



Connecting Greater Bendigo

Integrated Transport and Land Use Strategy (ITLUS)

Connecting Greater Bendigo: Integrated Transport and Land Use Strategy
Strategic Planning Unit City of Greater Bendigo
Adopted on August 26, 2015

ITLUS Steering Committee Membership:

- Cr Rod Campbell, Greater Bendigo City Council (Chair)
- Mayor Cr Peter Cox, Greater Bendigo City Council
- Cr Barry Lyons, Greater Bendigo City Council
- Mr Mal Kersting, Northern Regional Director, VicRoads
- Mr Stephen McIvor-Smith, Acting Executive Director, Intergovernmental Relations – Strategy and Planning, Department of Economic Development, Jobs, Transport and Resources
- Ms Jan Boynton, Regional Director, Loddon Mallee, Regional Development Victoria
- Mr Craig Niemann, Chief Executive Officer, City of Greater Bendigo
- Mr Darren Fuzzard, Director Presentation and Assets, City of Greater Bendigo
- Ms Prue Mansfield, Director Planning & Development, City of Greater Bendigo
- Mr Trevor Budge, Manager Strategy, City of Greater Bendigo
- Mrs Katherine Wrzesinski, Senior Integrated Transport Planner, City of Greater Bendigo

Foreword



**Mayor Cr Peter Cox,
Greater Bendigo City Council**

It is with great pleasure on behalf of the Greater Bendigo City Council that I write this foreword. Connecting Greater Bendigo – Integrated Transport and Land Use Strategy (ITLUS) has been a long but very fruitful journey. Council funded the ITLUS because we wanted to have an innovative

and inspiring plan to tackle our growing transport needs for the next twenty to thirty years.

Developing the ITLUS was a response to the community's call to go well beyond the draft 2011 Road Transport Strategy. The community wanted a strategy that embraced all forms of transport, that addressed the needs of all our residents and that truly integrated transport and land use. The ITLUS is at the forefront of community driven strategies both for Bendigo and at a much wider level.

The community involvement, engagement and support for a strategy of this type have been unprecedented. While the ITLUS is Council's plan it is a document which importantly has in principle support from key agencies such as VicRoads Public Transport Victoria and V/Line. Significantly the implementation of the ITLUS is now a partnership with over 20 major organisations including: the Bendigo and Adelaide Bank, Bendigo Health, La Trobe University, Bendigo TAFE, Bendigo Business Council, the Bendigo Sustainably Group, the Victorian Bus Association and numerous schools across Greater Bendigo. Each of these groups have in some way committed to work towards implementing aspects of the ITLUS.

The Strategy provides Council, the various government agencies and the community with a plan for the future – a plan that is designed to lead Bendigo to be Australia's most liveable regional city.

**Mr Craig Niemann
Chief Executive Officer, City of Greater Bendigo**

The City is an organisation of over a thousand staff working together to make Bendigo Australia's most liveable regional city. We know that it is a huge task to manage a fast growing city with a range of competing demands. The ITLUS is a very important strategy because it provides a really clear direction and sets priorities for expenditure and action across our whole city and organisation. One of the most significant elements of the ITLUS is that implementation is a partnership between the City, state government, community and businesses. The City itself has to be an active player in this. Council is committed to improving the health of our residents, ensuring we have safe ways to get around our city and that we reduce our environmental impact. The City's commitment to provide a bicycle fleet to reduce the use of our fleet cars around the city centre is one example of how we support the ITLUS. There are many opportunities like this where we as an organisation can lead by example.

**Cr Rod Campbell
Greater Bendigo City Council
ITLUS Steering Committee (Chair)**

The ITLUS Steering Committee comprises representatives from the City and those government departments and agencies that work with the Council in providing essential transport facilities and services; the Department of Economic Development, Jobs, Transport and Resources, VicRoads and Public Transport Victoria. As Chair I want to thank all the representatives who sat on the Committee during the life of this project. It was most pleasing that the Committee approached the task of overseeing the preparation of an integrated transport and land use

strategy for Greater Bendigo in such a cooperative manner with an ambition to have a process that engaged with the community and that was open to ideas and initiatives. The journey to produce the plan has been highly productive; large numbers of the community involved, many organisations coming on board as partners, the Bendigo Metro Rail initiative – a direct outcome of developing the ITLUS and projects with schools. Each of the organisations have learned much on that journey. Our approach to meeting Greater Bendigo's future transport and land use needs provides new thinking, bold ideas and shared action.

**Mr Stephen McIvor-Smith
Acting Executive Director, Intergovernmental
Relations – Strategy and Planning, Department
of Economic Development, Jobs, Transport and
Resources**

The Greater Bendigo ITLUS will help drive economic development and manage population growth in a sustainable manner. The strategy will also help create more liveable communities by ensuring new residential developments have good walking, cycling and public transport access to existing networks.

**Mr Mal Kersting
Northern Regional Director, VicRoads**

The ITLUS sets the framework and directions for Greater Bendigo that provides a focus for an integrated approach to transport and land use planning; reducing our reliance on cars and making the best possible use of the available infrastructure, including road space, to meet capacity demands, and being open to exploring opportunities to do things differently.



Many have contributed

We would like to thank all those who have contributed to the development of the ITLUS.

Special thanks go to the members of the ITLUS Steering Committee, the Reference Group and the Technical Working Group who have contributed their personal time in attending numerous workshops and meetings and for sharing their professional and local knowledge and varied viewpoints with the Project Team.

We would like to thank the consultants who have assisted with the project, GHD, MRCagney and Hello City and those in the community who took part in the workshops and who

attended events to both learn more about the concepts underpinning the ITLUS and to contribute their own ideas.

Finally, we thank all those in our community who are already working together in making Bendigo the most liveable regional city in Australia.

Organisations represented in the Steering Committee, the Reference Group and the Technical Working Group:

- City of Greater Bendigo
- Public Transport Victoria
- VicRoads
- Department of Economic Development, Jobs, Transport and Resources
- Bendigo Take Action Group
- Bendigo Sustainability Group
- Bendigo Health
- Bendigo & Adelaide Bank
- Bendigo Business Council
- La Trobe University
- Bendigo Traders Association
- Christian's Bus Company
- Positive Ageing Advisory Committee - Transport Working Group
- Urban Development Institute of Australia Northern Chapter
- J & A Light Freight
- Hoffman Engineering (Bendigo Manufacturing Group Member)
- Plan B - Planning Students' Association at La Trobe University
- Whitmores Bus Line (Strathfieldsaye Service)
- Bus Association Victoria
- Youth representative

Greater Bendigo: Working together to be Australia's most liveable regional city



Preventing urban sprawl and strengthening connections between people and places



Improving health and wellbeing through much better public transport and more active travel



Using the capacity of our networks to better move people and goods



Changing individual travel behaviours through strengthening partnerships and building community support



Leading through innovation and good governance

The objectives at a glance

Connecting Greater Bendigo – Integrated Transport and Land Use Strategy (ITLUS) is the City's plan and call to action to:

- progressively reduce the many short local trips that are unnecessarily made by car in urban Bendigo; especially accessing places in our local neighbourhoods, commuting to work in the city centre and travelling to and from school;
- use clever and innovative city design to support far greater levels of walking, cycling and better public transport to better connect people and places and make big improvements in the health of everyone, particularly children; and
- further develop and strengthen existing innovative partnerships between Council and the key organisations and businesses that support the ITLUS objectives and work with Council to implement a series of agreed actions

Connecting Greater Bendigo

PREVENTING URBAN SPRAWL AND STRENGTHENING CONNECTIONS BETWEEN PEOPLE AND PLACES

Manage growth within the Urban Growth Boundary



Maintain and enhance the prominent role of the City centre as a major focus for civic, cultural, commercial and retail experiences

Prioritise



in Activity Centres



Protect and reinforce the identity of Bendigo

Integrate and coordinate public transport services



Improve linkages between walking, cycling and public transport routes, as well as access to and circulation within interchanges

Strengthen a hierarchy of vibrant



activity centres and townships

Expand transport choices as the city's population grows by providing a wider range of services



Support well connected and district townships

Healthy Greater Bendigo

IMPROVING HEALTH AND WELLBEING THROUGH MUCH BETTER PUBLIC TRANSPORT AND MORE ACTIVE TRAVEL



Implement a hierarchy of bus routes that serve a variety of people and needs

Improve and expand services to existing railway stations



On-road BUS priority



Strengthen regional public transport connections

Improve bus services to existing railway stations



Establish a self-contained urban rail service in Bendigo

10 MINUTE
NEIGHBOURHOODS

Complete a network of safe bicycle infrastructure



Complete a safe and convenient network of walking paths



Moving Greater Bendigo

USING THE CAPACITY OF OUR NETWORKS TO BETTER MOVE PEOPLE AND GOODS

Maintain a sustainable network for road transport through smarter investment



Protect and enhance key freight connections



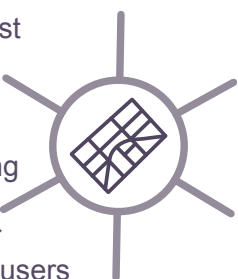
Understand and address the needs of the freight sector and associated industries



Prioritise the movement of people over the expansion of road capacity when addressing traffic congestion and car parking demand



Make best use of what we have by prioritising different roads for different users



Moderate the need for car travel and improve access to daily destinations



Engaging Greater Bendigo

CHANGING INDIVIDUAL TRAVEL BEHAVIOURS THROUGH STRENGTHENING PARTNERSHIPS AND BUILDING COMMUNITY SUPPORT

Partner with lead organisations, government departments, agencies, schools, community

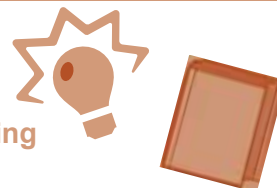


groups and employers to engage as many people as possible

Seek opportunities to share resources and explore new funding streams



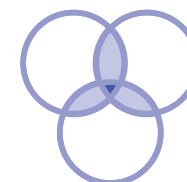
Share knowledge and ideas on how to progressively build a healthier, more appealing and resilient city



Inspiring Greater Bendigo

LEADING THROUGH INNOVATION AND GOOD GOVERNANCE

Utilise appropriate statutory and strategic planning tools to deliver integrated transport and land use outcomes



Trial and pilot a series of Council initiatives to demonstrate how regional cities can lead and innovate



Ensure program implementation and funding priorities align with the vision and principles of ITLUS

Formalise the GOVERNANCE MODEL to deliver measurable outcomes



Position Greater Bendigo as a leader in land use and transport innovation



LEAD by EXAMPLE



How should Bendigo approach the integration of transport and land use?

PEOPLE

BENDIGO SHOULD BE BUILT FOR YOU,
WHETHER YOU ARE 8 OR 80 YEARS OLD.



WALKING

BENDIGO SHOULD BE BUILT FOR PEOPLE
WHO WANT TO WALK.

CYCLING

BENDIGO SHOULD BE BUILT FOR PEOPLE
WHO WANT TO CYCLE.



RAIL

BENDIGO SHOULD BE BUILT FOR PEOPLE
WHO WANT TO CATCH THE TRAIN.

BUSES

BENDIGO SHOULD BE BUILT FOR PEOPLE
WHO WANT TO CATCH THE BUS.

ROADS

BENDIGO SHOULD BE BUILT FOR PEOPLE
WHO NEED TO USE THEIR CAR.



JOBS, SCHOOLS AND ACTIVITY CENTRES

BENDIGO SHOULD BE BUILT SO PEOPLE
HAVE TRANSPORT CHOICES TO ACCESS
JOBS, SCHOOLS AND ACTIVITY CENTRES.

10 MINUTE NEIGHBOURHOODS

BENDIGO SHOULD BE BUILT SO PEOPLE
CAN ACCESS THE LOCAL THINGS THEY
NEED BY WALKING AND CYCLING.

TOWNSHIPS

BENDIGO'S TOWNSHIPS SHOULD BE
BUILT SO THEY WORK FOR ALL
RESIDENTS.



FREIGHT

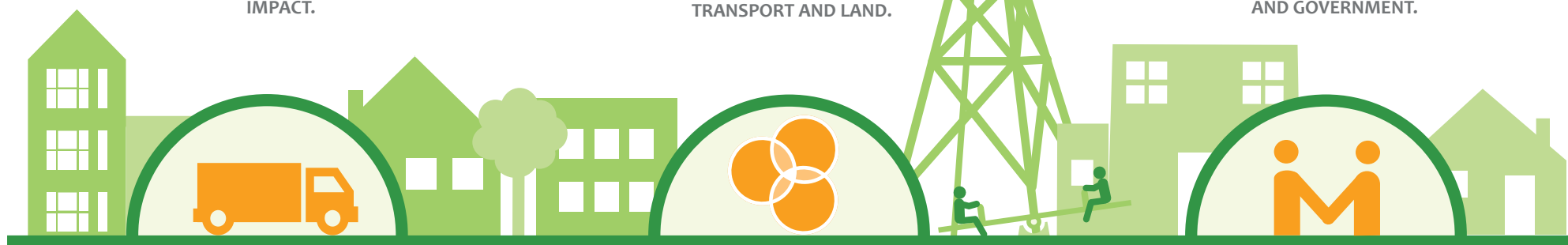
BENDIGO SHOULD BE BUILT SO THAT
THE GOODS WE ALL NEED CAN BE
DELIVERED EASILY AND WITH MINIMUM
IMPACT.

GOVERNANCE

BENDIGO SHOULD BE BUILT SO THERE IS
STRONG COORDINATION BETWEEN
THOSE WHO PLAN, BUILD AND USE
TRANSPORT AND LAND.

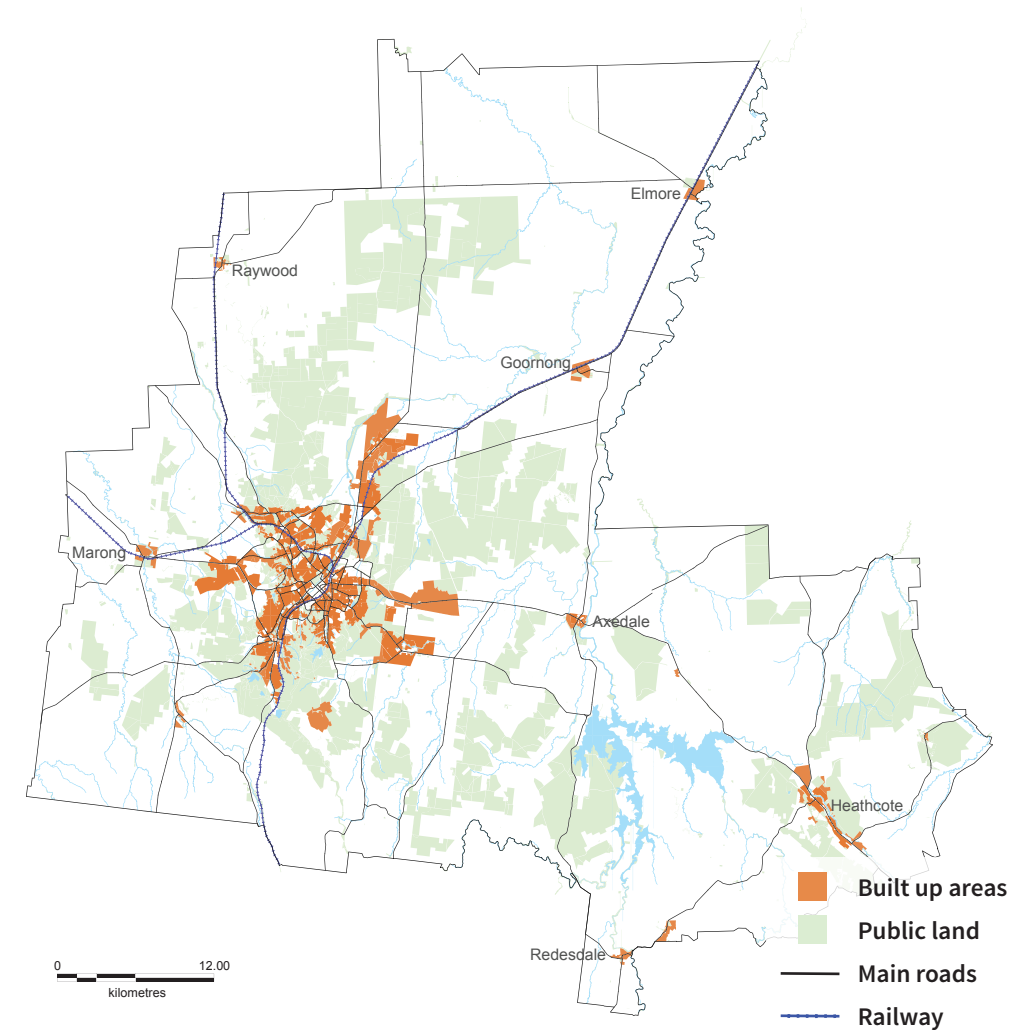
PARTNERS

BENDIGO SHOULD BE BUILT ON
COLLABORATIVE PARTNERSHIPS
BETWEEN COMMUNITY, BUSINESSES
AND GOVERNMENT.



Greater Bendigo

Greater Bendigo was formed in 1994 by the amalgamation of six former local government areas. It now embraces an area of about 3,000 square kilometres and includes urban Bendigo, numerous small townships, agricultural areas and forested public land.



City of Greater Bendigo

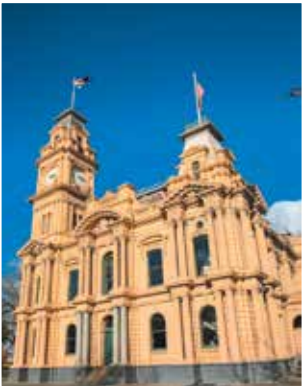


Bendigo in a regional perspective








City of Greater Bendigo:

- Total population: 110,579 (2015)
- Weekly median household income: \$991
- Average age: 38
- Main mode of transport: private vehicle
- Public transport options: bus, taxi, limited train
- Percentage walking and cycling to work: 5.4 % ¹



Contents

Preface	4
The story	13
The growth of Bendigo	14
The future growth of urban Bendigo	15
What is the ITLUS?	16
Why was the ITLUS developed?	18
How was the ITLUS developed?	19
The challenges - where we are now	21
Addressing the challenges	
- why not business as usual?	26
- why the ITLUS approach will work	28
How much will it cost and can we afford it?	30
How we will measure success	32
Targets	33
Delivering the ITLUS	35
Connecting Greater Bendigo 	36
Healthy Greater Bendigo 	42
Moving Greater Bendigo 	50
Engaging Greater Bendigo 	58
Inspiring Greater Bendigo 	62
Implementation plan and resources	67
New actions to implement the ITLUS	68
References and links	83
Want to read more?	84

Look out for...



Internet links



Information boxes



References to relevant documents





The story

The development of the ITLUS is a remarkable journey for an Australian regional city. It is the story of a community who rejected 'a big new road' as the fix for an emerging problem. Council was initially concerned that the community reaction was largely just by those who would be directly impacted, but an extensive community engagement program confirmed that there was a real appetite for thinking differently, for innovation and for capturing ideas that have worked in other places. The ITLUS grew from a set of ideas and actions to progressively change how we move around the city and design and build Greater Bendigo.

The ITLUS seeks to understand how Bendigo functions, how we can manage growth and development so we all benefit and how we can better use the resources and capacity we have. In one sense the ITLUS aspires to and charts some new and exciting directions and the future for Bendigo, but it does this by valuing what we have, capitalising on an emerging concern about health, building on community enthusiasm for cycling and walking

and making much better use of our public transport facilities and services. Importantly ITLUS recognises that these changes build on momentum in the community and a shared desire for change. Reflecting Bendigo's capacity to work together to address issues, a call for partners to help implement aspects of ITLUS has produced a remarkable response.

Organisations representing thousands of people through employees, students and members have come on board and said they will work with Council to help implement aspects of ITLUS. The biggest response has been to a Bendigo innovation; what the ITLUS calls '1 in 5', that is that one day in five we change our commute to school or work to an active healthy mode – walking, cycling or catching public transport. It's a great way for each and every person in Bendigo to demonstrate that they are part of the implementation of the Strategy and are working together to make Bendigo Australia's most liveable regional city.

The growth of Bendigo

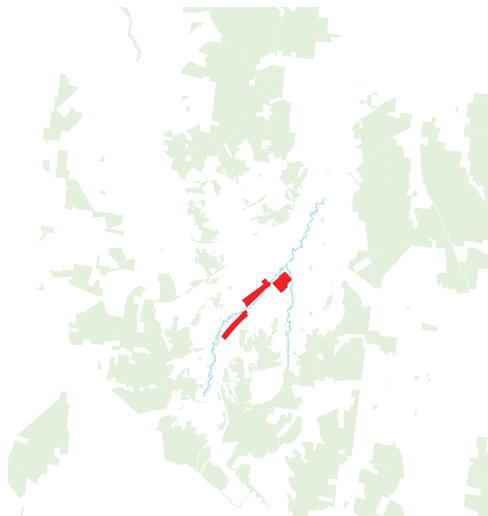
The historical development of urban land use in Bendigo has generally followed transport. But this wasn't always the case. The original settlement of Bendigo followed the creeks and gullies – where the alluvial gold was found. This pattern of settlement spawned the early tracks which eventually became roads. The tracks paralleled the creek lines such as the Bendigo Creek and connected between the gullies as in the route between Bendigo and Eaglehawk. Shortly after the initial settlement and survey and as housing and businesses grew, settlement clung to this early skeleton of roads and tracks. With the coming of Bendigo's rail network from the 1860s the pattern of settlement along transport was further reinforced with stations at places like Golden Square, Kangaroo Flat and Eaglehawk. The rapid development of rail also saw stations

at Epsom, Huntly and Marong and numerous other stopping places across Bendigo and surrounds. Bendigo established a tramway system at the turn of the twentieth century. It was built to service the various settlements but it also created another set of spines that houses, businesses and employment related to. The development of a bus network also followed many of these early routes but also started to serve locations not accessible by other public transport.

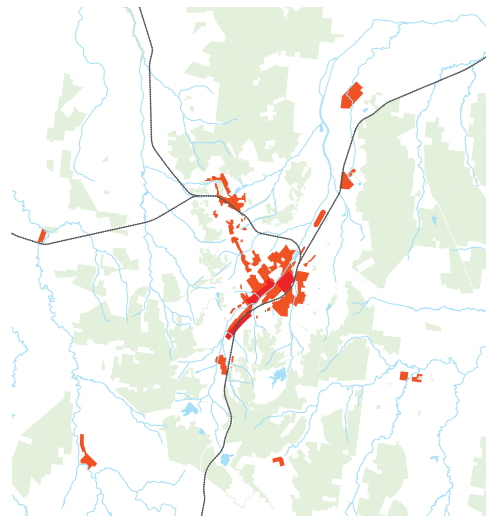
The clustering of settlement around these early transport nodes and corridors was largely swept away by the rise of the family owned motor car and later with greater affluence by two car households. Where people could live and work and go to education was no longer primarily related to whether they could

access locations by public transport, bicycle or walking. A prime example of this was the establishment in the mid-1970s of what was to become a campus of La Trobe University – on the urban edge – well away from its origins in the city centre. Free standing shopping centres such as the original Marong Village (now Lansell Square) south of Kangaroo Flat, which was established in the early 1980s and the development of Strathfieldsaye and Maiden Gully as commuter suburbs from the late 1970s, were further evidence of this pattern. The urban area was reshaped by most households having convenient access to most things they needed by a car. Public transport, particularly buses, was largely for concession card holders.

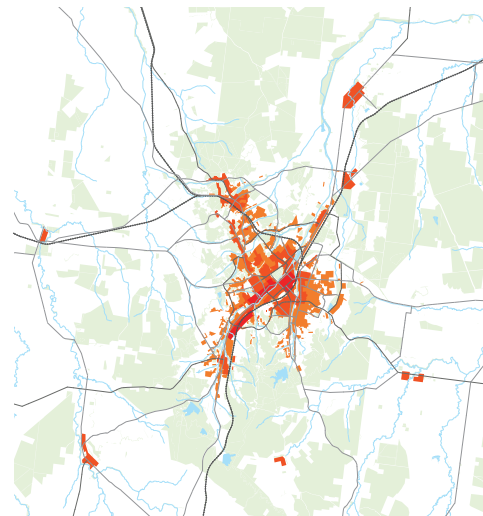
The urban form grew on the assumption that not only did 'everyone' have a car, but also that this was the 'best' solution for 'all' mobility. The consequence was that the city sprawled to a degree never imagined. The total footprint of the urban area for the number of people housed produced a low density city that worked for many people. The radial roads leading away from the city centre became the new spines and then the areas inbetween this framework started to fill in with more housing. Many residential areas only became practical as places to live if you had a car. Parents drove children to school, people drove to work in the city centre and needed car parks to store their car for the day, shopping had to be done by car.



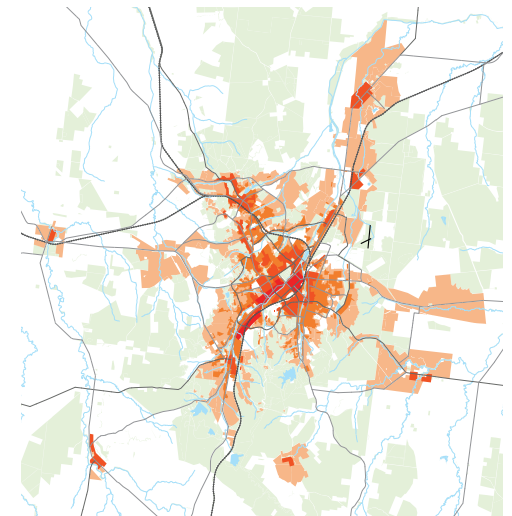
Bendigo 1857



Bendigo 1916



Bendigo 1982



Bendigo 2015

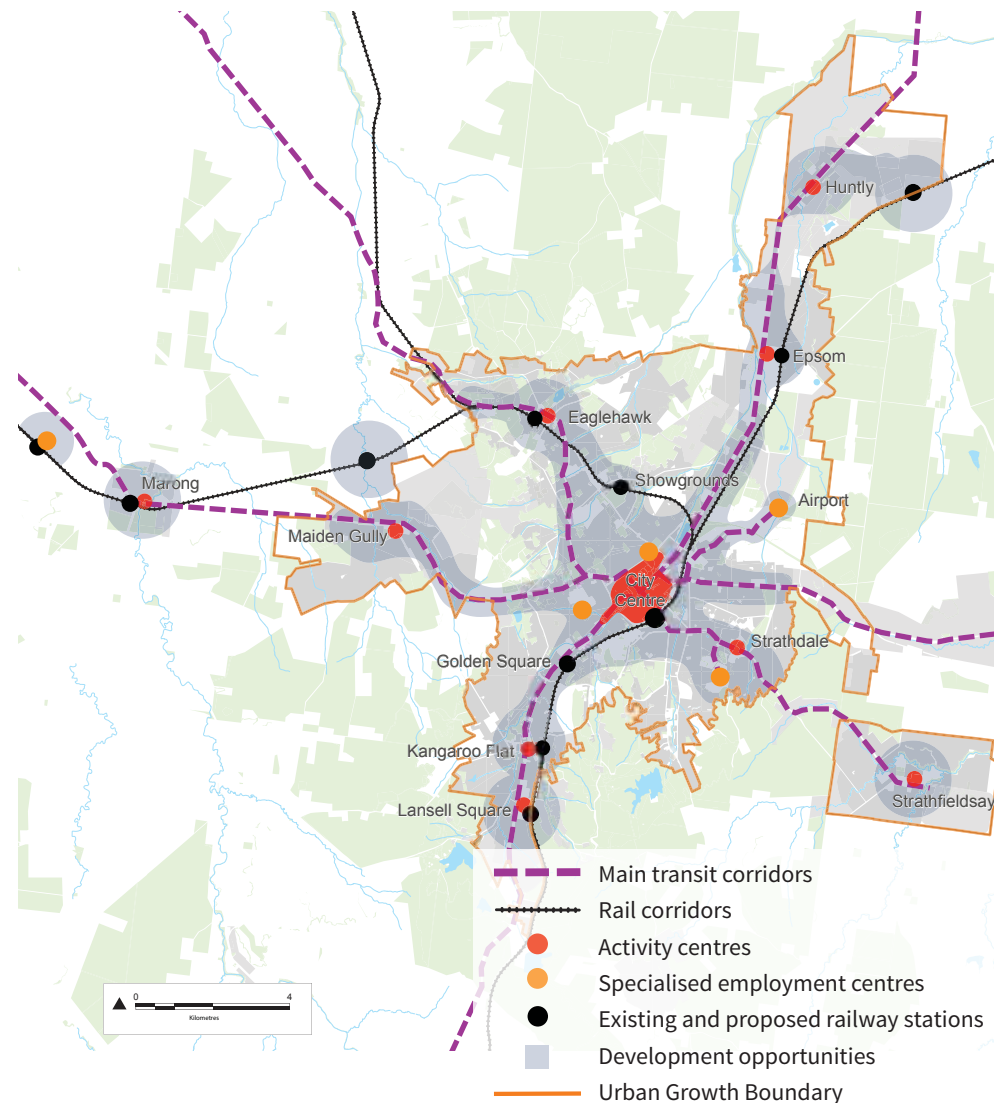
The future growth of urban Bendigo

The outcome of a sprawling pattern is that urban Bendigo in 2015 stretches about 25 kilometres from north (Huntly) to south (Big Hill) and a similar distance from east (Strathfieldsaye) to west (Marong). Even in relatively light traffic, a trip from one side of the urban area to the other takes about 30 minutes by car. The public land – forest that virtually encircles the urban area, now substantially shapes the linear form of Bendigo. In many places urban development is hard up against dense vegetation. This pattern is part of the reason that new settlement areas have leapfrogged the forest. While the ‘city in the forest’ is a highly valued feature and part of the unique character of Bendigo, it too is shaping Bendigo’s urban pattern.

The ITLUS provides the platform for the continued growth of urban Bendigo but in a way that much better relates transport and land use and builds on the City’s strengths.



