

Amendment C395 to the Greater Geelong Planning Scheme

Settlement Strategy and Northern & Western Geelong Growth Areas
Expert Witness Statement

Prepared by: GTA Consultants (VIC) Pty Ltd for the City of Greater Geelong

on 23/10/19

Reference: V176530

Issue #: A



GTA consultants

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Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	23/10/19	Final	Reece Humphreys	Reece Humphreys	Reece Humphreys	

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1. INTRODUCTION

1.1. Background

Amendment C395 (the Amendment) to the City of Greater Geelong Planning Scheme apply to the City of Greater Geelong Settlement Strategy and the Northern and Western Geelong Growth Areas (NWGGA) Framework Plan (the Framework Plan). The Settlement Strategy was adopted by Council in October 2018 and the Framework Plan in June 2019.

The transport planning for the Framework Plan was underpinned by the Movement and Access Report prepared by my office which relied upon strategic transport modelling of Geelong and the surrounding region. In preparing this report, I have relied upon information prepared by the City of Greater Geelong and previous reports prepared by others in my office.

I have been instructed by Harwood Andrews Lawyers in July 2017 to prepare an expert witness statement which confirms that the Movement and Access Report is still relevant and to prepare and provide an expert evidence report on the need for modal shift to facilitate the movement of people into and out of the growth areas.

This report is an independent traffic and transport evidence report based on my work on the Movement and Access Report, and is not a peer review of other previous work undertaken by others.

1.2. Expert Witness Details

Reece Humphreys BE (Civil)

Director – GTA Consultants

L25, 55 Collins Street, Melbourne

Areas of Expertise: Traffic Engineering & Transport Planning

I have a Bachelor of Engineering degree and almost two decades' experience spanning transport planning, transport modelling, transport engineering, traffic engineering, land use development and strategic assessments. This experience covers a mixture of assignments ranging from traffic and transport modelling on large-scale projects in Melbourne and Sydney to transport planning, engineering analysis, and advice on projects across Australia.

I have also completed several projects for the Department of Transport (Vic), VPA and the NSW RMS that include a series of large regional transport models, strategic corridor planning, congested corridor management and transport corridor planning. I have provided expert evidence for both Government and the private clients, as well as on several high-profile transport corridor and growth area panels. I also play an active role in industry organisations; I am the Vice President of the AITPM Victoria Committee and am an inaugural member of the National Council of Transport Modellers Network.

Further details of my experience are provided in Appendix A.

1.3. Relationship to Client / Authority

I have been retained to provide expert witness services at this hearing for a mutually agreed fee. GTA have previously provided advice to the City of Greater Geelong for the NWGGA and prepared the Movement and Access Report that informed preparation of the Framework Plan, and are currently preparing the Geelong Growth Areas Transport Infrastructure Strategy for the City of Greater Geelong.

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INTRODUCTION

Other relevant studies prepared by my office within the City of Greater Geelong include:

- the Geelong Transport Network Operating Plan (TNOP) for the Department of Transport in June 2018
- the Bus Services Infrastructure Review of Central Geelong for the Department of Transport in March 2018, and
- A transport modelling report for the Midland Highway from Bannokburn to the Geelong Ring Road for Regional Roads Victoria (RRV) in June 2019

1.4. Instructions & Scope of Report

I have been engaged to prepare and present expert traffic and transport evidence as part of the Panel Hearing to consider the Amendment. Prior to preparing this evidence I was briefed by Harwood Andrews regarding the proposal via both oral and written instructions.

In undertaking an assessment of documents and background materials, I have been asked to prepare a brief expert witness statement which:

1. Appends the Northern & Western Geelong Growth Areas Movement and Access Report dated 14 June 2019 prepared by GTA (refer to Appendix C).
2. Includes a brief summary of the Movement and Access Report
3. An explanation as to whether or not my opinion has changed since finalising the report
4. Provides an opinion on whether there is any need for modal shift to facilitate people movement, and
5. Respond briefly to any submissions to the PSA that concern the above matters.

As part of my review, the scope has been limited to the work completed to date by GTA and a comprehensive review of the Framework Plan. My scope does not cover particulars of detailed design elements such as the cross section of the 'Clever and Creative' corridor.

1.5. References

In preparing this evidence, reference has been made to the following:

- The Greater Geelong Planning Scheme
- Advertised material, relevant submissions and background reports associated with Amendments C395 of the Greater Geelong Planning Scheme
- GTA Consultants, North & Western Geelong Growth Areas Movement and Access Report, dated 14 June 2019
- Northern and Western Geelong Growth Areas Framework Plan (March 2019)
- various technical data as referenced in this report
- an inspection of the site and its surrounds
- other documents as nominated.

1.6. Tests, Experiments & Assistance

In preparing this evidence, I received assistance from the following people:

Hui-Lin Tan	Consultant	BE (Civil)
Phoebe Hollins	Associate	BE (Civil)

2. THE GROWTH AREAS

2.1. Introduction

This chapter provides a short overview of the traffic and Transport elements of the Amendment, whilst Chapter 3 provides a brief summary of the Movement and Access Report.

2.2. The Amendment

In October 2018 Council adopted the City of Greater Geelong Settlement Strategy. Following that, in March 2019 Council adopted the Northern and Western Geelong Growth Areas (NWGGA) Framework Plan. Amendment C395 of the Geelong seeks to implement these documents into the Planning Scheme.

The changes proposed by the amendment include:

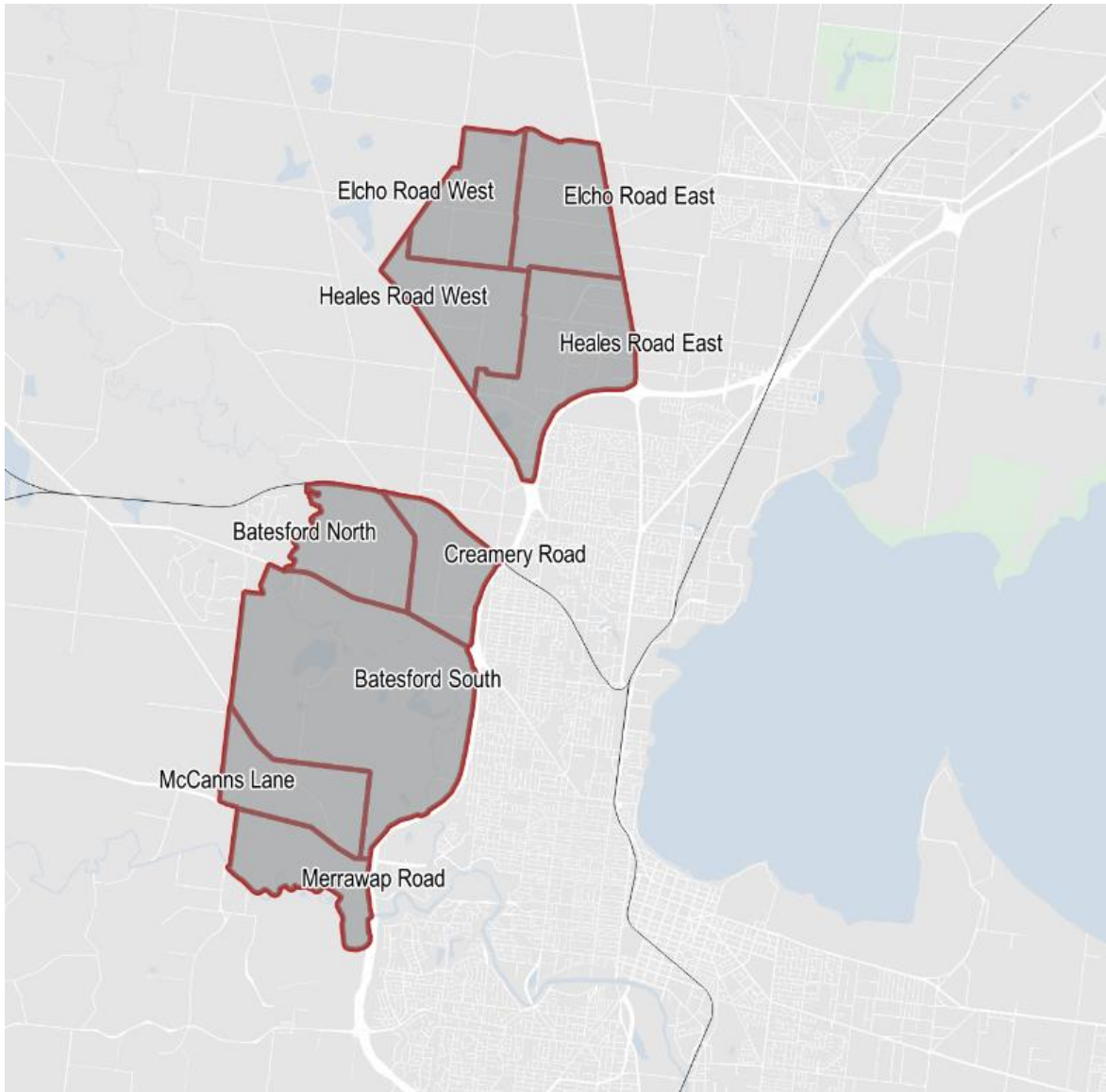
- Minor changes to Clauses 21.03 Objectives – Strategies - Implementation, 21.11 Armstrong Creek Urban Growth Area and 21.16 Anakie to reflect the Framework Plan.
- Replace the Municipal Framework Plan at Clause 21.04 to implement the Settlement Strategy.
- Replace and amend Clauses 21.06 Settlement and Housing, 21.08 Development and Community Infrastructure and 21.14 The Bellarine Peninsula to implement the Settlement Strategy.
- A new Clause 21.20 Northern and Western Geelong Growth Areas to implement the Framework Plan.
- Rezone land from Rural Living, Farming, Public Park and Recreation and Industrial 1 Zones to the Urban Growth Zone.

