, transparent and formal process for evaluating traffic conditions on Council roads and traffic calming requests*". It adopts a number of criteria based on traffic conditions, crash history, road geometry and the presence of activity generators in the vicinity of the location.

The Cities of Yarra, Glen Eira and Greater Dandenong have also adopted similar Local Area Traffic Management Policies.

2.3 CITY OF GREATER BENDIGO CONTEXT

City of Greater Bendigo previously used a series of quantitative criteria for the provision of speed humps within the municipality (in use since 2011). These were 'threshold' warrant criteria whereby a particular location must meet all of the identified factors in order for speed humps to be considered.

A priority ranking system has been developed in order to prioritise and rank traffic calming across Greater Bendigo[6].

3 TRAFFIC CALMING FRAMEWORK

This Traffic Calming Guideline aims to identify and evaluate problem locations in an objective, consistent and comprehensive manner. A quantitative, data-driven approach must be therefore adopted wherever possible.

This framework steps through the following in order to inform the development of traffic calming treatment / schemes (**Figure 8**):

- Assess need for traffic calming
- Selection of traffic calming device or scheme
- Implementation

Throughout the process, community consultation may be undertaken to inform need, seek support for traffic calming measures and notify about decisions.

[6] The Austroads *Guide to Traffic Management Part 8 – Local Street Management* notes that the priority ranking system is "the most common type of warrant system used" in Australia and New Zealand

