THE CITY OF
GREATER GEELONG

BACKGROUND REPORT

INTEGRATED TRANSPORT STRATEGY

CITY OF GREATER
GEELONG

Contents

Executive summary

Greater Geelong is growing rapidly. The Armstrong Creek Growth Area is nearing completion, the Northern and Western Geelong Growth Areas are almost ready to begin development, there is ongoing development in the outer suburbs like Lara West, Leopold, Clifton Springs and Fyansford and the density of existing suburbs is gradually being increased. The State government has set a housing target of 139,800 new dwellings in Greater Geelong by 2051 which would see more than half a million people living in our municipality by 2051.

G21 INTEGRATED TRANSPORT STRATEGY

The Geelong Region Alliance (G21) developed an Integrated Transport Strategy for the G21 region, comprising of Colac Otway Shire, Golden Plains Shire, Borough of Queenscliff, Surf Coast Shire and City of Greater Geelong, in 2021.

Modelling found that a business-as-usual approach to development and transport planning would result in poor social, economic, and environmental outcomes for the region. The results show that by 2041 Greater Geelong will face:

+83% more vehicle trips resulting from population growth and lack of viable alternatives to driving

+102% vehicle kilometres travelled resulting in poor environmental outcomes and increased traffic congestion

+491% vehicle delay hours resulting in longer commutes less time spent living life

30% reduction of average travel speed caused by increased traffic congestion on key arterial roads

The G21 report identifies the major challenges facing the region as being:

- Lack of access to jobs and affordable living
- Reliance on car-based travel
- Traffic and congestion

Opportunities identified for the region include:

- Refocusing on sustainable transport
- Improving regional connections
- Promoting transit-oriented growth

AN INTEGRATED TRANSPORT STRATEGY FOR GREATER GEELONG

This background report acknowledges the important work done by G21 to highlight the traffic impacts of growth across the region. Greater Geelong faces the most significant impacts if a business-as-usual approach is taken and a strategy for our city-region will focus on the issues, actions and outcomes that are most relevant to us.

Greater Geelong's Integrated Transport Strategy will consider what success looks like for Greater Geelong's transport network beyond 2050 and include measurable targets and outcomes to ensure we have a reliable transport network that maximises the liveability and sustainability of our city and region.

Introduction

Greater Geelong is growing rapidly and particularly in the context of the Victorian Government's new housing targets for our region, we are set to reach half a million people before 2050.

The City is developing an Integrated Transport Strategy for Greater Geelong that will focus on prioritising sustainable modes of transport to reduce traffic congestion, encourage active lifestyles, reduce our climate impact and improve accessibility for all.

The purpose of this background report is to highlight the current state of play and consider what the future of transport looks like for our city and broader region. We seem to be at a crossroads where a business-as-usual approach to the transport network will result in significant traffic congestion and a less liveable region. We need to think about and do transport differently if we want Greater Geelong to have a sustainable and liveable future beyond 2050.

Population

CURRENT & FUTURE POPULATION

The current estimated population of Greater Geelong is 299,735[1]. Greater Geelong's population was 233,429[2] in 2016 which reflects an increase of 55,843 (23.9%) over the last 9 years. Greater Geelong's population is growing at an even faster rate today and is forecast to have 441,984 people living in region by 2046[3]. That is an increase of 107,116 (37%) people over the next 21 years.

The City's Settlement Strategy sets a target of 50% greenfield (ie. undeveloped, rezoned land) and 50% infill (ie. increasing housing supply in existing built-up areas) development to cater for Greater Geelong's growing population.

Growth in greenfield locations will be generated from continuing development in the Armstrong Creek growth area (that is around 50% complete) the Northern and Western Growth Areas (NWGGA), which are yet to start construction and other smaller growth areas such as Lara West, Leopold and Clifton Springs. Urban Design Frameworks and Structure Plans guide infill growth in established areas with a particular focus on providing access to high quality public transport services and active travel links.

The State Government's draft housing target for Greater Geelong is 139,800 additional homes by 2051 on top of the existing 127,300 as of 2023[4]. This number may be refined prior to final publication of the new plan for Victoria.

NWGGA will accommodate 40,000 dwellings, while current infill projects will yield an additional 27,500 dwellings

74.4% of employed residents in City of Greater Geelong also work within the City with the remainder working in Melbourne and surrounding LGAs[5]. Figure 1 shows that Greater Geelong's population is contained within a relatively compact space where 90% of the population live within 10% of Greater Geelong's total land area. Further, a large portion live within 10km of central Geelong and other townships on the Bellarine and Lara are contained to relatively compact, walkable spaces.

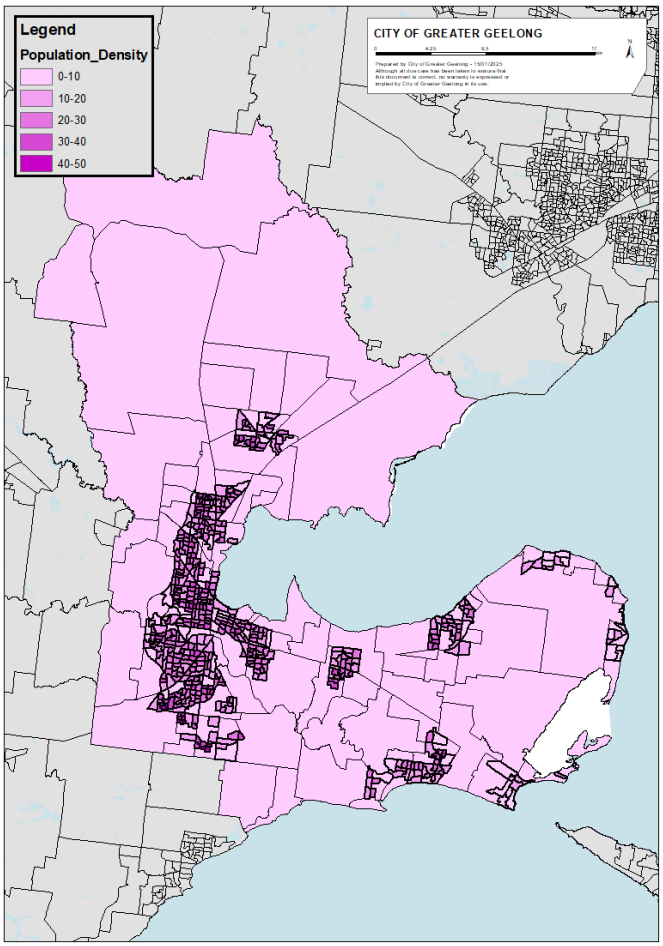

Figure 1 – Distribution of the 90% of population across 10% of Greater Geelong's land area, ABS 2021

[1] https://forecast.id.com.au/geelong
[2] https://profile.id.com.au/geelong/population
[3] https://forecast.id.com.au/geelong/population-summary
[4] https://engage.vic.gov.au/project/shape-our-victoria/page/housing-targets-2051
[5] https://profile.id.com.au/geelong/residents

SOCIO-ECONOMIC PROFILE

The Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) summarises the economic and social conditions of people and households based on information collected from the Census. Figure 2 shows IRSAD scores across Greater Geelong where a lower score represents relatively greater disadvantage and a lack of advantage. Households in these areas generally have lower incomes and higher rates of unskilled employment.

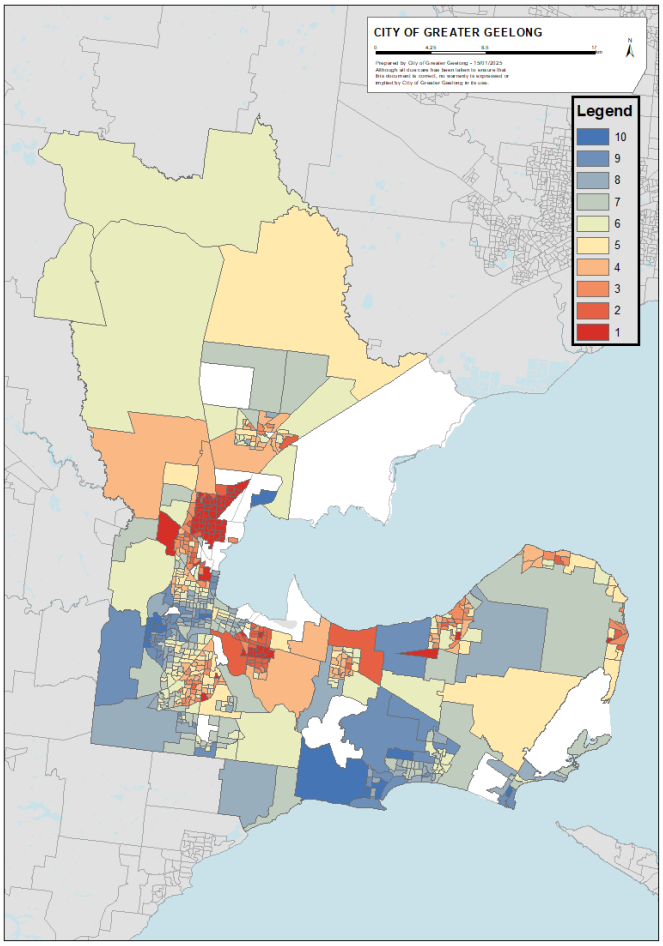

Figure 2 - Index of Relative Socio-Economic Advantage and Disadvantage Deciles for Greater Geelong, ABS 2021

PUBLIC HEALTH PROFILE

The Geelong Preventative Health Survey (2024) found that 28% of respondents are categorised as obese[6], a 7-point increase from 2017. This compares unfavourably to the State average of 23% classified as obese.

From the 2021 Census, 97,188 (35.9%) of Geelong residents have at least one long-term health condition. The most common conditions cited were

Mental health condition – 30,189 people (11.1%)

Asthma -26,642 people (9.8%)

Arthritis – 25,128 people (9.3%)

Diabetes – 13,165 people (4.9%)

There are many reasons that people have long-term health conditions. Sedentary lifestyles are associated with an increased risk of developing chronic disease, as well as worsening health outcomes.

In 2021, there were 54,985 people living with a disability in Greater Geelong (22.1% of population). 17,726 people reported needing help in their day-to-day lives due to disability. The number of people with disability increases with age and 54.5% of people aged 65+ have a disability[7].

Greater Geelong's ageing population is projected to have substantially increased by 2046 from 51,757 people over 65 years of age (19% of 2021 population) to 104,168 (24% of projected total 2046 population)[8] as shown in Figure 3.

6 https://www.geelongdataexchange.com.au/pages/survey-data/

7 https://www.geelongaustralia.com.au/sustainability/article/item/8da76efae4d6910.aspx

8 https://forecast.id.com.au/geelong/population-age-structure

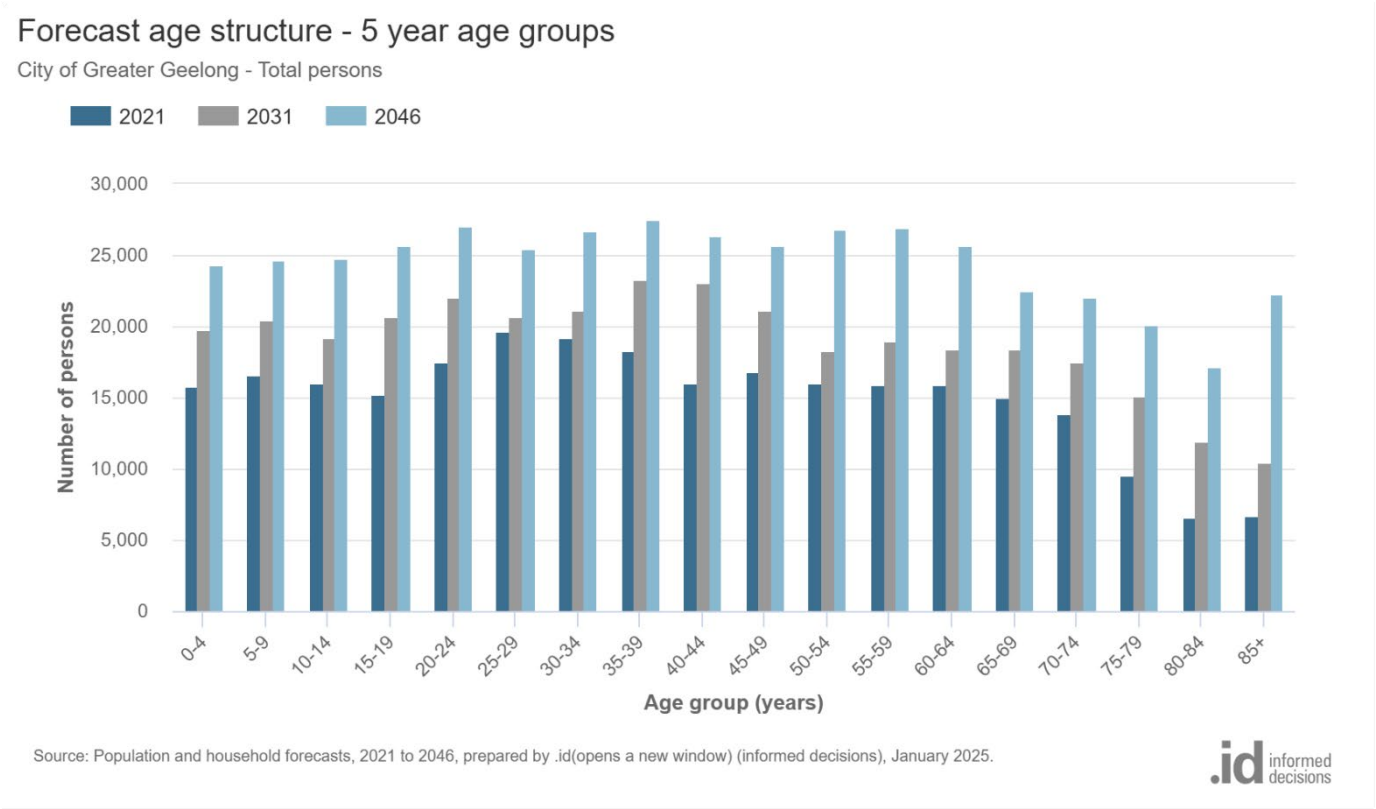

Figure 3 - Projected population age forecasts to 2046

Transport networks and patterns

JOURNEY TO WORK

As Victoria's second largest city, Geelong is home to 144,568 local jobs[9] spread across several employment precincts throughout the municipality with the highest concentration of jobs being in central Geelong.

Of the 147,188 employed residents[10]:

- 74.4% live and work within Greater Geelong.
- 20.6% live in Greater Geelong and work elsewhere.
- 5% have no fixed place of work.

A comparison of the method of travel for journey to work across the previous three Census years are shown in Figure 2 and Figure 3. It is worth noting that the 2021 Census data was significantly impact by the COVID-19 response though recent observations and data indicate that trips to work have returned to pre-pandemic levels.

Greater Geelong residents are increasingly relying on their cars to get to and from work resulting in more vehicle traffic and other modes being used less frequently.

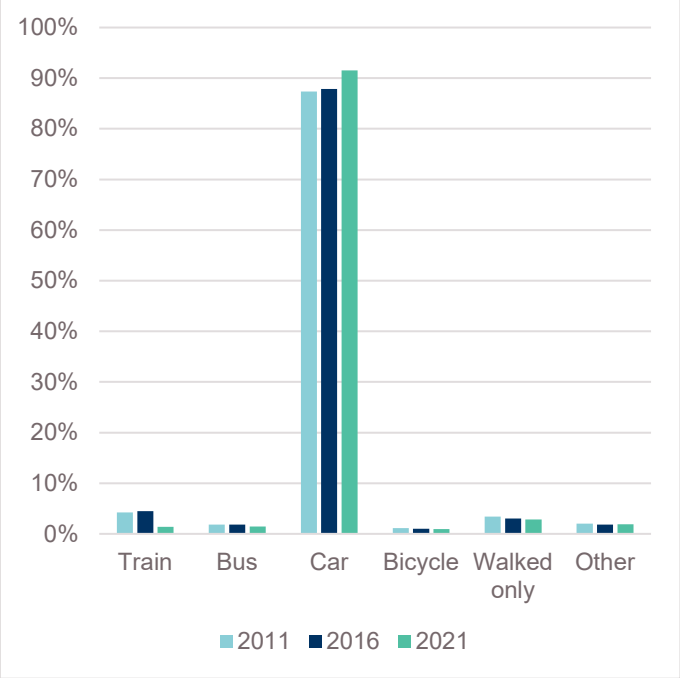

Figure 4 - Method of travel for journey to work 2011-21 (percentage)

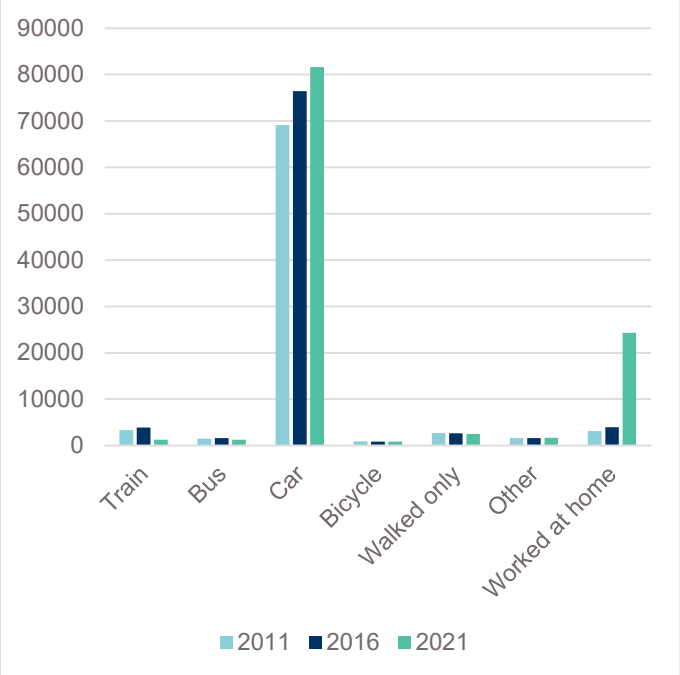

Figure 5 - Method of travel for journey to work 2011-21 (total trips)

[9] https://economy.id.com.au/geelong/local-jobs

[10] https://economy.id.com.au/geelong/employed-residents

Figure 6 shows the desire lines for journey to work trips that are fully contained within Greater Geelong at the SA2 level. SA2s represent suburbs within cities and catchments of rural areas. In remote and regional areas, SA2s have smaller populations and cover a larger area than those in urban areas. Their purpose is to represent a community that interacts together socially and economically. The dots represent journey to work trips that are fully contained within the same SA2 area and the size of the dots reflect the demand for travel within that SA2 area.