The state government’s Transport Integration Act 2010 mandated the vision statement: *‘The Parliament recognises the aspirations of Victorians for an integrated and sustainable transport system that contributes to an inclusive, prosperous and environmentally responsible State.’*



Schematic concept for the future growth of urban Bendigo

The proposed future growth of urban Bendigo reinforces the core elements of:

- a strong city centre
- a network of activity centres with an increasing emphasis on development around existing and planned railway stations
- radial transit corridors
- specialised employment centres, hospitals, university, airport and Marong business park
- planned infill within the Urban Growth Boundary

What is the ITLUS?

The City of Greater Bendigo's Integrated Transport and Land Use Strategy (ITLUS) is a major new strategic approach to meeting the future transport, development and housing needs of Greater Bendigo – one of Victoria's fastest-growing regional cities.

Underpinned by strong partnerships with businesses, government and community organisations, the ITLUS is Council's principal strategy for managing growth and change.

The strategy will guide where urban growth takes place. It will be the plan for the type and level of transport infrastructure and services to be provided now and into the future. It's a tool that will be pivotal in achieving Council's vision of Greater Bendigo working together to be Australia's most liveable regional city.

Key concepts

The ITLUS sets the framework and direction for:

- an integrated approach to transport and land use planning
- reducing the reliance of many of our households on cars
- making the best possible use of the available infrastructure, including road space, to meet our traffic demands
- being open to exploring opportunities to do things differently

Strategic framework

The ITLUS is a stand-alone document, but it is also part of a suite of land use planning and development strategies that are shaping the urban form and settlement pattern of Greater Bendigo. The Greater Bendigo Residential Strategy, Housing Strategy, and Commercial Land and Activity Centres Strategy each align with the ITLUS.

INTEGRATED OUTCOMES OF GREATER BENDIGO'S MAJOR STRATEGIES



Working together to be
AUSTRALIA'S MOST LIVEABLE REGIONAL CITY



HEALTH

A healthy and safe community with improved wellbeing



LEADERSHIP

Transparent, collaborative governance and effective community engagement



ECONOMY

A sustained and diverse economy that fosters innovation, learning, jobs and productivity



ENVIRONMENT

Celebrated and protected built heritage and natural environment and effective use of resources



SOCIETY

An equitable and tolerant city where the benefits and opportunities are accessible and better shared

Why was the ITLUS developed?

In 2011, Bendigo reached a fork in the road. The city was flourishing: its population was swelling as people continued to move to one of Victoria's most dynamic regional centres; former rural villages on the urban fringes had become burgeoning new suburbs. Traffic levels were steadily increasing. In response to the mounting concern that some roads would ultimately reach capacity at peak times, the City of Greater Bendigo together with VicRoads developed the Draft 2011 Bendigo Road Transport Strategy. Based on traffic analysis and modelling, it proposed extensive and expensive works to increase road capacity in order to tackle peak-hour congestion, reduce delays and improve safety.

The Bendigo community has realised there is a better way to accommodate and transport our growing population without destroying what we love about Bendigo.

But the Bendigo community rejected the concept of more and wider roads. Through a comprehensive campaign, which highlighted their affection for Bendigo's country-town feel, the view was that simply increasing road capacity was a short-sighted response to growing traffic volumes.

The issue was recognised as being broader than simply getting more people from A to B. Like cities and towns all over the world, Bendigo faces numerous pressures including managing population growth, lifestyle-related health issues, climate change impacts and



Bendigo Cycling City, photograph courtesy of the Bendigo Advertiser, July 28, 2015

motor vehicles consuming a large part of people's incomes. The city's urban form influences the way we get around – which in turn affects our wellbeing, our household budget and the wider economic and natural environments.

The ITLUS was born out of the community's recognition that realistic and viable alternatives are possible, but also that a concerted and cooperative approach is needed.

i

Tapping into community attitudes

More than 90% of people at the 2012 community transport discussions believed Greater Bendigo should set a vision for a more sustainable transport system and 70% thought Greater Bendigo should be a more compact city with infill development. 75%

of primary school-aged children are usually driven to school, yet only 7% said they would like to be driven. Most said they would like to ride their bikes or walk with their friends; scooters and skates were also popular.

How was the ITLUS developed?

The ITLUS is as much about the process used to develop it, as it is about what it aims to achieve for Greater Bendigo. The Strategy



The ITLUS was developed in stages. Visit the City's website to see how the ITLUS has evolved through engagement with the community. Access all the relevant reports that provide in depth analysis of research undertaken to deliver the Strategy. View recordings of ITLUS events, watch presentations from renowned speakers and many others who have contributed to the ITLUS development process.²

development laid the foundations for the partnerships and integrated decision making that the ITLUS delivery is based on.

A collaborative and transparent process

From its inception, the ITLUS was centred around:

- gaining a clear understanding of the local needs and aspirations;
- building community trust and encouraging involvement by making the process highly transparent and well publicised;
- developing a deeper understanding of the forces shaping Greater Bendigo's future; and
- crucially gaining the support of key stakeholders and the broader community

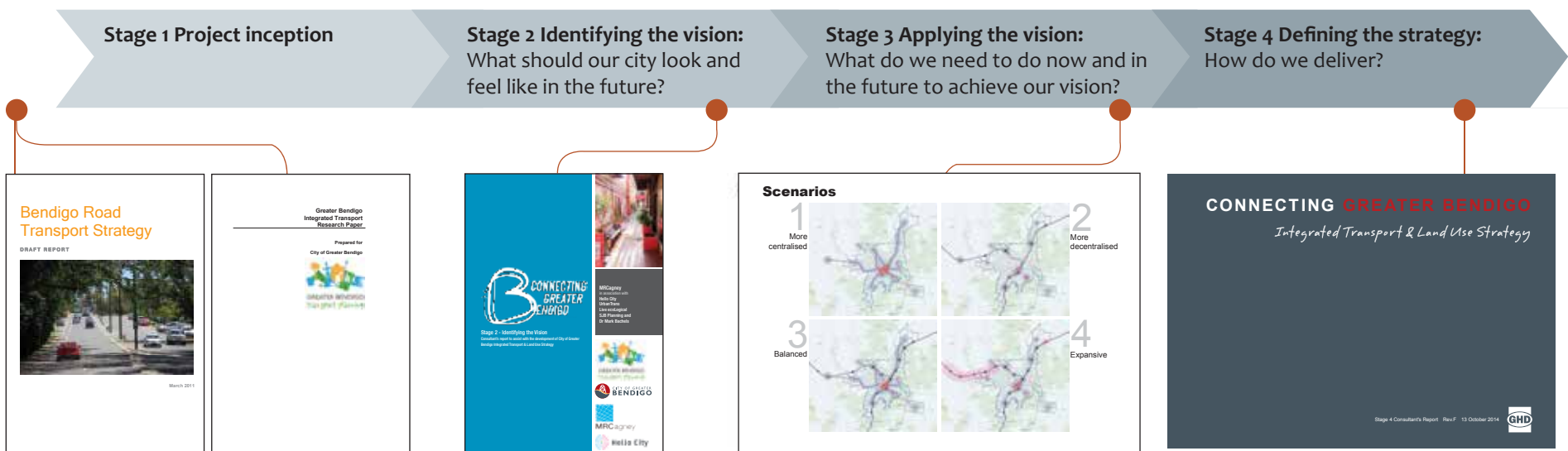
The ITLUS engagement process involved thousands of people expressing their views and doing their part in various ways – from filling out surveys to taking part in a 'story telling campaign' that featured in the local newspaper; attending public forums, information sessions, listening posts and workshops; to writing-in submissions; having their say by entering a children's art competition; or communicating via social media.

The ITLUS needed to address complex land use and transport issues and consider a wide spectrum of competing needs, views, demands and expectations. Its development was overseen by a broad ranging group of stakeholders including: local residents, business, transport and development sector

representatives; youth and education sector representatives; state government officials and local Councillors; as well as specialist groups and organisations. The ITLUS Steering Committee, Reference and Technical Working Groups Members contributed local knowledge, professional expertise and informed the strategic direction of the ITLUS. The Membership expanded as the project evolved. Many of the Member organisations have officially agreed to partner with the City of Greater Bendigo and are working towards delivering the ITLUS objectives (refer page 59 for details).

Putting knowledge into action

The ITLUS development took time but it did not delay action. In fact, as the process



gained momentum, so did the collaborative work designed to improve the city's transport options and the community's perceptions of active travel. For example:

- The City of Greater Bendigo has been liaising with State Government and advocating on behalf of the Bendigo community for improved bus and train services under the PTV's 2014-2015 Bendigo Bus Network Review and as part of the Minister for Public Transport's Bendigo Metro Rail initiative.
- Council's 2015-2016 Budget responded to community calls for better walking and cycling facilities and included \$2.37 Million for this purpose.
- Throughout the Strategy development, a number of behaviour change projects were undertaken involving local schools and businesses.



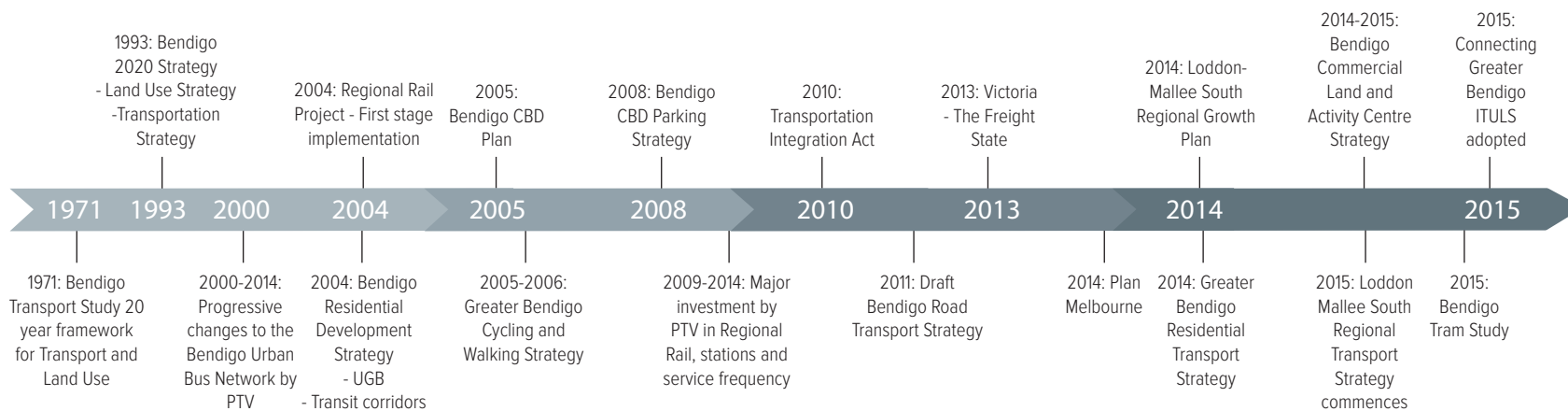
Students from Epsom, Huntly and White Hills Primary Schools, Mayor Cr Barry Lyons and Leonie Francis, Vice Chair Northern District Community Enterprise at the Ride2School Day 2014. Photograph courtesy of the Bendigo Advertiser.

i

Roles of government

It is important to understand the respective roles and responsibilities of Council and a number of government departments and agencies in respect to land use transport infrastructure and services. Council is responsible for the maintenance and management of local roads, parking, footpaths, cycling paths, playgrounds and recreational reserves. Local government controls streetscape design, street lighting, community health programs, community facilities and amenities. Importantly, Council is responsible for managing land use and development through its planning scheme. The Minister for Planning approves changes to Council's planning scheme.

VicRoads is responsible for the arterial road system (the major roads), it also approves traffic management infrastructure such as traffic lights, speed limits and pedestrian crossings. Public Transport Victoria is responsible for the planning, provision and timetabling of train and bus services. Local government's fiscal capacity is relatively limited. Council's knowledge of community needs and aspirations can influence the actions of other levels of government. As such, Council's role in advocating for transport services and infrastructure improvements detailed in ITLUS is paramount for the future of Greater Bendigo.



Connecting Greater Bendigo: Integrated Transport and Land Use Strategy

Strategic context

The challenges – where we are now

In 2015, around 85% of Greater Bendigo residents live within the city's defined urban growth boundary. Bendigo itself is celebrated as a nationally unique 'city in the forest', surrounded by numerous rural centres and smaller settlements, each with their own cherished role and character.

However, Greater Bendigo faces 21st-century challenges – shared by cities around the world – that stem largely from the 20th-century rise of fossil-fuelled transport and sprawling urban development.

Housing

Housing development in Greater Bendigo continues to be dominated by the industry's delivery of conventional land and house packages to suit growing families. However, the proportion of smaller households is growing (55% of all households now comprise only one or two persons) – the result of an ageing population and changing household types. The trend is towards smaller families and single or couple households without dependents.

There is therefore a growing need for a range of housing types that match the changing demographics and different life stages.

Activity centres

Bendigo's main north-south 'spine' – from Huntly in the north to Kangaroo Flat in the south, incorporates major activity centres, including: the city centre, most of the urban area's retail floor space, 16 schools, our two main hospitals and most of our employment. About 35% of urban Bendigo's population lives along that spine. Transport along this corridor includes the full suite of travel options: road, rail, bus and off-road walking-cycling paths. Some parts in the north of this corridor along the Bendigo Creek have potential for developing urban agriculture.

The city centre and immediate surrounds remain a key destination (rather than primarily supporting through-traffic). It accommodates many of the city's major employers and 47% of all Greater Bendigo's jobs. This concentration will grow further with the expansion of the Bendigo Hospital. Freight, manufacturing, agricultural product processing, La Trobe University and major retail centres represent employment concentrations outside the city centre.

Transport

Bendigo is serviced by an extensive urban bus network, a taxi fleet and railway stations at Bendigo, Eaglehawk, Epsom and Kangaroo Flat.



Even though the urban bus service carries 1.4 million passengers a year it is underutilised and the service frequency is poor. Nearly 90% of all bus passengers hold concession cards.

Forty-six taxis serve Bendigo, make 600,000 trips and carry just over a million passengers per year.

Bendigo's inter and intra city rail service continues to undergo a major revival. Services between Bendigo and Melbourne are frequent. Prompted by an earlier draft of the ITLUS the state government is planning for Bendigo Metro Rail. In the past decade, the Echuca line has been reopened adding to the Swan Hill line as a regional connection, Kangaroo Flat and Eaglehawk stations have been revived and a new station has been built at Epsom.



The Victorian government has committed \$2million towards the Bendigo Metro Rail project which has provided the vital support the region needs to make progress in achieving the public transport aspiration for Bendigo.

While limited train services currently exist between the various Bendigo stations (except between Bendigo and Kangaroo Flat), residents are starting to use the existing main services (which are primarily geared for connections with Melbourne) for some intra-city travel.

Bendigo has also become a destination in its own right, with regional services including a network of regional buses linking to Bendigo railway station which has become a regional capital transport hub. A huge increase in Melbourne-line services and commuters to Bendigo (particularly

from Castlemaine) now sees approximately 10% more passengers arrive at the Bendigo station than leave by train in the mornings.

However, private vehicles remain the dominant transport mode – currently accounting for up to 85% of weekday commuter trips. Traffic is becoming congested during peak times on certain routes and around key locations such as schools.

Population growth

Greater Bendigo has sustained one of regional Victoria's highest rates of population growth. If, as expected, this growth rate continues, our population will reach about 180,000 people by 2050. The aspiration is to grow the population faster and aim for 200,000 people by 2040 – this is now adopted Council policy and is the state government's adopted

regional plan. Achieving this sort of population growth would require a major government policy intervention. Major investment in public transport infrastructure and services would be a substantial stimulus to population and economic growth.

While the numbers choosing to live in Greater Bendigo may reflect the city's reputation for liveability, they also pose considerable challenges.

Significantly, over the next 25 years Bendigo will need to build around 1,000 new dwellings per year (an additional 25,000 by 2040).

Health and wellbeing

A strong correlation exists between low-density sprawling suburbs, low levels of physical activity and poor health outcomes. Fostering healthy and active transport options can markedly improve community health and wellbeing.

Bendigo currently has one of Victoria's highest rates of car ownership, and one of Victoria's highest proportion of obese and overweight residents (56.9%) – a level of poor health that is estimated to cost the Bendigo community \$65m annually.

Many neighbourhoods, especially new areas, provide few destinations to walk to. Footpaths and cycle paths are often inadequate and poorly connected. Many relatively short trips are taken by car.

Increased traffic congestion

Unless we change the way we plan, design and build our city as our population swells,

traffic congestion will continue to worsen. A greater proportion of trips, particularly commuting to work and school need to change to public transport, walking or cycling.

Cost of car dependency

There is financial stress in households 'forced' to purchase a second car when residential areas are geographically separated from employment, schools and services and no viable alternatives to car travel exist. Vulnerability to 'peak oil', with rising petrol prices, is exacerbated by entrenched car dependency and a disproportionate level of household income that must be allocated to owning and operating a car, or for many households, two cars.

Equity of access

Many in the community do not drive private cars: young people, elderly people, those unable to drive or without the financial means to run a car. They are disadvantaged by developments which create a reliance on private vehicles. Providing equity and inclusion means ensuring everyone can access transport that is relevant to their needs and circumstances.



People trying to cross Pall Mall



Extreme weather

With climate change the likelihood of events such as fires, floods and heat waves increases. Communities must be proactive about anticipating and planning for future conditions to reduce impacts – greater resilience through real travel options is needed.

The future liveability of Greater Bendigo depends on how we approach these challenges. What worked in the 19th and 20th centuries will not serve us well today and tomorrow – and may not even be possible.

Smart moves for smart places

By Dr Rodney Tolley who has been nominated in the top 50 of the World's sustainable transport 'heroes'.

Conference Director of Walk21 and frequent visitor to Bendigo.

There is a strong link between urban form, travel behaviour and environmental and community health outcomes. In low density areas, distances are too great to walk or cycle and public transport is less viable, whereas in connected communities, destinations are close together, active travel is supported and walking becomes the preferred means of movement.

Walking is not only the most fundamental form of mobility but it is also an effective way to combat high population levels of physical inactivity, which is a major driver of the overweight and obesity epidemic. Promoting walking is recognised as a promising means of increasing population levels of physical activity.³ It also provides excellent value for money: a global review of 16 active travel projects in 2014 showed a mean benefit cost ratio of 6.28:1.⁴

Moreover, walking offers many social and community benefits. By providing eyes on the street, it creates vibrant places which are socially safe. A recent study of 170 neighbourhoods shows the negative impact of walkability on neighborhood crime levels.⁵ There are also many environmental benefits to the city and neighbourhood as walking is emission-free, noise-free and burns kilojoules rather than fossil fuels.

There is now also a widespread recognition that there are powerful economic advantages to improving walkability. Retail performance is enhanced where centres are attractive and welcoming to people on foot. A recent meta-analysis of 70 studies shows that walkable retail will continue to grow over the next several decades.⁶ Space for people is more important in such centres than is space for vehicles and parking. The mantra is: *"a good walking environment is a good economic environment"*.⁷

These findings are highly applicable in a regional city like Bendigo.



i

Greater Bendigo's health and wellbeing: a grim warning

High rates of obesity are strongly related to low levels of physical activity. Currently only 23.1% of adults and 38.5% children under 18 years in Greater Bendigo undertake daily exercise of at least 30 minutes.⁸

Being overweight or obese is a contributing factor to a range of preventable diseases. In Greater Bendigo 60% of adults are overweight or obese, a figure which significantly exceeds the Victorian average.⁹

Life expectancy is slightly lower than the state average, while the rate of heart disease (which is preventable and a leading cause of death in Bendigo) is significantly above average.

The design of our City overall and in each decision about new uses and developments can strongly influence how, when, how much and whether we use active healthy travel modes.

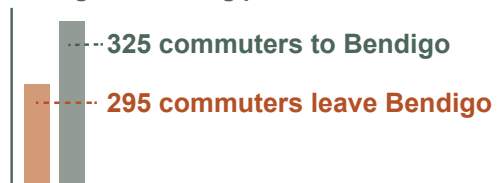
The development of regional rail passenger services

Bendigo was linked with Melbourne with the opening of the railway line in 1862. Railways played a vital role in the development of Bendigo and the city quickly became a major passenger and goods terminal with lines radiating in all directions. The Bendigo Railway Workshops further consolidated the city's role. By early in the twentieth century rail was king and a network of stations served the Bendigo urban area and surrounds. The demise of rail was brought on by the growth of the car and rail services and stations were withdrawn. At its lowest point in the provision of passenger rail Bendigo was only linked to Melbourne and Swan Hill. However, rail has turned the corner, the Echuca line has been reopened for

passenger services, Kangaroo Flat station was reopened and a new station built at Epsom. The Regional Rail initiatives post 2000 have given Bendigo a greatly increased number of services to Melbourne and the towns along the main line. The number of services inside the Bendigo urban area will be increased with the Bendigo Metro Rail development. Bendigo Railway Station has progressively become a major hub for passenger services.

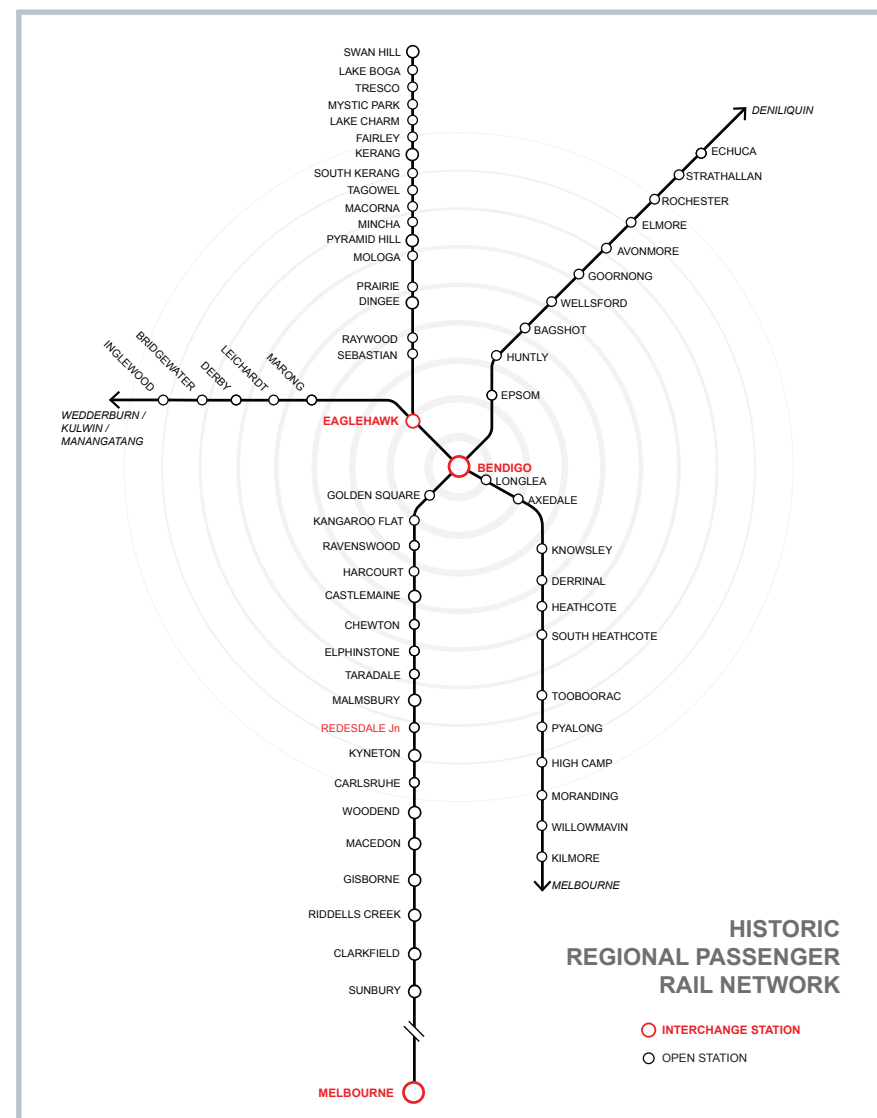
The sequence of maps show the growth and development of the passenger rail services, their decline and their recent revival.

At Bendigo Railway Station during the morning peak:

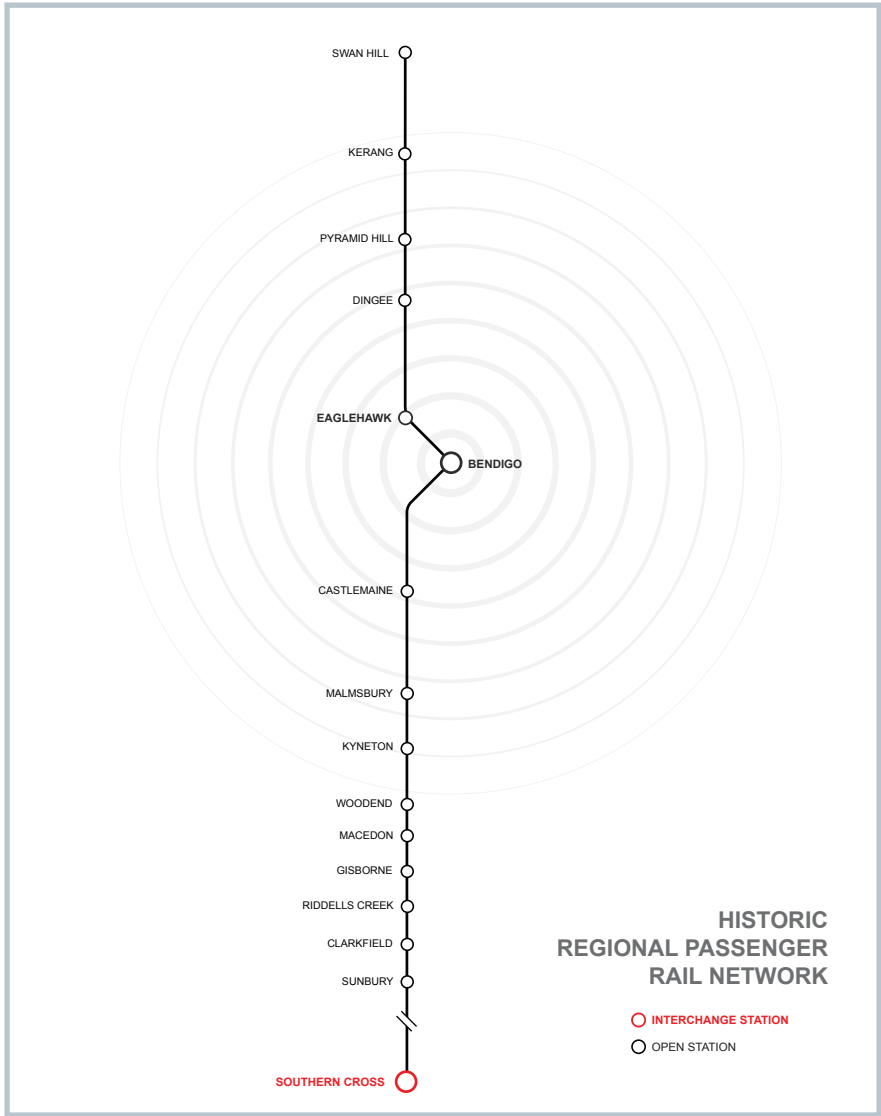


	MON - THU	FRI	SAT	SUN
Total	448	465	220	109
Urban buses	377	386	184	77
Regional buses	12	10	2	0
V/Line buses	22	31	6	8
Trains	37	38	28	24

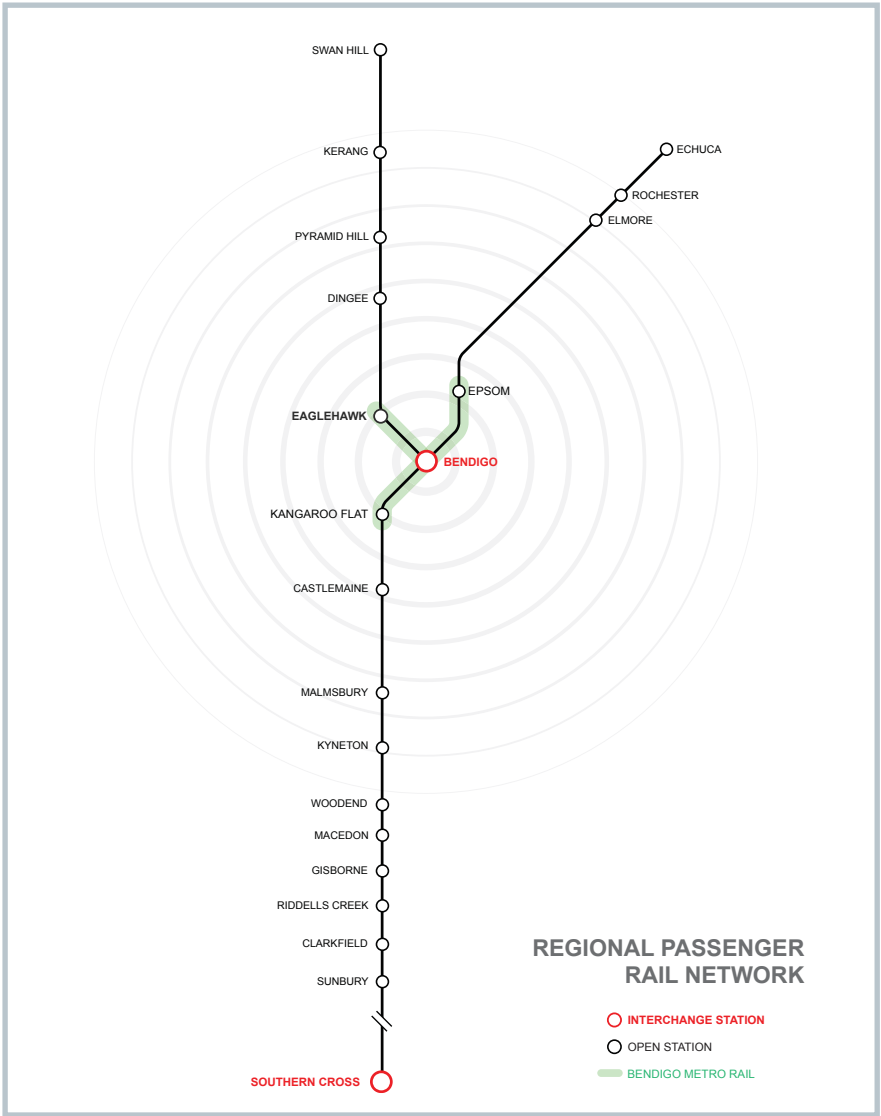
Total buses and trains passing through, starting or terminating at Bendigo Railway Station each day



Historic Rail Network 1905



Historic Rail Network 1995



Current Rail Network 2015

Addressing the challenges – why not business as usual?