My brief focuses specifically on the Framework Plan and its adoption within the Planning Scheme.

2.3. The Growth Areas

The NWGGA have been identified in the Geelong Settlement Strategy (along with Armstrong Creek) as areas that will make a significant contribution to the supply of land in Geelong over the next 20 years. Within the NWGGA, a total of nine PSP areas have been identified comprising of four within the Northern and five within the Western Growth Areas. The location of each of the PSP areas is shown in Figure 2.1.

Figure 2.1: Growth Areas and PSP Names

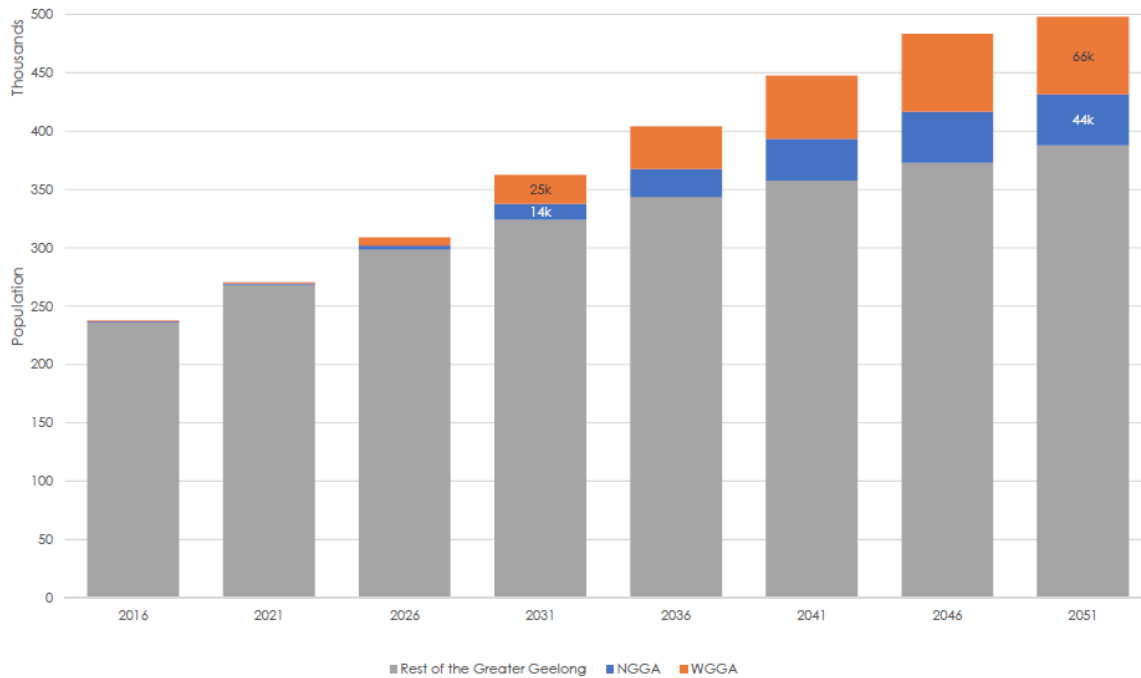


Source: Movement and Access Report (GTA)

2.4. Land Use Summary

The forecast population growth of Geelong, the NGGA and the WGGa between 2016 and 2051 is presented in Figure 2.2.

Figure 2.2: Population Forecasts (2016 to 2051)



Sourced: SGS Economics

The SGS report forecast that the overall population of Geelong will increase from approximately 240,000 in 2016 to 500,000 in 2051 (an increase of 260,000 residents). The NWGGA represents about 42% of the overall population growth forecast during this period, with the balance of growth predominantly relating to Armstrong Creek and infill development.

It is also forecast that employment in Geelong will increase by 100,000 jobs between 2016 and 2051 to a total of 205,000 jobs. The NWGGA will account for approximately 14% of the overall job growth forecast during this period.

A summary of the forecast population, dwellings, employment and enrolment numbers for the two growth areas for the 2031 (interim) and 2051 (ultimate) design years is presented in Table 2.1.

Table 2.1: NWGGA Land Use Forecasts (SGS Economics)

PSP Area	2031				2051			
	Population	Dwellings	Employment	Enrolments	Population	Dwellings	Employment	Enrolments
NGGA Total	13,720	4,900	2,840	1,880	46,480	16,600	9,010	5,600
WGGA Total	20,130	7,190	4,320	2,040	61,610	22,000	9,970	6,750
Total (combined)	33,850	12,090	7,160	3,920	108,090	38,600	18,980	12,360