The number of people who live within Greater Geelong and work in the Geelong SA2 (which includes the suburbs of Geelong, East Geelong, South Geelong, Thomson, and Breakwater) is shown in Table 1. To reduce the number of journey to work trips made by private vehicle, alternatives such as public transport and active travel need to be safe, convenient and competitive with driving a private vehicle.

Table 1 - Top 10 SA2 areas based on the number of people who work in Geelong SA2 area

SA2	No. people that work in Geelong SA2
Geelong	2,965
Highton	2,841
Geelong West – Hamlyn Heights	2,831
Grovedale – Mount Duneed	2,677
Belmont	1,845
Newcomb – Moolpa	1,764
Leopold	1,626
Ocean Grove	1,510
Clifton Springs	1,479
North Geelong – Bell Park	1,457

The number of people who live within the same SA2 as they work is shown in Table 2. It is appropriate to consider the opportunity for many of these people to commute to work using alternative modes of transport to a private vehicle.

Table 2 - Top 10 SA2 areas based on the number of people who live and work within the same SA2 (outside of Geelong SA2)

SA2	No. people that live and work within SA2
Ocean Grove	2,773
Lara	2,371
Grovedale – Mount Duneed	2,244
Highton	2,061
Geelong West – Hamlyn Heights	1,646
Clifton Springs	1,560
North Geelong – Bell Park	1,538
Newcomb – Moolap	1,266
Corio – Lovely Banks	1,185
Belmont	1,079

The demand for journey to work trips is also visually represented in Figure 6 by varying thicknesses of lines or dots depending on the level of demand for trips between or within SA2 areas respectively.

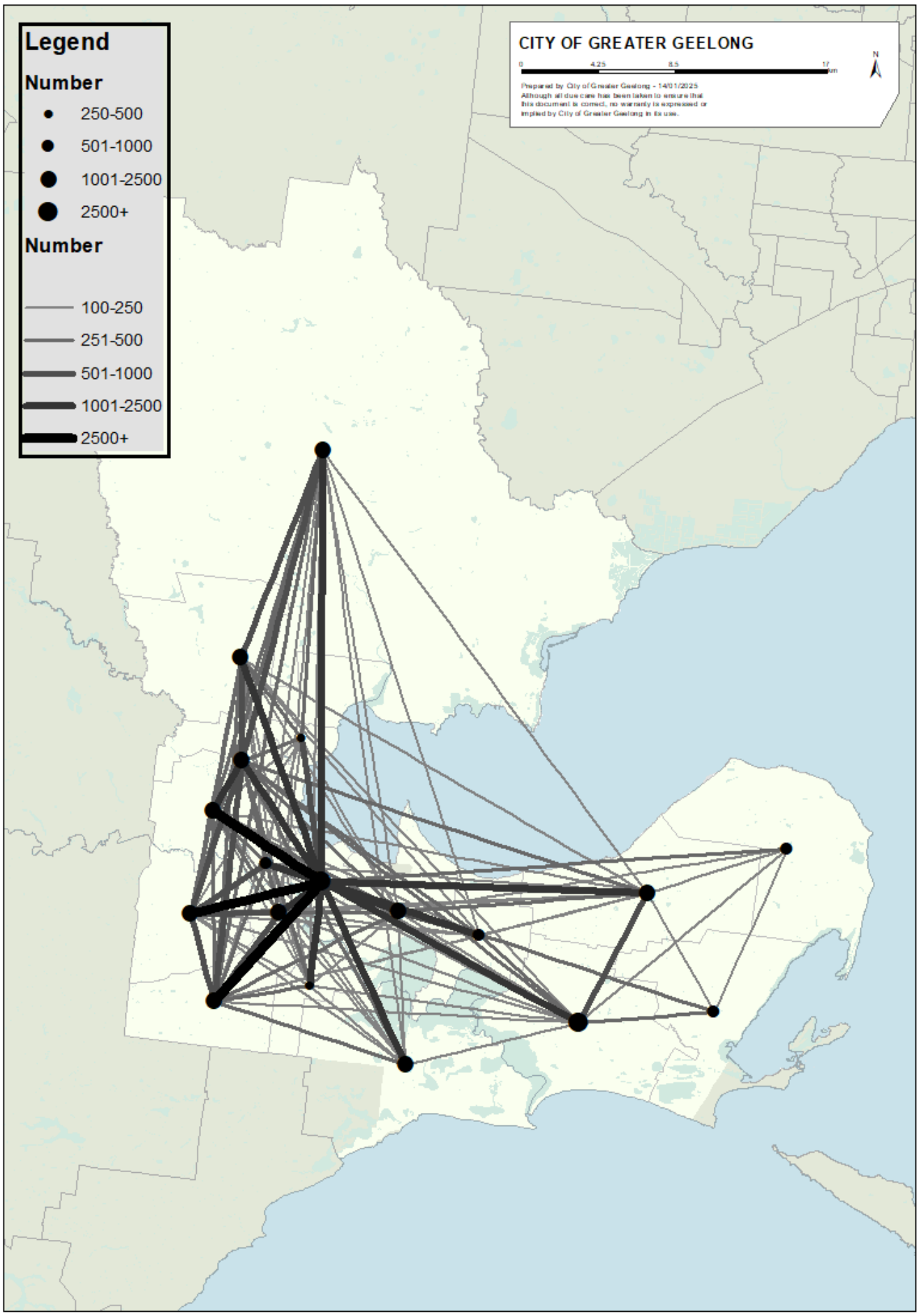

Figure 6 – Desire lines for journey to work trips that have an origin and destination within Greater Geelong, ABS 2021

The demand for journey to work trips for the 20.6% of employed residents that work outside of Greater Geelong is shown in Figure 7. Most of the trips are towards Melbourne City, Wyndham, and Torquay with some travelling to Bannockburn, Winchelsea, Colac, and Anglesea.

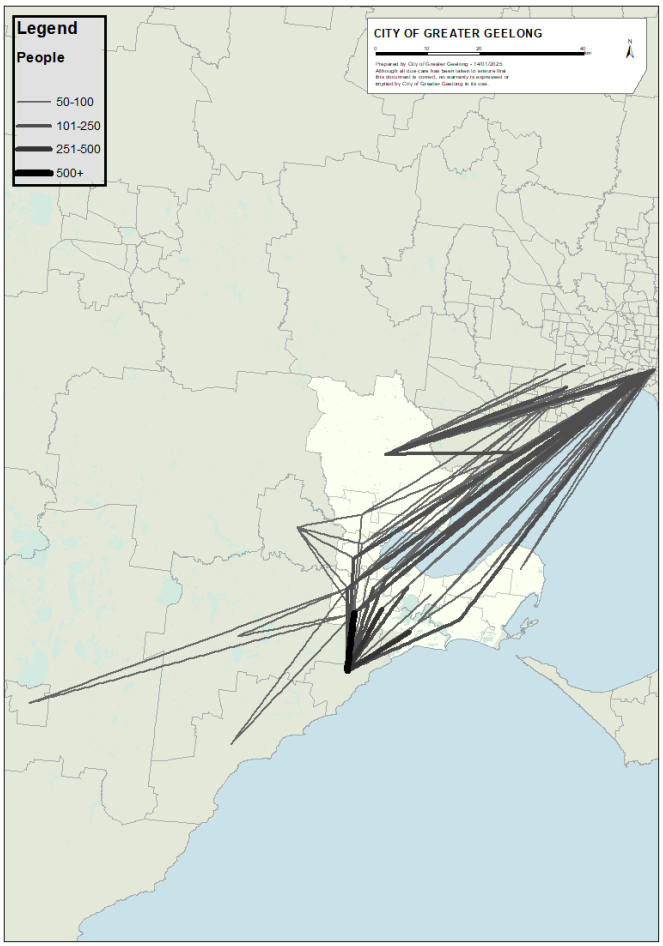

Figure 7 - Desire lines originating from Greater Geelong with destination external to municipality, ABS 2021

Figure 8 shows the demand for trips originating from outside of the municipality with a destination in Geelong. This represents over 21,000 people who mostly live in Surf Coast (6,000), Golden Plains (3,800) and Wyndham (3,600). The remainder live across Greater Melbourne and other surrounding municipalities.

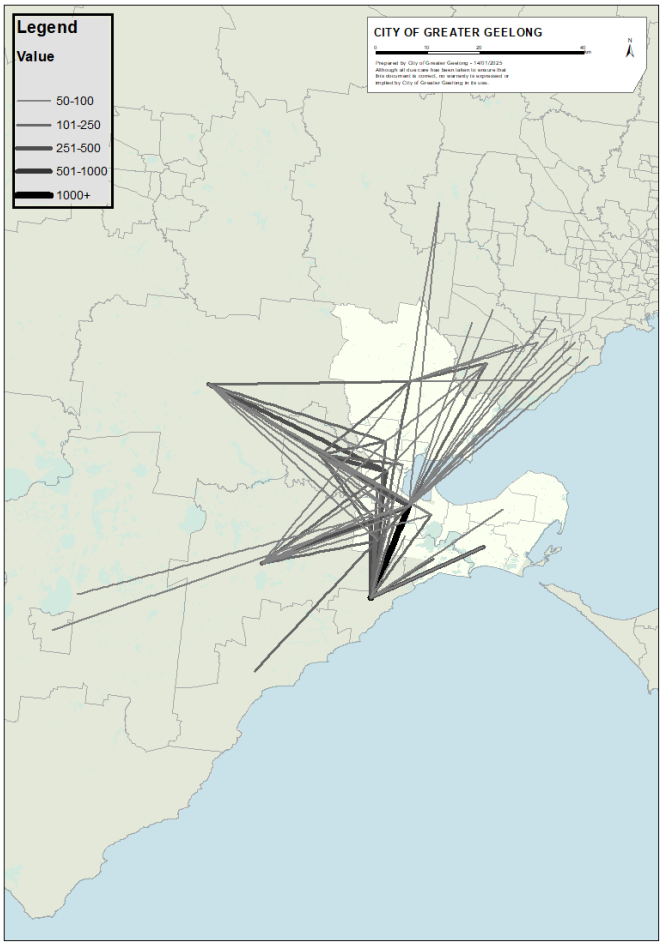

Figure 8 - Desire lines originating from outside Greater Geelong with destination internal to municipality, ABS 2021

The percentage of low and high car households acrosss Greater Geelong are shown in Figure 9 and Figure 10 respectively.

Greater Geelong has a lower average rate (39.7%) of housseholds that own 1 or less cars than compared to averages across Greater Melbourne (43.9%) the Victoria (41.9%).

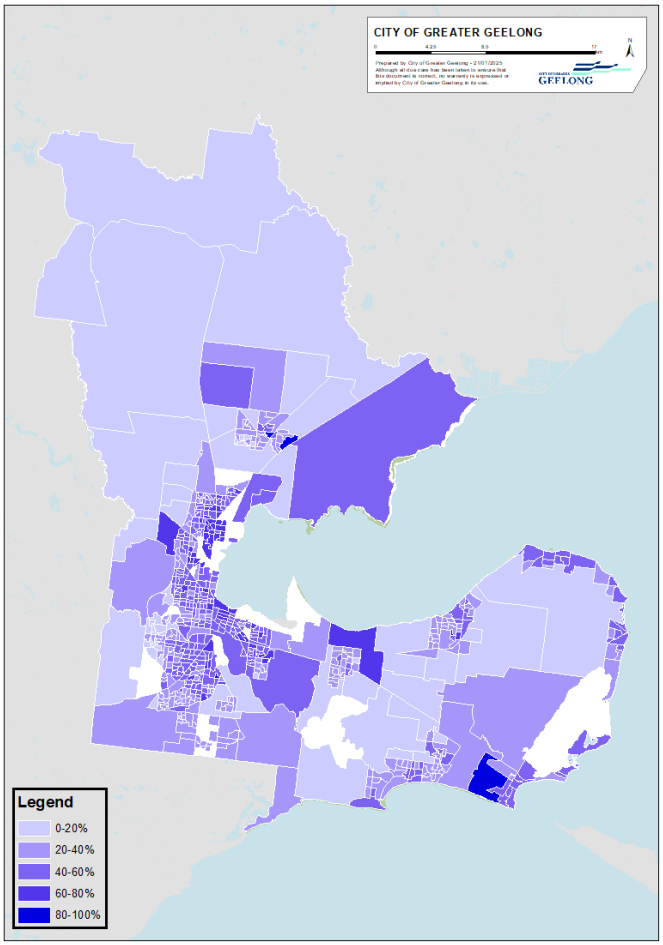

Figure 9 - Households with 1 or less cars, ABS 2021

Greater Geelong has a higher average rate (55.7%) of households that own 2 or more cars than compared to averages across Greater Melbourne (51.4%) the Victoria (52.9%).

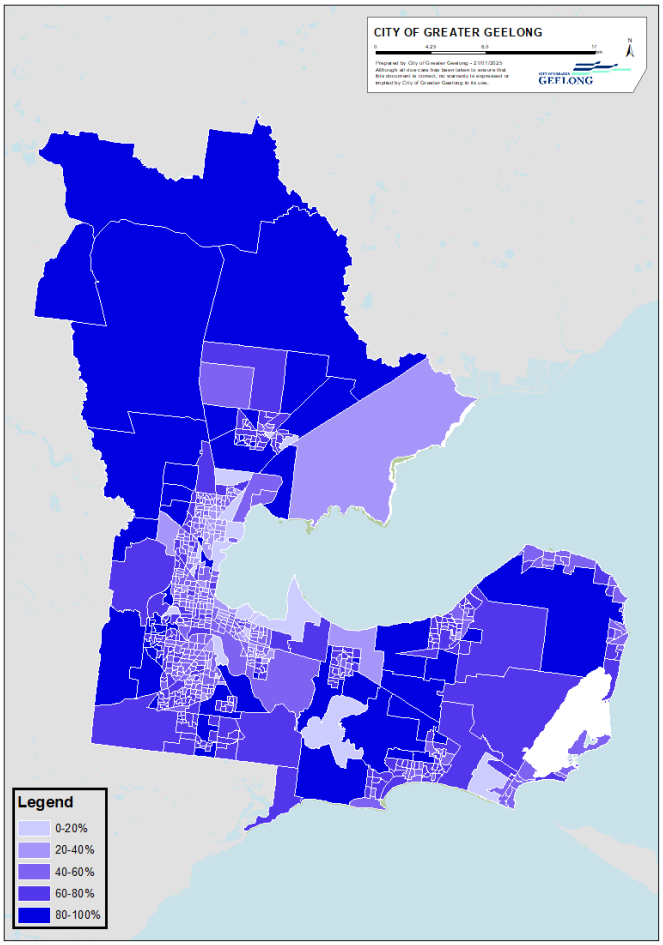

Figure 10 - Households with 2 or more cars, ABS 2021

The 2021 Census data has been broken down to understand how far Geelong residents live from their place of work as shown in Table 3 and Figure 11. As part of our Clever and Creative Vision, the City has a goal to see 50% of trips to work made by active travel and public transport by 2047 as part of a fast, reliable and connected transport network.

Table 3 - Distance to work for Geelong residents, ABS 2021

Employed residents (approx.)	Distance to workplace
8,500	0 - 2km
17,500	2 - 5km
23,500	5 - 10km
43,5000	10km +
Total	93,000

Around 8,500 live within 2km of their workplace, this is considered a reasonable walking distance for those who are able and would take around 24 minutes at an average walking pace of 5km/h.

An additional 17,500 people live within 5km of their workplace, this is considered a reasonable distance for a bicycle trip that would take up to 20 minutes travelling at a comfortable speed of 15km/h.

An additional 23,500 people live within 10km of their workplace, this is considered a reasonable distance for an e-bike or e-scooter trip that would up to 24 minutes travelling at an average speed of 25km/h.

The remaining 43,500 people live further than 10km from their workplace, people may choose to ride or scoot this distance, but it is not considered reasonable to expect that they would and alternatives such as public transport or private vehicle are more likely to be considered reasonable options.