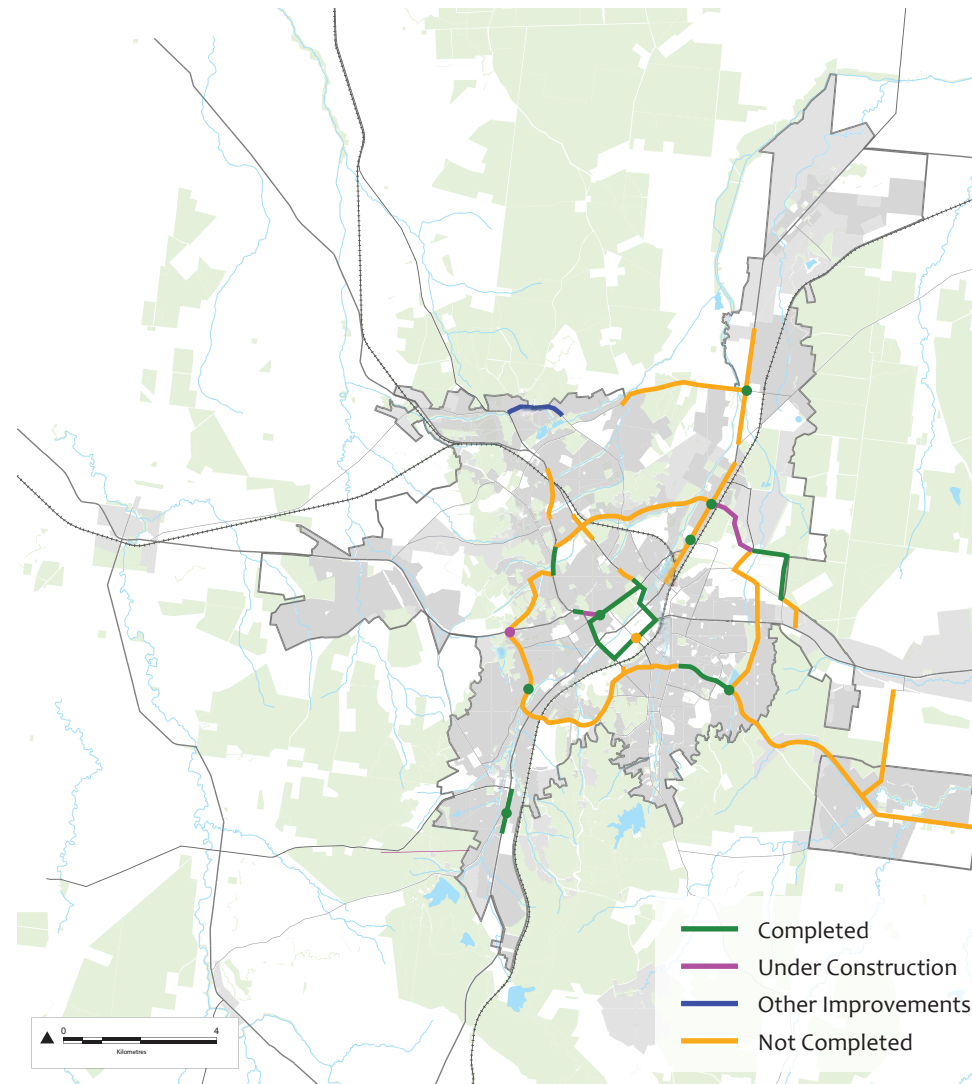
The traditional city planning and design response to a growing population has been characterised by:

- providing more housing on the city fringes – in Bendigo's case over the last generation this represents about 60% of all new housing
- widening or building new roads to cater for increasing traffic – for instance in Bendigo's case there are repeated calls for a new ring road or bypass
- assuming that private cars are the only realistic 'solution' to all transport needs – in Bendigo's case a lack of realistic alternatives means that many households run two cars, despite the substantial cost



Induced demand

Evidence from around the world demonstrates that increasing road capacity provides only temporary relief from traffic congestion and eventually worsens the problem. Ironically studies now conclude that conventional approaches to relieve congestion attracts more vehicles to them, which actually accelerates the growth in traffic volumes – a phenomenon known as 'induced demand'. The substantial investment in increasing traffic capacity provides a limited and short-lived benefit.¹⁰



Progress on recommendations from the Bendigo 2020 Transportation Study (1993)

More roads not the answer

We know, from experience in Bendigo and elsewhere, that ongoing urban expansion and unrestrained investment in road capacity, as the only 'solutions' to growth are not sustainable, effective or economically feasible.

Given an increasingly competitive funding environment, and the fact that traffic congestion levels on Bendigo roads are minor compared with places like Melbourne, the city needs to ensure infrastructure investments are well targeted towards initiatives with optimal whole of network outcomes and supported by improved land use integration. Few of the proposed road building and reconstruction works in the Bendigo 2020 Transportation Study (1993) have actually been funded to date.

Future issues

Allowing 25,000 additional dwellings to be built in an ad hoc manner over the next 25 years on the city fringes will mean that Bendigo's urban edge would balloon outwards, further increasing car dependency. Since Bendigo's employment is centrally concentrated, the mismatch between employment and residential areas would increase.

Under a 'business as usual' scenario:

- traffic volumes would be likely to grow by up to 50% on some roads over next 20 years, increasing congestion and commuting times. The expected growth in freight movements would put further pressure on the road system.

- Bendigo's widely loved 'country town' and 'city in the forest' identity would be threatened, as would its liveability.
- providing public transport services to a series of new developments around Bendigo's periphery would be expensive; without it, non-drivers and those without cars would be severely disadvantaged.
- accessing employment, services and recreation would become more expensive and increasingly difficult for households without multiple cars and the means to run them.
- health costs would continue to rise, more children would be driven to school, the rate of preventable diseases associated with low levels of physical activity such as diabetes and heart disease would continue to rise.
- arable land, treasured environmental areas, biodiversity and habitat would be replaced by urban development.



Sprawling low density residential development in Bendigo



Conventional residential development in Bendigo

Addressing the challenges – why the ITLUS approach will work

THE STORY

Many cities around the world are applying the ITLUS-style ideas. Not only are they working, governments at all levels are funding them because they make good sense and are cost-effective. Significantly, they are far easier to apply in a smaller city like Bendigo.

With conscious planning to integrate transport and land use, our city can be progressively shaped to foster and support the use of public and active transport.

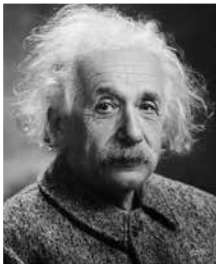
Walking or cycling to work, school or using public transport is a practical way to incorporate daily healthy activity into busy lives. Replacing car trips with active and public transport also reduces traffic congestion, costs far less than new roads and eases pressure on road infrastructure.

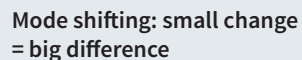
Globally, cities with a focus on active and public transport are increasingly seen as more liveable, more desirable and more economically successful than cities dominated by car-based transport.

Since many of the foundations for the ITLUS already exist, in terms of infrastructure, urban form and community support, Greater Bendigo is ideally positioned to achieve ground-breaking outcomes.



We can't solve problems by using the same kind of thinking we used when we created them.
– Albert Einstein

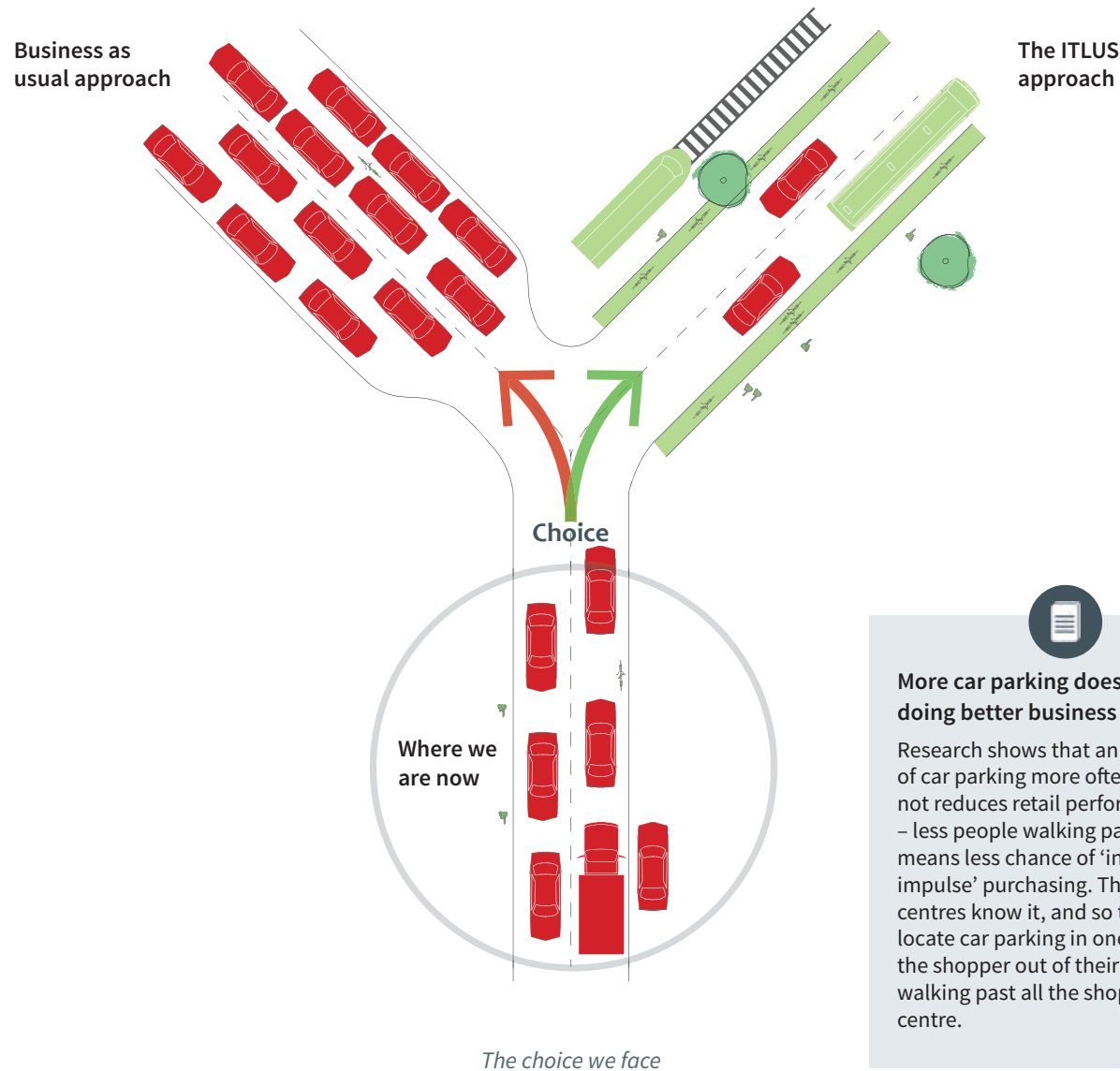




Fact: 58% of all households in urban Bendigo are within 1 km of a primary school; 89% are within 3km, 71% are within 3km of a secondary school.



How much will it cost and can we afford it?



The ITLUS is about capitalising on what we have and spending our tax dollars and rates smarter. In fact, implementing the ITLUS will actually cost far less in dollar terms than a 'business as usual' approach would.

The strategy is designed as a package. Critically, the goals of the ITLUS will not be achieved by cherry picking initiatives for implementation. The evidence from cities that have taken a similar approach is that success is a result of a coordinated and integrated program of actions rather than one or two expensive initiatives.

Reaping the benefits

Not only will the ITLUS cost less in dollar terms, it will also deliver significant productivity and liveability dividends by:

- limiting the consumption of non-urban land
- avoiding or deferring expensive major road works to increase capacity
- minimising the cost of infrastructure and utilities to new homes
- minimising household travel costs – a bonus in our domestic budgets
- enhancing labour force productivity by improving accessibility, reducing congestion and having a healthier workforce
- improving housing choice and accessibility to jobs and services
- improving resident health, particularly for children

More car parking does not mean doing better business ¹²

Research shows that an oversupply of car parking more often than not reduces retail performance – less people walking past shops means less chance of 'incidental/impulse' purchasing. The shopping centres know it, and so they locate car parking in one spot, get the shopper out of their car and walking past all the shops in their centre.



'Greenfield development' is not cheap

Generally it costs the government \$80,000 per block of land to provide power, water, sewerage, schools and local government services to develop on the city fringes. Road infrastructure is the most significant cost. Extensive research has shown that the cost of infill development can be about half as much.

Smarter spending

Although it's not based on big costly 'solutions', the ITLUS will, nevertheless require a significant commitment of resources over time. Implementation is about choosing priorities – for example, Council's 2015/16 budget decision to allocate an additional \$1m on footpaths and shared cycling and walking paths.

This approach also puts the City of Greater Bendigo at an advantage in negotiating government funding. Governments are looking to fund communities that have embraced much longer term, more sustainable approaches that improve health and physical activity.

Resourcing the ITLUS

Central to securing funding is the strategy's focus on innovation and good governance. An inclusive, cooperative, shared-decision-making model will foster partnerships and creative methods to source funding, including:

- co-funding and co-bidding for funds. As part of the implementation of the ITLUS, Council

has already developed strong partnerships with many businesses, government and community organisations, some of which have involved funding initiatives.

- positioning the City to capitalise on government funding such as: SmartRoads, Active Travel Grants, the state government commitment to provide funding of \$2 million to kick start Bendigo Metro Rail, bus network expansion and greater frequency and span in coverage; and a range of business and community led active travel initiatives.
- tapping incremental tax generation funds – using the productivity dividends foreshadowed by the ITLUS (which flow on to the government through taxes) to leverage further government funding. This innovative approach of 'earning back' tax revenues is being adopted by major English regional cities.

Bendigo has good systems in place for a planning process

Mr Tom Taylor, International Economist for National Australia Bank, says Bendigo is leading the way in economic growth and development for regional cities. "The regional economy is performing very well and that offers lots of lessons to other parts of the state," Mr Taylor said. "It is a positive story for Bendigo, which is not the case for some regional cities. What is being done here to plan economic growth and development is being done well." Mr Taylor said Bendigo was in good stead and ahead of the regional economic pack. "To create this success you need to have good systems in place for a planning process and Bendigo has that", and "lack of congestion makes it an appealing choice for people; they want to live here," he added. Maintaining pressure on the state government for a

quicker railway system between the city and Melbourne was highly important, he said.

"And when it grows it needs to not lose what is good about it - its heritage and urban landscape - otherwise it will diminish why people came here in the first place," he said. "Think to keep residents in the conversation when it comes to planning. The success of a city depends on the social and economic well-being of its people and you don't want anyone being left behind", he said.

Mr Taylor was in Bendigo speaking to 120 business leaders wanting insights into the global economy and to understand how regional industry played out on the world stage.

- Bendigo Advertiser, August 2, 2015



Liveability and prosperity

People and communities across the world are recognising that where they live, work, study and socialise and the way they travel, directly impacts their health, finances, sense of belonging and safety, as well as their relationship with their environment.

Background research for Council's Economic

Development Strategy demonstrated that many businesses recognise that their prosperity is intimately connected to the liveability of the City. A strong desire is evident among Greater Bendigo's business and general communities to work with Council to improve the City's liveability.



How we will measure success

Progress towards implementing the ITLUS will be measured against a coordinated set of targets. Most targets are measurable and where practicable have been given a date by which they should be completed.

Some of the targets are linked to the liveability indicators adopted by Council and now forming part of the City of Greater Bendigo's Council Plan. Liveability indicators – such as: reverse the negative trend in Bendigo compared to state-wide or national obesity benchmarks; decrease in greenhouse pollution/person/year (tonnes); and increase the percentage of the urban area within 400m of a bus stop, can also be used to measure progress, as can other standard progress measures listed in the Council Plan, such as the Victorian Local Government Community Satisfaction Survey items.

Council will work closely with partner organisations, including government

departments and agencies such as: VicRoads and Public Transport Victoria; local employers, schools, businesses and public transport operators, on implementation. Many of these partners have direct responsibility for specific actions, so mutual support and information sharing will be important in meeting targets.

Performance indicators will be reviewed and refined once the formal ITLUS governance and implementation body has been established.

i

Evolution of the ITLUS






The development of the ITLUS has been a dynamic, evolutionary process, with input and ownership by government, major stakeholders and the community.

The concept of a compact city provides an example of the document's evolution: while 'Compact Bendigo' was initially one of the strategy's five main themes; the concept was adopted in the 2014 Residential Strategy and

has now become a basic assumption, upon which the whole of the ITLUS is based.

The ITLUS should continue to be considered as a living document: to change with the community and be updated over time to align with other Council and state government strategies.

Targets

Connecting Greater Bendigo  <p>Preventing urban sprawl and strengthen connections between people and places</p>	1a	Progressively plan and design Bendigo to increase the percentage of residents living within 400 metres of an Activity Centre or Neighbourhood Activity Centre.
	1b	Progressively support new residential development that shifts the proportion of housing mix to at least 70% detached and 30% multi-unit by 2031.
	1c	Plan and support development so as to increase the number of residents living in and around the city centre from the current level of 700 to at least 3000 by 2031.
Healthy Greater Bendigo  <p>Improving health and wellbeing through much better public transport and more active travel</p>	2a	Continue to increase the percentage of the city that reports they live within 10 minutes of a bus stop from 67% to 85% by 2026.
	2b	Work with Public Transport Victoria to provide a 20 minute commuter public transport service in peak hours to nominated townships and locations by 2021.
	2c	Increase the percentage of school children who regularly travel to school by an active transport mode to 80% by 2021.
Moving Greater Bendigo  <p>Using the capacity of our networks to better move people and goods</p>	3a	Progressively reduce the growth rate in the volume of traffic at peak times so as to maintain traffic levels within the capacity of the existing road network .
	3b	Increase the number of people per car occupancy during peak times by 20% by 2026.
	3c	Progressively reduce the number of heavy vehicle movements through Bendigo along Pall Mall during working hours from 10% to 2% by 2031 through the development of freight hubs on the urban edge.
Engaging Greater Bendigo  <p>Changing individual travel behaviours through strengthening partnerships and building community support</p>	4a	Continue to expand the number and type of organisations who agree to partner with the ITLUS and commit to supporting key elements of its implementation.
	4b	Increase the percentage of the workforce who commute to work via public transport from 1.5% to 10% by 2026 and by walking and cycling from 3.5% to 10% by 2026 through an active 1 day in 5 campaign.
	4c	Increase the percentage of population that walks or cycles 5 times a week for at least 30 minutes from 56% to 65% by 2021.
Inspiring Greater Bendigo  <p>Leading through innovation and good governance</p>	5a	Progressively deliver the short/medium/long term ITLUS priorities by co-ordinated actions across Council and with each of the key partner organisations - Vic Roads, Public Transport Victoria and the Department of Economic Development, Jobs, Transport and Resources.
	5b	Progressively increase the level of coordination, support and funding from all key agencies of the State Government and the City of Greater Bendigo so as to implement the ITLUS initiatives and program.
	5c	Ensure all relevant state government departments, council and agencies have embedded the ITLUS targets and business cases within their organisational responsibilities and programs.





Delivering the ITLUS

The basis for the ITLUS is the cumulative impact of a series of coordinated and targeted small changes in terms of:

- integrating the planning for transport and land use (now the norm for government, this will be critical to secure future funding)
- supporting change in travel behaviour

The Strategy embraces all modes of transport, land use and how we integrate them. It covers a large canvas of issues, ideas and actions. In order to tackle this complex agenda the ITLUS groups topics, goals and objectives under five overarching themes:

- Connecting Greater Bendigo
- Healthy Greater Bendigo
- Moving Greater Bendigo
- Engaging Greater Bendigo
- Inspiring Greater Bendigo



Goals and Objectives

1.1 Reinforce Greater Bendigo as a compact city surrounded by a network of well-connected small towns and rural communities

1.1.1 Integrate transport provision and land use development by directing growth to areas within the Urban Growth Boundary (UGB), around the city centre and other major activity centres and along main transit corridors.

1.1.2 Support well connected communities in distinct thriving townships.

1.1.3 Employ best practice urban design to reinforce Bendigo's identity, enhance its heritage buildings, precincts and neighbourhood character, improve accessibility and create a greater sense of place in both urban Bendigo and our rural townships.

1.2 Establish Greater Bendigo's activity centres as thriving, attractive and well-connected places for people and for doing business

1.2.1 Strengthen a hierarchy of vibrant activity centres in urban Bendigo and the city's townships.

1.2.2 Maintain and enhance the prominent role of the city centre as the focus for higher order commercial, retail,

visitor, social, civic, cultural and tourist activities and reinforce this role by establishing it as an attractive residential location supporting about 3,000 people in and around the city centre by 2031.

1.2.3 Prioritise access for people in activity centres to strengthen their role as community hubs and places of business.

1.3 Integrate all modes of transport to provide real choice, make trips more convenient and improve connections

1.3.1 Integrate and coordinate public transport services.

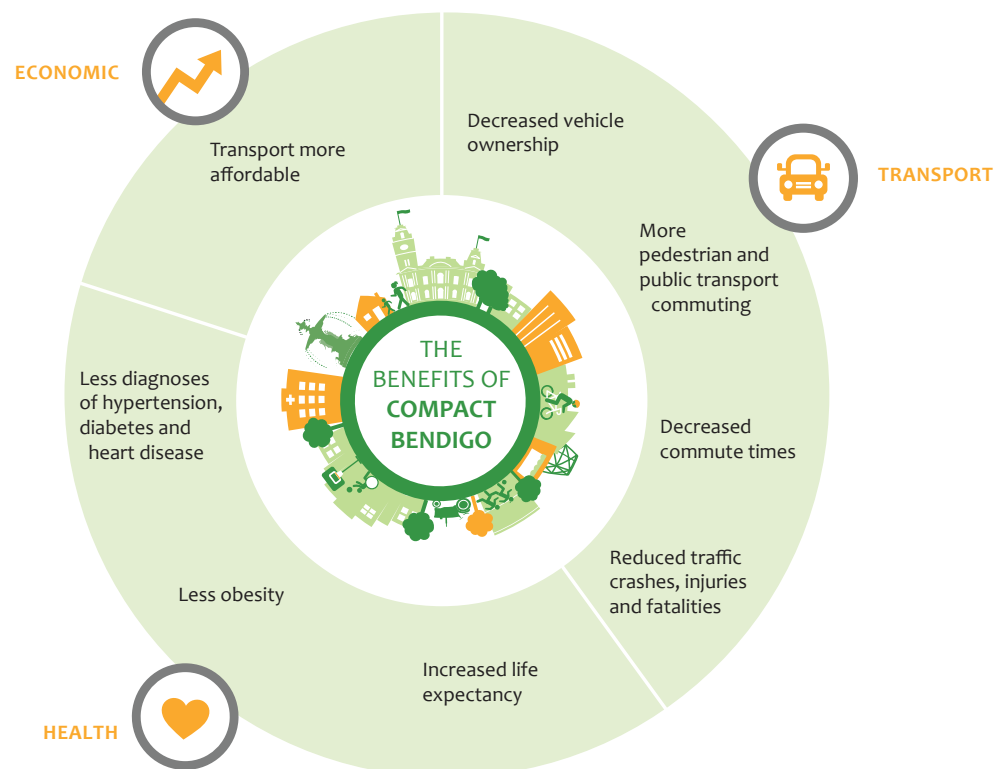
1.3.2 Improve linkages between walking, cycling and public transport routes, as well as access to and circulation within interchanges.

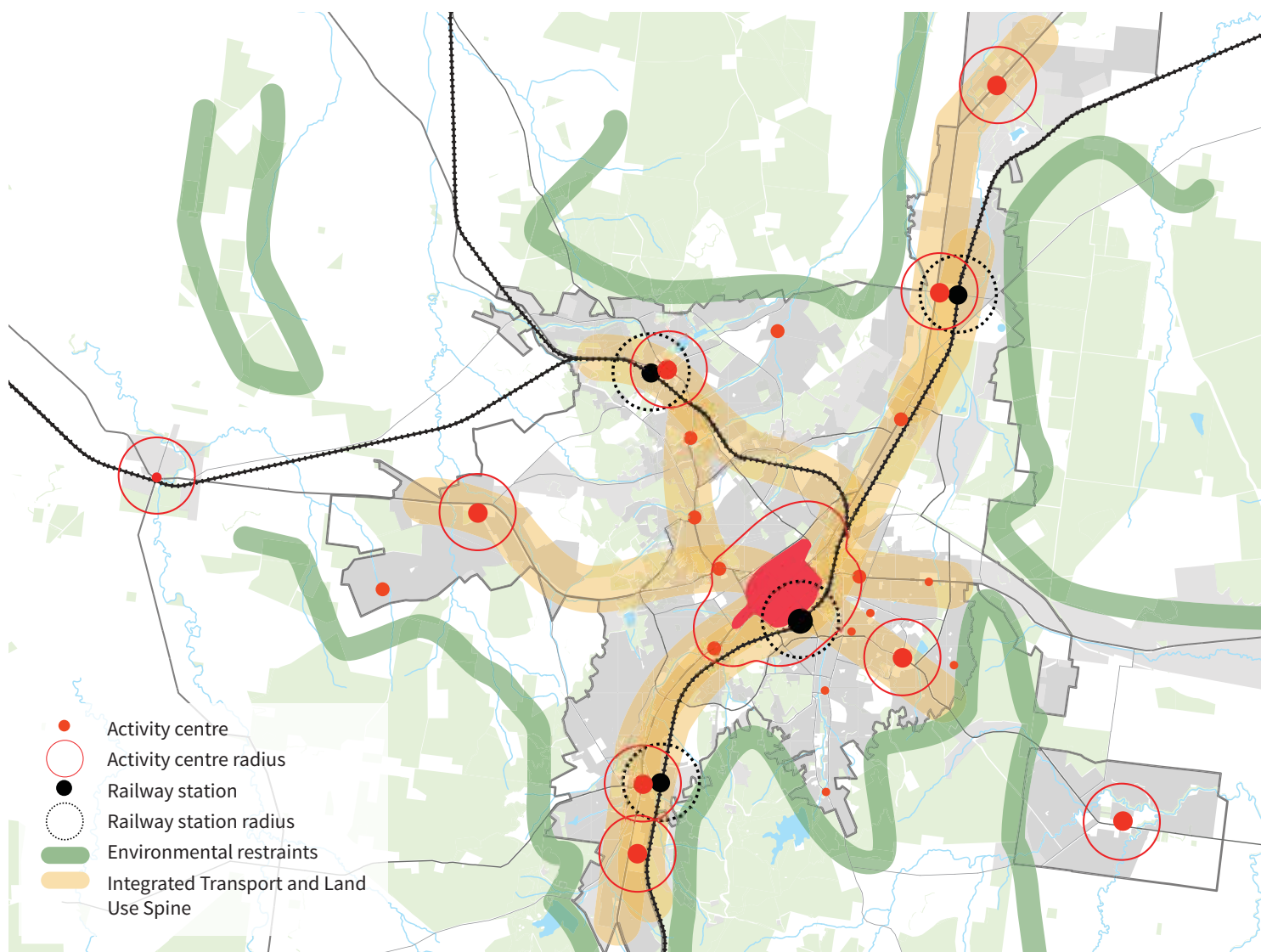
1.3.3 Expand transport choices as the city's population grows and resident needs change by providing a wider range of transport services and options for people who have access issues.

Preventing urban sprawl and strengthening connections between people and places

This is a strategic response to the threats associated with unrestrained urban growth and is one that builds on the city's existing assets. "Connecting Greater Bendigo" responds to the community's aspiration to live in a 'series of linked, sustainable neighbourhoods that provide a range of living, working and transport opportunities for all, surrounding a more urban city centre'¹³. Ultimately, "Connecting Greater

Bendigo" is about progressively building a city where the young, the elderly and everyone else in between, those in our urban areas, rural communities and in townships, have more housing and transport choices to great places that provide a better sense of community and enhanced business opportunities.