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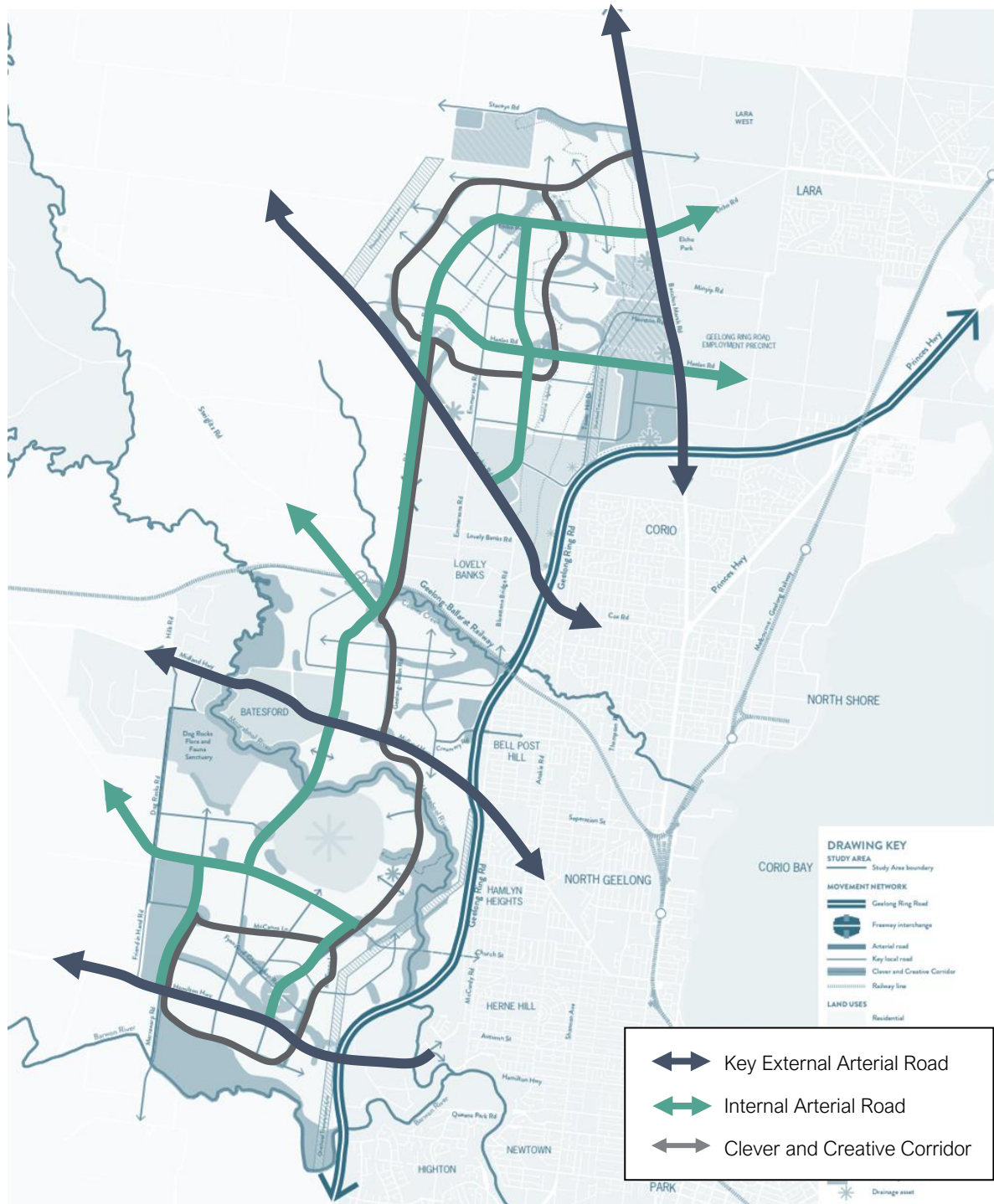
Ultimately, the NWGGA is forecast to accommodate approximately 108,000 residents, 19,000 jobs and 12,000 enrolments.

2.5. Road Network

The indicative road network is depicted in the Urban Structure in the Framework Plan and comprises of an internal and external arterial road network supported by a series of Council controlled roads, including connector roads, access streets and local roads. An arterial road will be aligned parallel with the Geelong Ring Road connected the two growth areas to each other.

The proposed arterial road network is presented in Figure 2.3.

Figure 2.3: Proposed NWGGA Higher Order Road Network



Source: Movement and Access Report (GTA)

The NGGA will be configured with three major access points (arterial road or Clever and Creative Corridor) to Bacchus Marsh Road and one major access point to Anakie Road. The WGGA will be configured with two major access points (arterial road or Clever and Creative Corridor) to Hamilton Highway and two major access points to Midland Highway.

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I note that the network is a concept for the purposes of planning and analysis and is indicative in nature. The specific details of the network will be addressed as part of subsequent planning and investigations.

Clever and Creative Corridor

The Framework Plan for the growth areas is the Clever and Creative Corridor it is underpinned by the Clever and Creative Future Strategy which sets out a measure of success of *'50 per cent of journeys to work are made by public transport, walking or cycling'*. This modal target applies for the entire municipality and is considered aspirational for a greenfield context.

The document sets out nine aspirations, including the following relating to transport; "a fast, reliable and connected transport network". Specifically, the document goes on to recommend a future mode share target of "50 per cent of journeys to work are made by public transport, walking or cycling".

The clever and creative seeks to implement a network that will prioritise active transport for the NWGGA that will provide the following:

- public transport will initially be provided kerbside bus lanes and stop facilities but will eventually be provided within a dedicated central median for the length of the corridor. As land use intensifies, the need for dedicated bus lanes will play an important role in making public transport more reliable, direct and frequent.
- walking and cycling will also be prioritised along sections of its length as well as linking land uses to parks and recreational areas.
- a 'streets for people' approach to the design of the street which will seek to maximise priority for alternate modes to the car meaning that a healthy environment for the community can be provided.
- with the introduction of new technologies, the corridor includes the ability to provide recharging stations for e-scooters, electric vehicles and other sustainable measures such as urban landscape initiatives.

The corridor is flexible and will be ultimately delivered to meet the needs of the community as development occurs, with the interim and ultimate designs seeking to meet future demand.

In terms of alignment, the corridor travels along a central spine within and connecting each of the two growth areas to each other. It also travels past and connects to the Geelong to Ballarat rail line which safeguards the ability to provide a transport hub and new station on the periphery of the growth areas. The Framework Plan also shows indicative future connections to the existing areas of Geelong which highlights the ability for the Corridor to be extended into these areas.

Whilst my brief does not cover the detailed design elements of the Clever and Creative Corridor, the concept of prioritising public transport, walking and cycling ahead of the car is supported as this will ultimately support the need for mode shift within the growth areas. Further, the cross section safeguards the ability to deliver a high quality public transport, walking and cycling network.

3. MOVEMENT AND ACCESS REPORT

3.1. Introduction

This chapter provides a brief summary of the Movement and Access Report prepared by GTA. A full version of the report is provided in Appendix C.

3.2. Traffic Analysis

3.2.1. Overview

The Movement and Access Report prepared by GTA was finalised in June 2019 and provides an assessment of the traffic and transport impacts associated with the delivery of the NWGGA. The analysis was underpinned by strategic transport modelling which sought to understand the likely traffic that would be generated from the NWGGA and its distribution across the network.

The transport modelling was used to understand how the NWGGA will operate when the land use has reached full development and its interactions with the new and existing transport networks. The modelling was built upon the information provided in the Victorian Integrated Transport Model (VITM) Reference Case as a starting point for analysis. The VITM Reference Case is a multi-modal model that includes a list of transport projects and policies together with a set of land use for a given year.

The land use aligns with the annual Victoria in Future (VIF) population projections produced by the Department of Environment, Land, Water and Planning (DELWP), both in terms of the level and distribution of growth. They are broken down into smaller areas for transport modelling. While established land use development trends are relied upon in these forecasts, a degree of policy shift is also captured, along with planned land release, renewal sites and infrastructure projects. In the case of the NWGGA, the forecast land uses were not included in the Reference Case as policy at the time did not support their inclusion, however for the purposes of the assessment within the Movement and Access Report, the COGG engaged SGS to provide the land use forecast for Geelong with the inclusion of the NWGGA's for the modelling assessment.

The analysis was completed in collaboration with a range of stakeholders contributing to the inputs including the City of Greater Geelong, Department of Transport and Regional Roads Victoria.

3.2.2. Limitations

It is important to note the limitations that a strategic transport model has. Principally, it is a tool used to evaluate the performance of a transport network based on the travel decisions that people make on a day to day basis. Travel demand is generated in a strategic model based on demographic information including the households, education, retail and employment based trips.