The G21 Integrated Transport Strategy speaks to the issues that the Geelong region will face in the future if planning and growth follows a business-as-usual approach. They found that by 2041 delay hours will increase by as much as 426%, 110,000 more car drivers, an 82% increase in vehicle kilometres travelled and a 27% reduction in speed due to congestion will occur if we continue to plan and build with the same approach.

The City is capturing data on modes of transport across a number of sites. This data will be used to track mode share use over time, while monitoring the level of service on the network which will assist on planning and delivery of future projects.

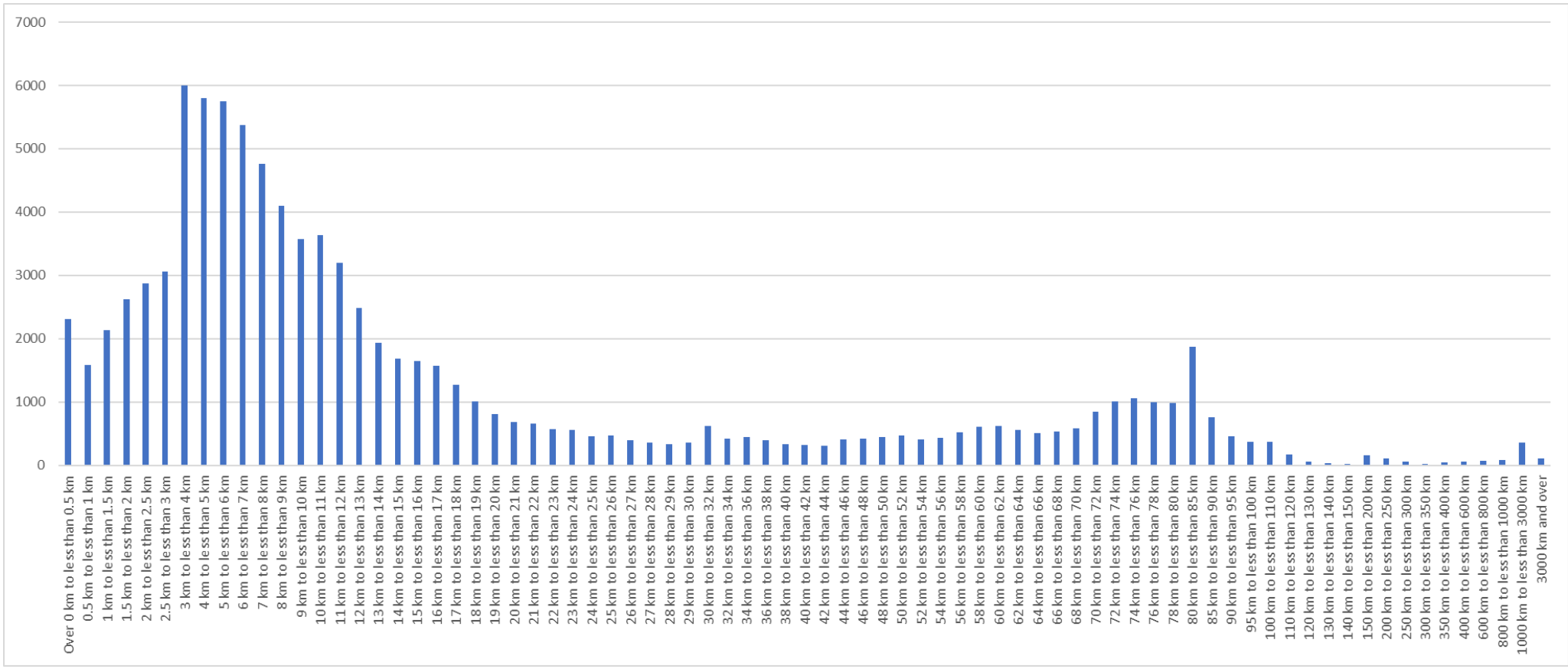

Figure 11 - Distance to work for Geelong residents (ABS 2021)

WALKING

The City is responsible for managing 2,044 kilometres of footpaths across the municipality[11] that are shown in

Figure 12. There has been an increase in our footpath network of 451 kilometres (28%) since 2015. This increase is largely based on new construction in growth areas such as Armstrong Creek, Leopold, Clifton Springs and Lara West as well as the construction of new footpaths in established through projects like the Ocean Grove Principal Pedestrian Network.

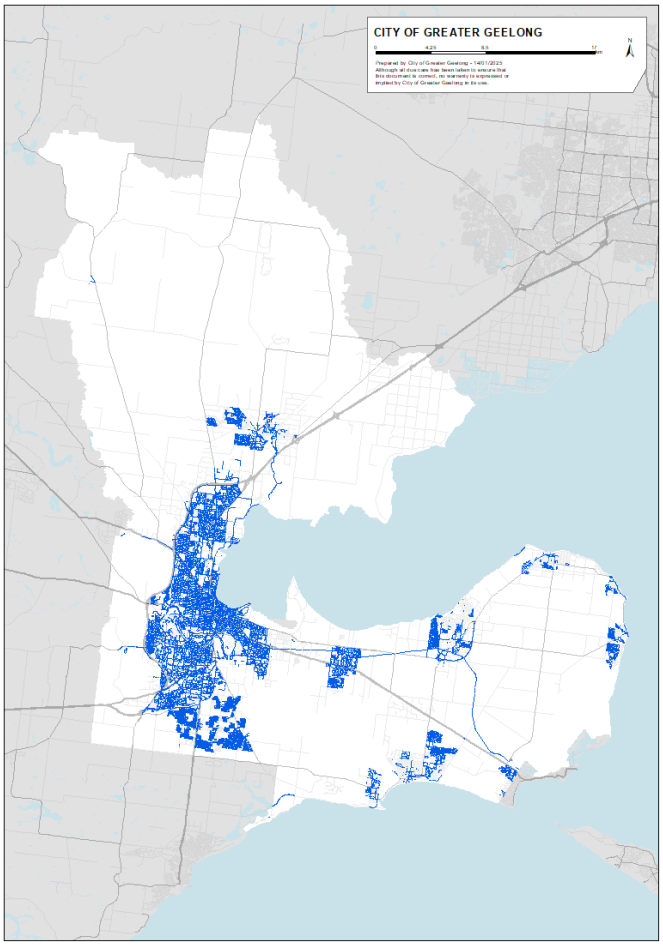

Figure 12 - Greater Geelong's footpath network

According to the Australian Urban Observatory, on average Greater Geelong has a below average Walkability for Transport Index at -0.7 where the average is 0[12]. This is calculated based on three key factors: land use mix and services of daily living (something to walk to); street connectivity (a way to get there); and dwelling density (higher population densities are associated with increased populations needed to supply services and different land uses)[13].

The walkability index varies across the municipality as shown in Figure 13 where the walkability index is higher in location like central Geelong where the Index is 4 on average and in outer suburbs ranges from -2 to -4.

Several projects have been delivered in recent years to improve walkability through tree planting along paths, construction of new footpaths and raised pedestrian (wombat) crossings in locations close to schools, shops, and businesses.

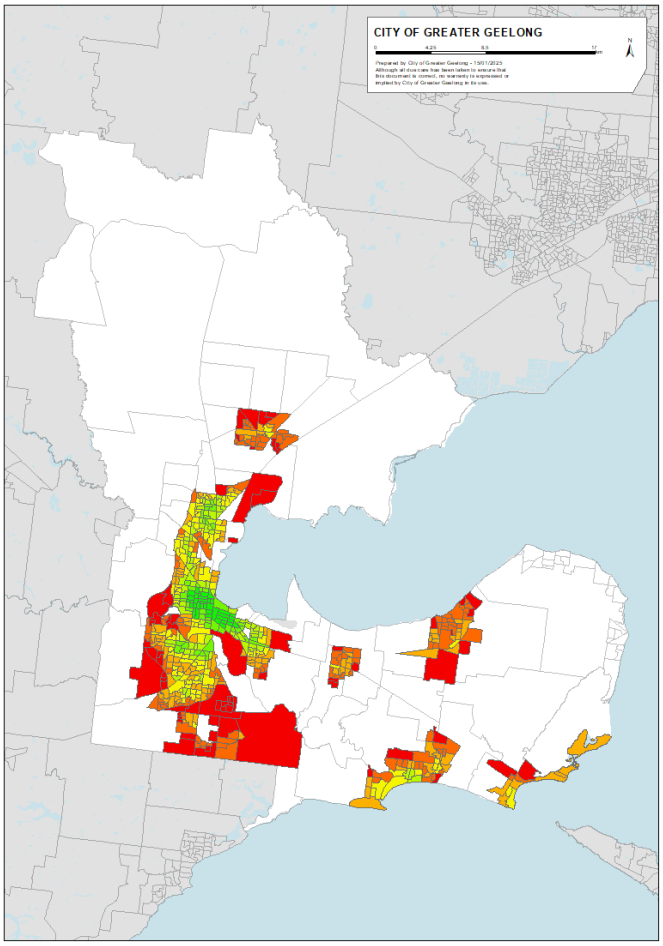

Figure 13 - AUO Walkability for Transport Index (2021)

[11] https://www.geelongaustralia.com.au/annualreport/documents/item/8dcf35b2b94132c.aspx

[12] https://new.map.auo.org.au/

[13] https://auo.org.au/portal/metadata/walkability/

BICYCLE

The City has an established network of shared paths, bicycle lanes (both protected and unprotected) and low-speed, traffic calmed streets that form the bicycle network. This network aims to create safe and connected routes to work, education, shops and services that attract people of all ages and abilities for everyday use.

The Principal Bicycle Network (PBN) is a planned network of roads and paths that guide the development of a safe and connected bicycle network for Greater Geelong.

Strategic Cycling Corridors (SCC) are identified as priority routes for delivery that tend to attract more funding from other agencies and government bodies. A recent review of the PBN and SCC has been conducted in liaison with the Department of Transport and other relevant agencies and the reviewed network will be finalised following community feedback.

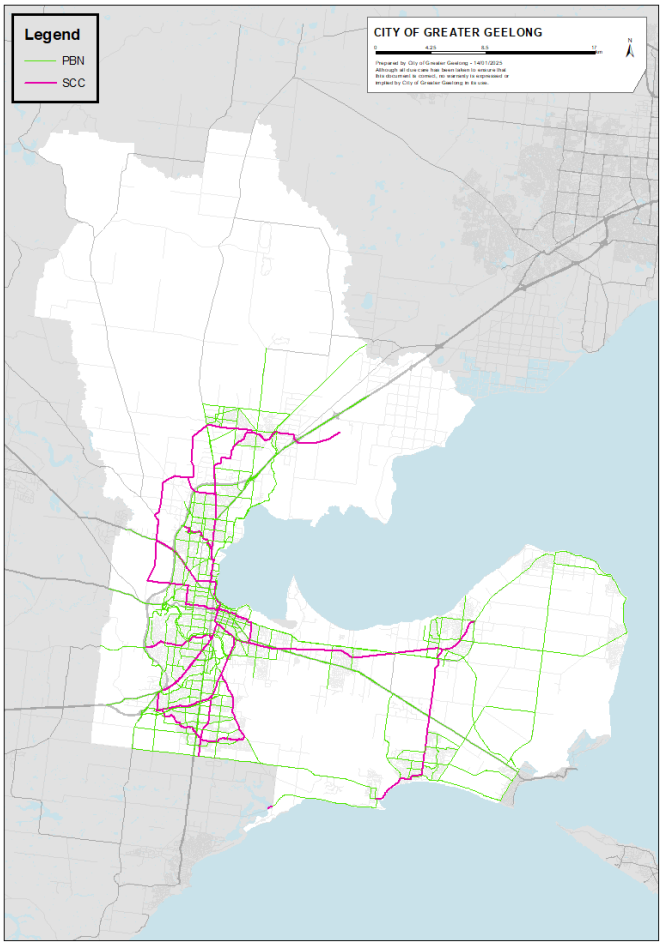

Figure 14 - Greater Geelong's Principal Bicycle Network and Strategic Cycling Corridors

The Department of Transport and Planning has developed a Level of Traffic Stress (LTS) tool to assist with the review and development of bicycle infrastructure across Victoria. The tool breaks down the bicycle network into four categories:

LTS 1 - Comfortable for all ages and abilities

LTS 2 - Comfortable for most adults

LTS 3 - Comfortable for confident cyclists

LTS 4 - Uncomfortable for most

The City's PBN and SCCs have been catalogued and reviewed to determine the current level of infrastructure which is shown in Figure 15 and Table 4. Following the review, 30% of our bicycle network is considered comfortable for all ages and abilities. This has only considered the type of infrastructure provided and further detailed review of LTS is required for intersections and crossings.

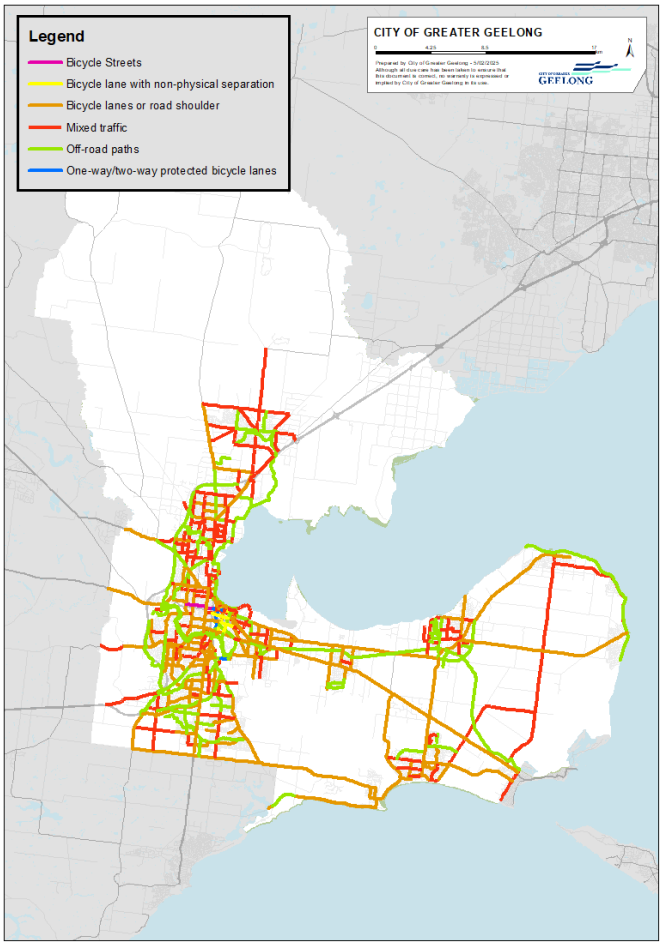

Figure 15 - Infrastructure provisions for PBN and SCC network

Table 4 - Breakdown of infrastructure types in the Principal Bicycle Network

Infrastructure	Length	Percentage
Shared Paths	206.4 km	29.3%
Protected Bicycle Lanes	2.8 km	0.4%
Bicycle Streets	2.1 km	0.3%
Bicycle Lane (non-physical separation)	4.8 km	0.7%
Mixed Traffic	191.0 km	27.1%
Bicycle Lanes/Road Shoulder	297.3 km	42.2%
Total	704.4 km	100%

In 2024, the City invited people to participate in the Biketober challenge that encourages people to ride a bicycle during October. Participants could download the Love to Ride app and opt to have bicycle trips automatically detected and logged by the app or input them manually after each trip. People that automatically logged their trips also had the option to "Rate My Route" based on how comfortable they felt riding. The map in Figure 16 shows the routes that have been rated by users and generally speak:

- Enjoyable routes tend to be on low-speed streets with traffic calming or shared trails and protected infrastructure with plenty of trees providing shade.
- Comfortable routes tend to have separated infrastructure adjacent to busy roads with limited trees providing shade or ample space for a typical bicycle lane on roads with 50km/h speed limits.
- Uncomfortable routes tend to have narrow bicycle lanes or road shoulder on lower traffic roads. Uncontrolled road crossing points are also identified.
- Stressed routes tend to have narrow bicycle lanes or road shoulder adjacent to parked vehicles on high traffic roads. Uncontrolled crossing points of high-volume roads with higher speed limits are also identified.

Figure 16 - Level of comfort identified by Love to Ride app users

BikeSpot 2023 was a national project that allowed people to say where they feel safe or unsafe while riding a bicycle by dropping pins and making comments on an interactive map.

- 284 submissions were made across Greater Geelong.
- 33 were identified as safe spots and 251 were identified as unsafe spots.
- 135 submissions were related to commuting and of those submissions, 57% were concentrated in the suburbs of Geelong, South Geelong, Belmont, Highton, and Geelong West.

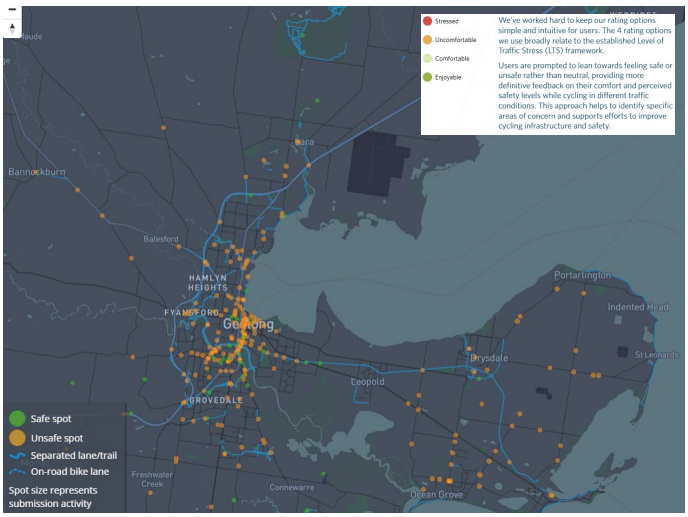

Figure 17 - BikeSpot 2023 Map

BUS

There are 27 bus routes that service Greater Geelong that are shown in Table 5 and Figure 18. 10 services are operated by CDC Geelong and 17 services are operated by McHarry's Buslines.