Existing Bendigo urban area - a compact city in the forest

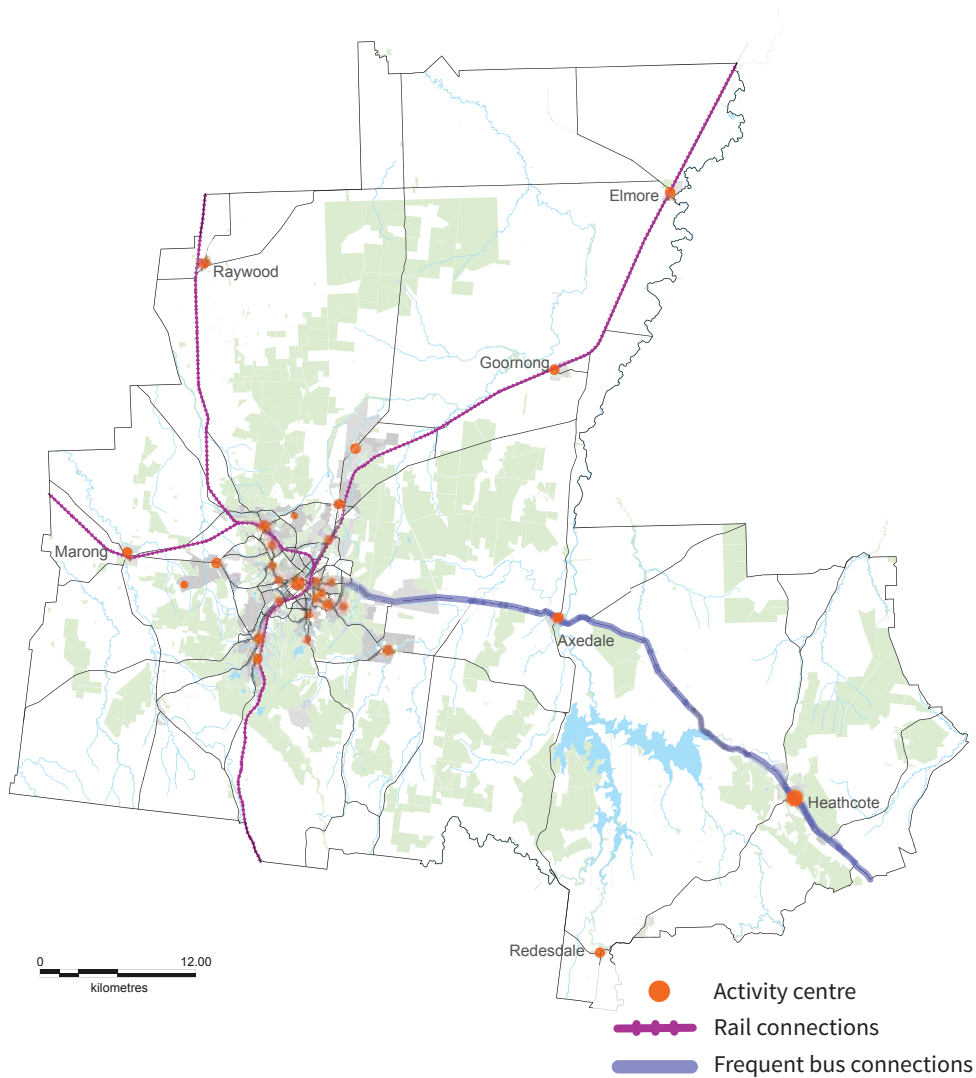
Compact 'city in the forest'

By building on and protecting Bendigo's contained urban form, where most of the growth occurs within the existing Urban Growth Boundary, we will increase access to frequent destinations such as work, education, recreation and shopping. The increase in population, combined with the level of containment created by the Urban Growth Boundary, means that more people will be living in close proximity to public transport and activity centres. For a regional capital like Greater Bendigo, denser, infill development in well-located places will translate to a building scale that respects the character and qualities of existing residential areas. Appropriate locations that are well serviced by transport, employment opportunity and services will be selected for higher density single story housing and 'low rise' (two to four stories) medium density housing. As such, much of Greater Bendigo will remain as is for many decades to come, while more housing choices will be on offer for people at various stages of their lives.

Well-connected townships

Our townships are valued parts of Greater Bendigo. Townships enhance the economic, social and cultural well-being of Greater Bendigo. Maintenance and provision of infrastructure, services (eg education and health), protection of township and rural area heritage and identity will be critical in:

- attracting and retaining families
- creating local employment and
- generating local spending



Greater Bendigo with Townships and improved access routes highlighted

The ITLUS reinforces the City's place-based approach to supporting self-reliant townships. This will be undertaken by implementing township based community plans. Detailed structure planning, with emphasis on improving walking, cycling and public transport connections will be progressively undertaken. Improved public transport connections between urban Bendigo and towns where population growth is taking place namely: Heathcote, Marong, Elmore and

Axedale are advocated for as a priority -as is maximising the benefits associated with better mobile phone coverage and with the roll out of the National Broadband Network (NBN). The ITLUS is about access and connection. This includes a focus on telecommunications and IT. This will provide people living in Greater Bendigo's township and rural areas access to a wider range of employment, education, retail, cultural and sporting activities.



City Centre development opportunities will be critical to minimising the need for urban sprawl. Sufficient space will be available for new residential, retail and other development whilst safeguarding the urban character and the historic core. The prominent role of the City Centre as the commercial and cultural heart of Greater Bendigo will be reinforced. While the latest network planning, traffic management, infrastructure and urban design solutions will be used to prioritise people, public transport and active travel in activity centres to:

- increase safety;
- improve retail and other business performance; and to
- create a distinct sense of place that makes each centre a unique and an important meeting point to the local community



- Extent of City Centre
- Heritage Core
- Possible extension of City Centre

Activity centres as places for people and for doing business

A network of diverse and vibrant activity centres is important to any city's liveability. By establishing an activity centre hierarchy, Greater Bendigo will be well placed to direct future investment in infrastructure, land use mix and density into locations which maximise community and economic benefits. A tiered hierarchy is considered to be a good fit with the local context and it builds on the established public transport network and commercial investment.

The ITLUS maximises access to goods, services and facilities by improving public transport, walking and cycling connections. To that effect, it prioritises a roll out of a comprehensive network of walking and cycling paths leading to and providing connections within and between commercial activity centres and specialist centres including: the Bendigo Hospital Precinct, St John of God Hospital Precinct and the La Trobe University Precinct. It advocates as a priority for a high frequency, longer span bus service and more train services along the main five transit corridors of urban Bendigo, namely:

- Kangaroo Flat to City Centre - rail and bus
- Huntly to City Centre - rail and bus
- Eaglehawk to City Centre - rail and bus
- Strathfieldsaye to City Centre - bus and
- Marong and Maiden Gully to City Centre – currently bus – planned rail

This will induce and support how the urban area grows and develops and how a growth in



Pall Mall before and after

public transport patronage is achieved as well as supporting active travel by people living in and accessing activity centres.

Greater Bendigo's character

While change in Greater Bendigo over the next 50 years is inevitable, eroding Bendigo's character and identity is not. Bendigo's unique characteristics need to be sustained throughout the city's development. We need to protect Bendigo from the loss of character often associated with urban growth. Retaining



Pedestrian lanes

Bendigo's established characteristics will be vital in attracting new residents, business investment and in continuing to attract tourism. At the same time, Bendigo's rapid change over the next 50 years provides the opportunity to actively shape Bendigo's future identity. Balancing Bendigo's past legacy and nurturing its future identity is vital for the city's sense of connection to the past and commitment to change and innovation.

The key characteristics need to be well defined and incorporated into relevant planning



Active streets

documents and protected. Innovative, adaptive re-use of selected historic buildings will be encouraged, while best practice urban design will enhance neighbourhood character, improve accessibility and create a better sense of place.



Bendigo Railway and Bus Station

Improved connections and transport choices

The efficiency, simplicity and quality of connections between transport modes can make a major difference to whether people will use public transport, walk or cycle to their daily destinations. A well-coordinated public transport system does not require people to wait long periods of time when changing from one mode to another. Through the ITLUS train and bus services will be better coordinated and public transport interchanges upgraded over time to make transfers faster and easier and access by walking and cycling more convenient.

This is represented in the diagram on the page overleaf which illustrates the advantages of having an integrated approach to information,

network timetabling and access to facilities and services.

As the population grows, and the residents' needs change, transport choices will be broadened and continually improved.

The Bendigo Airport Redevelopment Project, required to support emergency service providers such as: medical, police and fire aircraft; and to develop the airport as a regional passenger hub will be completed. The development of the Bendigo airport to increase its capacity so that planes of up to 70 seats can land will mean that commuter services to places like Sydney and Adelaide will become a real possibility.



Integration

Information:

Comprehensive, easy to use passenger travel maps and timetable information will be developed, including 'real-time' bus and train arrival and departure information which will be made available on mobile devices and at main rail and bus interchanges.

Network:

Bus and rail network and timetabling will be redesigned to complement one another.

Physical:

The proximity and ease of access to public transport by walking and cycling will be improved. Interchanges will be carefully designed to allow passengers to efficiently change modes and more people will live closer to public transport.

An integrated approach to information, network timetabling and access to facilities and services



The Bendigo Trust will be supported in implementing the findings of their Bendigo Tramways Strategic Plan (April 2015) to enhance Bendigo Tramways as a tourist attraction. This will ensure the Tramway's on-going operations and it will provide an opportunity to revisit the use of the tramways for public transport when Bendigo reaches an appropriate population size and density.

Work will be undertaken with the Bendigo Taxi Directorate to identify opportunities to widen the scope and better integrate their services with public transport and community transport. This will benefit residents in isolated, rural communities who have limited access to public transport or private vehicles and those with special transport needs.



Similarly, telecommuting and teleconferencing will be utilised to improve access to those in isolated areas and to reduce the need for some daily travel.



Goals and Objectives

2.1 Enable more people to live healthier lives by making walking and cycling to daily destinations safer and easier.

2.1.1 Plan and implement complete 10 Minute Neighbourhoods where people can walk or cycle to meet their daily needs.

2.1.2 Complete a safe, convenient and connected network of footpaths and walking paths to serve the City's needs.

2.1.3 Complete a network of safe off road, on road and designated on road bicycle infrastructure for all capabilities and experience levels.

2.2 Establish a frequent, convenient, high quality bus network as the backbone of public transport in Bendigo to support and facilitate more healthy and sustainable trips.

2.2.1 Implement a hierarchy of bus routes that serve a variety of people and needs.

2.2.2 Provide infrastructure to improve passenger access and comfort and to support bus priority on the road network.

2.2.3 Improve bus services to existing railway stations to support public transport use for local travel.

2.3 Progressively build on existing rail and bus infrastructure and services to further reinforce healthy and sustainable travel within and to Bendigo.

2.3.1 Expand the existing network of railway stations and services in support of the Residential Strategy and to implement and further develop Bendigo Metro Rail.

2.3.2 Establish a rail service within Bendigo that supports local and regional travel through the coordinated provision of services connecting Bendigo, Melbourne, Echuca and Swan Hill.

2.3.3 Strengthen the regional public transport connections (rail and bus) to firmly establish Bendigo as a regional capital transport hub and destination of choice, particularly for those within one hour travel time of Bendigo.

Improving health and wellbeing through much better public transport and more active travel

This is a key outcome of creating socially connected and economically vibrant places with better quality footpaths, bike paths, buses and train services. Well planned neighbourhoods enable more people to walk and cycle to local shops, schools, parks and services. This improves our overall wellbeing. Frequent, reliable and convenient public transport services are more likely to attract patronage and people who use public transport are more likely to meet their recommended minimum 30 minutes of daily physical activity. Healthy Greater Bendigo captures the opportunities arising from urban Bendigo being relatively self-contained - the

vast majority of our residential areas are already within walking and cycling distance of an activity centre or a school. It also builds on an already established bus network and existing railway infrastructure. Healthy Greater Bendigo is about improving the wellbeing of our residents and our natural environment.

Cycling, walking and the use of public transport promote health in four ways: provide exercise, reduce fatal accidents, increase social interactions and reduce pollution.¹⁴

i

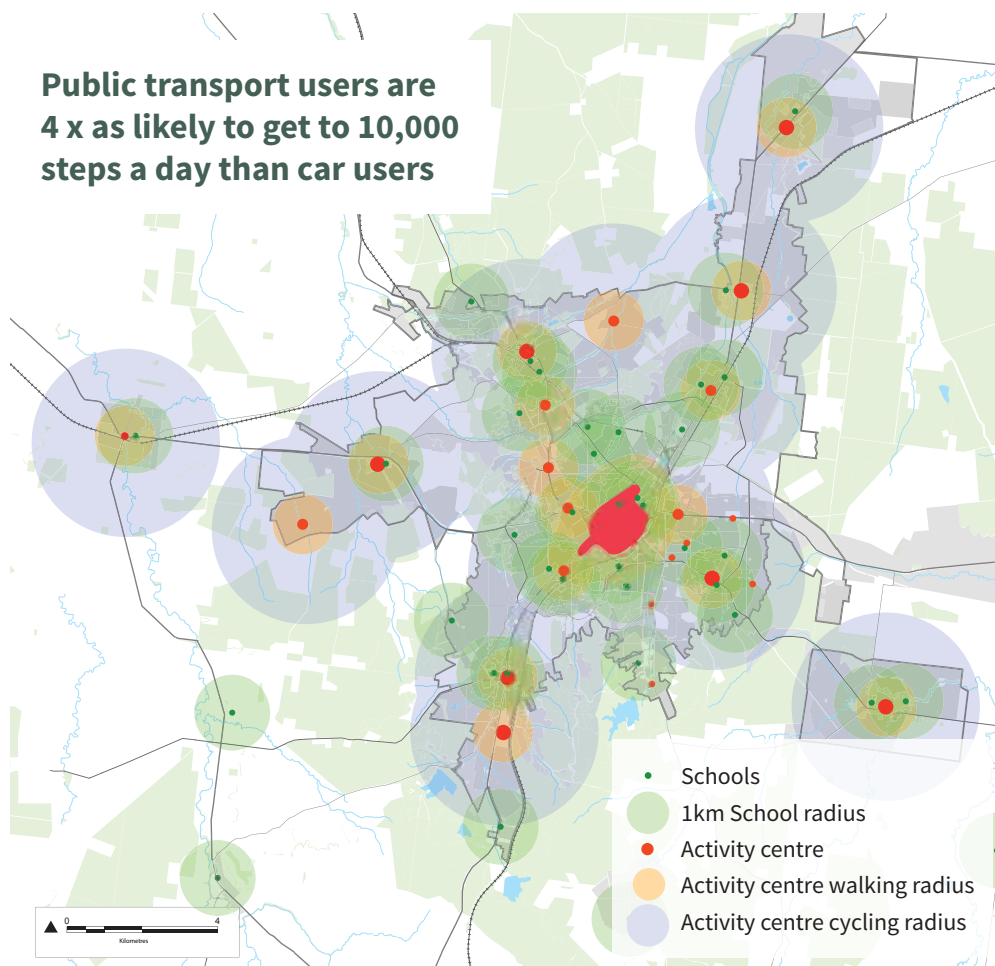
We want to be active

Despite the gloomy statistics on physical activity levels, compelling evidence exists that Greater Bendigo residents want to be more active. The ITLUS advocates setting healthy active travel as a higher priority for households, for how we plan the City's development and transport infrastructure and services.

- Council's Active Living Census (completed by more than 17,000 households) highlighted that walking is the most popular and cycling is the third most popular physical activity among Greater Bendigo residents. Of those people who reported experiencing barriers to participation in physical activities, the most common reason was being time poor.

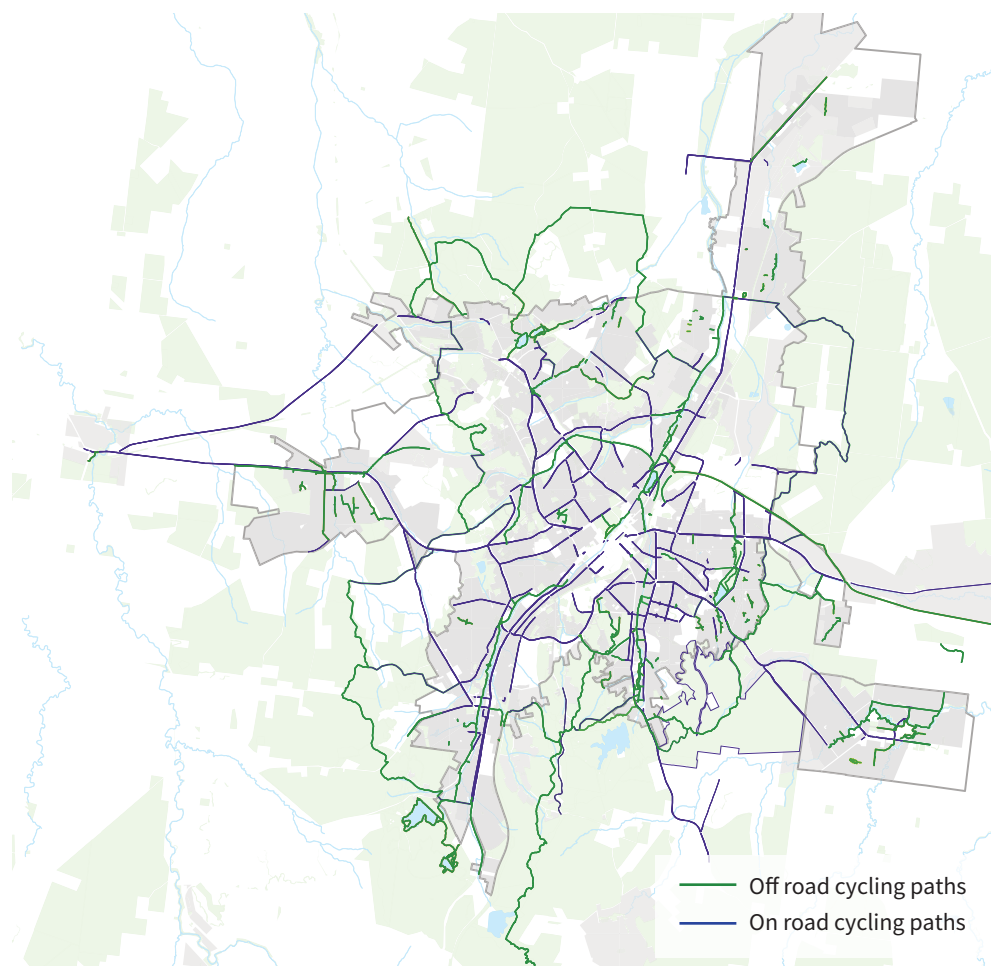
- Local politicians report that a top issue in their community consultations is being able to walk and cycle more and getting children doing so.
- Wanting to walk and cycle was highlighted by respondents to Council's New Resident Survey.
- Consultation for Council's Municipal Early Years Plan revealed that safe walking and riding paths were important to children and families and that the top activity was spending time with family and friends outdoors.

**Public transport users are
4 x as likely to get to 10,000
steps a day than car users**



10 minute neighbourhoods

Much of urban Bendigo is within a 10 minute walking and cycling trip from an existing activity centre and local primary school. 89% of all households in urban Bendigo are within 3km of a primary school. 58% of all households in urban Bendigo are within 1km of a primary school. 71% are within a 3km of a secondary school.



Existing walking and cycling paths

The existing on-road bicycle network has been progressively developed by City of Greater Bendigo and VicRoads. The existing network of off-road and on-road bicycle paths will be completed by addressing gaps, reducing conflict points and maximising the level of safety along the main connecting corridors.

More people walking and cycling

The 10 minute neighbourhood concept, embedded in the Greater Bendigo Residential Strategy and reinforced by the ITLUS, is a Bendigo specific response to “Healthy by Design” – the Heart Foundation guide to planning for places that promote wellbeing. This will be achieved through the use of appropriate planning tools, for example Design and Development Overlays and collaboration with developers.

In Australia, between 2001 and 2010, two million more bikes were sold than cars

The amenity and convenience of key walking and cycling routes will be significantly improved to ensure that they are as highly used as possible. This will occur through ramped up investment in critical links; targeting gaps in the overall network; and providing a high level of safety and continuity – bicycle lanes should no longer ‘disappear’ at intersections, for example.



Dog Parks

Harcourt Park, Strathdale is a park to exercise your dog off their leash. The park has a bitumen walking track, four small dams, a creek complete with steel bridges and good shade trees. Dog parks open the opportunity for both dogs and their owners to exercise in a nice park setting.

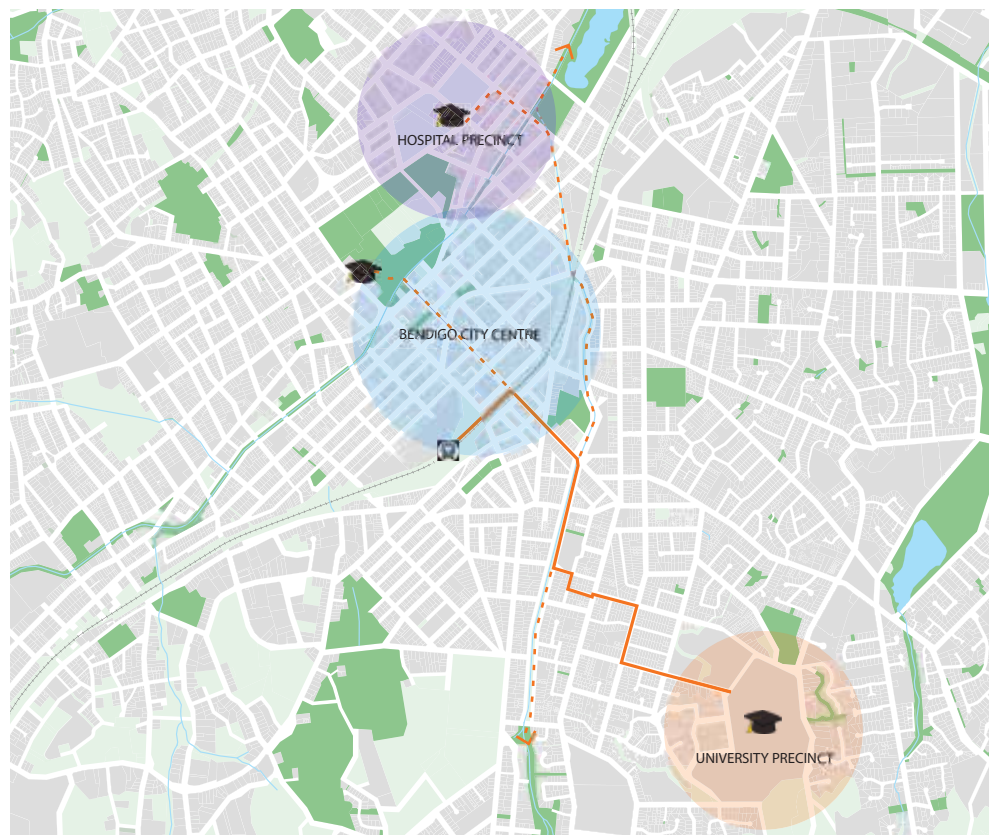


The potential of electric bikes

Accessible to a greater proportion of the community than pedal bicycles, electric bikes could enable more Australians to shift from cars for personal mobility. Electric bikes have the potential to overcome some of the barriers that prevent Australians from riding a conventional pedal bike. Electric bikes offer assistance to overcome hilly terrain or a lack of fitness and they can assist in rehabilitation after injury or illness.¹⁵

Priority investment will be given to key destinations such as schools, activity centres and public transport interchanges. Types of treatment, design and level of investment will be targeted to ensure that routes are suitable for their intended function. For example, strategic cycling corridors will provide a high level of separation from other vehicles to support cyclists of all abilities. While it will take some time to build this infrastructure to the desired standard, the ultimate aim is to provide a high-quality cycling and walking network that accommodates people aged 8 to 80.

A well-planned network of walking and cycling routes allows people to travel safely and with ease, whether on foot, bike or other wheeled vehicles. The best walking and cycling routes include a well-connected network of paths, shared paths for pedestrians and cyclists, off road cycle paths, on-road cycle lanes and paths for recreation and leisure.¹⁶



Potential bicycle route from La Trobe University to Bendigo Railway Station



Increased bus stop density and increased services, 400 metre and 15 minutes in peak times, will reduce car travel by 8%.¹⁷

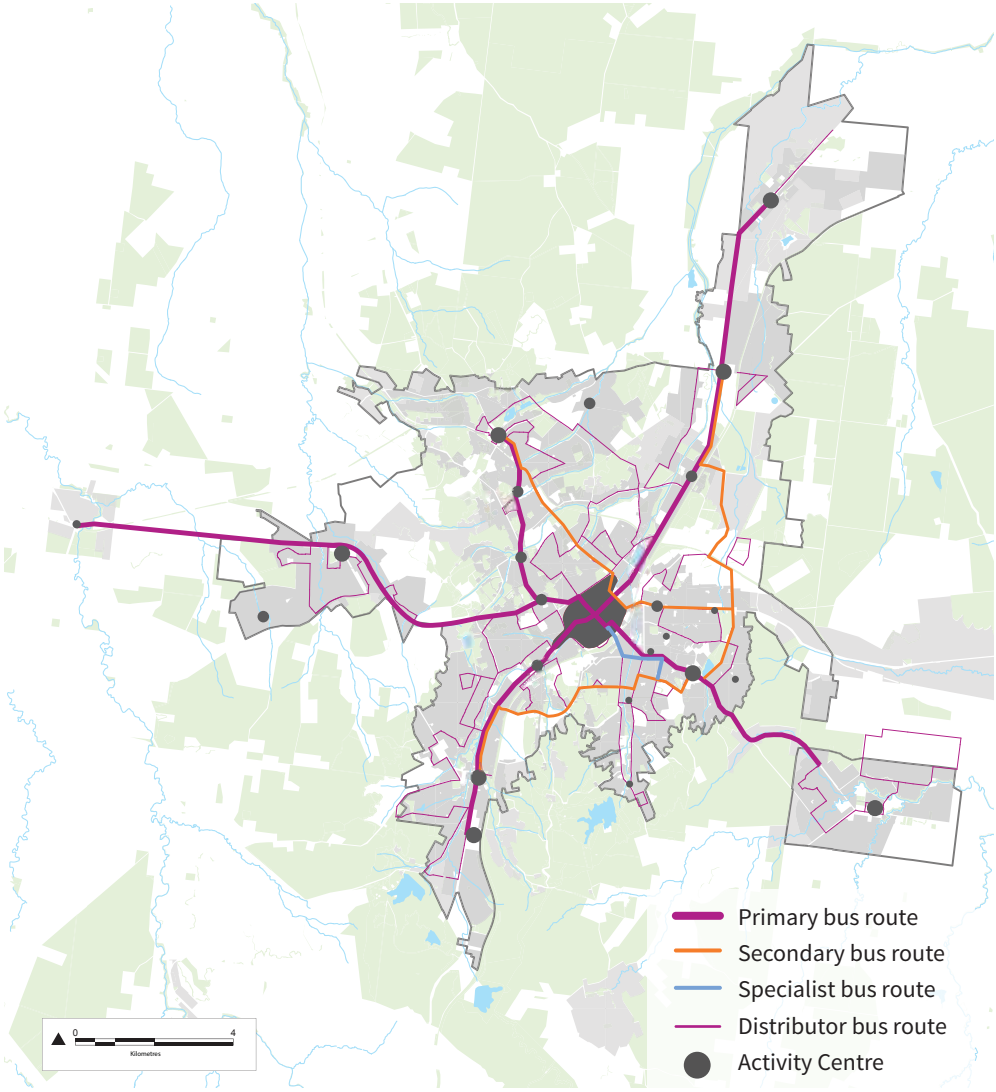
The proposed cycling connection improvements from La Trobe University to the Bendigo Railway Station is the ITLUS example of a high quality cycling route. The route was chosen so it avoids the main car routes, hills and unsafe intersections. The design of this route will feature a high degree of separation of cycling lanes from vehicle traffic, high open space quality and active transport priority at intersections.

The O'Keefe rail trail linking Bendigo and Heathcote is a prime example of an initiative which links great recreation, tourism, and business development opportunities with enhanced health outcomes. The trail is a major fifty kilometre asset for all the communities along it. A link through to Kilmore will further consolidate the trail's regional role.

Better buses

Bendigo's bus network needs to be further developed to serve a variety of people and needs. The map on the right shows a proposed hierarchy of bus routes, including:

- Primary bus routes connecting key activity centres to the City Centre
- Secondary bus routes connecting key and specialist activity centres
- Specialist bus routes connecting specialist activity centres such as La Trobe University and Bendigo Hospital to the City Centre
- Distributor bus routes which serve local access needs



Proposed bus route hierarchy and activity centres

BUS ROUTE TYPE	WEEKDAY	SAT	SUN	PEAK	OFF-PEAK
Primary	05:00 - 23:30	07:00 - 23:30	08:00 - 21:00	10 minutes	20 minutes
Secondary	06:00 - 22:00	07:00 - 22:00	08:00 - 20:00	10 minutes	30 minutes
Specialised	06:00 - 01:00	07:00 - 01:00	08:00 - 22:00	5 minutes	5 minutes
Distributor	06:00 - 22:00	07:00 - 22:00	08:00 - 20:00	20 minutes	30 minutes

The ultimate bus frequencies and span of hours that the ITLUS aspires to

Existing bus patronage

Data provided by PTV indicates that in the 2013/2014 financial year there were 1.36 million passengers on the Bendigo bus network. Over 90% of these passengers were classified as concession fares. This indicates a high level of dependency on the buses from the people who need it the most ie students, senior citizens and the disadvantaged, reinforcing the importance of high quality public transport services. Bendigo's bus network needs to be refined to serve a variety of people and needs.

A high quality bus network is integral to the sustainable growth of Bendigo. Given the shorter timeframes for delivering bus-based initiatives in comparison to rail based initiatives, the bus network will be required to lead the change in mode shift away from private vehicles. Bus services need to be a real alternative if reduced car dependency is to be achieved. We can only encourage commuters to switch to using the bus if:

- their journeys are not made longer (by travel time)
- they do not have to wait an unreasonably long time for a bus
- the timetable covers the times they need to travel
- the journey is easier and cheaper than driving and parking

The ITLUS therefore advocates for a progressive, significant increase in frequencies, extending of hours of operation and weekend coverage on all routes, in particular along the four main transport

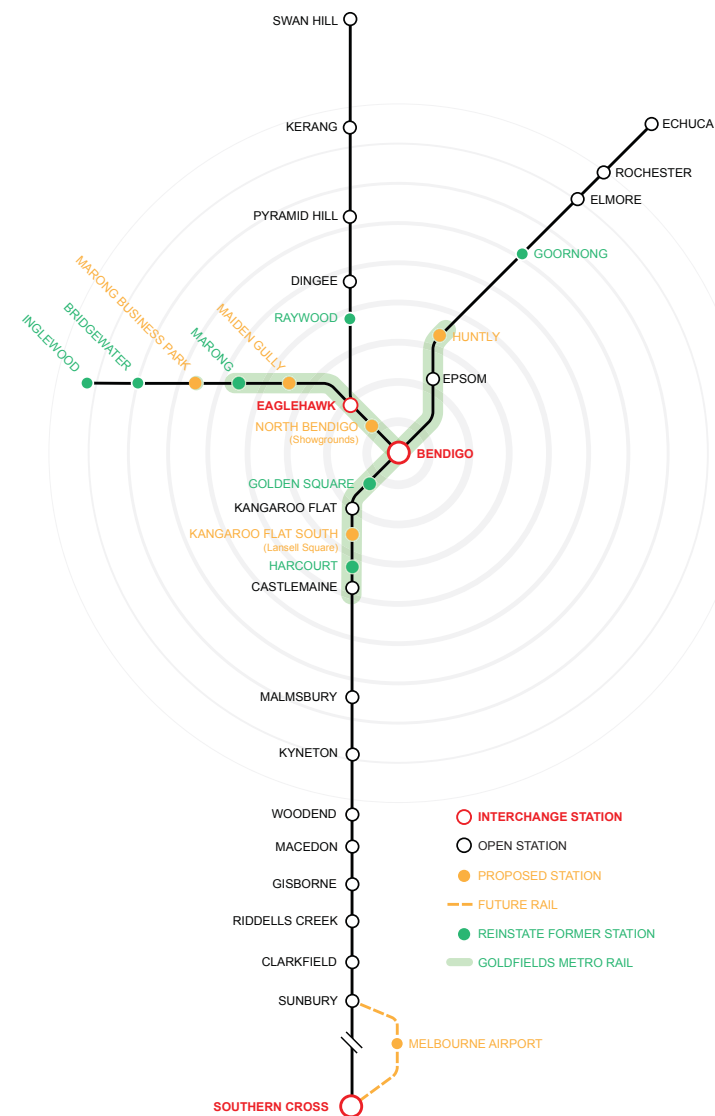
corridors namely: Kangaroo Flat to City Centre, Huntly to City Centre, Eaglehawk to City Centre and Strathfieldsaye to City Centre, although providing a high level of coverage on distributor routes servicing local neighbourhoods is equally important.