They are *not* generally used to predict exact volumes on roads (or patronage on public transport) rather they are used to analyse the travel demand for a specific scenario (and to compare against).

They can be used for corridor studies, wide area impact studies, major road projects, major public transport projects, different land use change scenarios, travel demand change / mode shift assessments and policy settings (i.e. public transport fares, parking charges, toll charges etc.).

This project used the model to determine the impacts of the introduction of the NWGGA and a range of land use and infrastructure scenarios that they can be delivered to. Given that this is the early stages for planning of the growth areas, it is the appropriate tool to conduct these investigations.

3.3. Scenarios

A total of 14 scenarios were modelled for the NWGGA's which tested various land use and road network configurations, and included the following:

- Two Base Case scenarios for 2031 and 2051 (one in each year) with no development in the NWGGA (road network which was based on the VITM Reference Case)
- Two Interim (2031) project case scenarios with and without external road network upgrades assumed as part of the Framework Plan.
- Two Ultimate (2051) project case scenarios with (Project Case 4 – PC04) and without (Project Case 3 – PC03) external road network upgrades assumed as part of the Framework Plan.
- Eight Ultimate (2051) project case scenarios with variations to:
 - modified internal road networks in the NGGA,
 - different alignments for river crossings in the WGGA,
 - inclusion of a Church Street connection,
 - without the development of the existing quarry, and
 - changes to public transport model share.

The results of the modelling are presented in the Movement and Access report in Appendix C.

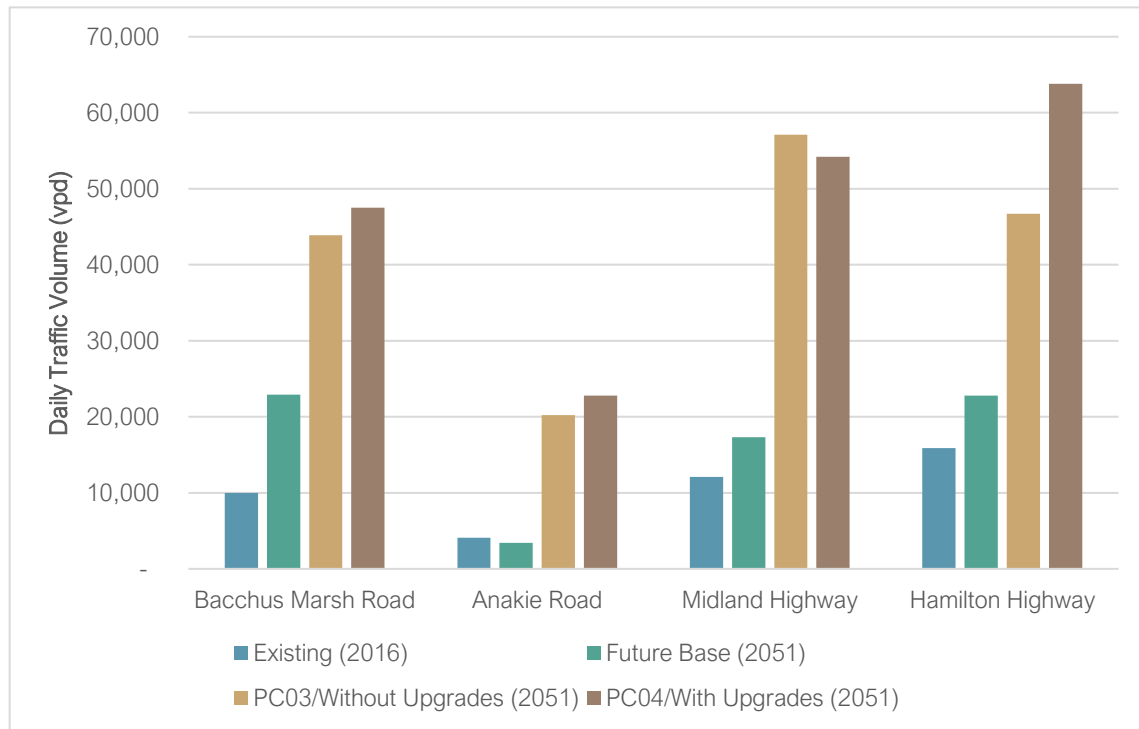
3.4. Arterial Road Traffic Volumes at Interchanges

The existing 2016 scenario, and forecast base, PC03 and PC04 for 2051 traffic volumes at each of the Geelong Ring Road interchanges is presented in Figure 3.1¹. The data indicates substantial traffic volume increases at each of the interchanges, as follows (existing to PC04):

- Bacchus Marsh Road: from 10,000vpd to 47,500vpd
- Anakie Road: from 4,100vpd to 22,800vpd
- Midland Highway: from 12,100vpd to 54,200vpd
- Hamilton Highway: from 15,900vpd to 63,800vpd

¹ The traffic volume data is based on two-way approach (or link) volumes to the Geelong Ring Road from the NWGGA.

Figure 3.1: Existing (2016), Future Base (2051), PC03 and PC04 Daily Traffic Volume Forecasts

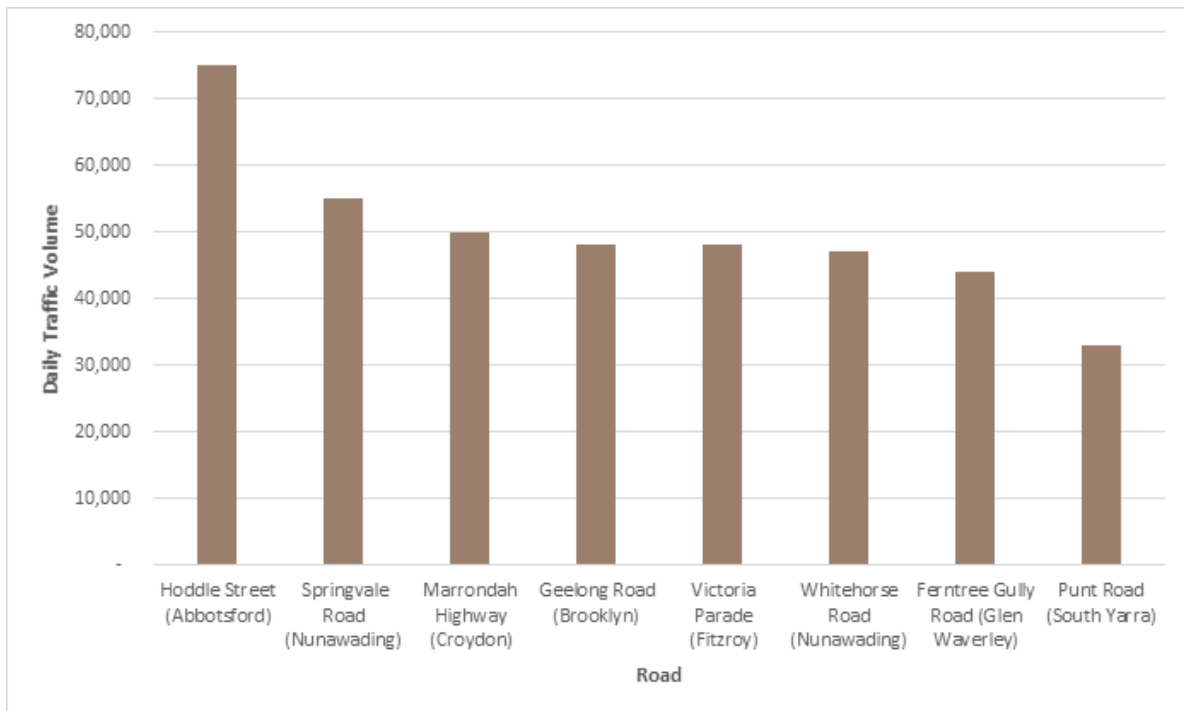


In addition, traffic volumes on the Geelong Ring Road itself are forecast to increase from 16,000 to 19,000vpd in each direction to 28,000 to 36,000vpd in each direction.