Table 5 - Greater Geelong bus routes

Route	Route Name	Operator
1	North Shore Station to Deakin via Geelong	CDC
10	Lara Station to Corio SC via Lara South	CDC
11	Lara Station to Lara East	CDC
12	Lara Station to Lara West	CDC
19	Geelong to Bannockburn	CDC
20	Geelong to Corio SC	CDC
22	Geelong to North Shore via Anakie Rd	CDC
23	Corio SC to North Geelong	CDC
24	Geelong to North Geelong via Newtown	CDC
25	Geelong to Bell Post Hill	CDC
30	Geelong to Whittington via Newcomb	McHarrys
31	Geelong to St Albans Park	McHarrys
32	Geelong to Leopold	McHarrys
40	Geelong to Deakin via Breakwater	McHarrys
41	Geelong to Deakin via Grovedale	McHarrys
42	Geelong to Deakin via South Valley Rd	McHarrys
43	Geelong to Deakin via Highton	McHarrys
45	Armstrong Creek to Waurn Ponds	McHarrys
49	Kalkee to High St Belmont	McHarrys
52	Jan Juc to Marshall Station	McHarrys
53	Geelong to Torquay	McHarrys
54	Torquay to Marshall Station	McHarrys
55	Geelong to Ocean Grove via Barwon Heads	McHarrys
56	Geelong to Queenscliff via Ocean Grove	McHarrys
60	Geelong to St Leonards via Drysdale	McHarrys
61	Geelong to Drysdale via Leopold	McHarrys

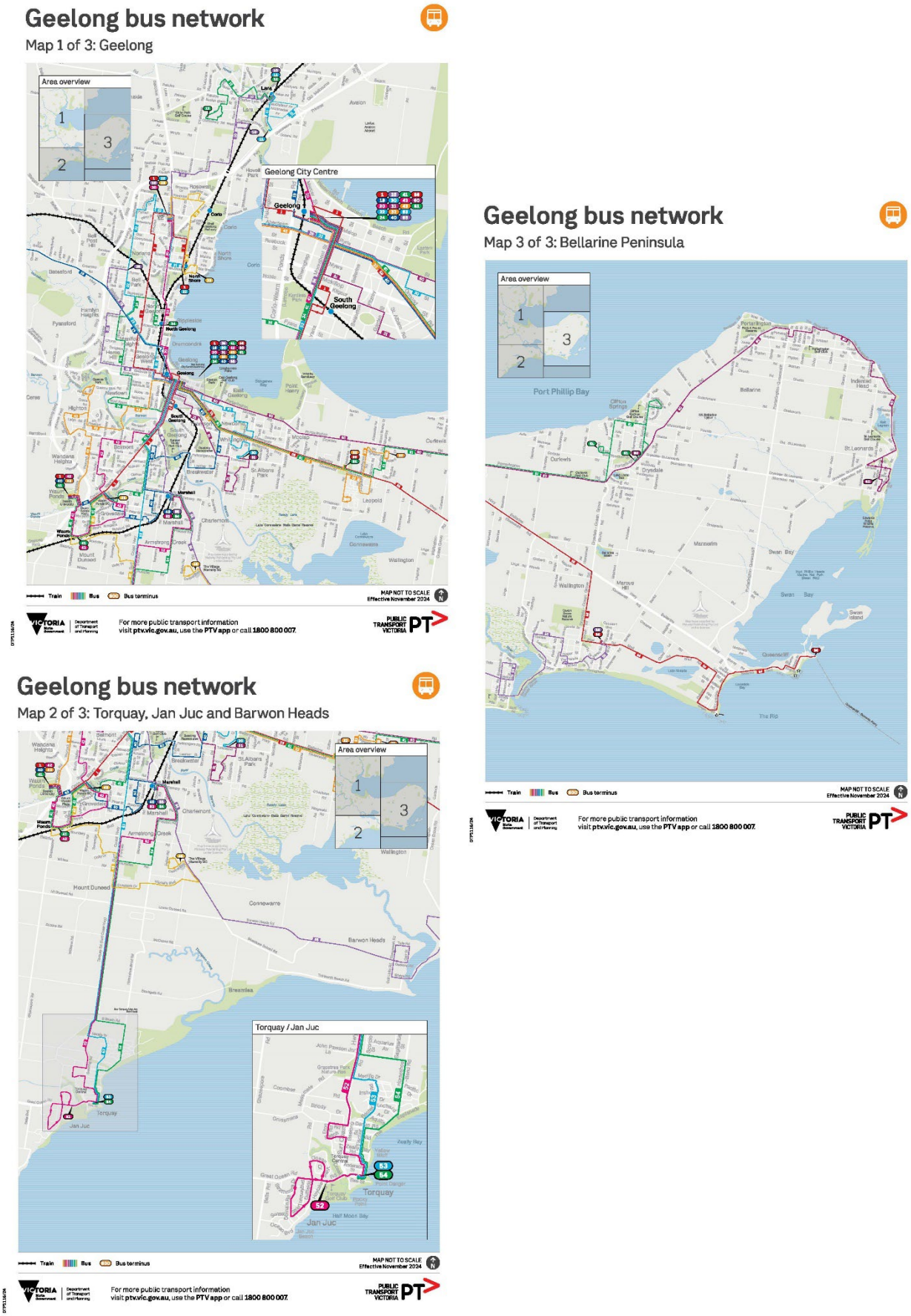

Figure 18 - Greater Geelong's bus network

Coverage

On average, 39.9% of Greater Geelong residents live within 400m of public transport with a regular 30-minute weekday service as shown in Figure 19. There variation across Greater Geelong with East Geelong (93.5%) having the highest rate and suburbs on the Bellarine Peninsula, Armstrong Creek Growth Area and Fyansford having less than 20%. Greater Geelong's outer suburbs generally have limited access to frequent bus services and the journey times are often more than double that of driving.

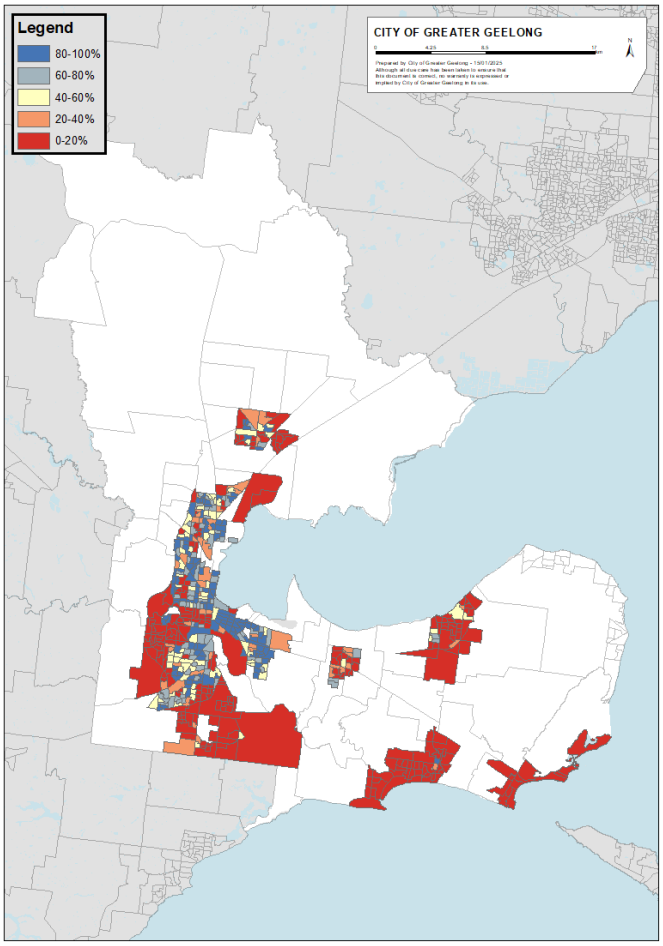

Figure 19 - Percentage of dwellings within 400m of regular 30-minute weekday service (AUO 2021)

Frequency

An analysis of the General Transit Feed Specification (GTFS) Schedule provided on the Transport Victoria Open Data Portal has been conducted to determine Greater Geelong's bus service frequencies on weekdays and Saturdays that is shown in Table 6

. Given that multiple services may use the same bus stops, an analysis of bus stop frequencies is shown in Figure 20, Figure 21 and Figure 22 for weekdays, Saturdays, and Sundays respectively. This highlights improved frequencies for users travelling to and from central Geelong in areas where multiple services converge.

Table 6 – Greater Geelong bus route frequencies

Route	Route Name	Weekday services	Frequency	AM Peak	PM Peak
1	North Shore Station to Deakin via Geelong	43	22 min	21 min	22 min
10	Lara Station to Corio SC via Lara South	21	36 min	25 min	21 min
11	Lara Station to Lara East	17	45 min	25 min	43 min
12	Lara Station to Lara West	26	31 min	20 min	23 min
19	Geelong to Bannockburn	1	-	-	-
20	Geelong to Corio SC	40	21 min	20 min	20 min
22	Geelong to North Shore via Anakie Rd	42	21 min	19 min	22 min
23	Corio SC to North Geelong	39	20 min	19 min	21 min
24	Geelong to North Geelong via Newtown	19	42 min	38 min	42 min
25	Geelong to Bell Post Hill	40	22 min	26 min	21 min
30	Geelong to Whittington via Newcomb	37	26 min	22 min	17 min
31	Geelong to St Albans Park	36	27 min	20 min	20 min
32	Geelong to Leopold	20	45 min	1 hr 3 min	48 min
40	Geelong to Deakin via Breakwater	14	1 hr 1 min	43 min	54 min
41	Geelong to Deakin via Grovedale	33	28 min	24 min	20 min
42	Geelong to Deakin via South Valley Rd	41	23 min	25 min	21 min
43	Geelong to Deakin via Highton	20	44 min	44 min	42 min
45	Armstrong Creek to Waurn Ponds	16	58 min	44 min	53 min
49	Kalkee to High St Belmont	-	-	-	-
52	Jan Juc to Marshall Station	16	1 hr	1 hr 1 min	58 min
53	Geelong to Torquay	32	32 min	27 min	29 min
54	Torquay to Marshall Station	16	59 min	1 hr 5 min	52 min
55	Geelong to Ocean Grove via Barwon Heads	14	58 min	-	43 min
56	Geelong to Queenscliff via Ocean Grove	12	1 hr 19 min	1 hr 12 min	1 hr 4 min
60	Geelong to St Leonards via Drysdale	21	44 min	45 min	40 min
61	Geelong to Drysdale via Leopold	17	53 min	-	39 min

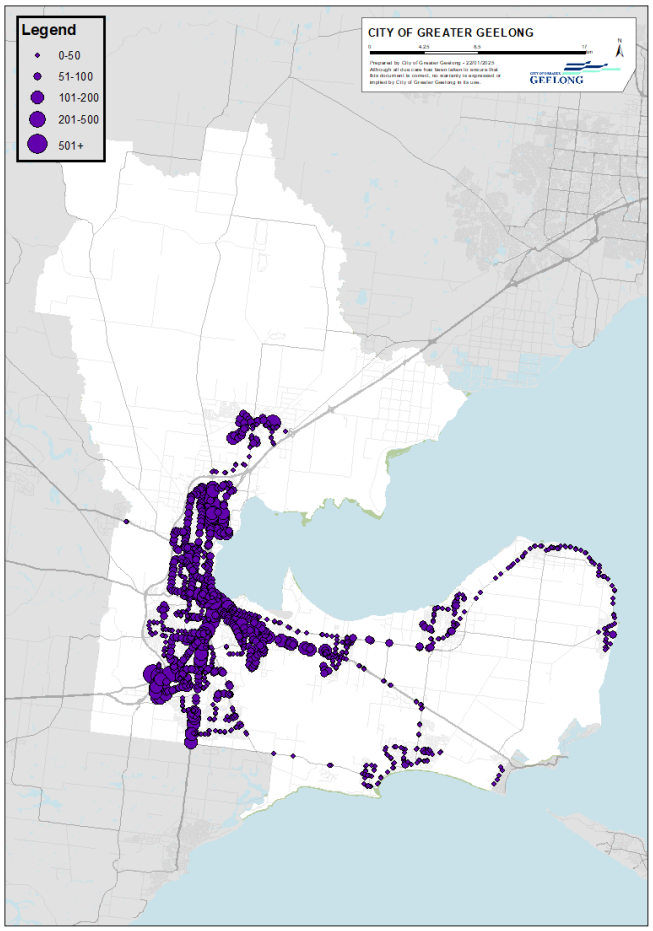

Figure 20 - Weekday Bus Frequency in Greater Geelong

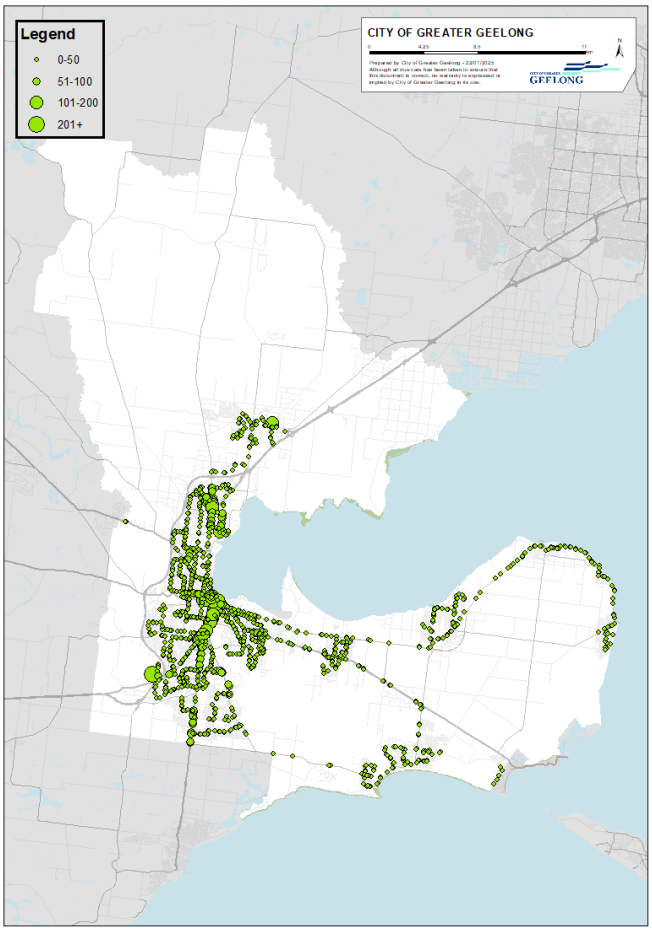

Figure 22 - Sunday Bus Frequency in Greater Geelong

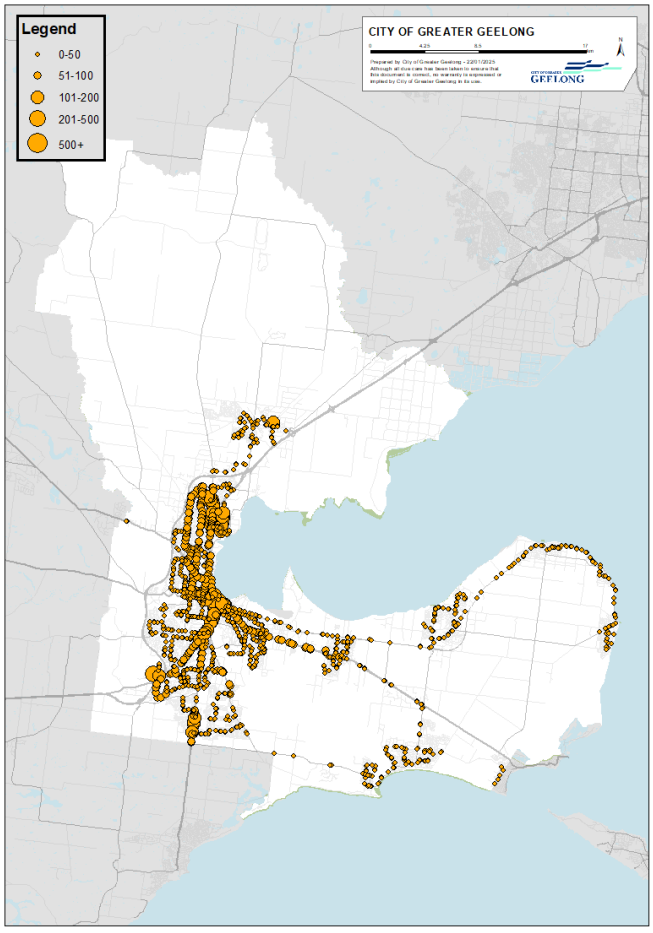

Figure 21 - Saturday Bus Frequency in Greater Geelong

Cost

From January 1, 2025, all Myki fares for Myki money and Myki passes were marginally increased and daily cost for travel within Geelong is $6 and the daily cost for travel between Geelong and the Bellarine Peninsula is $7.60 as shown in Figure 23.