The Strategy also emphasises the importance of improving public transport services for the growing townships. For example, it advocates for a consolidation of existing bus services to improve connections between Heathcote and urban Bendigo with services for Axedale and Junortoun.

Making the most of Bendigo's rail network

Bendigo is one of the state's key transport hubs – not just for rail. In addition to being the main terminus for rail services to and from Melbourne (which includes corridor towns such as Castlemaine and Kyneton), Bendigo is the hub for rail services to and from Swan Hill- Kerang and to and from Elmore, Rochester and Echuca. The development of Bendigo Metro Rail with its improved connections to Eaglehawk, Epsom and Kangaroo Flat will be progressively expanded under the ITLUS with initially planned stations at Huntly, Lansell Square, Maiden Gully and Marong. These will further reinforce the Bendigo Railway station as a major transport hub.

However, the role is more than rail and train services. The railway station is a hub for many of Bendigo's urban bus services and for regional coach services. The number of services will expand over time. The railway station is also one of the major taxi ranks for the city and the existing 'Parkiteer' bicycle



ITLUS proposed development of the Regional Rail Network

facilities will need to be expanded. Routes from the railway station to the La Trobe University campus and the Bendigo Hospital are provided for in the ITLUS with dedicated bus services and a constructed bicycle route from the Bendigo station to the University campus.

Initial development of the Bendigo Railway Station will be to implement the Masterplan which was prepared jointly by PTV and Council in 2014 which provides for a safer traffic and pedestrian circulation system and for DDA access between both platforms – an essential requirement for operation of Bendigo Metro Rail. This \$2.1m project needs to be funded by the State government in the 2016/17 State budget.

Beyond these measures the ITLUS vision is that the Bendigo Railway Station will become a vibrant Activity Centre – along the lines of a European City transport hub where the range of facilities and services creates a destination in its own right with retail and residential uses integrated with the station. The proximity of the Market Place shopping centre and the Discovery Centre in the former goods shed adjoining the railway station creates a number of possibilities. The removal of the storage of trains overnight from the railway station area will free up considerable land for development and the reuse and refurbishment of outstanding heritage buildings particularly the former engine shed (one of Bendigo's finest heritage buildings) provides further opportunities. Developments along these lines provide for office and retail expansion associated with the station and the development of upper floor residential

all contributing to a growing Regional Capital Transport Hub.

The Bendigo Metro Rail initiative recognises and supports immediate service improvements (\$2million commitment). However, the Bendigo Metro Rail terms of reference only deals with the provision for the existing railway stations in Bendigo.

The ITLUS aspirations go beyond this and further into the future. The ITLUS advocates for the:

- Investigation of the critical success factors including land use and urban development opportunities as well as productivity, liveability and health dividends associated with providing additional railway stations at Huntly, Maiden Gully and Marong.
- Reopening of the Golden Square railway station and the construction of a new railway station at the Bendigo Showgrounds urban development for new stations at Maiden Gully and Huntly with the capacity for grade separation and planned stations at Lansell Square and at the Marong Business Park, extending Bendigo Metro Rail to include Castlemaine and a new station at Harcourt.
- The ultimate long term goal being the development of a 'stand-alone' urban rail system to provide for high-speed and high capacity movement of people to and from the City Centre and to activity centres located along the railway network. Ultimately investigating the feasibility reopening the line to Inglewood and of the Bendigo railway line to Southern Cross linking through the Melbourne Airport.

Eaglehawk Transport Hub

Greater Bendigo is developing a network of transport hubs – places where public transport (bus and rail) meet with activity centres served by good road links and cycling and walking paths. These are places across the city where services and facilities need to be focused to ensure that all people can easily get to key locations, where services and timetables are coordinated, good quality facilities are provided and business development opportunities and employment is facilitated.

The ITLUS identifies the Eaglehawk Railway Station – Town Centre as a major hub in the Bendigo urban area. This is because of the population base it services, the range of transport links it provides and its potential to expand those links. The Railway Station precinct, the Town Centre and surrounds can support further development to strengthen its community, commercial, retail, residential and transport role and deliver a stronger, more productive local economy with further employment.

The ITLUS advocates for State government to commit resources to enable Council to undertake the planning for this development, support the progressive implementation of the ITLUS and capitalise on the advantages provided by Eaglehawk.

Integrating the ITLUS and Bendigo Metro Rail

Bendigo Metro Rail was proposed by the State government to support forecast population growth and a community desire for increased use of public transport to commute within Bendigo.

A Community Consultative Taskforce and Technical Working Group was formed to develop a recommendations report. Extensive community consultation has informed the recommendations.

Taskforce members have also been mindful of current activities and strategies underway in Bendigo that support the Bendigo Metro Rail initiative, such as the ITLUS.



Bendigo Metro Rail Community Consultative Taskforce Recommendations

In developing its recommendations, the taskforce has considered the local and regional context including Bendigo being one of the fastest growing cities in regional Victoria and the central role Bendigo plays in providing high level services and facilities to the region, including health, education, arts and tourism.

The community aspires for the continuation of strong population growth in a sustainable manner, whilst improving the health and liveability of communities.

City of Greater Bendigo strategies provide a framework for encouragement of higher density development around train stations and transport corridors and ensuring that new residential developments have good walking, cycling and public transport access that links with existing networks. Improving coordination and connectivity between rail, bus and coach services and marketing and promotion of public transport. Walking and cycling are also essential to achieving the region's aspirations.

The taskforce has shaped its recommendations to support an integrated approach to public transport and land use planning and behaviour change that encourages alternatives to car use.

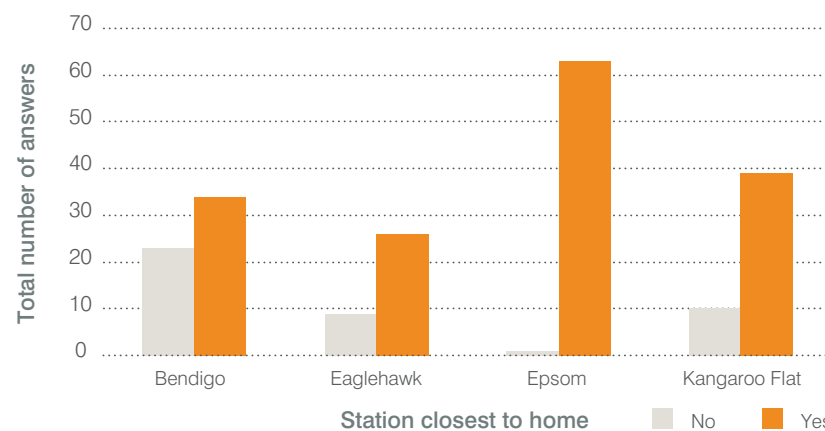
To be progressed in 2015/16 and within the \$2 million Victorian Government investment, the Stage One package of works recommended is:

- Increase services to Epsom and Eaglehawk Stations from Bendigo to five return services per day with all services operating between Bendigo and Melbourne to stop at Kangaroo Flat Station for pick up and set down.
- The Department of Economic Development, Jobs, Transport and Resources, Public Transport Victoria, City of Greater Bendigo and other stakeholders to develop a marketing and communications strategy to promote additional services with an aim to drive patronage growth and support the implementation of stage two and three recommendations.
- Coordinate outcomes of the Bendigo Bus Review to better connect bus services with V/Line rail services.
- Progress required technical and policy transport planning to meet the community aspiration of 20 minute peak and 40 minute inter peak services to and from Bendigo, Epsom, Eaglehawk and Kangaroo Flat stations.
- Commence detailed design work and identification of investment opportunities to implement the Bendigo Station Improvement Plan, including a Disability Discrimination Act compliant overpass.
- Ensure that community feedback on items that are out of the scope of the Bendigo Metro Rail project are considered in the state-wide Regional Network Development Plan. This includes for example, increased public transport services to and from Bendigo and Castlemaine.



Minister for Public Transport, Jacinta Allan, receiving a report investigating the future delivery of Bendigo Metro Rail from the Bendigo Metro Rail Community Consultative Taskforce. "In Bendigo we strive to do things differently and build on the existing infrastructure and the work of ITLUS" Also pictured Member for Bendigo West Maree Edwards and City of Greater Bendigo's Mayor Cr Peter Cox. Friday August 7, 2015.

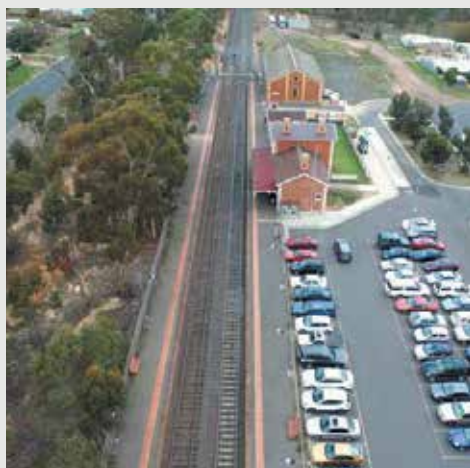
Would you catch the train to work if more frequent services were available?



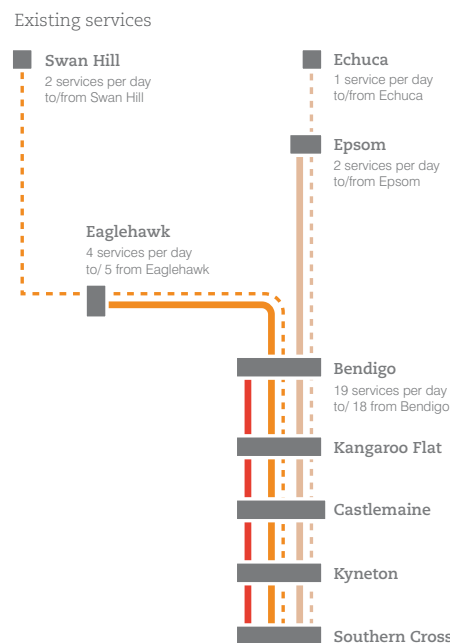
- Continue to work with the Department of Economic Development, Jobs, Transport and Resources and Public Transport Victoria together with City of Greater Bendigo and other key stakeholders, to develop service delivery outcomes that respond to future needs.

Stage two recommendations to be progressed in line with service demand:

- Increase services to and from Melbourne from Epsom, Eaglehawk, Bendigo and Kangaroo Flat, ensuring that service delivery does not preclude additional services from Swan Hill and Echuca.
- Upgrade infrastructure at Epsom, Kangaroo Flat and Eaglehawk stations to support improved access, useability and amenity, being mindful of heritage requirements.



Kangaroo Flat Railway Station



Technical requirements for service delivery

Stage One

- Services extended to Epsom and Eaglehawk

Stage Two

- Signalling works to Epsom and Eaglehawk
- Bendigo Station Accessible Overpass (Bendigo Station Improvement Plan)
- All off-peak Bendigo-Melbourne trains commence/terminate at Epsom
- Shuttle service introduced Eaglehawk-Bendigo during the off-peak connecting with through trains

Stage Three

- Bendigo trains operating every 20 minutes peak/40 minutes inter peak
- All peak services operate through to Epsom or Eaglehawk
- Inter peak services commence at either Epsom or Eaglehawk, with a shuttle service augmenting the non-through line if required

Bendigo Metro Rail Recommendations Report 2015

- Work with City of Greater Bendigo and key stakeholders to improve access to Epsom, Eaglehawk and Kangaroo Flat Stations. For example, through improved connectivity with walking and cycling paths.
- Upgrade key bus routes to provide high frequency bus corridors in stage three, the taskforce recommends the Minister for Public Transport consider the following to support the community aspirations:

In stage three, the taskforce recommends the Minister for Public Transport consider the following to support the community aspirations:

- Deliver the community aspiration of 20 minute peak and 40 minute inter peak services to and from Bendigo and Kangaroo Flat with services alternating between Epsom and Eaglehawk at peak times.

- Upgrade signalling, level crossings and track works to support increased services north of Bendigo.
- Operate a Bendigo Metro Rail shuttle service between Eaglehawk and Kangaroo Flat or Bendigo, connecting with frequent services between Epsom and Melbourne, thereby providing regular services at all stations.



Goals and Objectives

3.1 Optimise the use of land and infrastructure to extend the life of the existing road network when moving people and goods and to moderate the need for new car parking facilities.

- 3.1.1 Make best use of what we have by prioritising different roads for different users.
- 3.1.2 Prioritise the movement of people over the expansion of road capacity when addressing traffic congestion and car parking demand.
- 3.1.3 Moderate the growth of single occupant car travel and improve access to employment and other daily needs.

3.2 Support the safe and efficient movement of freight in the city so that it does not lessen liveability.

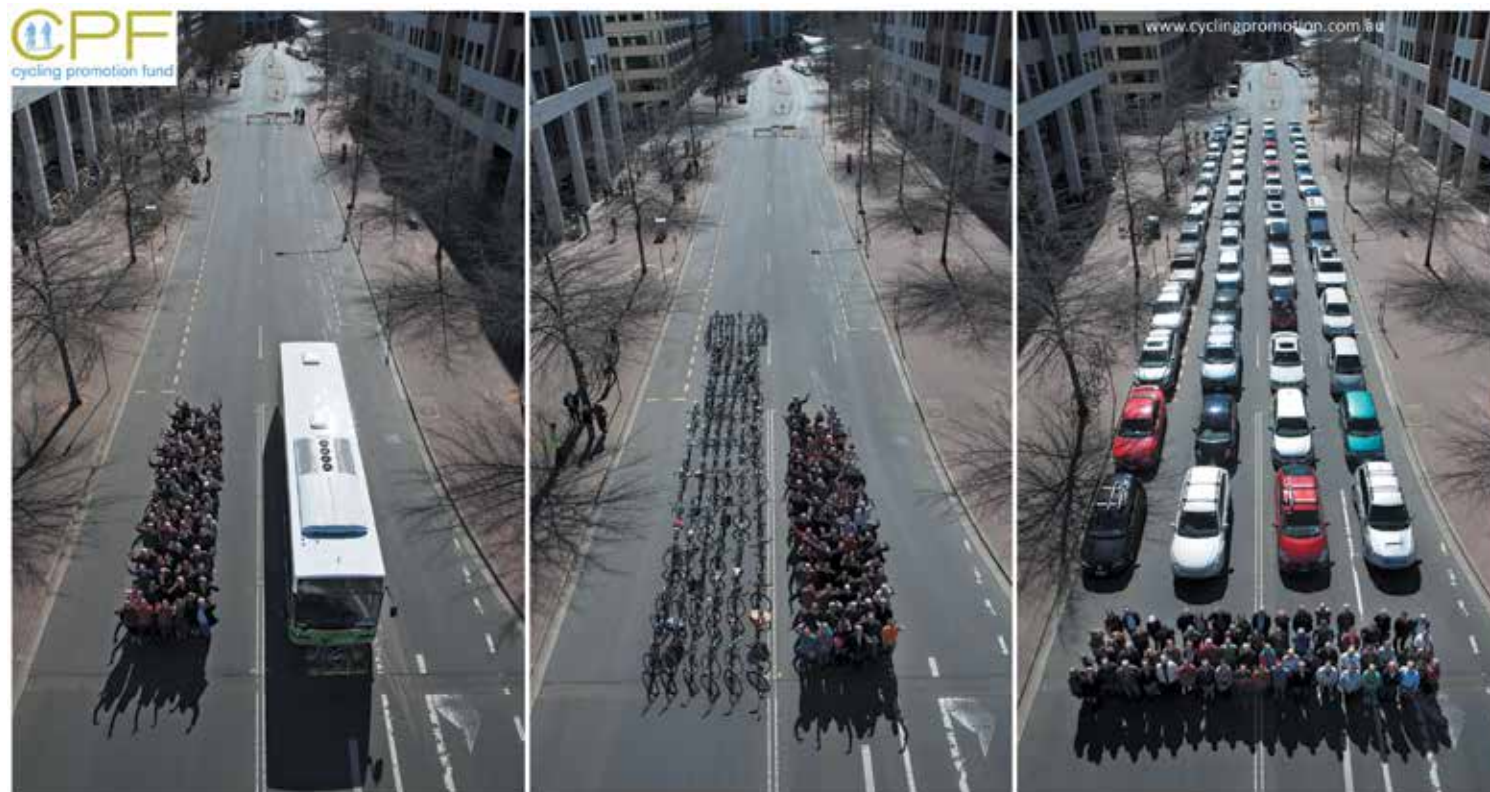
- 3.2.1 Better understand and address the needs of the freight sector and associated industries.
- 3.2.2 Protect and enhance key freight links and connections.
- 3.2.3 Maintain a sustainable network for road transport through smarter investment.

Using the capacity of our networks to better move people and goods

This is crucial to maintaining the long term liveability of Greater Bendigo and the City's productivity. Moving Greater Bendigo is based on the premise that our reliance on cars for many trips and for road freight will continue into the foreseeable future. It therefore aims

to minimise growth in traffic congestion by focusing on using our existing road network more efficiently and by moderating car use. This involves a shift in the way we optimise the road network's performance – from providing for the movement of the maximum

number of vehicles to providing for the movement of the maximum number of people and goods.

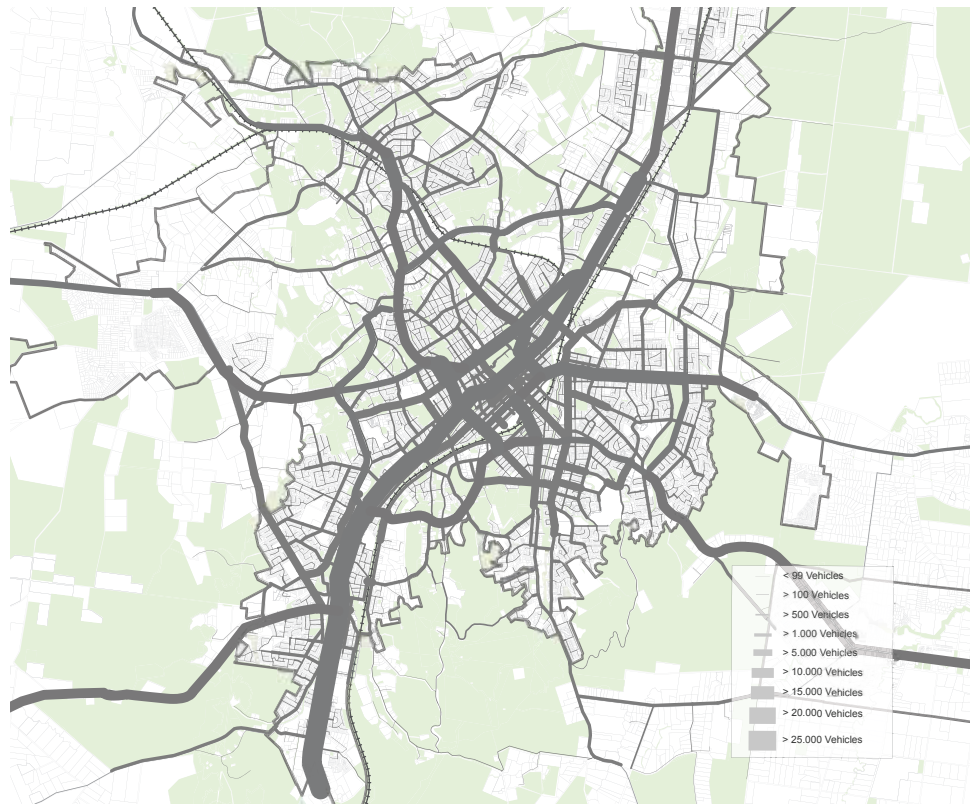


There is NO correlation between congestion delay and number of car lanes per person

Smarter use of our roads

The existing urban Bendigo road network has been confirmed as generally sound. The vast majority of movements occur along the radial connections to the city centre and surrounds, where 47 percent of Greater Bendigo's jobs are located, as are the city's major health, commercial, entertainment and cultural

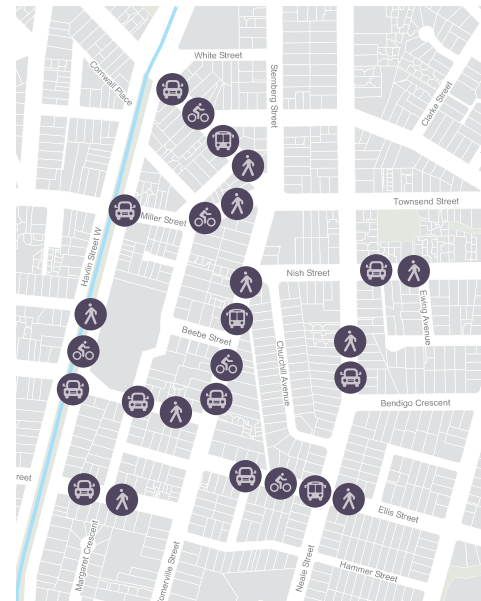
destinations. These radial connections are already well supported by public transport. The orbital connections are also well established and serve people wanting to move within and between residential areas and local activity centres. Much of the road network has multiple functions providing for different transport modes already, including cars, trucks, buses, bicycles and pedestrian access.



Bendigo traffic volumes 2014

The ITLUS builds on these established patterns and advocates for better use of the network by:

- Reducing the need for car travel along the radial connections by moving more people by public transport, on foot and by bicycle.
- Reducing the need for car travel along the orbital routes by bringing back localised activities within 10 minutes walk and cycle of where people live.
- Redirecting investment away from cyclical road capacity expansions that induce traffic movements, towards maximising the efficient use of the existing infrastructure and strategically targeted improvements based on the latest network planning tools.

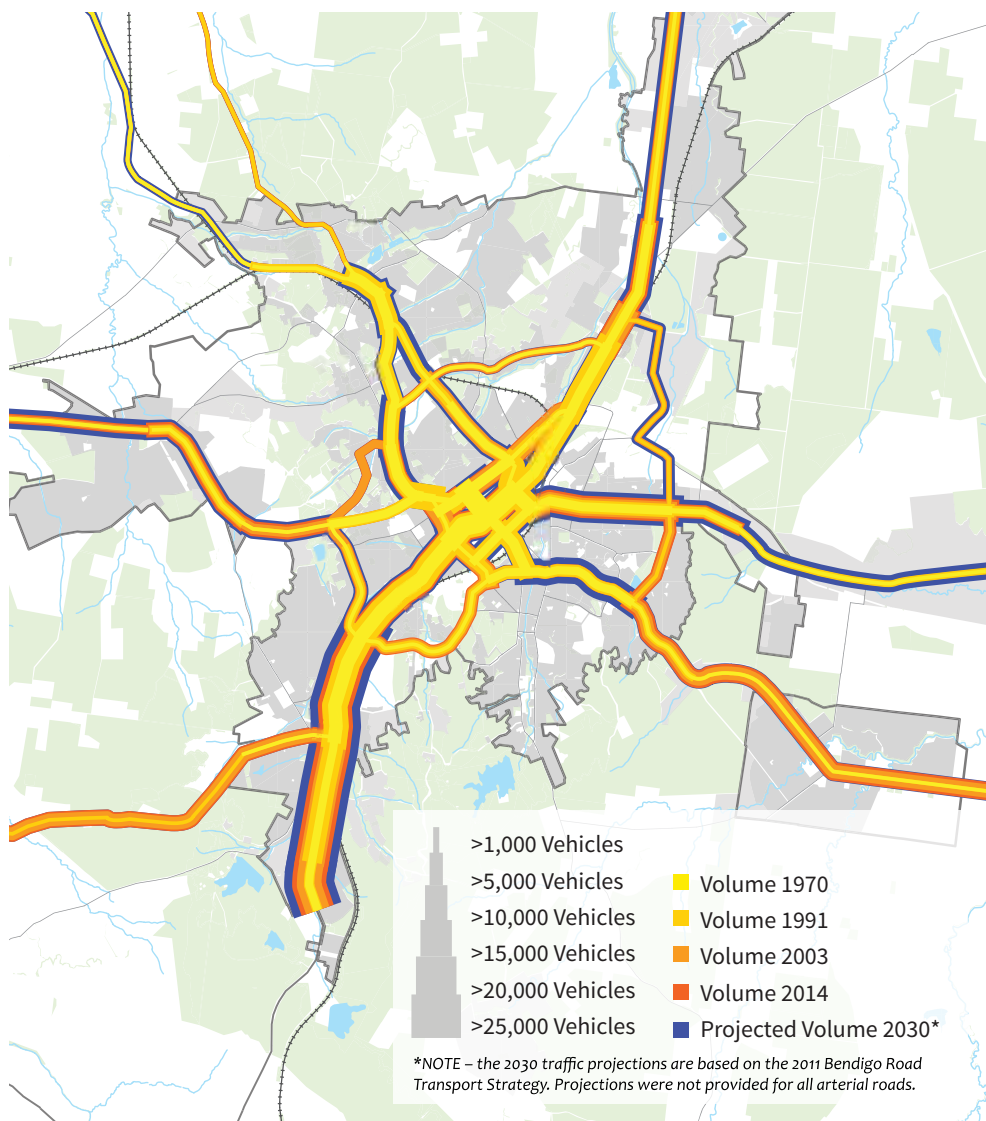


Example of existing multimodal streets in Bendigo

In 2014 regional Victorians drove 1.4% less km than in 2004 ¹⁸

Analysis of traffic volume growth reinforces the existing network. In fact the traffic volumes have not increased as quickly or as significantly as projected by the Bendigo 2020 Transportation Study (1993) which laid the foundations for the work undertaken to produce the Draft Bendigo Transport Strategy (2011) – now superseded by the ITLUS.

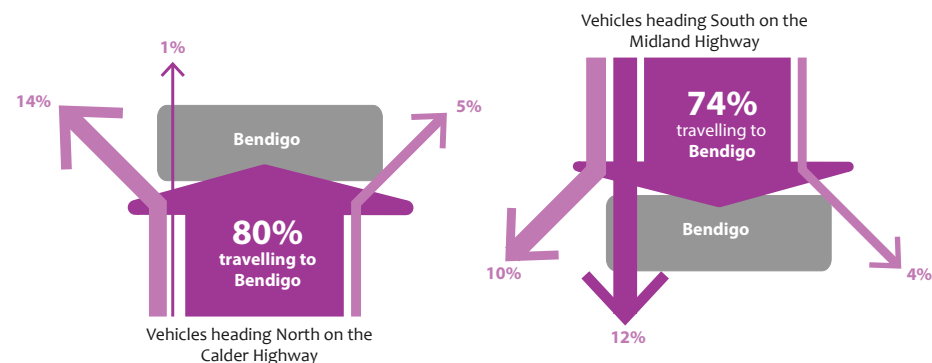
There are emerging bottlenecks, particularly along the Calder Highway in Kangaroo Flat, Napier Street in White Hills and along Condon Street - Strathfieldsaye Road. Much of this morning and afternoon peak congestion is associated with school pick-up and drop-off traffic and people travelling towards the City Centre for work. These key 'bottlenecks' will be subjected to the scrutiny of network planning tools, such as SmartRoads and Network Operating Plans to determine the best solution to the problem. These tools are designed to consider improvements in the context of making the best use of existing road space, maximising safety and the broader transportation benefits to the community. They are used in making business cases for improvements that address traffic growth while promoting the use of alternative transport modes. VicRoads will undertake this work in collaboration with key stakeholders, including the City of Greater Bendigo.



Historic and projected traffic volumes main roads 1970-2030

There is no substantial evidence to support building a Bendigo ring road. The ITLUS research has been reaffirmed by other study findings (Bendigo 2020 Transportation Study 1993, Draft Bendigo Road Transport Strategy 2011) that the vast majority of traffic is radial, mostly to and from the City Centre precinct, central Bendigo being the origin and destination for most people and freight movements. There is nothing to suggest that this pattern should change in the foreseeable future. As such, the strategic need for a new

ring road, particularly to the east of the city, is predicted to remain a low priority and thus would be very difficult to justify considering that Bendigo competes with metropolitan Melbourne and other regional centres for road infrastructure funding. The Calder Alternative Highway provides a western bypass when linked with the Marong – Eaglehawk – Epsom Road. The section of that route, particularly between Eaglehawk and Epsom, needs priority for greater capacity given the role that it plays.