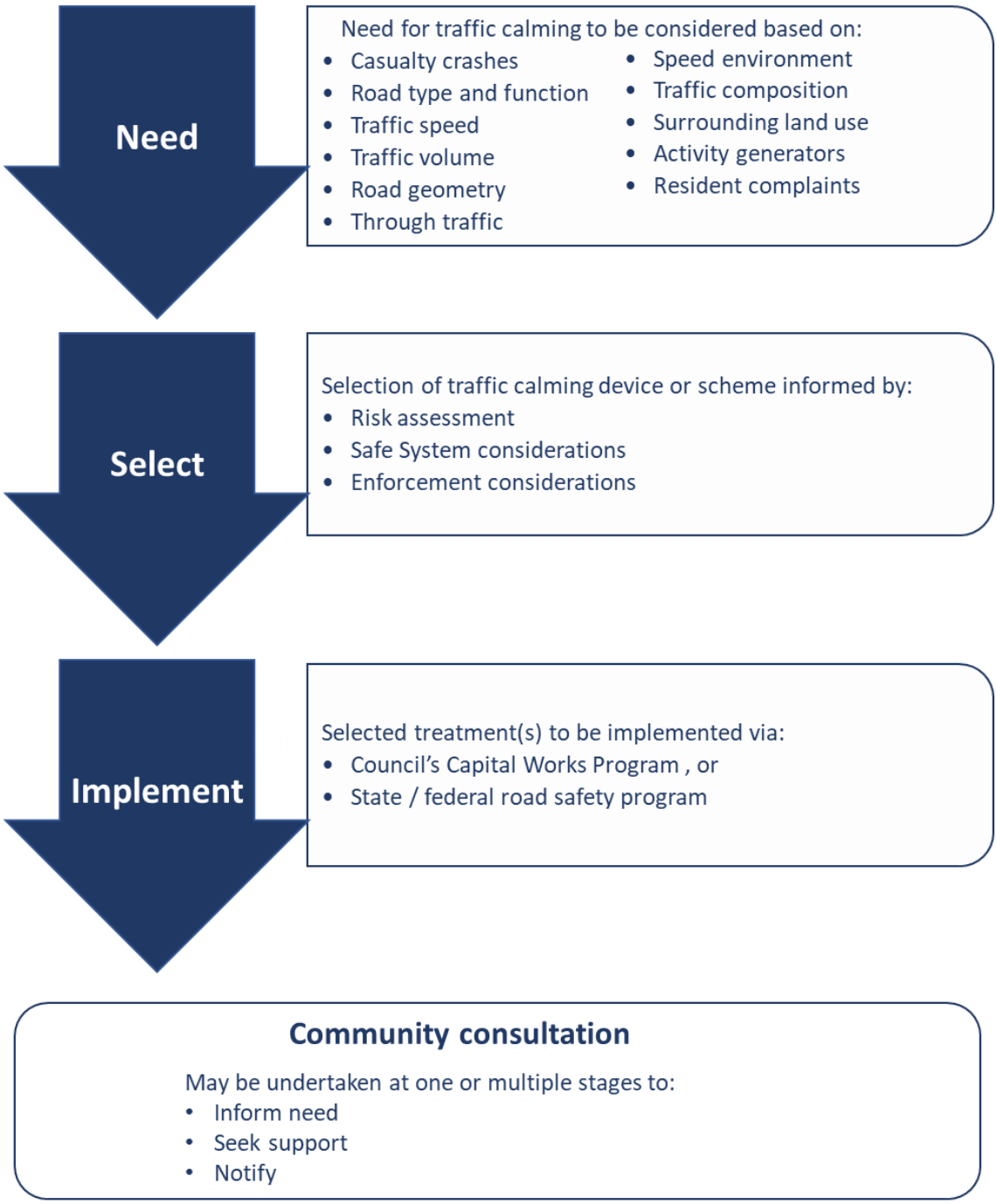


FIGURE 8: TRAFFIC CALMING APPROACH

3.1 ASSESS NEED FOR TRAFFIC CALMING

3.1.1 Traffic calming on existing roads and streets

The need for traffic calming is to be evaluated based on the following criteria:

1. Road type and function
   - The classification of the road as Local or Collector under the City of Greater Bendigo road register. Selection of traffic calming measures should also take into consideration factors such as road function in terms of movement and place (including access, mobility and parking as well as amenity and social function).

> "Successful Local Streets should provide quiet, safe and desirable residential access for all ages and abilities that foster community spirit and local pride.
>
> They are part of the fabric of our neighbourhoods, where we live our lives and facilitate local community access."
>
> Source: Movement and Place in Victoria

2. Casualty crashes
   - The number of fatal, serious injury and other injury incidents reported within the previous 5 years. This data can be sourced from Department of Transport and Planning and/or the Victoria Police database.
3. Traffic speed
   - Does the speed environment support and encourage appropriate speeds (i.e. as per self-explaining streets principles)? For instance, wide, open streetscapes and long straight segments encourage higher speeds while constrained environments, busy active frontages and short road segments encourage lower speeds.
   - 85th percentile speed [7] is an indicator (based on a 7-day traffic survey).
4. Traffic volume
   - Annual Average Daily Traffic (AADT) based on a 7-day traffic survey. Peak hour volumes may also be useful
5. Road geometry
   - Vertical alignment (i.e., flat, crests, steep gradients) and horizontal alignment (straight or curved)
6. Through traffic
   - Excessive levels of through traffic (or non-local traffic) on a Local Street (i.e. 'rat-running'). Can be based on a comparison between peak hour traffic and AADT based on a 7-day traffic survey or by Council officer judgement (e.g. for known routes).
7. Traffic composition
   - Presence and proportion of different road user groups in terms of all traffic at the location (e.g. heavy vehicles, cyclists, public transport).
8. Surrounding land use
   - Whether the street is in a built-up or rural area

[7] The speed at or below which 85% of vehicles travel.

9. Activity generators
    - Proximity of the location to retail/activity centres, schools, hospitals, parks etc. considered in terms of likely pedestrian and bicycle generation. Future developments or planned land use changes may also be taken into consideration.
10. Resident complaints
    - Submissions from residents in regard to undesirable traffic conditions at the location.

A priority ranking system considers the above criteria to enable review, comparison and prioritisation of different traffic calming projects across Greater Bendigo. This draws from guidance in Section 5 (*An Objective Decision Process for LATM*) of the *Guide to Traffic Management Part 8 – Local Street Management*.

It is noted that not all criteria must be met for a particular location. Additionally, these criteria do not override the technical judgement of Council officers or any relevant policy context, but provide an indication that traffic calming measures at a particular location should be investigated.