	2-hour full fare	2-hour concession	Daily full fare	Daily concession
Single Zone	$3.00	$1.50	$6.00	$3.00
Two Zones	$3.80	$1.90	$7.60	$3.80

Figure 23 - Daily myki fares for regional bus travel

A Myki pass is suitable for those travelling on consecutive days and it offers discounted fare per day of $3.90 for travel within Geelong and $5.24 for travel between Geelong and the Bellarine Peninsula as shown in Figure 24. A further discounted fare is available for those who purchase a yearly Myki pass which brings the daily fare to $3.47 for travel within Geelong and $4.67 for travel between Geelong and the Bellarine Peninsula which equates to a yearly cost of $1,267.5 or $1,703 respectively.

	7 Day myki Pass		28-325* Day myki Pass (per day)	
	Full Fare	Concession	Full Fare	Concession
Single Zone	$28.00	$14.00	$3.90	$1.95
Two Zones	$38.00	$19.00	$5.24	$2.62

Figure 24 - Myki pass prices for regional bus travel

RAIL

Greater Geelong's rail network facilitates multiple passenger and freight services and is shown in Figure 25

V/Line passenger services are primarily aimed at moving people between Geelong and Melbourne though the service provides good connectivity between residential and employment precincts within the vicinity of train stations located at Waurn Ponds, Marshall, South Geelong, Geelong, North Geelong, North Shore, Corio, and Lara.

Recent upgrades to the Geelong rail line through the duplication to Waurn Ponds and upgrade of South Geelong, Marshall and Waurn Ponds stations have allowed for more frequent services along the line.

V/Line services also extend to Warrnambool through larger regional towns such as Winchelsea and Colac.

The Overland train that runs between Melbourne and Adelaide stops in North Shore on a limited number of days during the week.

Freight rail services operate on the Geelong network and typically originate from the Port of Geelong or are travelling between Melbourne and continuing along the rail lines towards Ballarat and Warrnambool.

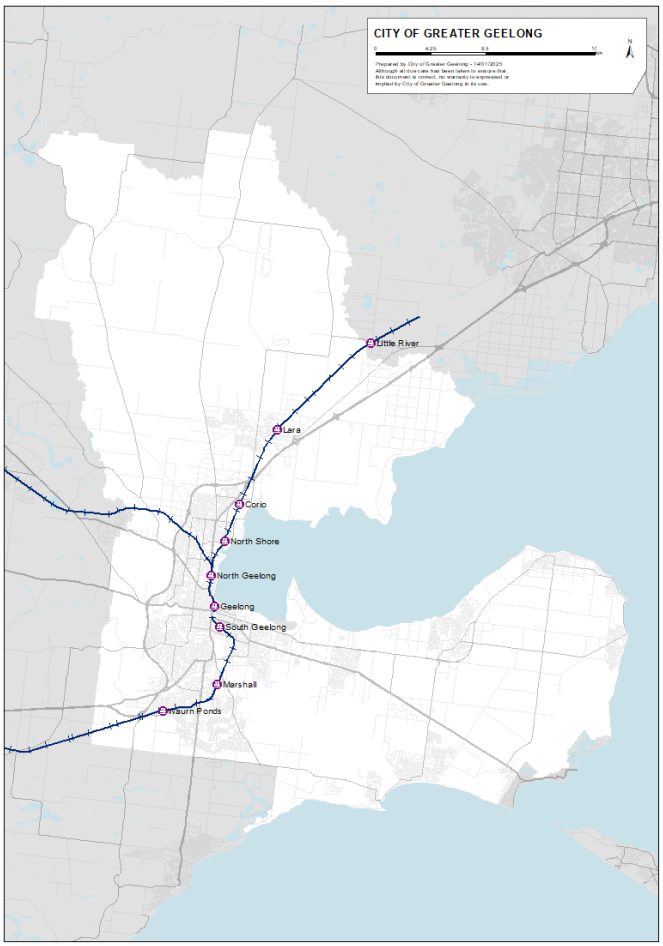

Figure 25 – Greater Geelong's passenger rail network

Coverage

Figure 26 shows the average distance to the nearest train station and Table 7 provides the same breakdown by suburb[14]. This has been calculated as the average walkable distance for each residential address. Most people access the stations by car though many of these suburbs are within a reasonable distance for the station to be access on foot, by bicycle or e-scooter.

[14] https://auo.org.au/portal/metadata/access-to-public-transport/

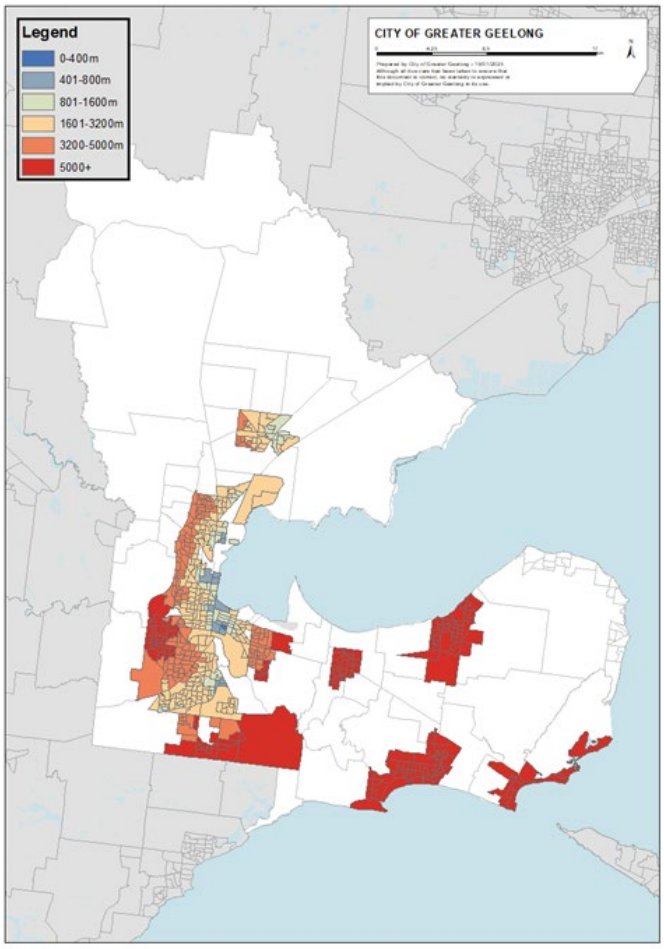

Figure 26 – Average distance to closest train station

Table 7 - Average distance to closest train station by suburb

Suburb	Average distance to closest train station (m)
Rippleside	554.6
South Geelong	638.1
Marshall	861.5
Geelong	928.1
Drumcondra	1092.6
North Shore	1141.8
North Geelong	1341.3
Geelong West	1588.6
Waurn Ponds	1733.3
East Geelong	1904.9
Norlane	1985.8
Grovedale	2218.8
Thomson	2254.9
Newtown	2350.3
Lara	2494.2
Manifold Heights	2506
Charlemont	2815.7
Corio	2956.6
Bell Park	2964.7
Breakwater	3026.2
Hamlyn Heights	3156.7
Belmont	3169.2

Suburb	Average distance to closest train station (m)
Herne Hill	3510.2
Newcomb	3733.5
Whittington	4026.7
Bell Post Hill	4029
Lovely Banks	4124.4
Mount Duneed	4205.7
Highton	4998.9
Fyansford	5018.2
St Albans Park	5023.4
Wandana Heights	5389.1
Moolap	5557.3
Armstrong Creek	5732.1
Connewarre	8584.3
Leopold	10973.7
Bellbrae	12263.4
Barwon Heads	17611.7
Curlewis	18414.3
Drysdale	20089.2
Clifton Springs	21533.6
Ocean Grove	22102.1
Point Lonsdale	27571

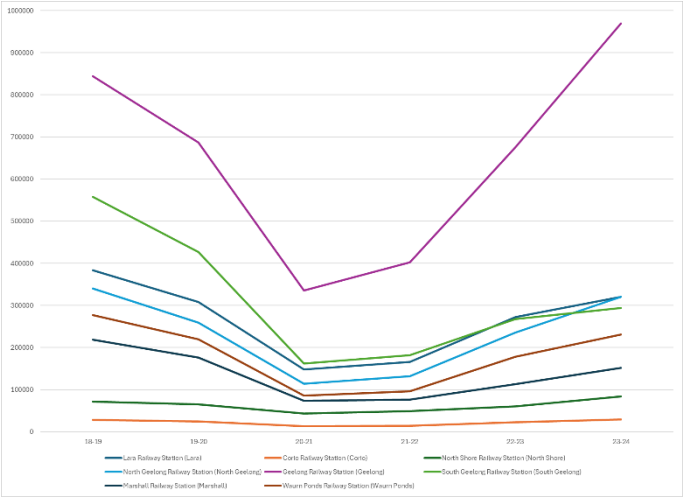

Figure 27 - Annual patronage by station

The primary method of accessing stations within Greater Geelong is by private vehicle and they are supported by approximately 300-500 car parking spaces, varying between stations. There are bicycle parking facilities that cater for anywhere between 40 – 100 bicycles at each of the stations ranging from secure Parkiteer cages to bicycle hoops.

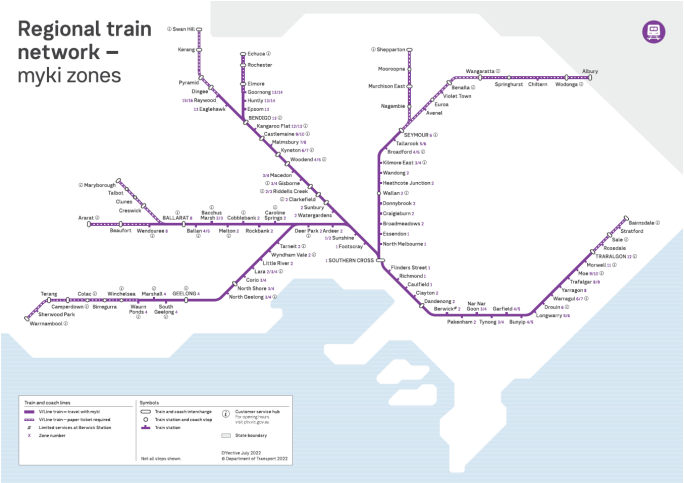

Figure 28 - Myki zones within Victoria

Figure 29 - Myki zones within Greater Geelong

Frequency

The recent addition of services on the Geelong line has improved the frequency of services and the current frequency at each station is shown in Table 8.

Table 8 – Average frequency at Geelong train stations

Station	Weekday	Weekday Peak
Lara	20 min	13 min
Corio	32 min	26 min
North Shore	23 min	20 min
North Geelong	20 min	12 min
Geelong	19 min	12 min
South Geelong	20 min	14 min
Marshall	29 min	17 min
Waurn Ponds	29 min	17 min

Cost

The daily fare for travelling between any of the train stations within Greater Geelong and Melbourne is $11 per day as shown in Figure 30.

Daily fares

Daily full fare: $11.00

Daily concession: $5.50

Two hour fares

Travel between Zone 1 and	2-hour full fare	2-hour concession
Zone 2	$5.50	$2.75
Zone 3	$9.40	$4.70
any zone from zone 4 onwards	$11.00	$5.50

Figure 30 - V/Line train Myki money fares (to and from Melbourne)

Number of zones travelled (excluding Zone 1)	myki 2 hour		myki daily	
	Full fare	Concession	Full fare	Concession
1	$3.00	$1.50	$6.00	$3.00
2	$3.80	$1.90	$7.60	$3.80
3	$4.20	$2.10	$8.40	$4.20
4	$5.60	$2.80	$11.00	$5.50
5	$6.40	$3.20	$11.00	$5.50
6	$7.80	$3.90		
7	$9.40	$4.70		
8 to 14	$11.00	$5.50		

Figure 31 - V/Line train Myki fares (within Geelong)

The cost of Myki passes for consecutive days of travelling on V/Line is shown in Figure 32 where the daily fare for train travel within Greater Geelong is $3.90 and the daily fare for train travel between Geelong and Melbourne is $6.60. The daily fares with a further discounted yearly Myki pass are $3.47 for train travel within Greater Geelong and $5.88 for train travel between Geelong and Melbourne which equates to a yearly cost of $1,267.50 and $2,145 respectively.

7 Day myki Pass

Number of Zones travelled (excluding Zone 1)	7 Day myki Pass		28-325* Day myki Pass (per day)	
	Full Fare	Concession	Full Fare	Concession
1	$28.00	$14.00	$3.90	$1.95
2	$38.00	$19.00	$5.24	$2.62
3	$42.00	$21.00	$5.80	$2.90
4	$55.00	$27.50	$6.60	$3.30
5 to 14	$55.00	$27.50	$6.60	$3.30

Figure 32 - V/Line Myki pass fares

ROAD

Greater Geelong is serviced by a road network that contains 2370 km of local roads (managed by the City) and 672 km of arterial roads (managed by the State Government) which are shown in Figure 34.

Municipal roads are managed according to the City's Road Management Plan which classifies them according to a hierarchy that considers how they are used, who uses them and how often.

The hierarchy classification is used to determine the levels of service required, prioritise works programs and determine defect intervention responses.

Cost

The Australian Automobile Association releases a quarterly Transport Affordability Index which hypothetically considers transport costs for a household that is made up of a couple with children that live in a detached house and have two cars, one on a variable interest loan and the other owned outright.

Based on the Index, households in Geelong will on average spend $23,000 per year on transport costs[15]. The primary cost drivers are car loan payments ($211.40 per week), fuel ($112.70 per week) and insurance ($46.93 per week). Equating to 14.7% of household income, transport costs have risen from 11.6% of household income since 2017 as shown in Figure 33. It is worth noting that the Index does not factor in costs for road tolls or public transport for regional centres like Geelong. Further, the Index does not account for parking costs where the hourly rate for parking in central Geelong is $3.60 per hour with a maximum capped fee of $7.20 or $15.40 per day for all day City of Greater Geelong parking, private parking may be more expensive.

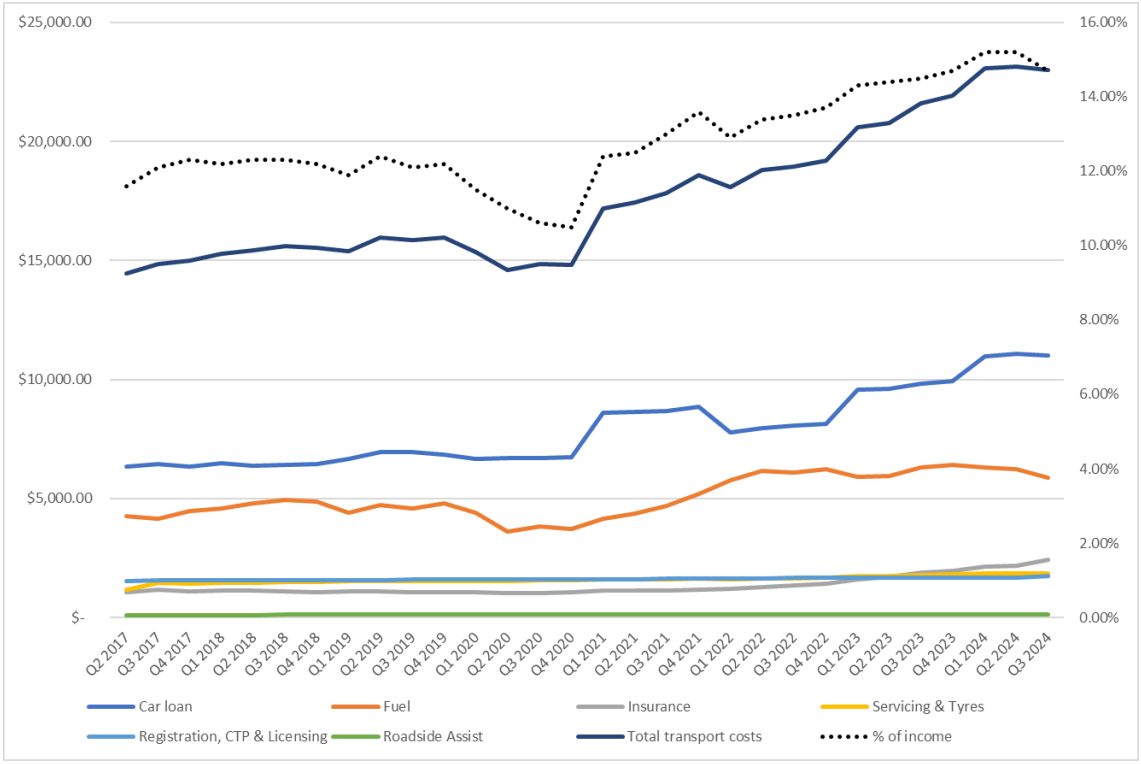

Figure 33 - Transport Affordability Index (yearly costs) for Geelong since 2017

[15] https://www.aaa.asn.au/research-data/transport-affordability/

Figure 34 - Greater Geelong's road network

FREIGHT

The Port of Geelong is Victoria's second largest port and facilitates the transport of commodities such as crude oil, woodchip, fertiliser and break-bulk cargo. The Port handles more than 10 million tonnes of product and sees around 600 vessel visits annually[16]. In 2022, the Port became the new home of the Spirit of Tasmania which has boosted the region's visitor economy.