Council will collaborate with VicRoads to apply a SmartRoads Road User Hierarchy to the Bendigo road network. SmartRoads is an approach that manages competing interests for limited road space by giving priority use of the road to different transport modes at

particular times of the day. All road users will continue to have access to all roads. However, certain routes will be managed to work better for cars while others will be managed for public transport, cyclists or pedestrians.¹⁹

The use of the 'Inner and Outer Box' roads that are designed to divert traffic around the Bendigo City Centre are recommended by the Bendigo 2020 Transportation Study (1993) which states: "...to preserve the amenity of the central business activities by promoting the use of the Box Strategy for through vehicles, particularly for heavy vehicles."

The ITLUS investigations have confirmed the Draft Bendigo Transport Strategy (2011) findings that such through traffic is not significant. However, a "Box" strategy is still sound under the ITLUS as means of:

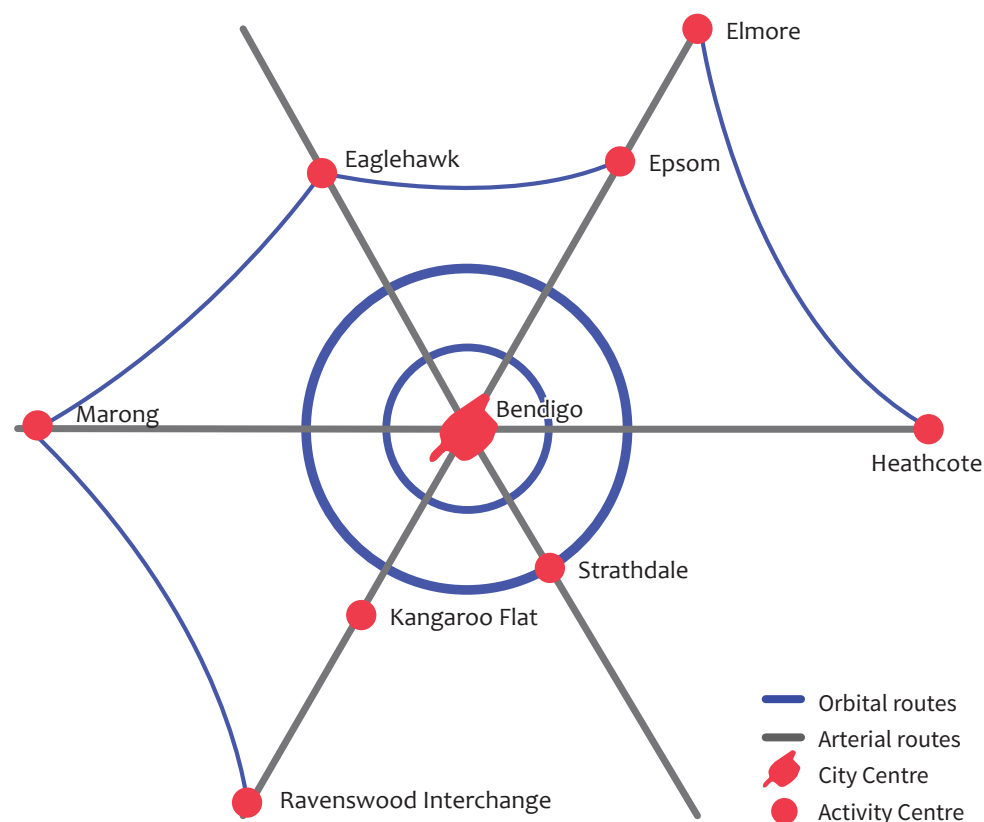
- Using the 'Inner Box' to reduce traffic impact on the City Centre.
- Using the 'Outer Box' and 'Inner Box' by providing for 'orbital' road transport movements and connections to major radial roads, between activity centres and surrounding neighbourhoods. However, parts of the Outer Box to the east and particularly to the west are not carrying very much traffic that is diverted around the city centre, rather they are local arterials and collectors. While the 1993 Study recommended substantial upgrading of them, traffic volumes do not warrant the works envisaged. Other priorities in other parts of urban Bendigo (such as the development of freight hubs) will deliver far more benefits.
- Assisting with the prioritisation of road improvements and the strategic channeling of resources is a model applied by other, progressive cities which have sought to achieve a major modal shift from single occupant car use to public transport, walking and cycling.

Any further refinement of the inner and outer box routes will be subject to SmartRoads analysis

Moderation of car use:

Bendigo, like most places in Australia, has become a 'road based' city and driving a car will remain an attractive option for many trips that people will make in the future, mainly due to the flexibility, directness and personal freedom that this mode offers. However, through the ITLUS our reliance on cars will be moderated by:

- grouping people's daily needs, such as shops, school and community services within walking and cycling distance of where they live.
- investing in a transport network where active healthy travel options are efficient, convenient and competitive with car use and
- by promoting car sharing, telecommuting and teleconferencing to reduce the incidence of single occupant car travel.



Schematic concept of the Bendigo Inner and Outer Box and major regional routes



What does an oversupply of cheap parking lead to?

- Certainty
- Convenience for drivers
- Poor aesthetics
- Poor mode splits
- Low pedestrian activity
- High traffic volumes
- Higher cost of development
- Short visits
- Reduced 'incidental' purchases

Car parking

The provision of car parking in our retail areas, for places of business, at sporting venues, at railway stations and workplaces has become part of the way that cities function. We have designed our cities to be heavily dependent on cars and so we need places to park our cars. Car parking comes at a cost – even 'free car parking' has to be paid for - it has to be constructed and maintained; land used for car parking can't be allocated to another use – it costs the City and businesses a lot of money to construct car parking. The approximate cost of a car space in the Bendigo city centre is \$10,000. That covers:

- land purchase
- the need to have access and manoeuvring space
- the space itself
- the construction and drainage costs

The most expensive use of a car parking space is when a single car sits in it all day because the owner is working in a shop or office. The idea of car parking is to turn over spaces as many times as possible. That's why car parking bays in popular spots have very restrictive time periods. Even shopping centres don't want cars parked there all day. Turnover of car parking bays is good for business.

Across urban Bendigo, in our streets, in our retail areas, in car parks constructed in shopping centres and in our city centre, there are over 10,000 designated – marked car parking bays. In the city centre alone there are over 6,000 car parking bays. Many spaces are used by shoppers and are turned over

frequently and they add to the business and vitality of the city. But most are not. In total, car parking occupies over 20 hectares (50 acres) of space in the City Centre alone. That is land that doesn't have shops and offices on it and is not able to be used productively by the community. Much of it is 'dead space', in that it is tied up most of the day by a car driven by a person who parks the car all day. This happens at a cost to the businesses and vitality of the City Centre – it's people that make a vibrant city centre, not empty cars.

Bendigo is facing an important series of decisions around car parking, particularly in our City Centre. Businesses that absolutely need car parking right on their premises will continue to construct and pay for the car parking they need – but increasingly we need to question can we only meet our car parking needs directly outside our shops and offices.

Shopping centres solved this problem long ago. They built car parking at the front of their entrance, but only to get the shopper out of the car to spend as long as possible wandering around the centre. They realised that it is exposure to retail offerings to pedestrians that creates business and retail turnover. They made the interior of a shopping centre an easy and pleasant place to walk around. They provided seats and places to have coffee and browse – all without cars. Calls for our retail area city centre to have more cars and the core area to have more spaces for cars to park, flies in the face of the most successful retail models of the last generation – get people out of their cars so they can shop in a pleasant space uninterrupted by cars.

A key action of ITLUS is to schedule a serious re-examination of car parking across the activity centres of the urban area starting with the City Centre. Currently in our planning scheme new uses and new developments require car parking to be provided. A provision is made for applicants for planning permits to request a reduction or waiver of requirements. This approach probably needs to be reversed for many uses and developments - applicants for many uses in the city centre should need to demonstrate why they need car parking on site. The planning scheme provides the option for applicants to buy their way out of the car parking requirement.

For example, if the car parking requirement for a new use is ten spaces, the options include build the spaces or pay cash in lieu. This goes towards a fund that the City administers which can be used to construct car parking or provide for sustainable transport. One idea that needs to be examined is the option to pay a lower cash in lieu amount as an incentive with the funds allocated to civic improvements to make the City Centre more attractive to shoppers, provide for better pedestrian and cyclist amenities, and support public transport. Research from around the world has demonstrated over and over that pedestrians and cyclist spend far more than people in cars who seek to pull up outside their retail destination, go into a shop make their purchase and then drive off.

ITLUS fully recognises that provision of well-located and designed car parking is an essential element of a productive, mobile and liveable urban area. But the provision of

car parking should not be at the price of the amenity of our activity centres, particularly the City Centre and at a cost to our retail businesses.

In city centres on average 30% of traffic is generated by cruising looking for parking

The ITLUS tackles the car parking issue by aligning the relevant Greater Bendigo Planning Scheme Clauses relating to car parking provisions with its objectives. Planning permits for new land uses and developments in the Bendigo City Centre will be issued in a way that supports sustainable transport alternatives to the motor car, limits the growth in car parking provision and demand and promotes more efficient use of car parking spaces through the consolidation of car parking facilities, for example in satellite locations on the city's periphery. The objective being that the level of car parking in the city centre will be slowly reduced over time as car parking demand reduces due to more people choosing to use public transport, walk or cycle rather than drive.

Better movement of goods and services

Bendigo is already an active 'hub' for freight activity. This includes a wide variety of goods being delivered to Bendigo and those being generated from Bendigo-based operations. Anecdotal evidence also suggests that Bendigo provides for aggregation and disaggregation of a considerable volume of freight that is destined for places outside of the municipality.

There are a number of freight companies that perform this task but their activities are dispersed and uncoordinated. As Bendigo looks to build on the opportunity of becoming an even more important economic centre of regional Victoria, it will further develop as the origin and destination for many freight movements. With a growing population and expanding business operations (eg the Hospital Redevelopment Project) the frequency of freight movements will grow.

92% of vehicles are light vehicles



However, there are substantial gaps in our understanding of the freight industry, of how it is using the road and potentially the rail network and how its efficiencies and productivity could be improved. To that effect the ITLUS advocates for a detailed Greater Bendigo freight study to be undertaken to inform future strategic decisions relating to movement of goods and services.

The ITLUS looks to mitigate the impact of a growing freight sector on residential areas while increasing freight efficiencies and improving productivity by:

- improving freight logistics
- protecting and making safer key freight routes
- establishing freight hubs on the periphery of urban Bendigo
- supporting the establishment of a major business park in Marong to attract industrial uses, freight operators, warehousing and logistics



The ITLUS proposes to develop freight hubs in strategic locations outside of the urban area, where larger loads that are delivering goods to a growing population and expanding economy, would be broken up onto smaller loads for lighter vehicles; and where freight destined for locations outside of the municipality can be aggregated.

Marong Business Park and freight hub benefits include:

- 30 years supply of industrial land
- affordable land for warehousing
- employment opportunities
- consolidation of heavy vehicle movement around the city
- dispersal of smaller vehicles within the city
- improved amenity and safety

Local Roads



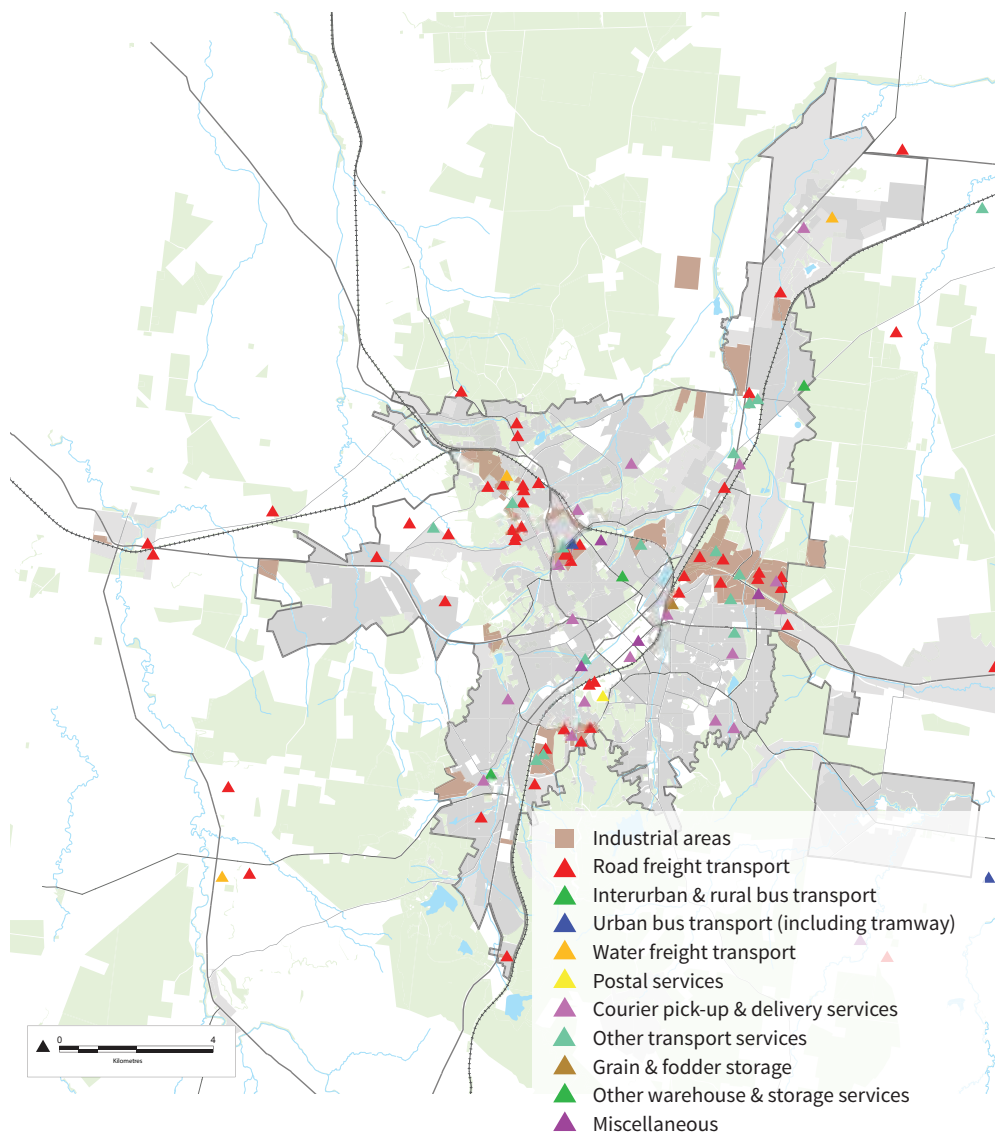
Freight Roads



Freight Train



Accelerated development of the Marong Business Park is a key action in the State government adopted Loddon Mallee South Regional Growth Plan.



Existing freight operators and industrial areas



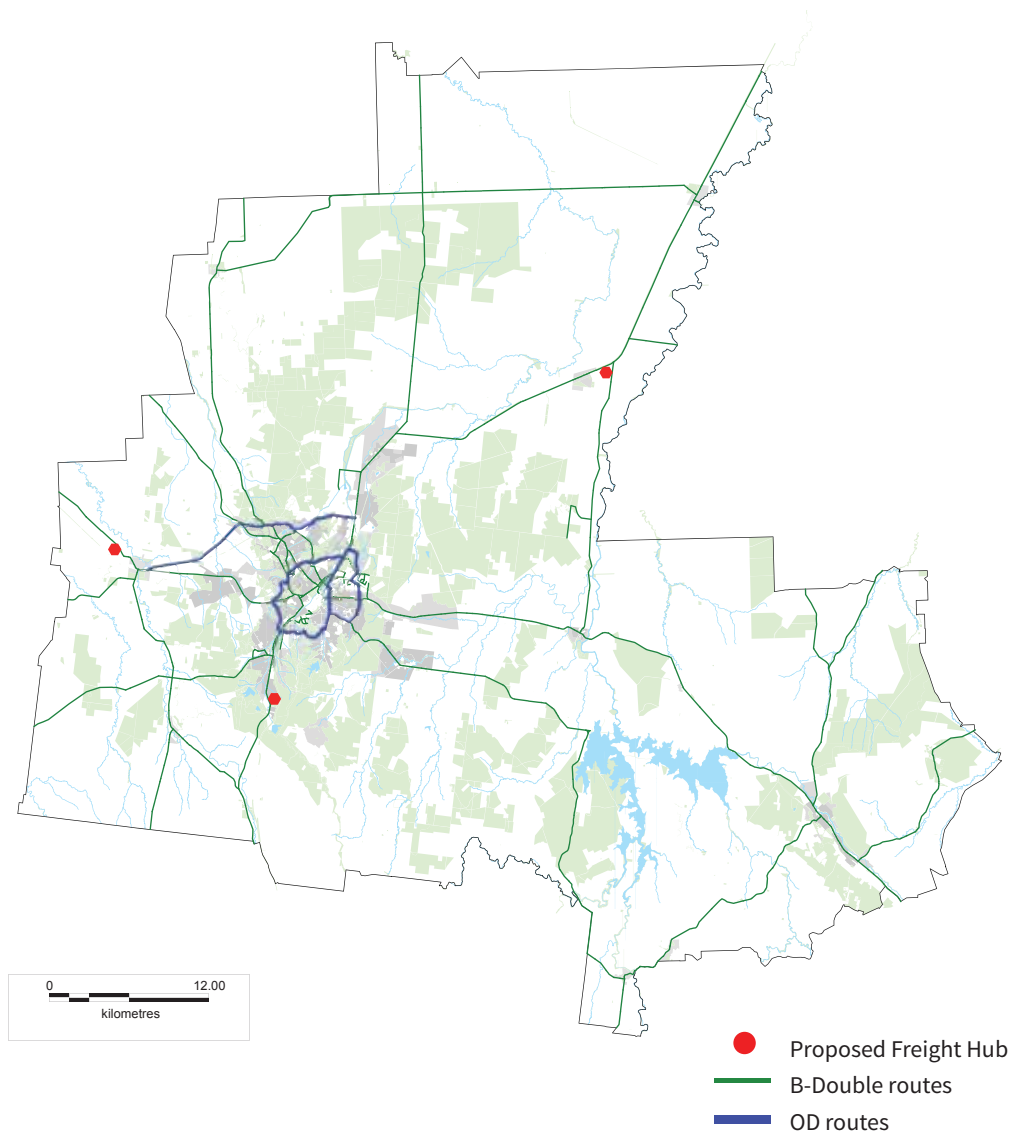
Initial investigations have shown there are about 140 freight operators in Greater Bendigo, including those who transport livestock, retail supplies, waste removal and manufactured products. There are a significant number of home-based businesses operating about 350 B-Doubles, semi-trailers, rigid trucks and vans.

Discussions with the freight sector have confirmed that the existing freight route network is generally working well. Most improvements recommended by the freight sector are relatively minor and can be addressed without the need for major investment in capacity. However, parts of the road network require improvements to allow for better access and more efficient movement of trucks. This means that some refinement to the B-double routes will need to be considered, given the fact that the freight sector is already using some non-designated roads for more direct connections.

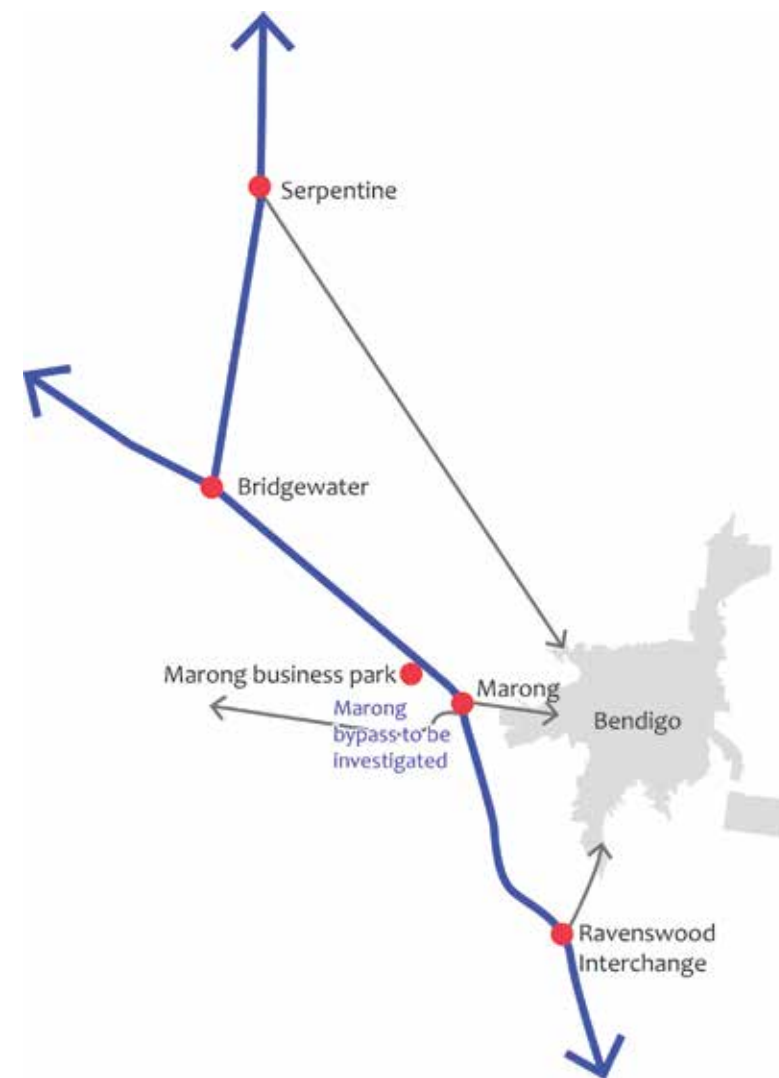
Freight sector discussions have pointed to the need for an improved northern connection between Epsom and Marong, which is recommended by the ITLUS. Improvements associated with the development of the Ravenswood interchange are about to commence construction. Route improvements in and around the Bendigo East industrial area and an improved connection between Raywood and Elmore are needed.

The Calder Highway Improvement Committee (which comprises representatives of all Councils from Macedon Ranges to Mildura) is advocating that the Calder Alternative Highway and the Calder Highway between the Ravenswood Interchange and Bridgewater be designated as an extension of the Calder Freeway and be upgraded accordingly and that a western bypass of Marong Township be constructed.

Both of these initiatives will strengthen the concept of a western 'bypass' of the Bendigo urban area also with the capacity to much better serve the Marong Business Park and further develop the road link between Serpentine and Bridgewater as an alternative to freight travelling on Loddon Valley Highway being able to avoid the Bendigo urban area.



Existing designated freight routes and proposed hubs



Schematic concept of regional priority freight route development



Goals and Objectives

4.1 Partner with lead organisations, government departments and agencies, schools, community groups and employers to engage as many people as possible to make healthy travel choices and build support for the key land use and development elements of the ITLUS.

- 4.1.1 Change the way people consider travelling in and around Greater Bendigo by promoting the health, economic and environmental benefits of active healthy transport.
- 4.1.2 Share knowledge and ideas on how to progressively build a healthier, more appealing and resilient city.
- 4.1.3 Seek opportunities to share resources and explore new funding streams.

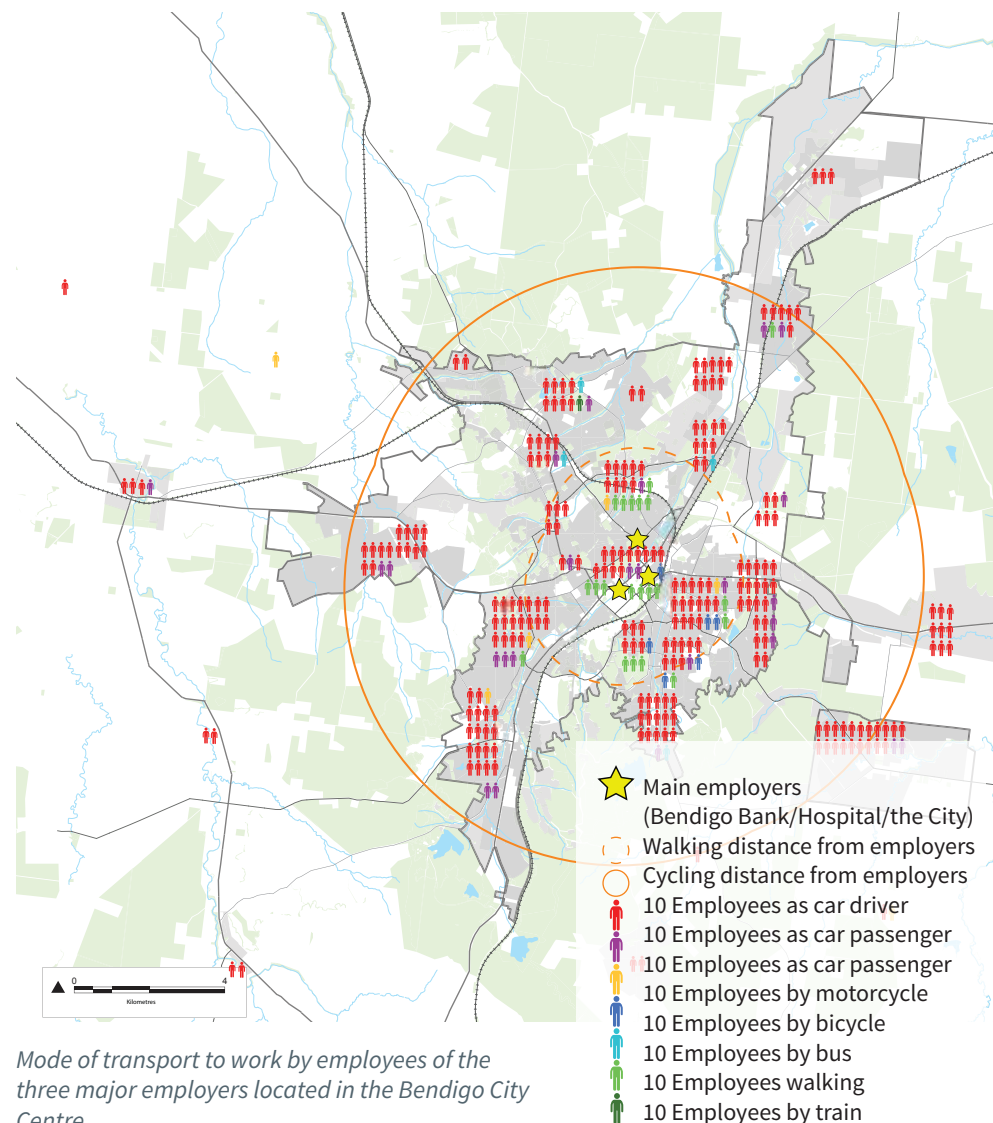
Changing individual travel behaviours through strengthening partnerships and building community support

This is key to implementing a positive change in the way people get around Greater Bendigo and the way the city's urban form evolves. The success of the transport and land use responses outlined in the ITLUS is highly dependent on a generational shift – a shift from a culture that always prioritises car use and getting to daily destinations quickly

as more important than getting there in a healthy way and that minimises the impact on others and the environment. This will require many of us to reassess some of our daily routines and the way we do business. Engaging Greater Bendigo is about making this transition possible by building on the city's 'can do' attitude and a strong community spirit. It builds on the extensive partnerships and agreements established during the development of the ITLUS.

1 in 5 concept

Council is working with leading employers across the City to promote what we call - 1 in 5. The concept of 1 in 5 is that one day out of the working week as many people as possible – with a focus on commuters getting to work - use a healthy active travel mode; catch a bus (or a train), walk (if feasible) or cycle. All these modes are much healthier, can be a better social experience – perhaps it involves walking or cycling with children to school as part of the trip. Bendigo's three largest employers are located in the City Centre. The vast majority of their employees drive, despite many being within walking or cycling distance and in close proximity to public transport. If one day per week (1 in 5) each person at the three big trip generators walks, cycles, car shares or uses public transport instead of driving alone, that will take over 1,000 cars off our roads each morning.



Mode of transport to work by employees of the three major employers located in the Bendigo City Centre.

Cultural and behavioural change

We know that many short trips in Bendigo that could be made by active travel and that rely on the car are often undertaken through habit. We know that large numbers of children are driven to school at the most traffic congested times of the day. We also know that there is a strong desire among our school aged children and the broader Greater Bendigo community to walk and cycle more often. These trends provide a fertile ground for changing the way we think about getting to our daily destinations. The ITLUS will continue the behavior change programs and initiatives commenced during the Strategy development. Many of these actions are about working with schools, employers and the wider community to promote the value of behaviour change. Relatively small actions by individuals, households and neighbourhoods will cumulatively make a significant difference.

Active Travel Guide

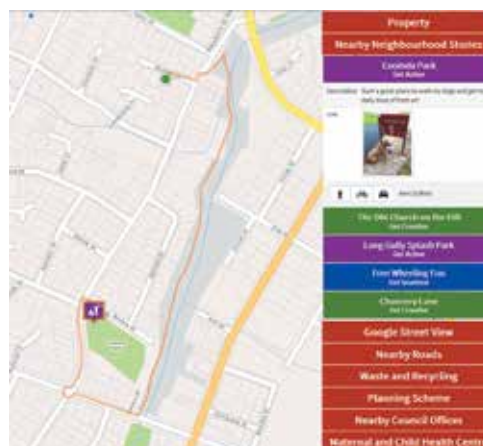
The City is developing a guide to help Greater Bendigo schools to understand the benefits of children walking and cycling, how to create a picture of their school's travel habits and how to carry out fun and interactive activities to improve their school's travel behaviour. Pilot projects were undertaken at White



Hills, Huntly and Epsom Primary Schools to help develop the guide. All Primary Schools in Greater Bendigo will be provided with the guide.

Map my 10 minute neighbourhood

At the heart of the ITLUS and the Council's adopted Residential Strategy lies the 10-minute neighbourhood concept – the idea that by better planning where we live we can bring our daily destinations closer. The City website's Community Compass tool is being redeveloped to help children, families and residents learn more about facilities, places of interest and community groups located within a 10 minute walk or cycle of where they live. This ITLUS initiative is a result of collaboration between the City and Bendigo TAFE.