To provide context, we have sourced existing traffic volumes for key arterial roads from Metropolitan Melbourne, which are presented in Figure 3.2. In this respect, the future daily traffic volumes on Bacchus Marsh Road, Midland Highway and Hamilton Highway are forecast to be comparable to the existing volumes on roads such as Springvale Road, Whitehorse Road and Ferntree Gully Road in Melbourne.

Further discussion regarding the implications of these daily traffic volume projections are provided in Section 5.2 of the NWGGA Movement and Access Report.

Figure 3.2: Existing (2017) Traffic Volumes on Key Arterial Roads in Melbourne



[traffic volume data sourced from VicRoads website for 2017 – some volumes may be higher at key junctures/interchanges]

I note that each of the key roads in Figure 3.2 have some form of public transport priority either at intersections or at mid-block locations.

3.4.1. Expected Travel Times

The expected travel times from the NGGA and WGGA to the Geelong CBD, Avalon Airport and Waurm Ponds Shopping Centre for the existing (2016), 2051 base case, PC03 (without external road network upgrades) and PC04 (with external network upgrades) for the AM peak period are presented in Table 3.1.

Table 3.1: NWGGA Travel Times AM Peak Hour

Destination	From NGGA				From WGGA			
	2016 (Existing)	2051 Base Case	PC03	PC04	2016 (Existing)	2051 Base Case	PC03	PC04
To Geelong CBD	15 min	16 min	22 min	18 min	13 min	16 min	30 min	21 min
To Avalon Airport	14 min	14 min	15 min	15 min	23 min	24 min	32 min	27 min
To Waurm Ponds Shopping Centre	19 min	19 min	21 min	21 min	12 min	14 min	21 min	18 min

Note: PC03 without external road upgrades, PC04 with external road upgrades.

These indicate that the travel times for the NGGA are forecast to increase by two to six minutes under PC03 (against the 2051 base case), with travel times forecast to increase by one to two minutes under PC04. Whilst the travel times for the WGGA are forecast to increase by eight to fifteen minutes under PC03 (against the 2051 base case), with travel times forecast to increase by three to six minutes under PC04.

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The data indicates substantial travel time changes between PC03 and PC04 for the WGGA, suggesting that the arterial road network for PC03 will experience congestion and low travel speeds. The results are for the AM peak hour are an average of the time across the period. As such, there is likely to be a variation of those times across the hour.

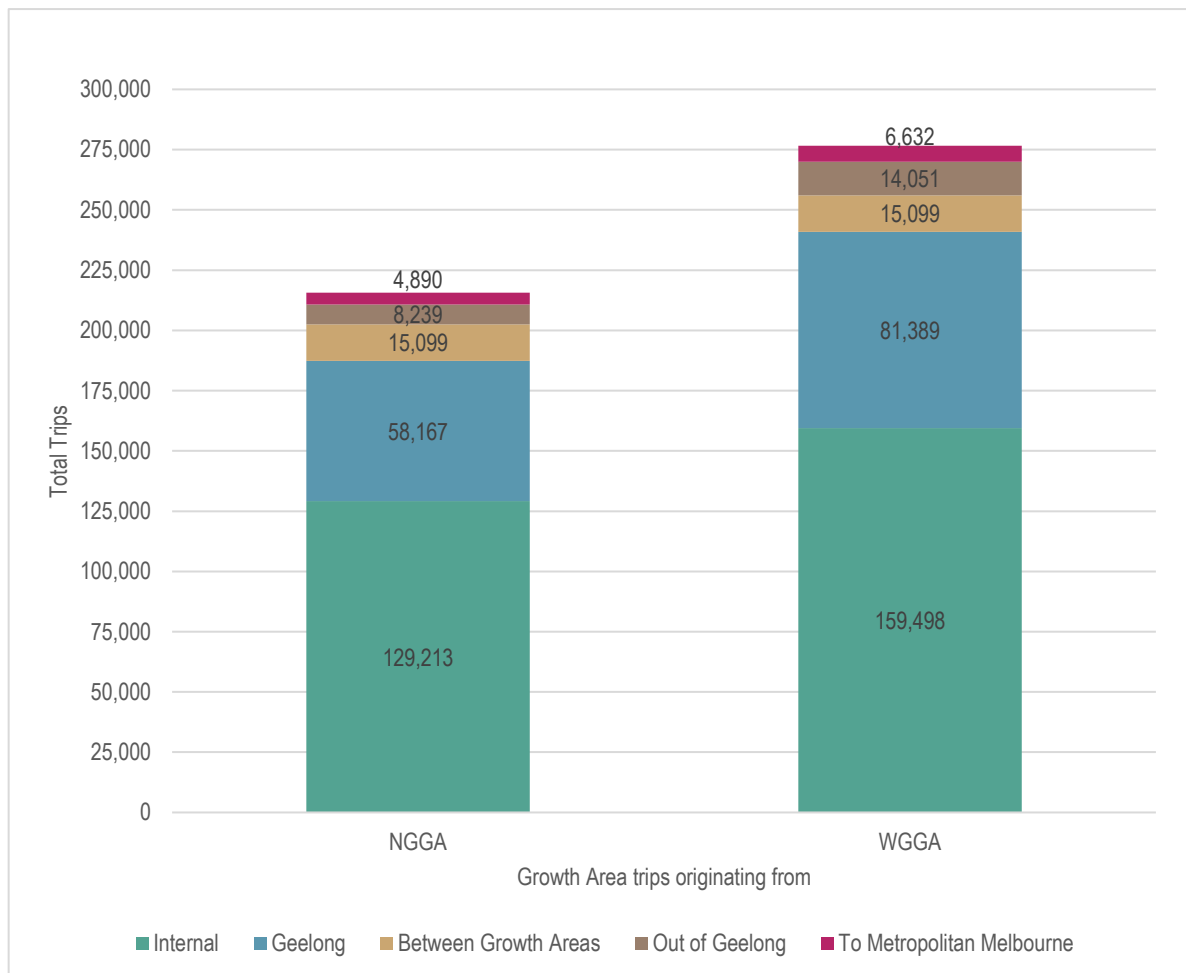
The data also indicates only modest travel time changes between PC03 and PC04 for the NGGA.

3.5. Overview

The Movement and Access Report provided a range of key metrics to understand the likely travel characteristics of the two growth areas. These included investigating mode share, traffic generation, traffic distribution, volume capacity ratio, average speeds, public transport usage and link volumes for the network.

Figure 3.3 has been prepared to provide a high level summary of the expected level of car trips for the NGGA and WGGA and their broad destination as they relate to Geelong.

Figure 3.3: Summary of Trip Distribution for the Northern and Western Growth Areas



Some of the key points of note for the level of traffic expected by the growth areas are:

- The Western Growth Area will generate 12.3 trips per household and the Northern Growth Area will generate 12.7 trips per household across the day, which compares with 12.3 daily trips per household that the established areas of Geelong generate.
- The two growth areas will generate in the order of 480,000 vehicle trips per day at full development with 290,000 of those trips (60%) being internal to the growth areas themselves which will not impact on the external road network (i.e. trip containment).
- By way of comparison, the existing areas of Geelong generate in the order of 1,740,000 vehicle trips per day.
- The Northern Growth Area is estimated to have a higher generation rate due to its distance from the Geelong CBD, its proximity to Melbourne and lack of public transport (PT) options in the modelling assessment.
- Approximately six percent of all trips (some 11,500 vehicles per day) are expected to travel to Metropolitan Melbourne via the Princes Freeway. Other key destinations for trips from the NWGGA include the Geelong CBD, Waurm Ponds, Deakin University / Epworth Hospital and the Bellarine Peninsula.
- Based on the expected volumes, there will be a need to upgrade the existing roads connecting to the Growth Areas. Bacchus Marsh Road, the Midland Highway and Hamilton Highway will need to be increased to three or more lanes in each direction particularly in the sections closer to the Ring Road.