Greater Geelong's Principal Freight Road Network is shown in Figure 36 and plays an important role in the movement of goods to and from Greater Geelong. The network supports a wide range of businesses across many industries including manufacturing, construction, retail and more.

The rail network also facilitates the movement of goods primarily from Melbourne towards Ararat and sees around 3,000 freight trains annually transporting around 10 million tonnes of product[17].

Figure 35 show the road network for over-dimensional vehicle combinations that exceed any of the following dimension limits: height of 5.0 metres, width of 5.0 metres, length of 30 metres, mass of 100 tonnes GCM.

Figure 35 – Greater Geelong's over-dimensional vehicle network

Figure 36 - Greater Geelong's Principal Freight Network

[16] https://www.vic.gov.au/about-victorias-commercial-ports

[17] https://datahub.freightaustralia.gov.au/freight-train-interactive-maps

TRIP COMPARISON

People travel across Greater Geelong in different ways and for various reasons, but the most common way is by car are for work, education and shopping[18]. The following examples provide a comparison of trip time and cost based on trip type (work/education/retail), origin and destination for trips across Greater Geelong. Google Maps has been used to analyse trip time based on work and education trips arriving at their destination at 9am and retail trips arriving at their destination at 12pm. The travel times in each table are fairly indicative and include up to 10 minutes for walking to and waiting at train stations and bus stops.

"I live in Ocean Grove and work at University Hospital in Geelong"

Mode	Time	Cost
Car	27 min	$18.00 + fuel
Car + Walk	32 min	Fuel
Bus	51 min	$6.00
Bicycle	1 hr 12 min (most direct) 1 hr 35 min (safest)	$0

"I live in Mount Duneed and go to Deakin University's Waurn Ponds campus*

Mode	Time	Cost
Car	10 min	$6.40 + fuel
Car + Walk	23 min	Fuel
Bus	31 min	$6.00
Bicycle	20 min	$0

"I live in Lara West and like going into central Geelong to shop and meet friends for lunch"

Mode	Time	Cost
Car	25 min	$7.20 + fuel
Car + Walk	33 min	Fuel
Bus + Train	1 hr 5 min***	$6.00
Bicycle + Train + Bicycle	32 min	$6.00
Bicycle	1 hr 2 min	$0

[18] https://www.vic.gov.au/victorian-integrated-survey-travel-and-activity

“I live in Armstrong Creek and need to drop my child off at primary school before travelling to central Geelong for work”

Mode	Time	Cost
Car	24 min	$18.00 + fuel
Car + Walk	34 min	Fuel
Bus	45 min	$6.00
Bus + Train	34 min	$6.00
Bicycle + Train + Bicycle	34 min*	$6.00
Bicycle	45 min	$0

*Bike ride to Waurn Ponds or Marshall station

“I live in Belmont and work at a school near Pakington Street”

Mode	Time	Cost
Car	13 min	Fuel
Bus	30 min	$6.00
Bicycle	23 min	$0

“I live in Bell Post Hill and attend the Gordon in central Geelong ”

Mode	Time	Cost
Car	12 min	$18 + fuel
Car + Walk	22 min	Fuel
Bus	32 min	$6.00
Bicycle + Train + Bicycle	22 min*	$6.00
Bicycle	27 min	$0

*Ride to North Shore station

“I live in Grovedale and work at the refinery in North Shore”

Mode	Time	Cost
Car	25 min	Fuel
Bus	1 hr 23 min	$6.00
Bicycle + Train + Bicycle	35 min*	$6.00
Bicycle	1 hr	$0

*Ride to Marshall station and from North Shore station

Land Use

GROWTH AREAS (GREENFIELD)

Armstrong Creek Growth Area

The framework plan makes provision for a land corridor which runs from the existing Warrnambool- Melbourne line to the south of the growth area, which will ultimately allow for a rail connection to Torquay.

Council has been in discussions with the Department of Transport, and have been advised that initially any public transport link to Torquay will be via a high quality rapid bus service.

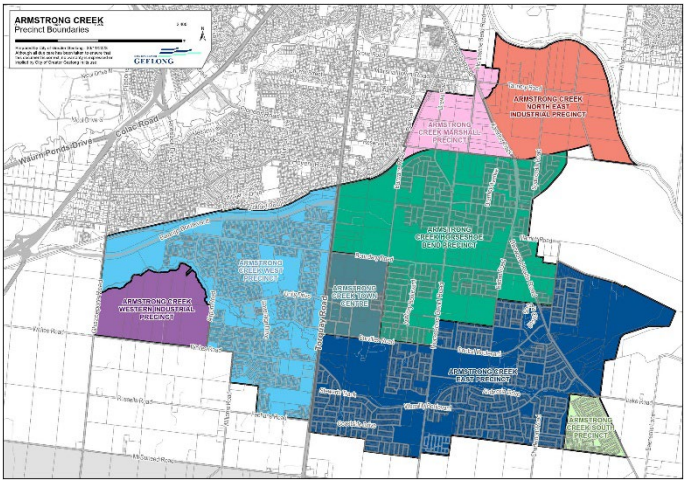

Figure 37 - Armstrong Creek Growth Area Precincts

East Precinct

Armstrong Creek East is under development. This precinct is in the southeastern part of the Armstrong Creek Growth Area and is approximately 794 Hectares. Once fully developed, the population in this precinct is anticipated to be around 17,500 people.

The Armstrong Creek will be the most significant feature in this area. The creek is slowly developing into a linear park, which will provide an open space link through the entire growth area.

The Neighbourhood Activity Centre on Barwon Heads Road is operational and will grow to its full capacity over the coming years. This centre is in close proximity of schools and sport fields. On Horseshoe Bend Road, another community area will be developed, including a local activity centre, schools, sport fields and a community hub. Other community facilities in this precinct have a broader regional focus and include the existing crematorium / cemetery on Burvilles Road and a future regional sports park, east of Barwon Heads Road.

Horseshoe Bend Precinct

The Horseshoe Bend Precinct is approximately 640 hectares. Residential development has started and once fully developed, the population is estimated to be around 20,500.

Horseshoe Bend Road will become the central boulevard through this precinct, providing access to all key community facilities, including a Neighbourhood Activity Centre, a Local Activity Centre, several schools and several active open space areas. Greenways will provide links to adjacent precincts and their key open space areas.

Marshall Precinct

Marshall Precinct is the northern-most precinct structure plan (PSP) covering 124 hectares.

The Marshall Precinct is a unique development location for Geelong. Most of the precinct is within 1km of a train station, arterial roads and set within attractive remnant vegetation, the precinct will offer diverse housing choice, local employment opportunities and habitat protection. The precinct is forecast to yield over 1,555 dwellings or approximately 3-4,000 residents.

North East Industrial Precinct

This North-East Industrial Precinct consists of approximately 180 hectares and is located within 2km of Marshall Station and has access to Barwon Heads Road. This precinct will provide opportunities for residential and commercial development with good connections to public transport, bicycle links and existing arterial roads.

Town Centre Precinct

The Armstrong Creek Town Centre (ACTC) is divided into five precincts each with their own preferred land uses and urban design goals. The size and shape of the precincts have been largely determined by the key road network, land ownership patterns, suitable/likely staging, accessibility to services and connectivity with surrounding development areas. Each precinct will interpret and implement the overarching ACTC vision.

The five precincts are:

- Precinct 1 – Central core
- Precinct 2 – Surf Coast Boulevard Central (Central Core Frontage)
- Precinct 3 – Surf Coast Boulevard Edge (Mixed Use)
- Precinct 4 Central Edge

- Precinct 5 – Residential Mixed Use

The ACTC provides an opportunity to incorporate medium to higher density residential development in Armstrong Creek to support the creation of a high-density mixed use Town Centre. There is potential for a Town Centre population of approximately 3,500 people and a total of 1,249 dwellings.

The ACTC will create a sustainable urban structure by providing up to 5,460 new jobs to that will support reduced travel distances to work, subsequently reducing the time travelled and emissions generated for travel to work.

West Precinct

The West Precinct is a residential precinct within the Armstrong Creek Urban Growth Area. The Precinct will provide a range of lot sizes and housing types.

Open space, including sporting ovals, walking and bicycle tracks as well as neighbourhood retail and schools will be provided and, all within easy reach of Geelong, Torquay and Melbourne.

Lara West

The Lara West growth area will be a fully planned community designed to accommodate approximately 11,000 people. These new residents will be supported by a range of services including retail and employment precincts, schools, Council community centres, sporting facilities, parklands and walking trails and essential infrastructure.

Jetty Road

The Jetty Road growth area in the City of Greater Geelong is a major growth area on the Bellarine Peninsula. The 310ha growth area is located immediately to the west of Clifton Springs, approximately 17 km east of the Geelong CBD.

It is intended that the Jetty Road growth area will accommodate a large proportion of the growth forecast for the Bellarine Peninsula. The growth area is expected to contain 3,300 dwellings when fully developed, with a population in excess of 8,000 people.

Northern and Western Geelong Growth Areas

The Northern and Western Geelong Growth Areas (NWGGA) is the largest greenfield planning project in regional Victoria with the capacity to accommodate 110,000 new Geelong residents across various precinct planning areas (PSP). The Northern and Western Geelong Growth Areas Framework Plan was adopted in August 2020 and will guide the growth for the region as the City looks to exemplify Geelong's transformation as a clever and creative city by building diverse, localised and sustainable neighbourhoods that prioritise self-sufficiency whilst maximising connections to the Geelong community, economy and identity.

As part of this work, traffic modelling has been completed to see the impacts of growth on the region in order to design transport infrastructure to meet future demand. It is anticipated that there will be significant mode shift by 2051 to facilitate this growth and NWGGA aims to be at the forefront of delivering high quality public transport and active travel connections to reduce the amount of vehicle traffic generated from the development.

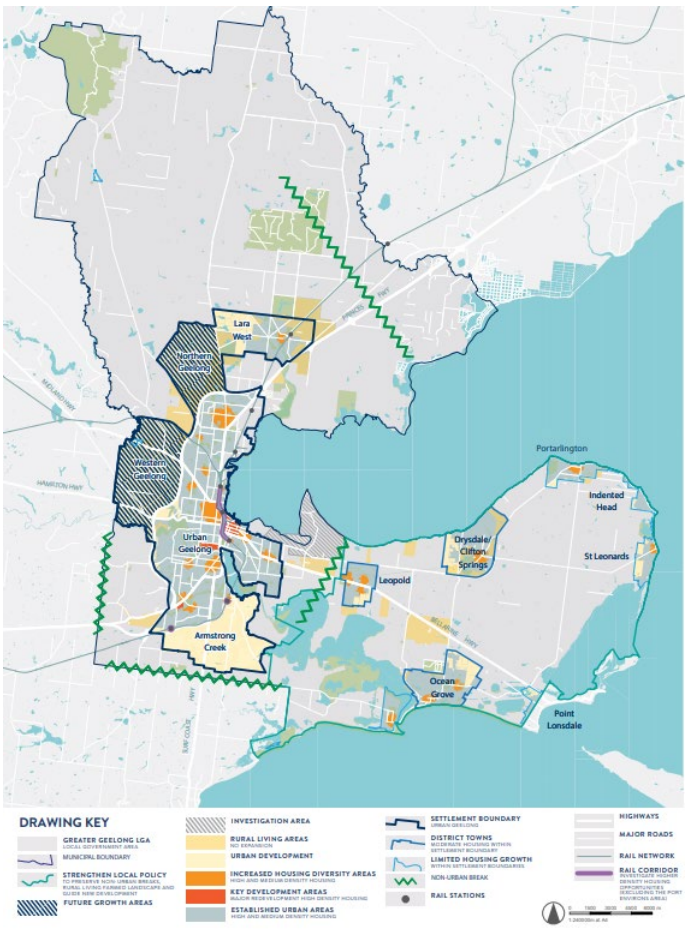

Figure 38 - Northern and Western Geelong Growth Areas in the context of Greater Geelong's Settlement Strategy

Northern Geelong Growth Area

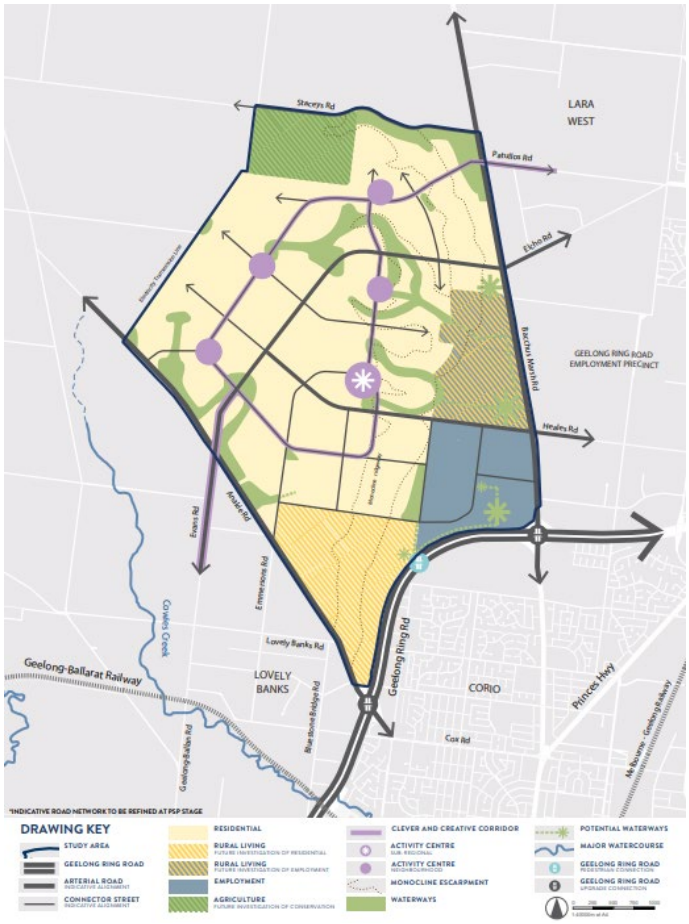

Figure 39 - Northern Geelong Growth Area Future Urban Structure, NWGGA Framework Plan 2020

The Northern Geelong Growth Area spans 2,090 hectares and is renowned for the Lovely Banks monocline that defines the local landscape and allows stunning views to the You Yangs, Corio Bay and across Geelong.

The growth area is generally bounded by Bacchus Marsh Road to the east, the Geelong Ring Road to the south, Anakie Road and servicing easements to the west and Staceys Road to the north.

There are an anticipated 17,075 dwellings resulting in up to 47,809 people living in this growth area.

The vision for this area is that it will be distinguished by neighbourhoods with panoramic views across the region and built around diverse and accessible employment hubs that epitomise Geelong's creativity, innovation and enterprise.

Western Geelong Growth Area

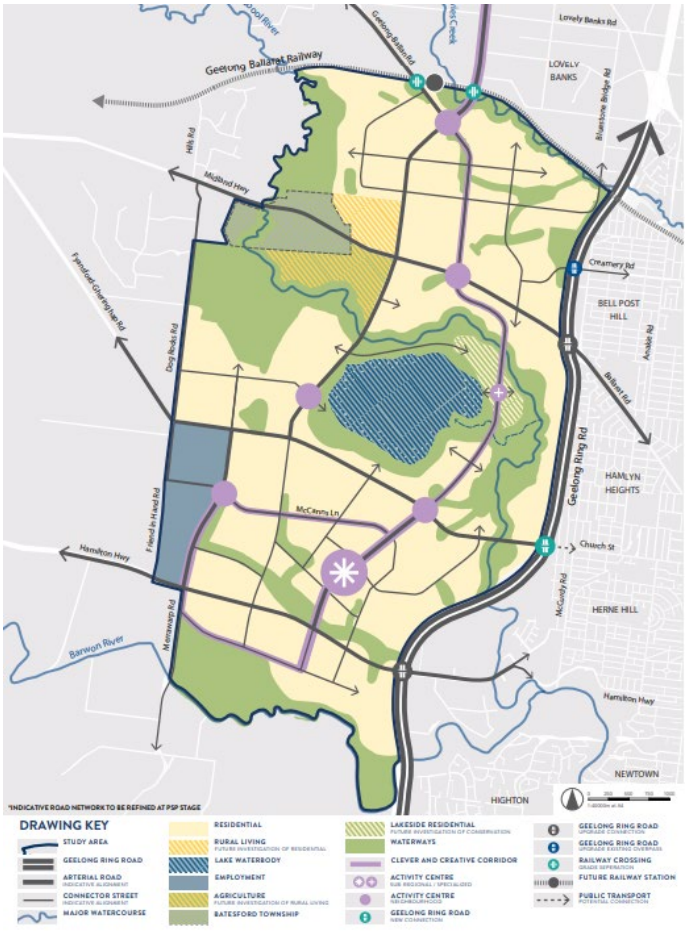

Figure 40 - Western Growth Area Future Urban Structure, NWGGA Framework Plan 2020

The Western Geelong Growth Area is an iconic landscape characterised by the Barwon and Moorabool Rivers with views across the Barrabool Hills and the Batesford Quarry as its centrepiece.

The growth area is generally bounded by the Geelong Ring Road to the east, the Barwon River to the south, the Geelong-Ballarat rail line to the north and Batesford township to the west.

There are an anticipated 22,953 dwellings resulting in up to 64.269 people living in this growth area.