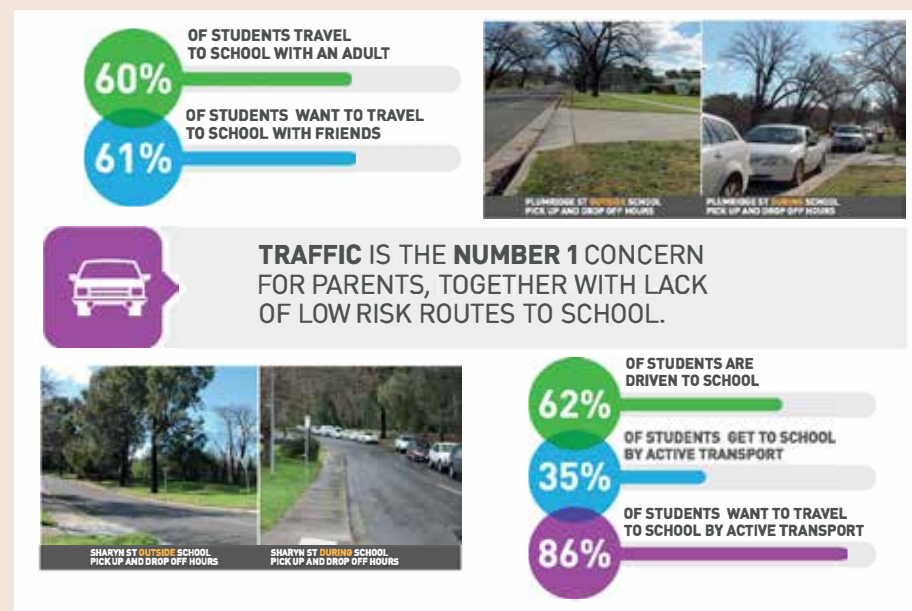


The My Local Neighbourhood website tells stories and proposes routes to walk or cycle.

Primary School surveys

75% of surveyed four to 11 year olds who took part in the ITLUS Children's Art Competition said they are driven to school by their parents. However, when asked how they would like to get to school, they nominate walking, cycling, scooting and public transport as their preferred modes of travel. Only 7% said they would like to be driven to school.²⁰

The survey conducted by City of Greater Bendigo at White Hills Primary School confirmed this disparity between the children's desire to travel to school with their friends using active transport and the reality of their daily commute being dominated by car.²¹



Partnerships

The ITLUS community engagement process has shown that there is a sense of common destiny in Greater Bendigo. The Strategy development process has met with unprecedented enthusiasm from residents and the business community. Some of the most prominent and influential businesses and community organisations have come forward to partner with and otherwise support the City of Greater Bendigo in progressively delivering the ITLUS outcomes.

The partnerships have been formed to get more people to walk, cycle and use

public transport; to help build '10 minute neighbourhoods'; and to create more housing and transport options. This will be done by:

- Sharing of knowledge and ideas
- Co-funding, promoting and organising behaviour change events
- Co-bidding for and co-funding capital works and service delivery




Sharing of knowledge and ideas:

City of Greater Bendigo will share the results of its own bike fleet review with other employers.²²



VS



	CAR	BICYCLE	TARGET
			100 Staff on Bikes by 2020
Staff using mode of travel to work (total)	80% (600+)	2% (15+)	10-15% (100+)
Parking space (total for current users)	12m ² (7200m ²)	1.2m ² (18m ²)	120m ²
Cost per park	\$10,000	\$0-\$500	\$0-\$50,000
Impact on Health	 Sedentary	 Physically active	 Physically active
Personal cost per week (medium car)	\$184-\$220	Less than \$5	Less than \$5
Carbon emissions per person	250g/km (630kg/year)	0g	0g
Active Living Census	N/A	Third most popular activity	Encourages incidental physical activity

Co-bidding for and co-funding capital works and service delivery:

The Strathfieldsaye and District Community Enterprise and the City of Greater Bendigo collaborated to complete a shared path in Strathfieldsaye. The Enterprise funded and built a 1 km asphalt shared pathway along Sheepwash Creek from Sullivans Road

towards the rear of St Francis School. The City funded and built a concrete causeway to connect the asphalt pathway over Sheepwash Creek to the existing tracks at the rear of St Francis School.



Co-funding, promoting and organising behaviour change events

Whitmores Bus Service, Bendigo and Adelaide Bank and City of Greater Bendigo partnered to promote the Strathfieldsaye public bus services to its employees.



ITLUS Partners

These groups and organisations agreed to partner with the City at the time when the ITLUS document was being finalised. Many of them have taken part in the ITLUS initiatives during the Strategy development. This list is expected to expand over time as the ITLUS delivery continues.





Goals and Objectives

5.1 Establish an inspiring, collaborative and transparent governance model and a clear path for implementation.

5.1.1 Formalise the governance model to deliver measurable outcomes in terms of improved community health, stronger local economy and reduced impacts on the environment.

5.1.2 Ensure program implementation and funding priorities align with the vision and principles of the ITLUS

5.1.3 Utilise appropriate statutory and strategic planning tools to deliver integrated transport and land use outcomes.

5.2 Lead and inspire change through innovation.

5.2.1 Position Greater Bendigo as a leader in integrated land use and transport innovation.

5.2.2 Lead by example and take opportunities to participate in pilot and case studies.

5.2.3 Trial and pilot a series of Council initiatives across Greater Bendigo and on behalf of the state government to demonstrate how regional cities can lead and innovate.

Leading through innovation and good governance

This is what the community said they wanted the delivery of the ITLUS to be about. The community identified 'inspirational' as a key value for the ITLUS and Greater Bendigo to embrace²³. The community's aspirations for public transport, health and wellbeing, the natural environment, economic development and a desire for equitable access are ambitious, as they should be if we are thinking about the long term future of this City. Notably, these ambitions align closely with those voiced by thousands in Victoria who contributed towards the development of the Transport Integration Act 2010, which mandates the following vision statement:

"The Parliament recognises the aspirations of Victorians for an integrated and sustainable transport system that contributes to an inclusive, prosperous and environmentally responsible State."

Achieving these aspirations will involve incremental change, being prepared to try new ways of doing things and the support of all levels of government in partnership with other stakeholders and the broader community.

ASPIRATIONS EXPRESSED

Listen to the people and be inclusive

Limit urban sprawl

Identify unique local values and preserve these

Innovation around clean technologies, waste management solutions - diversity of industry including tertiary education options

Attract young people

Maintain the balance between urban living, rural boundaries and sustainability

Make our outdoor places more user friendly in all seasons

Protection of Bendigo's historic streetscapes through heritage programs, zoning and sympathetic new buildings, preserving the cultural integrity, cultural identity and cultural continuity. Historic Bendigo is the city's most valuable asset!

Tourism, arts, hospitality business needs to be encouraged to replace manufacturing. Industry port at Marong. Promote innovation and entrepreneurship.

Promote shuttle trains, trams (tourism), electric and smaller buses, cycling (including share schemes) and walking

Employment programs

Re-engineering transport to move away from the motorcar

Improve energy self-sufficiency

Innovative approaches to create/diversify employment industry - support and sustain existing businesses to adapt, urban agriculture - intense and small scale local community suppliers

Strengthening social fabric - places of meeting for different community groups

Create environmental and sustainable city where development is done in parallel with nature

A creative, accessible and people-friendly city

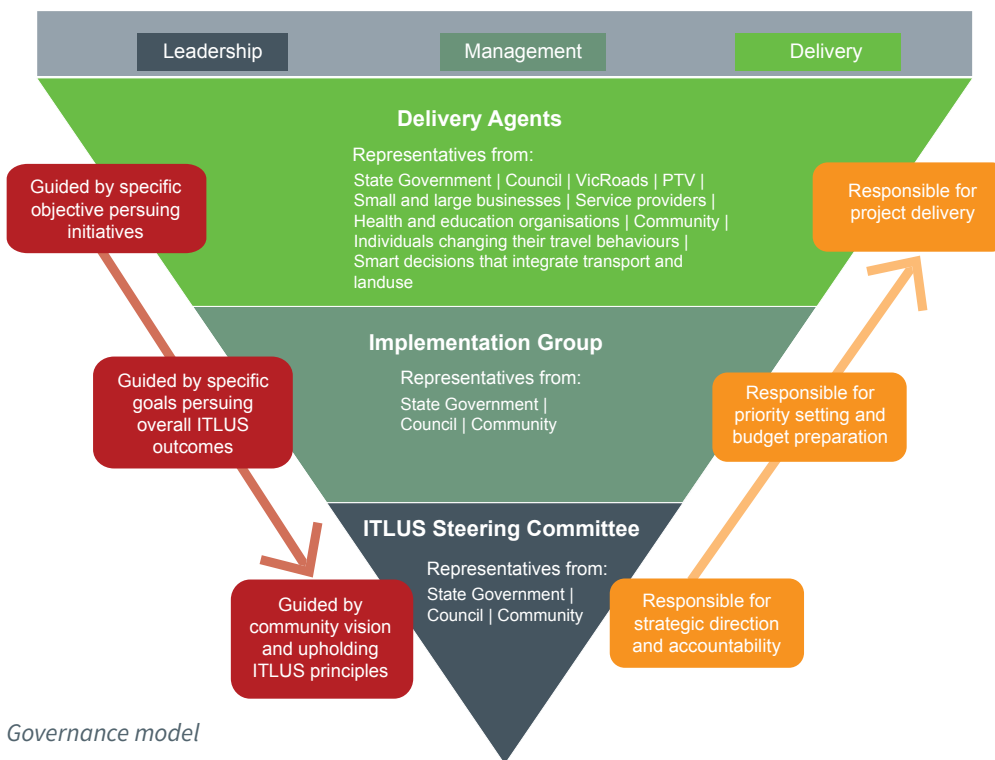
Governance and delivery

The role of integrated governance is central to the implementation of the ITLUS. This is not an easy task. Many established structures and processes, particularly at a government level, constrain the opportunity for collaboration and joint-decision making. The ITLUS capitalises on:

- Greater Bendigo's scale
- existing opportunities for regional relationships and

- the unity of purpose across multiple stakeholders - from community to government to business – displayed during the preparation of the Strategy

This will improve the likelihood of agreed strategies and actions driving the best community outcomes.



Governance model

8 Principles

The following principles have been developed to support the vision and guide day-to-day decision making. They are intended to be used as a touchstone when those involved in delivery go about their work.

- | | |
|---|---|
| 1 Brave: is ambitious and shows strong leadership and accountability | 5 Ideas-led: is imaginative, innovative and/or inspiring |
| 2 Pragmatic: is realistic and efficient and makes good use of existing resources | 6 Real choice: will give people meaningful choices in how and where they live and how they move around |
| 3 Equitable: will lead to a fairer, more accessible Greater Bendigo | 7 Resilient: is sustainable and properly considers future impacts |
| 4 Connecting: will make it easier for people to connect to one another both socially and spatially | 8 Big picture: achieves multiple benefits and integrates across disciplines |

The City of Greater Bendigo is big enough to deliver but small enough to achieve common vision and consistency. This will be done through:

- visionary and inspiring leadership. This includes supporting innovative approaches and solutions and leading by example, like the City introducing a corporate bike fleet
- commitment to consistent decision making relating to transport, service provision, infrastructure and land use development. This includes new subdivision decisions

being consistent with the objectives of the ITLUS and bus service improvements rolled out over time in line with the ITLUS recommendations for increasing frequencies

- commitment to higher levels of community engagement and transparency. Having community and key stakeholder representatives at all levels of the governance process like the Bendigo Metro Rail Community Consultative Taskforce model

Reaping the rewards of a long term commitment – the Groningen case study²⁴

There are many examples of cities that have made a long term commitment to change and importantly are now reaping the community and economic rewards. Successful cities include Groningen in the Netherlands. With a population of 190,000 people and 50% of trips made by bicycle, Groningen is a living example of the benefits of such a long term commitment. For Groningen, this commitment started nearly 40 years ago. Over the years the city has used various measures to ensure that much of its new development occurred within 5-7 kilometres of its urban core and made it easier and safer to walk and cycle than to drive a car in the city centre. As a result, Groningen is a highly liveable, healthy and economically vibrant city. Some of the measures Groningen introduced include:

- redirecting cars to a designated route around the city centre, making car trips longer than bicycle or walking trips that can be made across town (but still allowing efficient delivery of goods to the city centre).
- introducing parking restrictions, including making provision for car parking outside the city core at designated locations.
- traffic calming, including lowering vehicle speeds to 30 km/h.
- investing in high quality cycling and walking paths safe enough for children to ride on unsupervised.
- ample free bike parking all over town and at key locations, such as at the train station.
- bike sharing schemes and ‘cargo bike’ hire schemes that can be used by tourists, residents and public transport users alike.
- programs that encouraged and then required local employers to encourage use of public transport, walking and cycling among their employees.
- channelling the savings made from less ‘wear and tear’ on road infrastructure into a high quality maintenance regime of cycle paths and footpaths.



City Centre of Groningen, where active travel is the most convenient option

- sustaining a population density that enables efficient provision of public transport while maintaining the scale of new development generally within two to four stories.

This group of measures is typical of the strategies employed by a range of leading cities including many small to medium sized cities in Europe, or Davis, California or, on a larger scale, Portland, Oregon. These were not a package of measures imposed on the community; they were progressively supported and implemented. Their cumulative impact produced profound change and community support.



Aim for flexibility of uses: Maribyrnong Council transforms Yarraville's main shopping street from tarmac and parking spaces to astroturf and picnic tables in summer.



Try stuff out: New York City's Department of Transport used temporary installations and prototyping to change the face of the city from roads and cars to bike lanes and sidewalk cafes.

Inspirational leadership

Achieving long term, positive change in the way Greater Bendigo grows, in how the city accommodates its people and business activity and how they move within it requires trialing new solutions and testing of new ideas. It requires careful monitoring of their effectiveness and seeing how they apply in different settings and under different circumstances. The risk/reward equation is most acute when communities commit to innovation. However, innovation brings with it significant rewards and encourages entrepreneurialism. Leading by example in the case of the City as well as other key 'players' is paramount. To that effect, the ITLUS proposes numerous initiatives, one-off trials, pilots and longer term programs aimed at making Greater Bendigo the most livable regional city in Australia. For example (see below):



Stage two ranked values

- The City is leading by example by providing the employees with a bike fleet to go to meetings and do inspections in and around the City Centre.
- The bike rack on the buses to Strathfieldsaye is an innovative trial to provide cyclists to take the bus and bring their bike.
- The Turntable Company based in Bendigo produces smart inventions to manoeuvre vehicles including trucks in small spaces, such as this turntable to access the garage.
- Creative, attractive lanes in the centre of Bendigo will inspire walkability.







Implementation plan and resources

The following pages set out a comprehensive set of actions to assist in implementing ITLUS, identifying roles and responsibilities, partnerships and the proposed time period for implementation.

Actions are set out under the five ITLUS themes and are grouped into three categories:

- new Actions to implement the ITLUS
- ITLUS actions which support other policies and strategies
- actions that continue to implement existing policies and strategies

Actions are set out using three time periods

- Short term – actions which cover the next five years
- Medium term – actions which cover the period 2020 to 2030
- Long Term – actions which cover the period 2030 and beyond with Greater Bendigo reaching 200,000 residents

Council is giving particular priority to those actions which are highlighted in each of the tables.

Implementation of many actions is shared between Council and the listed agencies. Others fall within the mandate of various government departments and agencies.

Council's actions will therefore focus on lobbying and advocacy to press the case.


Council is heartened by the fact that the State transport portfolio confirms its in-principle support for the goals and objectives of the ITLUS and will use the final document as a key input into their future network planning and in advice to government on transport policy, programs and funding.

Council notes the collaborative process in developing ITLUS which led to an improved understanding of the interconnections between transport planning and delivery and land use planning and behaviour change.

Council understands that the transport portfolio cannot commit to specific actions that do not have a current funding commitment. However, the transport portfolio can and will commit to support the prioritisation, funding and delivery of ITLUS actions through Government's strategies, programs and further detailed analysis.

The key to the success of ITLUS will be the continuation of strong collaborative working relationship between Council, the transport portfolio and other partnering organisations.

New actions to implement the ITLUS


CONNECTING GREATER BENDIGO						
Actions	Partners	Period	Actions	Partners	Period	
Consolidate existing services to improve public transport connections between Heathcote and urban Bendigo with services for Axedale and Junortoun.	PTV	S	Rollout 'real time' bus arrival information in Hargreaves Mall bus waiting facility.	PTV, City	S	
Work with the development industry to reinforce the sense of place through high quality urban design and place making initiatives of existing and planned neighbourhoods.	City of Greater Bendigo (City), Development Sector	S	Develop 'transport hub and urban renewal implementation plans' for Bendigo, Eaglehawk, Epsom and Kangaroo Flat railway stations and surrounding precincts with a focus on improved and safer pedestrian and cycling access and circulation, improved urban spaces and landscaping, bus network and interchange facilities, commercial development and medium density housing incorporating affordable housing options.	City, State Government	S	
Introduce, as a priority, a high frequency, longer span bus service and more train services along the main four transit corridors of urban Bendigo, namely: Kangaroo Flat to City Centre, Huntly to City Centre, Eaglehawk to City Centre and Strathfieldsaye to City Centre (bus only); as well as to the specialist centres of activity including the Bendigo Hospital, and La Trobe University to induce and support a growth in patronage by attracting car commuters onto public transport.	PTV	S	Work closely with the Bendigo Taxi Directorate to identify opportunities to widen the scope and better integrate their services with public transport and community transport, particularly in addressing the needs of residents in isolated, rural communities who have limited access to public transport or private vehicles and those with special transport needs.	City, Bendigo Taxi Directorate, PTV	S	
Conduct a study of the ease of use, efficiency and safety of the current pedestrian network in the City Centre by analysing desire lines, waiting times at signalised intersections, vehicle speed limits and locations of pedestrian crossings to inform the development of a Principal Pedestrian Network and the introduction of pedestrian priority measures.	City	S	Investigate the potential of telecommuting, teleconferencing etc. as a means of reducing the need for some daily travel and for improving access to those with issues, such as a disability or living in an isolated location; and consider the means by which government and the private sector can assist individuals and businesses in making the most of 'on-line travel'.	City	S	
Work with VicRoads to apply the latest network planning and traffic management tools such as Smart Roads framework and Austroads Guide to Traffic Management: Part 7: Traffic Management in Activity Centres to plan the Bendigo urban road network and particularly to prioritise people, public transport and active travel in the City Centre and in the major activity centres.	City, VicRoads, PTV	S	Develop Township Structure Plans for Elmore and Heathcote to provide a framework for their growth, improved public transport connections with Bendigo, improved walking and cycling options and development which will protect their towns' unique character.	City	M	
Coordinate local and regional timetables so that bus-to-bus and bus-to-train interchanges are efficient and convenient for public transport users, particularly at the four Bendigo railway stations.	PTV	S	Develop a detailed Precinct Structure Plan for Marong to support its development into a township supporting about 8,000 people, and serviced by high quality public transport connections to Bendigo, including provision for a rail service.	City	S	

CONNECTING GREATER BENDIGO



Actions	Partners	Period	Actions	Partners	Period
Capitalise on the National Broadband Network (NBN) rollout to improve township and rural communities' access to employment, education, shopping and services.	City, State Government	M	Progressively improve patron comfort and safety, as well as pedestrian, cyclist and bus access to and within public transport interchanges, particularly near Kangaroo Flat, Eaglehawk and Epsom railway stations.	City, State Government, VLine, PTV	M
Investigate opportunities to improve connections between Greater Bendigo's townships with a view to increase interaction between the township communities and to generate mutual support of township businesses.	City	M	Investigate access and safety improvements, development and public realm activation opportunities on land designated for and near proposed new and reinstated railways stations.	City	M
Encourage and support innovation, diversification of uses and generation of investment to strengthen the township centres of Heathcote, Axedale, Elmore, Goornong, Marong, Raywood and Redesdale as focal points of community interaction and business activity.	City	M	Revise and improve public transport timetabling and the level of service as the network and demand for services expand.	PTV	M
Identify areas suitable for activation including night-time, particularly in the City Centre, and investigate a range of initiatives and options giving consideration to public safety and impact on residential population.	City	M	Explore opportunities to legitimise community transport as a mode of choice to be accessed by all members of the community, particularly those in isolated and rural areas.	City	M
Extend the prioritisation of people, public transport and active travel to other activity centres across Greater Bendigo to maximise levels of safety and economic vitality.	City, VicRoads, PTV	M	Construct public transport interchanges, including new railway stations, in line with population growth, future network planning strategy (such as the Regional Network Development Plan) and required increase in public transport services.	State Government	L
Recognise and reinforce Pall Mall as Australia's premier 19th century boulevard and ensure that urban design features and transport network planning measures balance its heritage architecture and contemporary uses, prioritise movement of people, create a sense of place and support business activity.	City, VicRoads, State Government	M	Ensure that new railways stations and other public transport interchanges are accessible by safe and convenient walking and cycling infrastructure and provide patron facilities such as bicycle parking, seating, shelters and real time service arrival information etc and are supported by mixed use developments that generate economic activity and contribute to public transport demand.	City, State Government, VLine, PTV	L
Advocate for a progressive rollout of 'real time' bus arrival information across the city's interchanges and at bus stops.	PTV, City	M	Revisit the potential opportunities of Bendigo Tramways to assist public transport service when Bendigo's population exceeds 150,000 residents.	City, State Government, VicRoads, Bendigo Trust	L

New actions to implement the ITLUS


HEALTHY GREATER BENDIGO						
Actions	Partners	Period	Actions	Partners	Period	
Use strategic planning tools such as the Principal Pedestrian Network (PPN) Principal Bicycle Network (PBN), the Bicycle Priority Routes (BRTS) and Strategic Cycling Corridors (SCC) to identify the priority and the type of improvements required and to assist with funding applications to relevant state bodies.	City, VicRoads, State Government	S	Provide a 'shuttle service' between Eaglehawk and Bendigo at a 20 minute peak and 40 minute off peak frequency – so as to provide a transfer service at Bendigo railway station.	PTV, State Government	S	
Update the City of Greater Bendigo Road Safety Plan 2007-2011 in line with VicRoad's Towards Zero Strategy principles for minimising road fatalities and injuries, particularly among vulnerable road users, pedestrians, cyclists, the young and the elderly.	City	S	Investigate bus priority measures on the primary bus network (eg traffic signal priority, high occupancy vehicle/transit lanes).	City, VicRoads, Local Bus Operators	S	
Apply the latest road, intersection, footpath, pedestrian crossing and cycle path etc design solutions to achieve the Towards Zero Strategy objectives of death and injury reduction in our neighbourhoods and activity centres.	City, VicRoads	S	Increase the number of regional rail services to existing stations in Kangaroo Flat, Bendigo, Epsom and Eaglehawk to establish a local commuter train service for Bendigo, including having all Melbourne services commencing and terminating at Epsom.	PTV, State Government	S	
Investigate the relative merits, costs, impediments and approvals required of both: (1) Removing the ban on bicycles in Hargreaves Mall and linking the southern and northern sections of the Bendigo Creek Trail through the City Centre including using the Hargreaves Mall by safely integrating cycling with pedestrians and crossing Pall Mall to link the Trail back to the Creek and (2) continuing the Trail within the Bendigo Creek channel and providing for cycle access points at key locations for access to the city centre, Rosalind Park and schools.	City	S	Partner with Bike Bendigo to capitalise on Ewing Park's strategic location by establishing it as a 'regional trail head' that raises the profile of key destinations and cycling and walking trails that are accessible from this point.	City, Bike Bendigo	S	
Mandate the provision of end-of-trip facilities such as bicycle parking, lockers, change rooms in new developments where the scale is relevant to these facilities.	City	S	Consolidate existing services to improve bus frequency and span of operating hours between Heathcote and urban Bendigo via Axedale and Junortoun and include this route as part of the Bendigo Bus Network.	PTV, State Government	S	
Link the O'Keefe Rail Trail to the Bendigo Bushland Trail to improve connections between off-road shared paths to encourage use for transport and recreation.	City	S	Investigate opportunities for funding signalling and track improvements as well as for increasing regional coach services to improve level of service for regional commuters to Bendigo.	PTV, State Government	S	
Explore the introduction of a specialised, high frequency (10 minutes) and longer span 'shuttle' service between La Trobe University, the City Centre and to the Bendigo Hospital.	PTV	S	Provide additional train service on the Echuca to Bendigo line and an additional early morning service on the Melbourne to Bendigo line to facilitate additional demand at Castlemaine.	PTV, State Government	S	
Identify bus stops and bus stop access (footpaths and shared paths) that need improvement and are not Disability Discrimination Act (DDA 1992) compliant .	City	S	Ensure that bus access requirements are met for new residential subdivisions.	City, VicRoads, Development Sector, Local Bus Operators	S	
			Develop and progressively implement a high quality, fully separated from other vehicles, cycling and walking link between La Trobe University, Bendigo Railway Station and the City Centre.	City, VicRoads, State Government	M	

HEALTHY GREATER BENDIGO



Actions	Partners	Period	Actions	Partners	Period
Develop and implement a walking and cycling way finding strategy for the activity centres identifying key public transport, walking, cycling and link connections.	City	M	Advocate for the reopening of the Golden Square railway station; the construction of a new railway station at the Bendigo Showgrounds; in conjunction with urban development for new stations at Maiden Gully with the capacity for grade separation; a new station at Marong and a planned station at the Marong Business Park.	City, PTV, State Government	M
Undertake and progressively implement a strategy identifying the type and location of bicycle parking and end-of-trip facilities to be provided near public transport stops, in activity centres and other major trip generators.	City	M	Investigate opportunities for establishing a 'stand alone' urban rail system with its own operator, rolling stock, maintenance and stabling facilities to services a network of 'infill' stations spaced at 2km intervals to maximise coverage and access.	PTV, State Government	M
Ensure that new residential developments are linked to the bicycle and pedestrian network and provide appropriate walking and cycling infrastructure inside the development.	City, Development Sector	M	Continue advocating for an increase in the level of service to Bendigo for regional commuters along the Swan Hill and Echuca lines.	City, PTV, State Government	M
Develop the City of Greater Bendigo north-south and east-west Strategic Cycling Corridors by removing conflict points at intersections, improving lighting, surface quality and by providing separation between cyclist and vehicle traffic.	City, VicRoads, State Government	M	Develop a 'stand alone' urban rail system to provide for high-speed and high-capacity movement of people to and from the City Centre and to activity centres located along the railway network.	PTV, State Government	L
Provide new services to induce local travel as new train stations are incorporated into the network.	PTV, State Government	M			
PTV in partnership with the City of Greater Bendigo and the community to periodically review bus services in order to progressively increase frequencies, extend hours of operation and weekend coverage on all routes, while providing a high level of coverage on the distributor routes.	PTV, City, Greater Bendigo Community	M			
Implement bus priority measures on the primary bus network and elsewhere as required.	City, VicRoads, Local Bus Operators	M			
Develop a complete, high quality, DDA compliant network of bus stops and bus stop access routes.	City	L			
Advocate for the provision of a new railway station at Huntly with the capacity for grade separation, a new station at the rear of Lansell Square and a new station at Harcourt in Mount Alexander Shire.	City, PTV, State Government	M			

New actions to implement the ITLUS


MOVING GREATER BENDIGO						
Actions	Partners	Period	Actions	Partners	Period	
Implement SmartRoads framework and principles for urban Bendigo to help identify and prioritise improvements to make the best use of existing road space, maximise safety, and provide broader transportation benefits to the community which address traffic growth by facilitating the use of sustainable transport modes such as public transport, cycling and walking.	VicRoads, City, PTV	S	Consider refining the City of Greater Bendigo Home Based Work Policy to include telecommuting and teleconferencing opportunities that could be available to staff who are eligible and wish to reduce their daily car travel to work.	City	S	
Introduce vehicle access restrictions to Williamson Street from its intersection at the five ways roundabout at Somerville Street to address safety issues and to test its potential to become part of a high quality bicycle walking corridor between Flora Hill, La Trobe University, Bendigo Railway Station and the City Centre.	VicRoads, City	S	Undertake a detailed, Bendigo specific freight study to identify inhibitors that impact on the efficiency of road and rail freight as well as to explore opportunities for enhancing the productivity of the freight sector and for minimising its impacts on residential amenity and the city's liveability, such as through identification of preferred freight hub locations and utilisation of state of the art information technology based logistics.	City, State Government, VicRoads	S	
Review the relevant Greater Bendigo Planning Scheme Clauses relating to car parking provisions so as to align them with the ITLUS strategic directions.	City	S	Investigate intersection improvements at the Specimen Hill Road and Chum Street, to increase safety and manoeuvrability.	VicRoads, City	S	
Implement a process to ensure that the car parking requirements for new land uses and developments in the City Centre so as to support sustainable transport alternatives to the motor car, limit the growth in car parking provision and demand and promote more efficient use of car parking spaces through the consolidation of car parking facilities.	City	S	Test the effectiveness of existing arrangements and the need for the introduction into the Greater Bendigo Planning Scheme of any new land use and development planning tools to protect designated freight routes from encroaching development, particularly in areas designated for residential growth.	VicRoads, City, Freight and Industry Sector	S	
Update the Bendigo CBD Parking Strategy to align the provision of car parking with ITLUS and recently completed strategies such as the Residential Strategy, Commercial Land and Activity Centre Strategy and the Bendigo Hospital Structure Plan.	City	S	Pilot and implement, where appropriate, Intelligent Transport System technologies for smarter traffic management, including network monitoring and real time information dispersal devices.	VicRoads, State Government	M	
Improve designated freight route signage to ensure its legibility for heavy vehicle operators.	VicRoads	S	Upgrade the Howard Street and Midland Highway intersection to improve safety and manoeuvrability.	VicRoads, City	S	
Update the Schedule to the Parking Overlay in the Greater Bendigo Planning Scheme to align with ITLUS and to remove the trigger for a Planning Permit resulting from a change of use when there is no increase to the floor area of an existing building.	City	S				