The analysis demonstrated that managing the transport network will need to be monitored as development occurs. A business as usual approach to transport planning will result in key roads with significant levels of traffic. There will be a level of 'tension' between the accessibility to land use and providing on sufficient on road capacity that can manage travel behaviour as well as promoting alternate choices including public transport, walking and cycling. These considerations are discussed in more detail in the following section.

Finally, I confirm that my opinion on the information presented in the Movement and Access Report has not changed.

4. A NEED FOR MODE SHIFT

4.1. Introduction

Through my experience in a number of studies in the Geelong region, a comprehensive review of existing traffic data and travel behaviours, a high proportion of people rely on private vehicles to travel for both work and non-work related trips. The distribution of traffic movement is evenly spread across the city with people accessing the CBD from all across the existing urban and surrounding areas.

The dominance of the private motor vehicle impacts air quality, reduces the walkability and safety of the city and requires a significant amount of valuable inner-city space to inefficiently move people and store cars.

Geelong is facing unprecedented change and is expected to reach approximately 500,000 residents by 2051. As outlined previously in this report, the NWGGA will account for around 42% of this growth and the travel demands for the areas will place added pressure on the transport network in Geelong's existing urban areas.

In a city that is growing and revitalising, changing the dominance of the motor vehicle to other modes for people is a concept that should be central to any planning. The following sub sections will outline the existing travel behaviours and discuss the contributing factors that result in the high vehicle mode share experienced, and the vision that Geelong residents and various levels of government have established to plan for the future.

4.2. Existing travel behaviour in Greater Geelong

People travel across the day for a range of reasons with the most common purpose being to travel to work (employment), for education (primary, secondary and tertiary) and to shop (retail).

Greater Geelong's current population is approximately 250,000 people. Whilst the City of Greater Geelong covers a large area, population is primarily focused around Corio Bay, bound by the Princes Freeway to the North and West and the Warrnambool train line to the South. A review of the employment characteristics, as shown in Figure 4.1, indicates that 76 per cent of employed people living in Greater Geelong, work in Greater Geelong, with the remainder of people travelling outside the municipality for work. Of the jobs in Greater Geelong, the majority are located in Central Geelong, North Geelong and the suburbs surrounding those two areas².

² <https://www.sgsep.com.au/maps/thirdspace/australia-effective-job-density/>

Figure 4.1: Employment location of CoGG resident workers by Local Government Area (LGA)³



Source: Profile ID

Figure 4.1 shows that a lot of travel is required internally to Geelong. Given the relatively compact urban areas in Geelong, the distance of the majority of work trips are short (less than 10km) meaning that shorter peak is generally experienced.

In addition, approximately 31 per cent of Geelong residents are currently undertaking formal education⁴ with 90 per cent of education trips made from Greater Geelong having a destination within the municipal boundary⁵.

The third key purpose for travel is in retail, with the two key areas being the Geelong CBD and Waurn Ponds. Both of these locations provide a surplus of car parking meaning it is quite attractive (and cheap) for visitors to drive.

What does this mean for the way people currently travel in Greater Geelong?

As the majority of jobs and education land uses are located within Greater Geelong, there is a high level of trip containment. Despite most of people’s daily needs being accessible within a confined area, driving is currently an easy, obvious choice for Geelong residents.

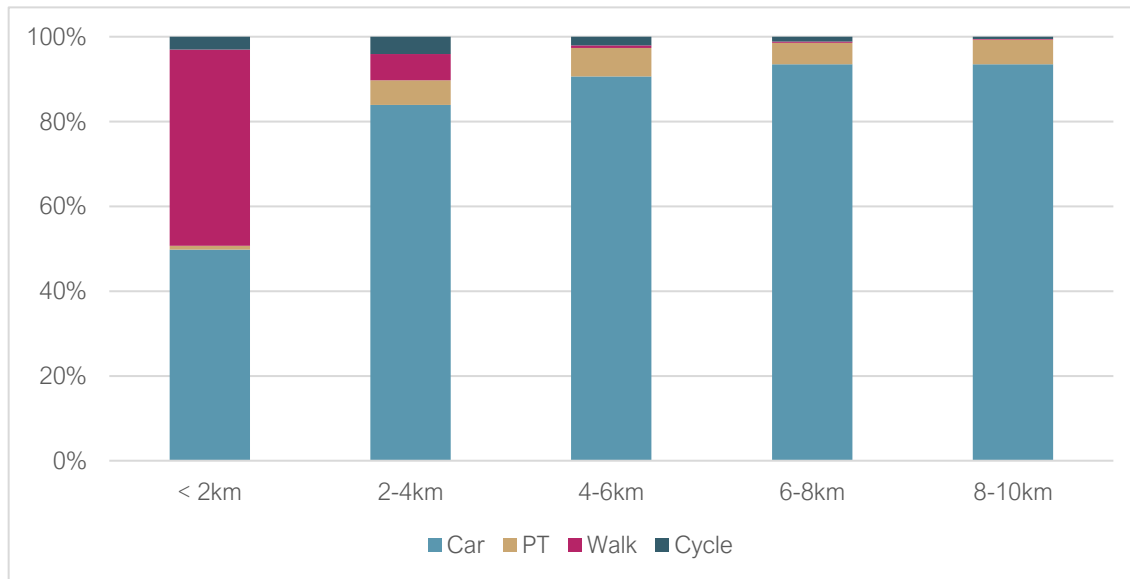
This is demonstrated by the ABS data on people’s mode choice on their journey to work provided in Figure 4.2.

³ <https://profile.id.com.au/geelong>

⁴ <https://profile.id.com.au/geelong>

⁵ VISTA

Figure 4.2: Mode share for journeys to work into Central Geelong by transport mode



The journey to work information shows that for trips to workplaces in central Geelong (the location best served by transport options) people are choosing to drive, with more than 80 per cent of people driving by car for trips longer than 2km. For journeys that are less than 2km (a reasonable walking distance), 50 per cent of people are choosing to drive with the other 50% either walking, cycling or travelling by public transport.

Why is travelling by car currently the obvious choice?

The reason that car is the mode of choice for Geelong residents is complex and due to a range of reasons. A key driver is the relatively limited congestion currently afforded to drivers (particularly when compared to Melbourne). Another is the availability of car parking in and around central Geelong meaning that finding a car park is relatively easily. Other factors influencing travel behaviour are:

- The road network currently experiences peak periods in the morning and afternoon that are relatively short; in the order of 30 minutes each.
- The broader Geelong road network generally operates well within its theoretical capacity, although a number of key road links and intersections are starting to experience longer congestion periods.
- The existing Geelong Ring Road interchanges currently operate below their theoretical capacities (although it can experience breakdowns during peak tourist periods).
- The current operation of the central Geelong transport network can be characterised by a relatively even distribution of cars across the city. The combination of a grid network, significant number of signalised intersections and lack of clear priorities makes it relatively easy for drivers to avoid congestion and take a range of routes across the city.
- Car parking is also relatively cheap and available with 22% (or 4,200) parking spaces unoccupied during the peak period.
- Geelong’s rail network plays a limited role for trips within Greater Geelong, due to limited network coverage and relatively low service frequency between Waurn Ponds and Geelong railway station.
- Currently approximately 2% of commuter trips in central Geelong are by bus, and 4.4% of non-work trips in Geelong are completed using public transport. The bus network has greater network coverage than the rail network with a combination of radial and grid routes covering the most populated regions of Greater Geelong.