The vision for this area is that it will prosper as a district of lakeside neighbourhoods connected by healthy waterways and attractive open spaces that strengthen Geelong's identity as a city built around water.

INFILL DEVELOPMENT - URBAN DESIGN FRAMEWORKS & STRUCTURE PLANS

The purpose of the Urban Design Frameworks (UDF) is to assist in implementing the City's settlement Strategy by investigating the area for higher density development potential. These framework plans provide background information to support detailed design guidelines and planning provisions for future development. The UDFs identify priority projects and an implementation plan to identify community needs, development potential.

Central Geelong Framework Plan

The Central Geelong Framework Plan – A plan for the heart of Djilang (2023) sets a clear vision over the next 30 years to guide growth and development to support 60,000 jobs and 16,000 residents in Geelong's city centre by 2050. This amendment has been approved and was gazetted on 1 March 2023.

Figure 41 - Central Geelong Strategic Framework

Saleyards

Located just north of Central Geelong and the Pakington Street precinct, the former Geelong Saleyards permanently closed to the sale of sheep and cattle 2017 and poultry sales ceased 2018.

The vision for its future is to house over 1,500 residents, 660 dwellings. This location is well serviced by the North Geelong station, as well as being a short active travel commute to central Geelong.

Figure 42 - Saleyards Concept Plan

South Geelong UDF

1.2km south of central Geelong and is bisected by the South Geelong Train Station. The South Geelong UDF proposes a building height that vary between 2 and 7 stories and plans to maintain the heritage of much of the area though a heritage overlay on a significant portion of the area.

The area will be home to a total of just over 1,200 dwellings to house roughly 3000 residents.

The proximity to the South Geelong station and central Geelong, sees this being a location that is extremely well suited to a high percentage of the population using active and public transport to meet most of their daily needs.

Figure 43 - Artis impression of Moorabool Street precinct looking north from Fyans Street

Pakington Street North

Located close to central Geelong, Pakington North will accommodate 2,550 residents across 1058 dwellings.

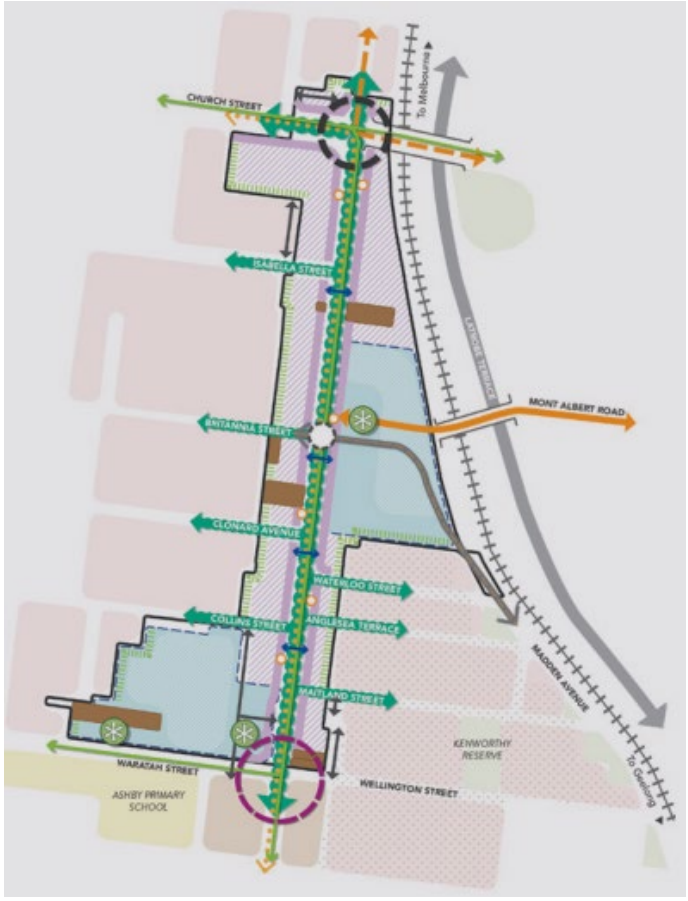

Figure 44 - Pakington North Urban Design Framework

Pakington Street and Gordon Avenue UDF

The Pakington Street and Gordan Avenue UDF will accommodate 2,500 residents across 1,016 dwellings. With direct access to Geelong station and central Geelong, there are opportunities for a high proportion of trips to be made by active travel and public transport.

Figure 45 - Gordon Avenue Urban Design Framework

West Fyans/Fyans Structure Plan

West Fyans will be home to 2,000 residents across 800 dwellings. Latrobe Terrace is a significant barrier to safe pedestrian and bicycle links and improving connectivity will be necessary to encourage a high proportion of active travel users. Bus priority should also be considered on congested arterial roads to make public transport a competitive option to access employment centres such as central Geelong and accessing South Geelong station.

Car parking

The Greater Geelong Planning Scheme ensures that car parking is provided in accordance with the Municipal Planning Strategy and the Planning Policy Framework under Clause 52.06[19].

These car parking provisions set out state standard planning scheme requirements about the number of car parking spaces required and the design requirements.

The number of car parking spaces required is based on what the land is used for. Different uses are listed under Clause 52.06. The number of car parking spaces required for most new uses, or an extension to an existing use, can be calculated by using the information in the planning scheme to formulate the required allocation of parking.

In Central Geelong, on street paid parking is offered by the City, as well as a number of off street parking options provided by both the City and private companies. Daily parking rates vary across central Geelong, while the average hourly rate for short stay options is $3.60 (which is subject to change in line with the City's budget cycle).

Bicycle parking

The Greater Geelong Planning Scheme enables the delivery of bike parking infrastructure through Clause 52.34.

Clause 52.34 aims to encourage bicycle riding as a mode of transport by mandating the provision of secure, accessible, and convenient bicycle parking spaces, along with associated shower and change facilities. The clause outlines the requirements and guidelines for implementing bicycle facilities in various types of developments.

This clause is triggered by a new development, new land use or when increasing floor area through the planning permit process.

In addition, the City provides parking as part of place making and building projects. Currently a number of the public bike parking facilities can be found here.

A key theme from phase one of the the Integrated Transport Strategy engagement was the desire for more secure bicycle parking. The ability to park a bicycle securely and close to destinations was identified in survey responses as an enabler to riding a bicycle for transport. Several locations were identified on the interactive map that lack secure bicycle parking.

[19] https://planning-schemes.app.planning.vic.gov.au/Greater%20Geelong/ordinance/52.06

Road Safety

Through Vision Zero Geelong: Safe Local Travel 2022-27, we aim to eliminate death from our roads by 2050 by first halving road deaths and reducing serious injuries by 2030.

- Develop a program of Local Area Traffic Management Plans for precincts to proactively review and address identified road safety issues
- Work with the Department of Transport to develop a speed limit strategy for all local and arterial roads
- Trial school zone safety treatments
- Implement area wide 40 km/h zones in residential areas where studies and/or community feedback show that speed is a safety issue
- Trial road safety treatments that target road safety issues arising from seasonal visits
- Work with existing cycling advisory group to identify a list of prioritised routes for separating cyclists from vehicular traffic

Safe System Principles (Figure 46) are a set of principles that acknowledge that people make mistakes and road safety is a shared responsibility. These principles have been adopted by the Australian and Victorian governments as the benchmark for achieving improved road safety outcomes and as road managers and designers, we have a responsibility to design and manage a forgiving road network that avoids fatal and serious injury when crashes do happen.

Figure 46 - Safe System Principles

CRASH HISTORY

Victorian road crash data is made available by the Department of Transport and Planning and the latest 5-year period of crash history (1st June 2019 – 31st May 2024) has been reviewed. Figure 47 shows all crashes in Greater Geelong by severity.

Figure 48 shows the distribution of fatal and serious injury crashes for the entire region.

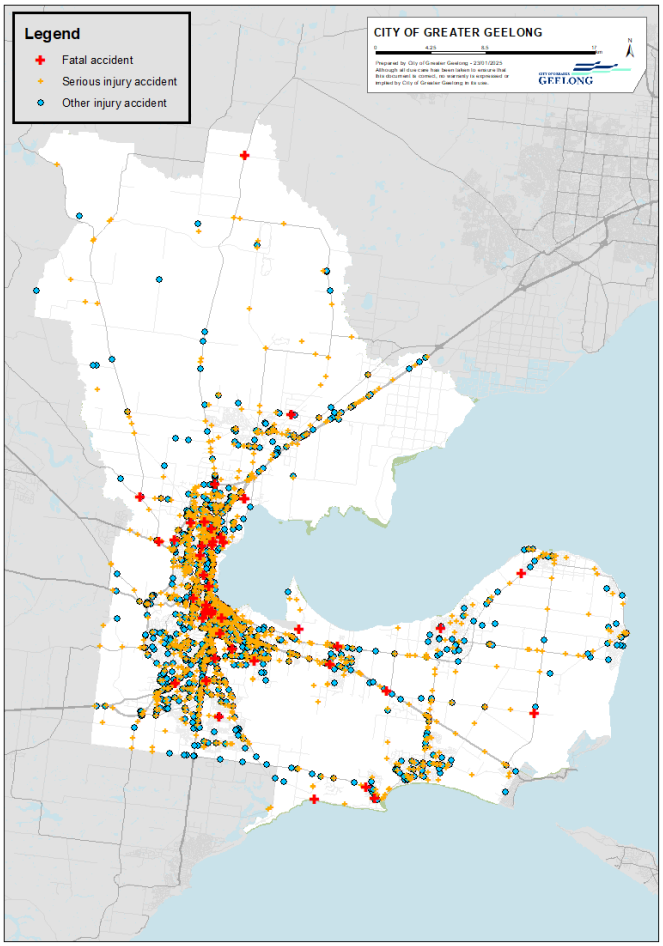

Figure 47 – All crashes by severity between in the last five years

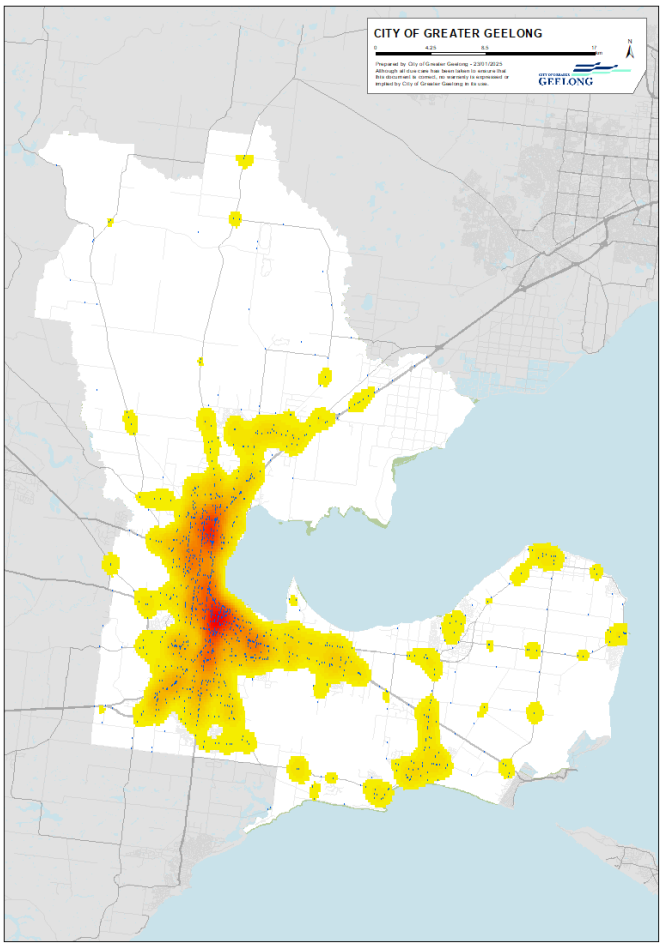

Figure 48 - Heatmap of fatal and serious injury crashes in the last five years

Figure 49 shows a comparison of fatal and serious injury crashes per 100,000 people with Geelong compared to other regional centres like Ballarat and Bendigo and Victoria more broadly since 2012. Geelong sits well above the Victorian average after a spike in 2017 that has been trending downwards since.

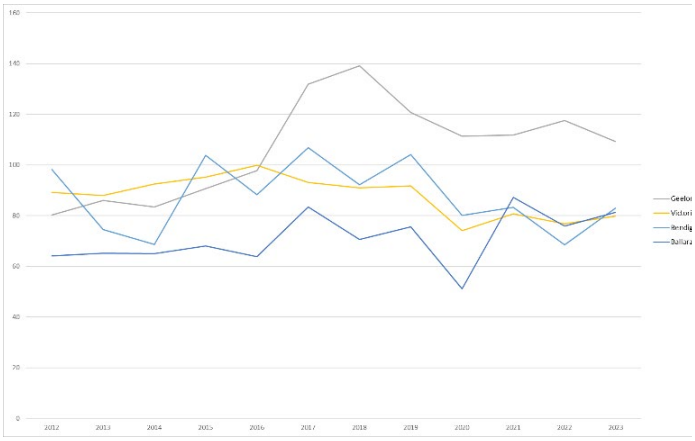

Figure 49 - Fatal and serious injury crashes per 100,000 population

Figure 50 shows where most fatal and serious injury crashes involving pedestrians have occurred in the last five years and Figure 51 shows these crashes that have occurred in central Geelong.

40% of fatal and serious injury crashes involving a pedestrian have occurred on local roads with speed limits of either 50km/h or 60km/h. 40% have occurred on arterial roads with a speed limit of 60 km/h or higher and the remainder have occurred on roads with lower speed limits.

Figure 52 shows a heatmap of fatal and serious injury crashes involving a person riding a bicycle in the last five years.

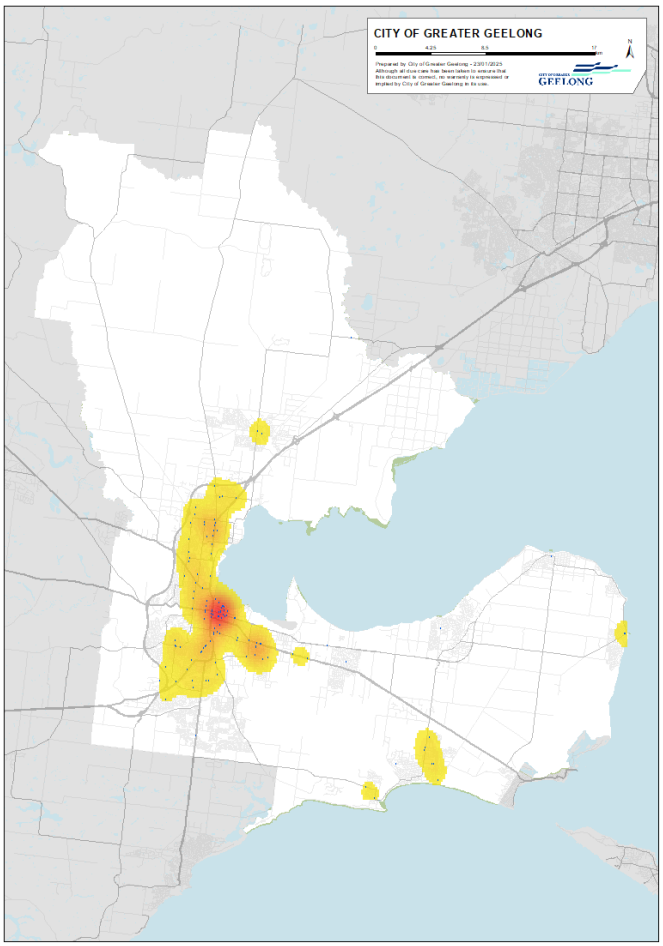

Figure 50 - Heatmap of fatal and serious injury crashes involving pedestrians in the last five years

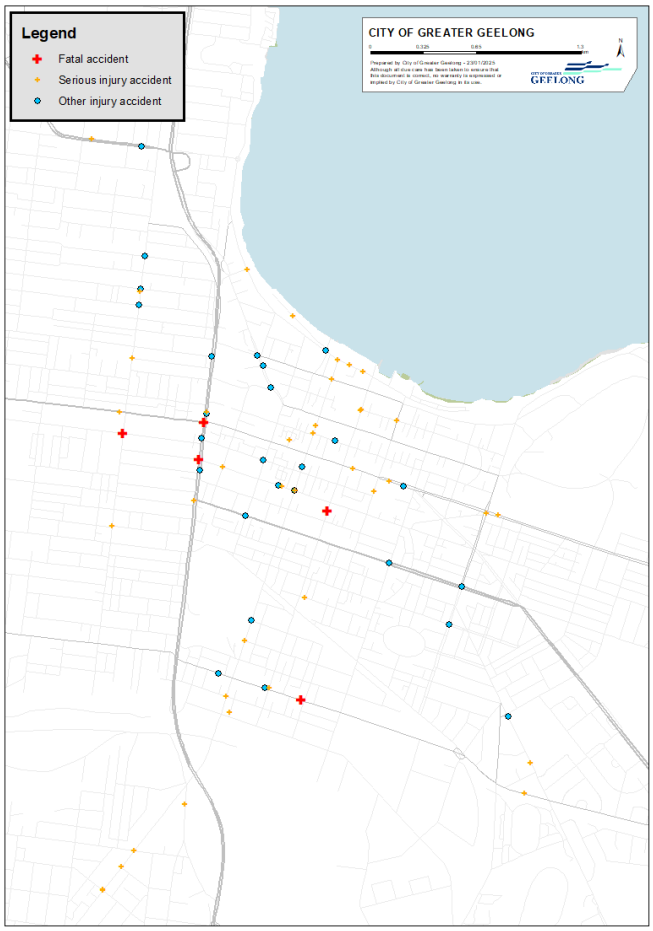

Figure 51 - Crashes involving pedestrians in central Geelong in the last five years