MOVING GREATER BENDIGO



Actions	Partners	Period	Actions	Partners	Period
Build on the knowledge gained through ongoing consultation with the freight and industry sector and apply the SmartRoads framework to refine the designated freight route network, where appropriate and to prioritise improvements designed to increase manoeuvrability, safety and access of freight vehicles, including examining the potential designation of Strickland Road as part of the City's arterial road network to support freight movements; and reconstruction of the roundabout at the intersection of Strickland Road and Murphy Street to accommodate freight truck movements.	VicRoads, City	S	As car parking demand reduces over time, progressively reduce the level of car parking in the City Centre, supplemented by facilities in satellite locations.	City	L
Consider waiving or reducing the statutory car parking requirements for businesses which establish arrangements to enable employees to work from home and can demonstrate the implementation of other measures (such as through a Green Travel Plan) to reduce staff travel as single occupant drivers.	City	M	Provide parking dispensations to residential developments which incorporate one or more shared cars for use by residents and bicycle facilities.	City	L
Pilot a staggered hours arrangement for City of Greater Bendigo employees who choose to opt in with a view to test the potential for reducing impact on the city roads at peak times and collaborate to seek an extension of such arrangements to other major employers, if successful.	City	M	Investigate options for improved north-western freight connections between Epsom and Marong including potential enhancements along over - dimensional Route 18.	City, VicRoads, Freight and Industry Sector	M
Commence discussions with commercial car sharing companies and provide incentives to encourage them to set up schemes in Bendigo, including the provision of on-street parking spaces ('car share pods') in prime locations inside the City Centre for the exclusive use of shared cars.	City	M	Assess the type and priority of works required to progress the improvement of an east-west connection in the northern parts of Greater Bendigo, with particular focus on key roads between Elmore, Raywood and Bridgewater.	City, VicRoads, Freight and Industry Sector	M
Manage a safe and efficient road network that reinforces ITLUS public transport and freight objectives by managing the capacity at 2015 levels through strategic investments and programs aimed at shifting away from single occupant vehicles travel for daily needs.	VicRoads, City	L	Explore the establishment of freight hubs on the periphery of urban Bendigo, as part of the Bendigo Freight Study, to support the freight industry and to minimise the impact of freight operations on the city's liveability with initial consideration being given to sites at Big Hill and Marong Business Park.	Freight and Industry Sector, State Government, City, VicRoads,	L

New actions to implement the ITLUS


ENGAGING GREATER BENDIGO						
Actions	Partners	Period	Actions	Partners	Period	
Provide every Greater Bendigo Primary School with an Active Travel Tool Kit, which has been developed as an ITLUS active travel initiative and progressively implement the key elements so as to increase the level of walking, cycling and public transport use among school communities.	City, Bendigo Schools	S	Explore opportunities to develop a Bendigo branded public transport app for mobile devices which makes it easy to navigate the public transport system.	PTV, City	S	
Continue the existing collaboration between the City and Bendigo TAFE to maintain and progressively expand the 'My Local Neighbourhood' mapping system as part of the Community Compass platform.	City, Bendigo TAFE, Bendigo Community	S	Collaborate with secondary schools to develop an Active Travel Tool Kit that responds to their specific needs and accounts for older children's abilities.	City, Bendigo Schools	M	
Collaborate to tap into existing road safety training programs for traffic engineers, transport planners, police, city officials, drivers, cyclists and pedestrians, particularly children and the elderly, to share knowledge and ideas about how to make our roads, neighbourhoods and activity centres safer.	City, VicRoads, Bendigo Police, Bendigo Schools	S	Develop an educational campaign to dispel the danger myths surrounding children's independent travel to school, particularly focusing on stranger danger and road safety compared with the issues associated with car travel.	City	M	
Collaborate to develop a Greater Bendigo focused marketing campaign to promote public transport use focusing on new improvements, health benefits and economic savings to individual people, households and businesses.	City, PTV	S	Consider offering incentives to private companies who develop their own green travel plans and can demonstrate that they have had a measured impact.	City	M	
Work closely with educational institutions and other places of knowledge on identifying, testing and resourcing innovative infrastructure, land use planning and design solutions and behaviour change programs.	La Trobe University, TAFE, Engineering Australia.	S	Provide incentives to developers who wish to build shared, communal or short-term office space in designated areas such as Local Neighbourhood Activity Centres to bring employment closer to where people reside.	City	L	

INSPIRING GREATER BENDIGO




Actions	Partners	Period	Actions	Partners	Period
Establish an ITLUS governance structure by formalising the membership of the current ITLUS Steering Committee and the Implementation Group and defining their terms of reference.	City, VicRoads, PTV, State Government, ITLUS Reference Group Members	S	Trial a range of on-road separated bicycle lane treatments, cyclist and pedestrian priority and safety improvements, including a separated bicycle lane solution through the City Centre to connect the southern and northern sections of the Bendigo Creek Linear Trail.	City, VicRoads	S
Formalise an ITLUS delivery, monitoring and reporting framework for cross-organisational integration, coordinated decision-making and measurable performance against refined targets and indicators.	City, VicRoads, PTV, State Government, ITLUS Reference Group Members	S	Conduct a trial of carrying bicycles on buses to make it easier for people to combine these two modes of transport into their daily trips.	City, PTV, Bus Association Victoria, Whitemores Bus Service.	S
Apply refined processes for the prioritisation of projects and budgeting so as to implement ITLUS.	City, VicRoads, PTV, State Government, ITLUS Reference Group Members	S	Test new place making and public realm improvements through the use of temporary installations and prototyping to make activity centres more people friendly and to improve retail and other business activity.	City, Local Retailers and other Commercial Businesses	S
Incorporate the relevant aspects of ITLUS into the Greater Bendigo Planning Scheme.	City	S	Maintain and progressively expand as required the City corporate bicycle fleet.	City	S
Coordinate an integrated delivery, monitoring and reporting process through an 'Implementation Group' and ensure that this process is transparent and well communicated to key stakeholders, project partners and the broader community.	City, VicRoads, PTV, State Government,	S	Continue using telecommunication devices and web-based applications, such as the City's Community Compass, to promote walking and cycling to daily destinations and community networking at a local level thus promoting the '10 minute neighbourhood' concept.	City	S
Trial a fully integrated and collaborative planning and delivery model comprising PTV and V/Line for buses, trains (including the roll out of Bendigo Metro Rail) and taxis working in partnership with the City. This would include a coordinated approach to community consultation, high level network planning, timetabling and marketing.	City, VicRoads, PTV, State Government, Bendigo Taxi Directorate, V/Line	S	Explore opportunities, through future transport network planning (including the Regional Network Development Plan), to trial a system of alternative transport services such as the use of taxi vouchers during down times, particularly in rural areas and townships not well serviced by public transport.	City, PTV, Bendigo Taxi Directorate	S
			Continue discussions with PTV on the possibility to trial a 'free transit zone' for bus travel covering the CBD and Bendigo Hospital precinct.	City, PTV, Sate Government	S


New actions to implement the ITLUS

INSPIRING GREATER BENDIGO						
Actions	Partners	Period	Actions	Partners	Period	
Continue discussions with PTV on the possibility to trial a 'free transit zone' for bus travel covering Central Bendigo and Bendigo District Hospital precinct.	City, PTV, State Government		Plan for the likely uptake of new technologies in private/ shared vehicle markets, for example smart cars; their potential to service the needs of more isolated, rural communities and their likely impact on the city's infrastructure and service provision.	City, VicRoads, PTV	L	
Align future local and regional strategies/plans with the ITLUS objectives through on-going monitoring and refinement.	City, State Government	M	Support new pricing and market-based approaches designed to instigate a shift towards cleaner, more active transport.	City	L	
Periodically evaluate and refine the effectiveness of the established governance structure and delivery framework.	City, VicRoads, PTV, State Government, ITLUS Reference Group Members	L				
Seek ways to tap into existing successful rural and township businesses to spread innovation locally and through sub-regional networks to strengthen town centres.	City	M				
Plan for the 'e-future' by investigating the issues and opportunities associated with e-commerce, online education and telecommuting, with the view to support local businesses and rural communities.	City	M				
Lobby State Government and work with the service providers to initiate a demonstration project for an alternative fuel bus fleet.	City	M				
Invest in latest technologies for the City's corporate vehicle fleet that minimise emissions and reduce energy consumption.	City	M				
Investigate the feasibility of employing new information technologies, including web-based systems, to increase freight sector efficiencies and minimise impact on residential amenity.	City, Freight & Industry Sector	L				

ITLUS actions which support other policies and strategies

CONNECTING GREATER BENDIGO						
Actions	Partners	Period	Actions	Partners	Period	
<p>Increase access options to key destinations by focusing growth and encouraging residential development in:</p> <ul style="list-style-type: none"> targeted infill sites, precincts that are supported by public transport and offer employment opportunities. land in close proximity to current and proposed train stations and along the main transit corridors connecting the City Centre and the principal activity centres. neighbourhoods which have a high level of walkability, strengthen the public transport network and cycling connections. 	City, State Government, Development Sector	S	<p>Develop Urban Design Frameworks for the activity centres identified by the Commercial Land and Activity Centres Strategy, namely, Epsom, Strathfieldsaye, Maiden Gully, Marong, Golden Square and Ironbark to guide development in and around these centres and train station precincts, to accommodate a growing population and to induce and support public transport use and active travel by people living in and accessing the activity centres.</p>	City	S	
Continue to support development in the designated growth areas of Jackass Flat, Huntly, Strathfieldsaye and Maiden Gully and small towns, principally Heathcote, Marong, Elmore and Axedale to minimise encroachment on the city's forests and agriculturally productive land, to maximise access to existing infrastructure and to optimise the efficient provision of public transport.	City, State Government, Development Sector	S	Implement the Eaglehawk Structure Plan town centre recommendations to maximise development opportunities in and around the Eaglehawk Railway Station and increase the residential and commercial development opportunities.	City, State Government, Development Sector	S	
Continue the progressive implementation of community-based township plans, including their recommendations for detailed structure planning with emphasis on improving walking, cycling and public transport connections and access to services and facilities.	City	S	Develop a 'Postcode 3550' Strategy to encourage high quality, well designed, mixed use residential development of two to four stories that respect existing heritage settings and neighbourhood character in and around the City Centre, including Bridge Street leading to the Bendigo Hospital Precinct, to accommodate 3,000 people living in and around the City Centre by 2030, consistent with the Greater Bendigo Residential Strategy.	City	S	
Require new housing developments and structure plans to incorporate minimum residential density requirements that support public transport services.	City	S	Implement the Bendigo Railway Station Masterplan facilitating improved access to the northern platform, providing for DDA compliant access between the two platforms and the safe circulation of pedestrians, cyclists and vehicles outside the station area to respond to the station's expanding role as a regional public transport hub.	City, V/Line, PTV, State Government	S	
			Support the Bendigo Trust in implementing the findings of the Bendigo Tramways Strategic Plan (April 2015) for enhancing Bendigo Tramways as a tourist attraction, thus ensuring the Tramways on-going operations.	City, State Government, VicRoads, Bendigo Trust	S	

ITLUS actions which support other policies and strategies


CONNECTING GREATER BENDIGO		
Actions	Partners	Period
Complete Stage 2 of the Bendigo Airport Redevelopment Project involving construction of a new runway and airside infrastructure required to support the long-term viability of the airport as a regional passenger hub and improve access for emergency service providers such as medical, police and fire aircraft.	City, State Government, Federal Government	S
Plan for the expansion of the UGB as part of a systematic process in accordance with the Greater Bendigo Residential Strategy and Greater Bendigo Housing Strategy in locations that are well supported by a range of transport options and where such development will further strengthen the public transport, walking and cycling networks.	City, State Government, Development Sector	M
Assist the Bendigo Hospital Precinct to be regional Victoria's premier health centre by progressively implementing the Bendigo Hospital Precinct Plan initiatives relating to transport and mobility, land use and development and open space improvements.	City, State Government, VicRoads, PTV, Development Sector	L

MOVING GREATER BENDIGO		
Actions	Partners	Period
Review the strategic role and design of Arnold, Barnard and Bridge Streets as part of the SmartRoads process with consideration of the Bendigo Hospital Precinct Structure Plan recommendations for improved walkability, safety, universal access, parking, connectivity with the City Centre and accessibility by public transport and emergency services.	VicRoads, City, PTV, Bendigo Health	S
Complete the Southern Loddon Mallee Regional Integrated Transport Strategy and commence its progressive implementation.	State Government, VicRoads, Southern Loddon Mallee Region Councils	S
Progressively implement the recommendations of the Strathfieldsaye Township Traffic Management Plan (2015) prioritising safety and addressing traffic flow issues along Wellington Street (Strathfieldsaye Road) from Tannery Lane in the west to Emu Creek Road in the east.	VicRoads, City	M
Implement the findings of the Bendigo specific freight study and the Regional Transport Strategy relating to both the metropolitan and regional road and rail network.	State Government, City, VicRoads, Loddon Mallee Region Councils	L


ITLUS actions which support other policies and strategies


HEALTHY GREATER BENDIGO		
Actions	Partners	Period
Ensure all new footpaths and shared paths meet the DDA requirements and are compliant with the Bendigo Community Access and Inclusion Plan.	City	S
Complete the Bendigo Bus Network Review to improve the level of service by increasing the span of hours and bus frequency and to induce a growth in patronage, particularly along the four main priority routes namely: Kangaroo Flat to City Centre, Huntly to City Centre, Eaglehawk to City Centre and Strathfieldsaye to City Centre.	PTV	S
Construct the La Trobe University Bus Transport Hub with a new access road and bus stop within a central location of the La Trobe University campus and realign the existing bus route to service it.	LaTrobe University	S
Investigate critical success factors including land use and urban development opportunities as well as productivity, liveability and health dividends associated with providing additional railway stations at Huntly, Maiden Gully, Golden Square and Marong, as identified by the Residential Strategy.	City, State Government, PTV	S
Complete a Regional Network Development Plan to set out the long term direction and priorities for regional public transport over the next 20 to 30 years, including better coordinated and improved bus and rail services, network extensions, infrastructure upgrades and new rolling stock.	State Government	S
Advocate for the inclusion of townships identified by the Residential Strategy for future growth namely Marong, Elmore, Axedale and Heathcote and those located along the Swan Hill and Echuca railway lines, particularly Raywood and Goornong, in planning for public transport improvements including the Regional Network Development Plan.	City	S

Actions that continue to implement existing policies and strategies

CONNECTING GREATER BENDIGO						
Actions	Partners	Period	Actions	Partners	Period	
Continue working with service providers and the development industry to ensure that greenfield and infill development sites maximise walking, cycling and public transport use to daily destinations.	City, State Government, PTV, Development Sector, Local Bus Operators	S	Assist the Bendigo Hospital Precinct to be regional Victoria's premier health centre by progressively implementing the Bendigo Hospital Precinct Plan initiatives relating to transport and mobility, land use and development and open space improvements.	City, State Government, VicRoads, PTV, Development Sector	L	
Use relevant planning tools and policies to continue protecting the character of urban Bendigo and rural townships	City	S				
Continue to bid for potential State, Federal and private sector funding to fund projects and programs that assist in implementing ITLUS.	City	S				
Continue to plan for the development of Bendigo as a City of 200,000 people based on about 85 per cent of the population being provided for within the Bendigo Urban Growth Boundary – including Marong Township and 15 per cent in the City's small townships, principally Heathcote, Elmore and Axedale and those rural areas zoned to support residential development.	City, State Government	L				
Complete Stage 3 of the Bendigo Airport Redevelopment Project involving a contemporary business park to accommodate potential expansion of existing businesses and new business establishments.	City, State Government	M				
Leverage the infrastructure investment associated with the completion of the Airport Redevelopment Project by supporting the airport becoming Bendigo's major gateway for business, leisure and freight transport and a key economic driver for the Loddon Mallee Region.	City, State Government, Federal Government, Loddon Mallee Councils	L				

Actions that continue to implement existing policies and strategies

HEALTHY GREATER BENDIGO		
Actions	Partners	Period
Accelerate the progressive roll out of, footpaths, shared paths, bicycle paths and trails and bicycle parking in Bendigo and key townships, with a focus on improving safety, access and connections to key destinations such as schools, public transport, sport and recreation facilities and activity centres.	City, VicRoads	S
Maintain a comprehensive network of footpaths, bicycle lanes and shared paths throughout the city so that a significant portion of journeys can be made by walking or cycling.	City, VicRoads	L
Continue to identify infrastructure, service and network improvements to ensure a growing share of travel is undertaken by public transport.	PTV	L
Implement a Design and Development Overlay as part of the Greater Bendigo Planning Scheme based on the Heart Foundation's Healthy by Design Guidelines and apply the healthy, walkable neighbourhood design principles when undertaking structure and master planning for Urban Design Frameworks for activity centres, planning for development near public transport interchanges, particularly railway stations and along main bus transit corridors.	City	S

MOVING GREATER BENDIGO		
Actions	Partners	Period
Complete investigations, concept design and community consultation for an upgrade to the Napier Street section of the Midland Highway, in the north of Bendigo (Weeroona Avenue to Scott Street), to inform a full business case for improvements addressing traffic growth and which supports and promotes the use of alternative transport modes such as public transport, cycling and walking.	VicRoads, City, PTV	S
Maintain existing access restrictions for B-Doubles and other higher mass limit vehicles through the City Centre to ensure a high level of residential and public realm amenity that contributes to commercial business activity and the city's economic prosperity and to minimise road fatalities and injuries, particularly among vulnerable road users, namely pedestrians, cyclists, the young and the elderly.	VicRoads, City	S
Complete the upgrade of the Ravenswood interchange involving a large circulating road as well as two bridges to safely carry vehicles over two new Calder Freeway carriageways thus improving safety and heavy vehicle access and manoeuvrability.	VicRoads	S

Actions that continue to implement existing policies and strategies

ENGAGING GREATER BENDIGO 		
Actions	Partners	Period
Continue supporting community groups seeking funding grants under the TAC Active Travel Program and other State and Federal funding sources	City	S
Continue encouraging healthy, living, eating and physical activity in the community via the State Government's Healthy Together program.	City, Bendigo Community Health Services, Victorian Government	S
Continue working with leading institutions, businesses, community groups and organisations to promote travel behaviour change and increase understanding of the benefits of urban consolidation and living a more active lifestyle, by co-funding innovative programs and co-hosting public events and information sessions.	Engineering Australia, Outside the Square, City, Urban Development Institute of Australia, Bendigo Business Council, Bendigo Sustainability Group.	S
Continue working with large employers and trip generators to share knowledge regarding travel patterns and to identify new ways of encouraging telecommuting, commuting by public and active transport.	City, La Trobe University, Bendigo Health and Bendigo & Adelaide Bank	S
Continue working with local businesses and community enterprises to co-fund new infrastructure and other improvements on a district and neighbourhood level.	Strathfieldsaye Community Enterprise, Northern District Community Enterprise, Kangaroo Flat Community Enterprise, City.	S

INSPIRING GREATER BENDIGO 		
Actions	Partners	Period
Continue lobbying the State Government for a rollout of free public wi-fi onto Bendigo's public transport and to activity centres.	City	S

References and links

Greater Bendigo

¹ www.profile.id.com.au/bendigo

The Story

² www.bendigo.vic.gov.au/transportplanning

³ National Heart Foundation of Australia. Position statement: Walking and the built environment. Melbourne, NHFA, 2009

⁴ Department of Transport (UK). Claiming the Health Dividend: A summary and discussion of value for money estimates from studies of investment in walking and cycling, London, 2014

⁵ Gilderbloom, J.I. et al. Does walkability matter? An examination of walkability's impact on housing values, foreclosures and crime. Cities, Volume 42, Part A, 13–24, 2015

⁶ Hack, G. Business Performance in Walkable Shopping Areas. Princeton, NJ: Active Living Research, a National Program of the Robert Wood Johnson Foundation 2013

⁷ National Heart Foundation of Australia. Good for Busine\$\$: Discussion Paper Melbourne, NHFA, 2011

⁸ Active Living Census, 2014

⁹ Victorian Population Health Survey, 2011–12

¹⁰ Todd Litman, Generated Traffic and Induced Travel; Implications for Transport Planning, January 2015, Victoria Transport Policy Institute

^{11A} Pollack, KM, Keercher, C, Frattaroli, S, Peek-Asa, C, Sleet, D, & Rivara, FP. (2012.) Toward Environments and Policies that Promote Injury-free Active Living- It Wouldn't Hurt. Health & Place, 18, 106–114.

^{11B} Dimaggio, C & Li, G. (2013.) Effectiveness of a safe routes to school program in preventing school-aged injury. Pediatrics, 131(2), 290–296.

^{11C} Stigsdotter, UK, Ekholm, O, Schipperijn, J, Toftager, M, Kamper-Jørgensen, F, & Randrup, TB. (2010.) Health Promoting Outdoor Environments: Associations between Green Space, and Health, Health-related Quality of Life and Stress based on a Danish National Representative Survey. Scandinavian Journal of Public Health, 38(4), 411–417.

^{11D} National Recreation and Park Association. (2010.) Synopsis of 2010 Research Papers: The Key Benefits. Ashburn, VA.

^{11E} Meyer, P, Kayser, B, & Mach, F. (2009.) Stair Use for Cardiovascular Disease Prevention. European Journal of Cardiovascular Prevention & Rehabilitation, 16(2 suppl), S17–S18.

^{11F} Shapiro, RJ, Hassett, KA, & Arnold, FS. (2002.) Conserving Energy and Preserving the Environment: The Role of Public Transportation. Washington, DC: American Public Transportation Association.

^{11G} Guo, JY & Gandavarapu, S. (2010.) An Economic Evaluation of Health-promotive Built

Environment Changes. Preventive Medicine, 50(Suppl 1), S44–S49.

^{11H} Putnam, Robert D. Bowling Alone: The Collapse and Revival of America Community. Simon & Schuster. New York. 2000.

^{11I} Royal Automobile Club Western Australia, 2012. “The Economic Cycle – A business case for investment in cycling in Western Australia”

^{11J} Lawlor, Eilis. (2013.) The Pedestrian Pound: The Business Case for Better Streets and Places. United Kingdom: Living Streets and Just Economics Report.

¹² National Heart Foundation of Australia. Good for Busine\$\$: Discussion Paper Melbourne, NHFA, 2011

Connecting Greater Bendigo

¹³ City of Greater Bendigo, “Connecting Greater Bendigo: ITLUS Stage 2 Report”, page 53

Healthy Greater Bendigo

¹⁴ Social determinants of Health: The Solid Facts, Second Edition World Health Organisation 2003

¹⁵ Marilyn Johnson, Geoffrey Rose (2013). Electric bikes – cycling in the New World City: an investigation of Australian electric bicycle owners and the decision making process for purchase

¹⁶ Healthy By Design, National Heart Foundation of Australia (Victoria Division)

¹⁷ Yangwen Liu, Cinzia Cirillo, “Measuring transit service impacts on vehicle ownership and use”, Public Transport, 2015, 7(2), pp. 203–222.

Moving Greater Bendigo

¹⁸ Bureau of Infrastructure Transport and Regional Economics 2014, Yearbook 2014: Australian infrastructure statistics, Department of Infrastructure and Regional Development, Canberra.

¹⁹ www.vicroads.vic.gov.au/traffic-and-road-use/traffic-management/smartroads

Engaging Greater Bendigo

²⁰ City of Greater Bendigo, “Connecting Greater Bendigo: ITLUS Stage 2 Report”, page 43

²¹ Michelle Schleiger & Alex Duncan, “Active Travel Survey Pilot Project Report: Survey results and analysis of the Active School Travel Pilot Program with White Hills Primary School” July 2014

²² City of Greater Bendigo, “Bike Fleet Review: Lighter, Quicker, Cheaper”, page 20

Inspiring Greater Bendigo

²³ City of Greater Bendigo, “Connecting Greater Bendigo: ITLUS Stage 2 Report”, page 46

²⁴ “Groningen: The World's Cycling City” from Streetfilms www.vimeo.com/76207227

Want to read more?

This section provides a selection of the many studies and research that support an evidence base for many of the ideas, concepts and initiatives that are explored, proposed and form part of the action in the ITLUS.

The links between the urban environment, built form, livability, economics and health

Body Mass Index, Neighborhood Fast Food and Restaurant Concentration, and Car Ownership

S. Inagami, D. Cohen, A. Brown, and S. Asch *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, Vol. 86, No. 5 doi:10.1007/s11524-009-9379-y 2009
www.ncbi.nlm.nih.gov/pubmed/19533365

Childhood Obesity: An Economic Perspective

J. Crowle and E. Turner *Productivity Commission Staff Working Paper* September 2010
www.pc.gov.au/research/completed/childhood-obesity/childhood-obesity.pdf

Healthy by Design 2012 Heart Foundation

www.heartfoundation.org.au/SiteCollectionDocuments/HBDImplementationTool.pdf

Healthy places and spaces: the impact of the built environment and active transport on physical activity and population health

C. Rissel and P. McCue, *Health Promotion Journal of Australia*, 2014, 25, 155–156
www.dx.doi.org/10.1071/HE14103

How Walkability Raises Home Values in U.S. Cities

J. Cortright, Impresa, Inc., For CEOs for Cities August 2009
www.reconnectingamerica.org/assets/Uploads/2009WalkingTheWalkCEOsforCities.pdf

Liveable Neighbourhoods, Western Australian Planning Commission

Perth, Western Australia, 2007
www.planning.wa.gov.au/Publications

The Costs of Urban Sprawl – Physical Activity Links to Healthcare Costs and Productivity

R. Trubka, P. Newman and D Bilsborough, April 2010
Environment Design Guide, Gen 85
www.crcsi.com.au/assets/Resources/fa19593b-16ff-45b8-9fee-0a3a71aac5cf.pdf

The Impact of Urban Form on Public Health

Giles-Corti, B, 2006, paper prepared for the 2006 Australian State of the Environment Committee, Department of the Environment and Heritage, Canberra
www.environment.gov.au/system/files/pages/4bec898d-d2eb-487b-bf06-103489e46c3c/files/public-health.pdf

The Walkability Premium in Commercial Real Estate Investments

G. Pivo and J. Fisher *Real Estate Economics* Volume 39, Issue 2, pages 185–219, Summer 2011
www.onlinelibrary.wiley.com/doi/10.1111/j.1540-6229.2010.00296.x/abstract

Transport

An Australian Vision for active transport

A Report Prepared by Australian Local Government Association, Bus Industry Confederation, Cycling Promotion Fund, National Heart Foundation of Australia, and International Association of Public Transport August 2010
www.heartfoundation.org.au/SiteCollectionDocuments/Active-Vision-for-Active-Transport-Report.pdf

Costs and Benefits of Bicycling Investments in Portland, Oregon

Thomas Gotschi *Journal of Physical Activity and Health*, 2011, 8 (Supplement 1), S49-S58 © 2011 Human Kinetics Inc.
www.portlandmercury.com/images/blogimages/2011/03/03/1299202929-portland_bike_cost_study.pdf

Developing Cycling as a Safe and Appealing Mode of Transport

Victorian Auditor-General August 2011
www.audit.vic.gov.au/publications/20110817-Cycling/20110817-Cycling.pdf

Foot traffic ahead: Ranking walkable urbanism in America's largest metros

C. Leinberger and P. Lynch, *The George Washington School of Business*
www.smartgrowthamerica.org/documents/foot-traffic-ahead.pdf

Millennials in Motion: Changing Travel Habits of Young Americans and the Implications for Public Policy

T. Dutzik and J. Inglis, U.S. PIRG Education Fund, October 2014
www.uspirg.org/reports/usp/millennials-motion

“One small step....” : Adapting infrastructure to encourage active transport

Presentation to Roads Australia’s National Sustainability in Infrastructure Forum Rebecca Lehman, GTA Consultants, Tuesday, 22 October 2013

www.gta.com.au/Data/Sites/1/pdffiles/130730_rebecca_lehman_roads_australia.pdf

Protected Bike Lanes Mean Business: How 21st Century Transportation Networks Help New Urban Economies Boom

A report from People For Bikes and Alliance for Biking & Walking
www.bikewalkalliance.org/download-protected-bike-lanes-mean-business

Speed Kills: The Complex Links Between Transport, Lack of Time and Urban Health

P. Tranter, Journal of Urban Health: Bulletin of the New York Academy of Medicine, Vol. 87, No. 2 doi:10. 1007/s11524-009-9433-9 2010

www.ncbi.nlm.nih.gov/pmc/articles/PMC2845829

The path to a livable city: Transportation for a Livable City

www.livablecity.org/wp-content/uploads/2013/08/tlc_path.pdf

The Ten Simple Rules of Urban Transportation Planning

H. Topp

www.livablecities.org/blog/ten-simple-rules-urban-transportation-planning-hartmut-topp

Transforming Australian Cities for a More Financially Viable and Sustainable Future: Transportation and urban design

City of Melbourne July 2009

www.melbourne.vic.gov.au/AboutMelbourne/Statistics/Documents/TransformingCitiesMay2010.pdf

Using the six principles of persuasion to promote travel behaviour change Preliminary findings of a TravelSmart pilot test

R. Seethaler 2004

www.sidrasolutions.com/documents/rseethaler_caitr2004.pdf

Victorian Auditor General Reports

Between 2011 and 2014 the Victorian Auditor General has produced five reports relevant to the research that supports the ITLUS.

Management of Major Road Projects

Victorian Auditor-General, June 2011

www.audit.vic.gov.au/publications/2010-11/20110601-Major-Roads.pdf

Developing Cycling as a Safe and Appealing Mode of Transport

Victorian Auditor-General, August 2011

www.audit.vic.gov.au/publications/20110817-Cycling/20110817-Cycling.pdf

Managing Traffic Congestion

Victorian Auditor-General, April 2013

www.audit.vic.gov.au/publications/20130417-Managing-Traffic-Congestion/20130417_Managing_Traffic_Congestion.pdf

Developing Transport Infrastructure and Services for Population Growth Areas

Victorian Auditor-General, August 2013

www.audit.vic.gov.au/publications/20130821-Transport-infrastructure/20130821-Transport-infrastructure.pdf

Coordinating Public Transport

Victorian Auditor-General, August 2014

www.audit.vic.gov.au/publications/20140806-Public-Transport/20140806-Public-Transport-presentation.pdf

Managing the Environmental Impacts of Transport

Victorian Auditor-General, August 2014

www.audit.vic.gov.au/publications/20140820-Environment-Transport/20140820-Environment-Transport.pdf