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- Most buses operate on 20 to 40 minute service frequencies and are often unreliable and provide indirect connections to people’s destinations.
- Geelong’s bicycle network is disconnected and principally on-road. Despite recent investment in cycling facilities such as the green spine, the latest Census data shows a decline in people riding bicycles to work in Geelong.

Whilst there is limited congested, parking is readily available at destinations across the city and alternatives are not frequent, safe and convenient, there is limited incentive or need for people to reconsider their mode of travel. All of these elements influence decision making when users think about their mode of travel in Geelong

4.3. Policy to support mode shift

As Greater Geelong’s population is growing, along with increasing job density and retail activity, there will be more people needing to travel within, to and from Greater Geelong for employment, study and shopping.

Geelong’s high mode share of vehicle trips cannot be sustained as space becomes more of a premium, and Geelong transitions to a vibrant city. Should the transport network continue to operate in the same way, congestion will increase, parking will become more challenging to find and the land use and placemaking aspirations of the city will be threatened.

A significant amount of planning and strategy work has been completed in Geelong to establish the vision and objectives to respond to growth in population. I have reviewed relevant documents with Table 4.1 outlining the policy context for growth and the transport responses to growth in Greater Geelong.

Table 4.1: Policy context in Greater Geelong

Document name	Implications for transport in Greater Geelong
The Transport Integration Act (The Act)	<p>The Act is Victoria’s main transport statute; it sets out the legislative framework for the various transport and land use authorities to work together to achieve a fairer, safer and more environmentally sustainable transport system.</p> <p>It enshrines the use of triple bottom line assessments of economic prosperity, social and economic inclusion and environmental stability.</p>
Department of Transport Strategic Plan	<p>The Department of Transport (DoT) has recently been formed. It is the result of combining VicRoads and Public Transport Victoria with DoT, to create an integrated State Government department that will plan, deliver and operate Victoria’s transport system.</p> <p>To achieve this DoT has released their first Strategic Plan, which includes the vision, role, challenges and focuses. The key components relative to this amendment are reproduced below:</p> <ul style="list-style-type: none"> • Our vision is to meet the aspirations of Victorians for a transport system that is simple, connected, accessible, reliable, safe and supports a productive, growing economy. In realising our vision, we apply the objectives of the Transport Integration Act, 2010. • DoT will make better use of existing road and rail, shifting more journeys onto rail and prioritising public transport on roads.
Regional Network Development Plan (RNDP)	<p>The RNDP is a long-term plan on how the Victorian Government plans to improve public transport in regional Victoria. It also sets out short, medium and long-term priorities needed to modernise the network with more track, more trains, better facilities and more services.</p> <p>The development of the RNDP included engagement with the community to understand what they saw as the issues impacting the usability and accessibility of the transport network. The report calls for improvements to local bus services, so people can access shops and services with increased frequency and extended hours that buses operate. It highlights that central bus interchanges provide both a destination and the ability to make cross city movements. As such, people are looking for adequate shelter to wait for these connections.</p>

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	More generally across regional Victoria it provides a yard stick for policy development. It is a plan that provides an articulated strategy that has a strong level of community and stakeholder engagement and buy-in. The plan unlocked project funding and has delivered an unprecedented uplift of investment in regional transport infrastructure.
Victorian Infrastructure Plan (VIP)	The VIP has some reference to Geelong transport, but these are mostly longer-term outcomes. The primary outcome of interest is the commitment to “improve service delivery to regional areas, including delivering a modern commuter-style service for growth areas.”
City of Greater Geelong, City Plan	The Geelong City Plan sets out the city’s vision and identifies the strategic directions and priorities. It has been developed based on consultation and engagement with the community, which has translated into a desire to ensure the Geelong region remains the best place to live, not only today, but into the future. In order to achieve what is aimed for in the City Plan, it sets out a number of actions under the strategic directions headings of Community Wellbeing, Growing the Economy, Sustainable Built and Natural Environment, and How We Do Business.
Greater Geelong: A Clever and Creative Future	A Clever and Creative Future is a document that sets out what the community values about the region, how it rates against known success factors and shared ideas to address the current and future challenges. This is particularly relevant as Geelong moves towards a connected, sustainable, resilient, prosperous, and creative people centric city. This document provides a clear message on the outcomes the residents of Geelong want from their transport network. Community Values: <ul style="list-style-type: none"> • Sustainable, connected and networked walking, cycling and public transport services that allow all abilities access into and across the city-region • fast access to Melbourne and other parts of Victoria. Success will be achieved by: <ul style="list-style-type: none"> • A pedestrian and cycling network that covers the whole municipality • Accessible transport options connecting people within the city-region • Development of Greater Geelong as Victoria’s major logistics and freight centre • Diversion of road traffic around urban centres • Cycling becomes a credible and safe on-road commuter option. The measure of success are: <ul style="list-style-type: none"> • Being able to travel to Melbourne from Geelong within 30 minutes, and from the Bellarine Peninsula within 65 minutes utilising a variety of travel options • An international freight terminal and passenger airport within the city-region, connecting Greater Geelong to all Australian state capitals and Asia • Being able to access all parts of Greater Geelong within 30 minutes through a variety of travel options • 50 per cent of journeys to work are made by public transport, walking or cycling.

4.4. Is there a need for modal shift?

As part of my evidence, I have been asked to provide an *opinion on whether there is any need for modal shift to facilitate people movement.*

As per the Movement and Access Report prepared by my office, the modal share results output from VITM show that car will likely be the main travel mode for the NWGGA (approximately 90% of trips) and is not expected to change substantially between 2031 and 2051. This modelled mode share suggests a similar reliance on private vehicle travel to the existing residents in the City of Greater Geelong (i.e. business as usual).

The Movement and Access Report went on to outline the potential ramifications to road network performance of maintaining a mode share of approximately 90% of trips taken by car.

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It is my opinion that in order to facilitate the movement of people within, between and beyond the Growth Areas mode shift will be required for the following reasons which will be elaborated on within this chapter:

1. To align with Local and State policy
2. To limit the phenomenon of peak spreading
3. To safeguard the reliable operation and resilience of the road network.

Alignment with Local and State policy

As outlined in Table 4.1, there is a strong policy establishing the need to encourage the development of active and public transport infrastructure and to shift from vehicle transport to more sustainable modes of travel.

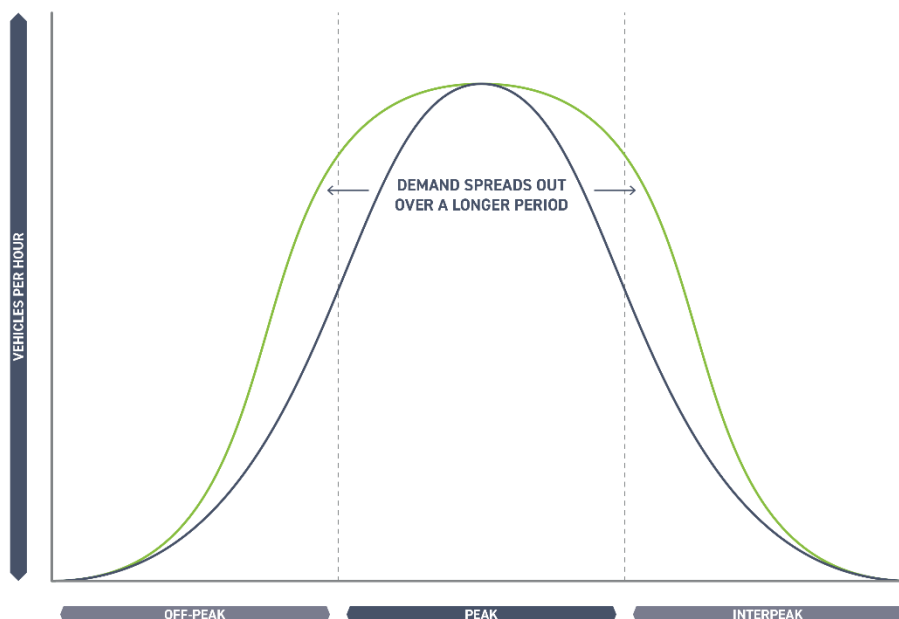
In Greater Geelong: Clever and Creative Future, members of the Geelong community have said that they wanted transport choice and to have a greater balance in the way they travel. A key measure of success within that document was a mode share target of 50 per cent of journeys to work to be made by public transport, walking or cycling.