It is also necessary to consider any potential negative implications of traffic calming implementation. These may include:

- increase in travel time
- loss of on-street parking
- loss of vegetation
- potential increase in noise pollution when implementing vertical deflections (such as speed humps) due to vehicle contact with the device and increased frequency of acceleration and braking
- impact on buses, waste collection, emergency vehicles and commercial vehicles
- redistribution of traffic onto neighbouring streets
- restricted access to properties adjacent to devices
- increased maintenance costs for Council.

3.1.2 New residential development: Speed-Based Design

Designs for new sub-divisions should be such that the operation of the streets align with their intended function from the outset. Designs should consider:

- Hierarchy and function[8]
- Appropriate segment lengths to facilitate pedestrian movement and control traffic speed
- Intersection design/treatment to support safe movements.

[8] Movement and place classifications can guide appropriate design to support desired access, mobility, amenity and social function for all road users (vehicle occupants, pedestrians and cyclists). For new residential developments, it is important that the design reflects the intended function of the new street network while observing movement and place principles. For more information, refer to *Movement and Place in Victoria* (Department of Transport 2019).

The best way to deal with speed control on new roads is at the design stage when the layout and geometric design can be prepared to limit excessive vehicle speeds. Pre-planning discussions can help identify and pro-actively address potential traffic management issues.

Managing vehicle speeds within desirable thresholds can be achieved by designing or altering the street geometry for a new street network so that the target speed is not exceeded at any point. This may be achieved by:

- limiting total street lengths
- limiting the lengths of straight segments (e.g. by introducing low-speed curves in the design)
- constraining carriageway width for short or extended lengths
- 'enclosing' a drivers' field of vision through use of street trees
- creating a road alignment which encourages lower speeds (e.g. meandering horizontal alignment)
- providing roundabouts at intersections (reducing vehicle speeds at intersection conflict points)
- introducing slow or stop conditions along the street length to simulate shorter street section lengths or lower-speed alignments.

Clause 56.06 of the Greater Bendigo Planning Scheme specifies access and mobility management requirements for residential subdivisions.

3.2 SELECTION OF TRAFFIC CALMING DEVICE OR SCHEME

Once a particular location has been deemed to meet one or multiple of the warrant criteria, a list of appropriate traffic calming devices should be developed based on the observed conditions. The traffic calming device toolkit provided in the Austroads *Guide to Traffic Management Part 8 – Local Street Management* should form the basis of device selection. Council officers should consider the implementation recommendations in relation to risk assessment, safe system approach and enforcement.

3.2.1 Risk assessment

A risk assessment should be performed by Council when evaluating locations identified by the above criteria for traffic calming.

An example risk rating matrix is provided in **Figure 9**, whereby risk is defined as Likelihood x Severity. The degree of risk at a particular location can aid in prioritising areas identified by the warrant criteria above.

LIKELIHOOD	SEVERITY				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Moderate	High	High	Extreme	Extreme
Likely	Low	Moderate	High	Extreme	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Low	Moderate	Moderate	High
Rare	Low	Low	Low	Moderate	High

FIGURE 9: EXAMPLE RISK MATRIX

3.2.2 Safe System approach

Councils play a critical role in facilitating the implementation of the National Road Safety Strategy. The strategy is based on the Safe System approach to road safety; a philosophy that suggests roads need to be designed and managed so that deaths and serious injuries are avoidable. The basic principles are[9]:

- *People make mistakes. A mistake should not cost anyone's life or health.*
- *Physics determine the known limits to the amount of force our bodies can take. When a crash occurs (and they will continue to occur because people make mistakes), all the elements within the Safe System should work together to ensure the forces created in the crash do not exceed the physical limits of our bodies and result in a fatal or serious injury.*

The Safe System considers elements that influence crashes, as listed below[9]. Through the installation of traffic calming devices, Council can have a significant impact on ensuring safer roads and safer speeds.

- Roads and roadsides
- Vehicles and vehicle mix
- Road users
- Speed
- Function of the road
- Planning.

3.2.3 Enforcement

Whilst traffic calming devices have been recognised to reduce vehicle speeds, they have limited influence over other dangerous road behaviours (such as hooning, mobile phone use or driving under the influence of alcohol or drugs).