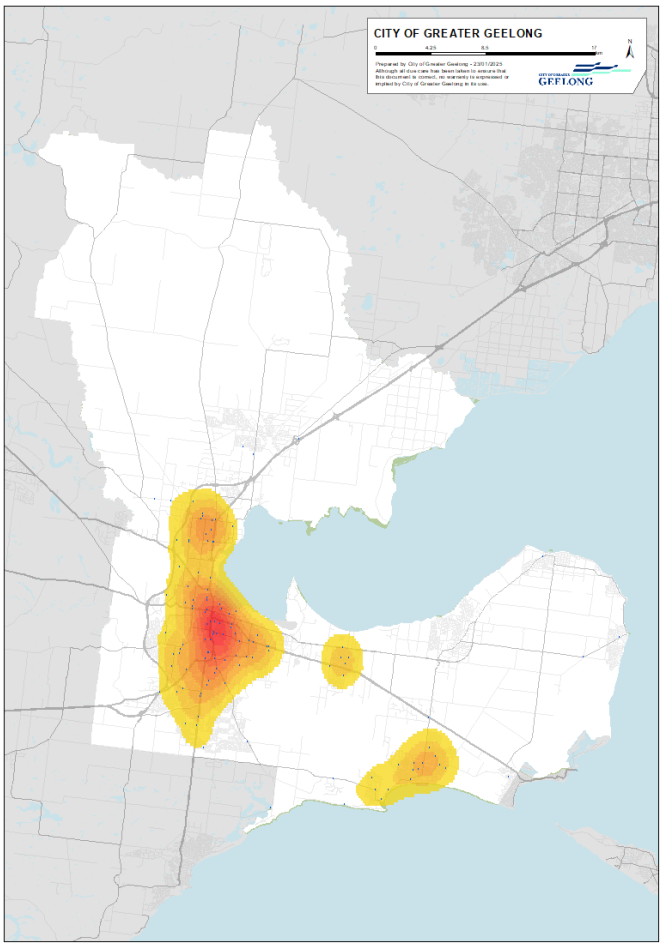

Figure 52 - Heatmap of fatal and serious injury crashes involving cyclists in the last five years

SPEED LIMITS

The speed limits assigned to Greater Geelong's road network are shown in Figure 53[20]. Almost 60% of the road network has a speed limit of 50km/h and 15% at 60km/h.

Areas that attract high foot traffic, such as central Geelong and other shopping strips, have speed limits of 40km/h either at all times or between 7am and 7pm.

School zones in Victoria have a timed speed limit of 40km/h during the busy periods in the morning and afternoon.

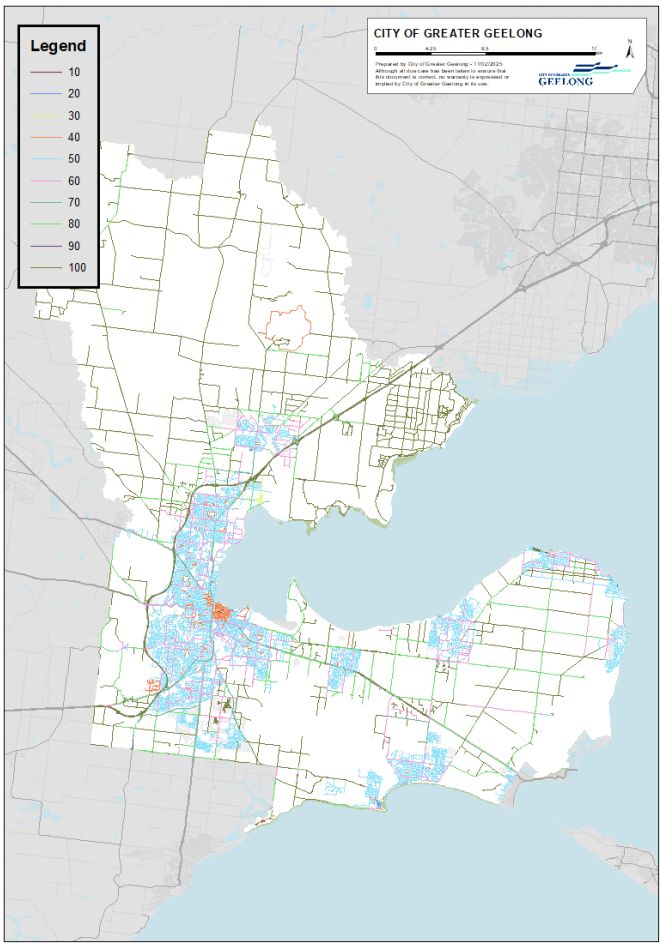

Figure 53 - Speed limits across Greater Geelong

Based on Safe System Principles, there are impact speeds that dramatically reduce the risk of a collision resulting in death or serious injury. These impact speeds are shown in Figure 54 and the rate of survival decreases exponentially as the impact speed increases.

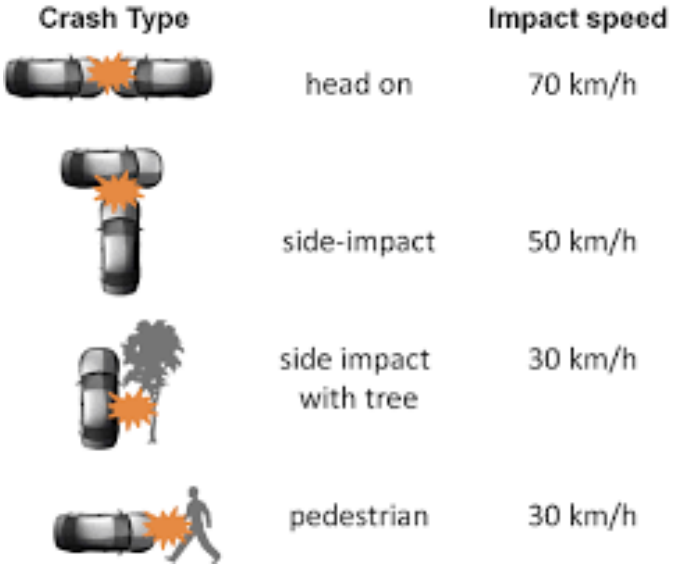

Figure 54 – Safe System Speeds, Austroads

[20] https://discover.data.vic.gov.au/dataset/speed-zones

Transport Emissions

Scope one emissions are derived from direct combustion of fossil fuels and methane from the breakdown of municipal waste.

Scope two emissions are associated with our use of electricity from the grid, which itself has been generated (mostly) from burning coal and natural gas.

Scope three emissions are generated by third parties (not electricity) because of our activities, such as business travel, paper, and water use.

Community emissions are generated by the community.

The Snapshot community climate tool was developed by Beyond Zero Emissions and Ironbark Sustainability to support decision makers to reduce emissions. The latest available emissions data is available for 2022 and Greater Geelong's total emissions for the 2022 calendar year were 3,861,000 t CO_2e with transport related emissions totalling 653,000 t CO_2e (17%)[21] as shown in Figure 55, Figure 56 and Figure 57.

Snapshot Climate captures emissions data each year from 2018 to 2022 and Figure 58 shows that the total emissions from all sources across Greater Geelong has been trending downward since 2018. In contrast. transport related emissions have been trending upward due to increased private vehicle use except for the period of reduced private vehicle use during the COVID-19 pandemic.

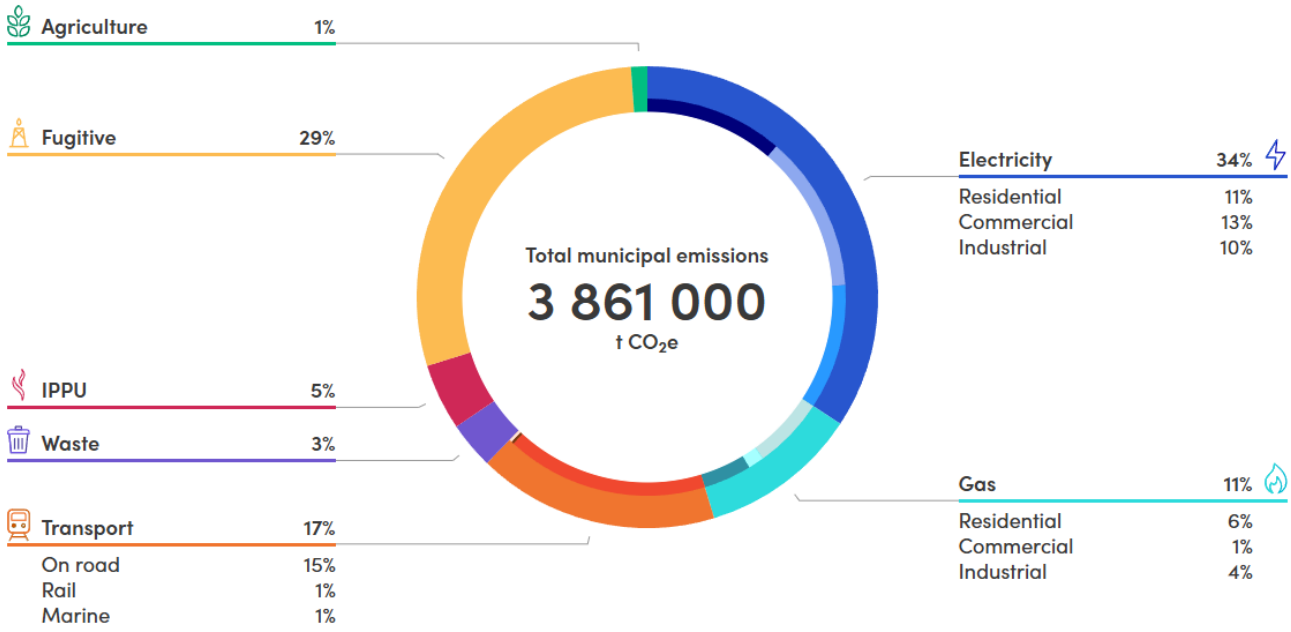

Figure 55 - Greater Geelong's total emissions 2022

21 https://snapshotclimate.com.au/locality/australia/victoria/greater-geelong/

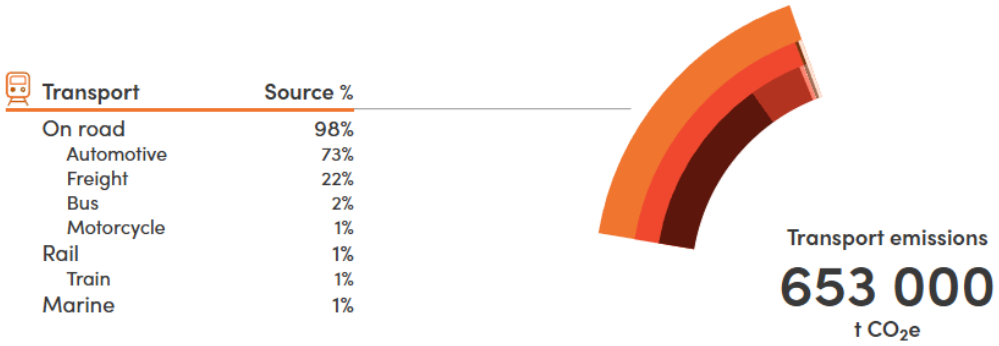

Figure 56 - Greater Geelong's transport emissions 2022

Sector	Sub-Sector	Emissions (t CO_2e)
On road	Automotive	481 000
	Freight	142 000
	Bus	11 000
	Motorcycle	2 000
Rail	Train	8 000
Marine		9 000

Figure 57 - Breakdown of transport emissions by mode 2022

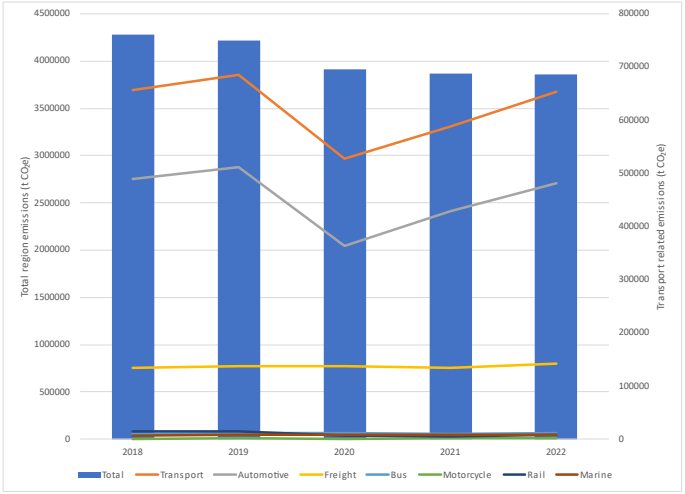

Figure 58 - Greater Geelong's transport emissions 2018 to 2022

The Bureau of Infrastructure and Transport Research Economics publishes statistics for registered vehicles across Australia as of January 31 of each year. Analysis of these statistics reveal that 2.8% of passenger vehicles registered using a Greater Geelong postcode are either Battery/Fuel-cell electric or Hybrid electric vehicles as of January 2024[22]. There has been a 238% increase in the uptake of EV-HEV since January 2021. In Greater Geelong, the rate of registered Petrol and Diesel vehicles has been trending downward since 2021 and the rate of Battery/Fuel-cell electric and Hybrid electric vehicles has been trending upwards as shown in Figure 59.

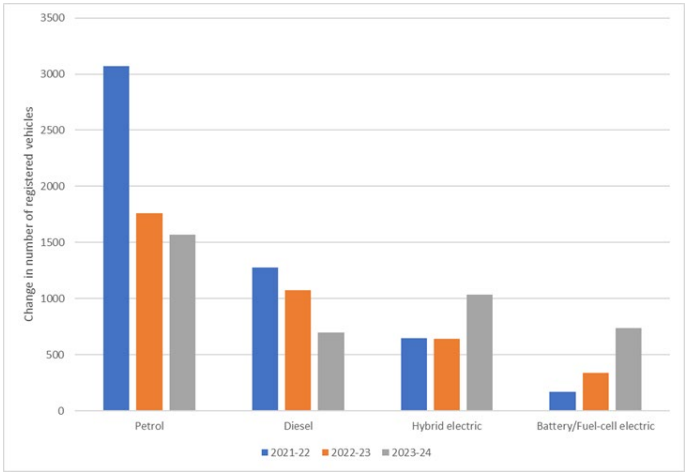

Figure 59 – Change in uptake of passenger vehicles by motive type in Greater Geelong

Air pollution from the transport sector include pollutants such as $PM_{2.5}$, NO_X and SO_2, as well as particles of PM_{10}. The health costs associated with transport related air pollutants are significant and one study estimated the total health costs from motor-vehicle use Melbourne to up $730million in 2015[23]. Encouraging more trips to be made using active travel and public transport and replacing internal combustion engine vehicles with electric vehicles for personal and commercial use are key to reducing transport related emissions and air pollution in Greater Geelong.

[22] https://www.bitre.gov.au/publications/2024/road-vehicles-australia-january-2024
[23] https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0022/421717/Final_Health-costs-of-air-pollution-in-Victoria.pdf

Issues & Opportunities (Community Engagement)

The community engagement period for the first phase of engagement on the Integrated Transport Strategy ran from April 24 to June 18, 2024, for a total of 55 days. The aim was to capture community sentiment for the current issues, opportunities, and future vision for the Greater Geelong transport network

The community engagement was run primarily online using three different tools:

An online interactive map to capture current issues with and positive aspects of Geelong's current transport network which attracted 947 contributions.

A survey to capture community sentiment, completed by 585 people, on current travel behaviors and opportunities for use of different modes of transport.

A vision board to encourage people to think with a long-term, strategic vision and post their big ideas for transport in Geelong, where 100 big ideas were shared.

The key themes identified from contributions across all three engagement tools that were used included:

- More frequent, direct, and reliable bus services.
- Concerns with growth area staging.
- Desire for improved bicycle infrastructure safety and connectivity.
- More secure bicycle parking.
- Improved Bellarine Peninsula bus connectivity.
- Improved shared trail connections.
- Improved wayfinding.
- Desire for safe and connected walking infrastructure that is accessible to all.
- Improved timing for traffic light and improving traffic congestion.
- Improved ferry services.
- Effective parking management.
- Park and ride options.

Survey responses also provided a ranking of community values related to transport with the top four values being:

- Public transport that is safe, frequent, reliable, fast, and well connected.
- Liveability and amenity of streets and local neighbourhoods.
- Footpaths that are safe and well connected.
- An equitable and accessible transport system that provides a range of options for all users.

We received written submissions from organisations and individuals and the content of these submissions generally aligns with the broader community's response.

The engagement also attracted 21 comments on social media across two posts. These comments broadly reflected the sentiment and themes gathered through the formal engagement process.

Most survey responses were from those aged between 35-49 which totaled 43% of all responses.

The City has found it difficult to engage with those aged under 18 and between 18-24 in many other engagements, however the levels of engagement at 5% and 3% of responses was considered relatively successful noting that more can be done to engage these age groups in future stages of engagement.

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