Sufficient enforcement must also be implemented alongside any traffic calming treatments, ensuring there is a sufficient police presence to persecute traffic offenders as required. Provided enforcement measures are consistent and equitable, they are proven to be effective in deterring dangerous driving behaviour.

[9] National Road Safety Strategy 2021-30, *Fact sheet: Vision Zero and the Safe System* www.roadsafety.gov.au/nrss/fact-sheets/vision-zero-safe-system

3.3 TRAFFIC CALMING IMPLEMENTATION

Once a treatment / suite of treatments has been determined, it shall be referred to Council's Capital Works Program or state / federal road safety programs for future funding consideration.

4 COMMUNITY CONSULTATION

Community involvement in the investigation and selection of traffic calming measures is critical to ensure positive receptiveness and successful implementation. Local streets play a critical role in providing a safe and amenable environment for residents, which in turn can improve road safety, encourage the use of sustainable transport such as walking and cycling and improve the general liveability of a street.

Community consultation may be undertaken at one or multiple stages of the process, in line with the City's Community Engagement Guidelines and Toolkit (Table 1).

STAGE	COMMENTS
Inform need	Historical community complaints and/or new consultation may be undertaken to inform the need for traffic management / traffic calming.
Seek support	A survey may be undertaken to gauge level of support for selected device(s) or options.
Notify	Once the preferred traffic calming treatment option(s) is determined, residents along the affected street shall be notified. If there is a general agreement between the Council and the community, the treatment shall be referred for future funding consideration. If a discrepancy arises between the views of the community and Council officers, further investigation will be undertaken including consideration of installation of minor treatment measures or signage to assist in road user education and improve resident familiarity with traffic calming measures. Any relevant stakeholders within the community, including emergency services, bus operators or surrounding commercial land uses must also be advised accordingly.

TABLE 1: COMMUNITY INVOLVEMENT IN INVESTIGATION & SELECTION OF TRAFFIC CALMING MEASURES

5 RESPONSIBILITY

It is the responsibility of the Traffic and Road Safety Team to administer this guideline and ensure compliance.

6 REFERENCES

AS 1742.13-2009 *Manual of uniform traffic control devices Local area traffic management*

Austroads Guide to Traffic Management Part 8 – Local Street Management, AGTM08-20, Austroads, Sydney

City of Greater Bendigo 2016, *Community Engagement Guidelines and Toolkit*

Department of Transport 2019, *Movement and Place in Victoria*, <www.vicroads.vic.gov.au/traffic-and-road-use/traffic-management/movement-and-place>

National Road Safety Strategy 2021-30, *Fact sheet: Vision Zero and the Safe System*

National Road Safety Strategy 2021-30

Victorian Road Safety Strategy 2021-2030

VicRoads Supplement to AGTM Part 8 – Local Area Traffic Management

APPENDIX C

LIST OF ACROYNYMS

ANCAP	Australasian New Car Assessment Program
COGB	City of Greater Bendigo
DDA	Disability Discrimination Act – legislation to help ensure people who live with disability to be able to access public space without discrimination.
DTP	Victorian Department of Transport and Planning
LATM	Local Area Traffic Management – involves use of physical traffic-calming devices, streetscaping treatments and other measures to influence road user behaviour
MCH	Victorian Maternal and Child Health Service
Movement and Place	It is important to consider the function of the road within the surrounding road network and how it performs its function to meet the community's, as well as users' needs. The movement and place framework helps to manage priorities relating to roads 'facilitating the movement of people and goods' and 'acting as places for people'
PTV	Public Transport Victoria
RRV	Regional Roads Victoria (also referred to in this document as Department of Transport and Planning, DTP)
SAM	Speed Awareness Monitor – device that helps to reduce excess traffic speeds, particularly in high incident areas by alerting drivers about their travel speed. They also collect traffic and speed data.
Safe System	The Safe System approach recognises that people make mistakes, that crashes will continue to occur and that humans have a limited tolerance to impact forces. The approach seeks to eliminate the potential for fatal and serious injury crashes
TAC	Transport Accident Commission
VMS	Varian Message Sign – a digital road sign that can be used to inform drivers of events, road works, changed traffic conditions, and convey road safety messages, etc.