This is an ambitious mode share target. It has not been deemed within either my scope or the scope of the Framework Plan to establish an appropriate mode share target for the Growth Areas. However, in addressing my scope, it is important to acknowledge that mode shift will only occur if it is embedded in future decision making through mechanisms such as this Amendment and Precinct Structure Plans. The policy context establishes a clear need for this to occur. As a result, public transport, and bus more specifically, will need to play a key role if the community is to achieve their vision.

Peak Spreading

The phenomenon of peak spreading describes a dynamic process whereby the pattern of demand changes over time from one where there is heavy peaking, to one where the demand spreads out over a longer period. Typically, this results in the peak period lengthening, either side of the highest peak flow as in Figure 4.3. Because of the constraints of road capacity, peak spreading is one way of accommodating increasing traffic volumes.

Figure 4.3: Graphical representation of peak spreading



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Figure 4.3 provides a graphical representation of peak spreading as it occurs on a typical AM peak period. Residents of Greater Geelong currently benefit from very short peaks (in the realm of 15 to 30 minutes).

In my experience, peak spreading can be viewed as either a natural market correction that limits the need to provide extra road capacity, or it can be considered as an indication of a failure of the system, as peak spreading can typically result in delays for people and goods.

Should mode shift not occur, the peak periods will spread, as people retime their trips in an attempt to reduce their personal delay by avoiding congestion.

It is my view that some degree of peak spreading is appropriate in this context. This will ensure that additional road capacity is not constructed unnecessarily, as that would in turn encourage greater uptake in vehicle trips, thus maintaining the status quo.

Safeguarding the reliability of the network

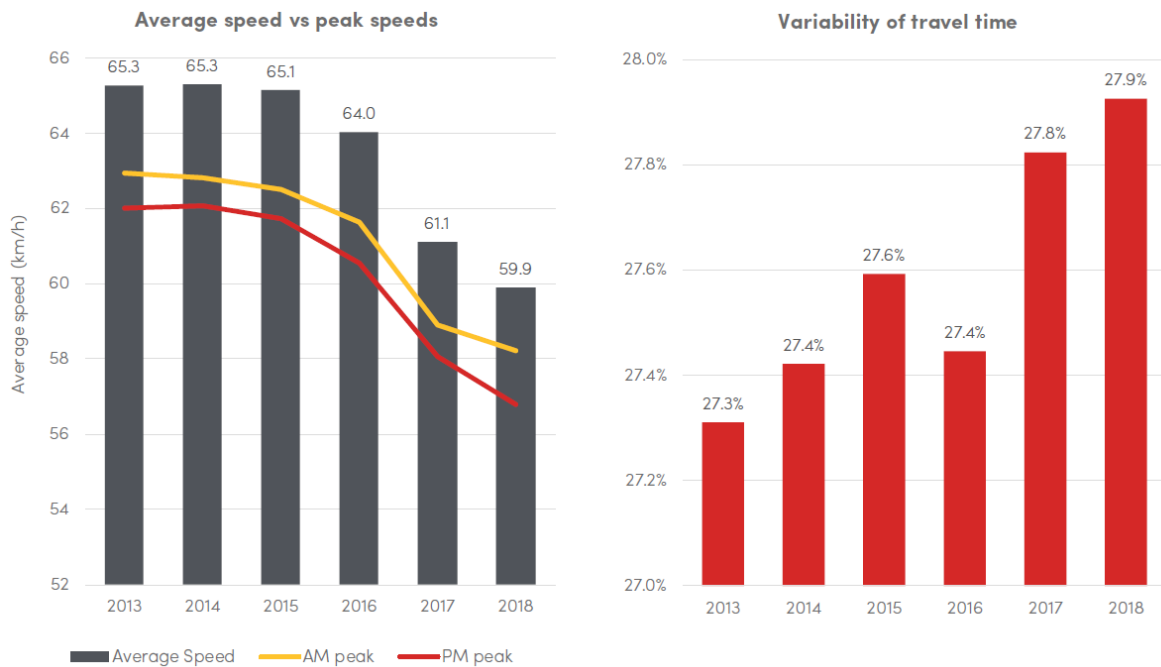
The modelling indicates that average vehicle speeds across the Geelong network are forecast to reduce by 12% between now and 2051 (over an average two hour period). As road network congestion increases, existing motorists will be required to change their travel patterns, this will result in trip reprogramming (travel at a different time), trip substitution (use an alternate mode) or trip redistribution (use an alternate route).

At full development, the Geelong Ring Road will act as a barrier for the NWGGA residents wishing to access the established areas of Geelong. The modelling showed that the performance of the key arterials crossing the Ring Road will experience major congestion with slow speeds for the sections approaching it.

The combination of the above factors means that in the future, residents of Geelong will need to change their current travel habits. For example, in the future there will no longer be an expectation that residents can drive wherever and whenever they like in Geelong in 10 to 15 minutes. Rather drivers in Geelong will need to modify their travel behaviour in terms of when, where and how they travel.

A recent national study into road congestion in Australia, completed by the Australian Automobile Association, highlighted empirical data of the relationship between network speeds and the reliability of the network: as speeds reduce, variability of travel times increases, and reliability reduces. Data from Melbourne is shown in Figure 4.4.

Figure 4.4: Relationship between speed and variability⁶



As the modelling demonstrates that speeds are reducing, it is likely that this will result in a deterioration of the reliability of the road network in Geelong. The concept of travel time reliability is increasingly being used in scheme appraisals, as research outlines that people value travel time reliability in the same way as they value reductions in travel time.

Without mode shift, the road network performance, and travel time reliability would likely erode, impacting on the residents of Geelong and the efficient movement of goods.

4.5. Does the draft Framework Plan support modal shift?

The Movement chapter of the Framework establishes a One Planet Principle of 'Sustainable Transport' which seeks to reduce the need to travel, and encouraging walking, cycling and low carbon transport. The Actions embedded in the Framework to support this are:

- ACTION 4.1.1 Walking and cycling will be central to the design of neighbourhoods and promote mode shift from private vehicles to active transport.
- ACTION 4.1.2 Walking and cycling will be the highest priority in the design and management of the integrated transport network.
- ACTION 4.2.1 Public transport will be central to the design of neighbourhoods and promote mode shift from private vehicles.
- ACTION 4.2.2 Public transport will be the highest priority beyond active transport in the design and management of the integrated transport network.

⁶ Road Congestion in Australia, Australian Automobile Association, October 2018

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These actions establish a clear mandate to integrate active and public transport modes into the development of the Growth Areas, and ultimately establishes the starting point to achieve modal shift.

The Victorian Government is investing significant funds to increase train services in and around Geelong with the vision to increase public transport patronage in Geelong. In the meantime, due to limited network coverage and relatively low service frequency between Waurn Ponds and Geelong railway station, buses will continue to be the primary public transport mode to support the access requirements of a growing population.

The investment in timely delivery of bus infrastructure in the Growth Areas will be essential to achieving the modal shift required. This will rely upon the delivery of the transport network within the growth area, which will occur by subsequent planning work following the adoption of the Amendment.

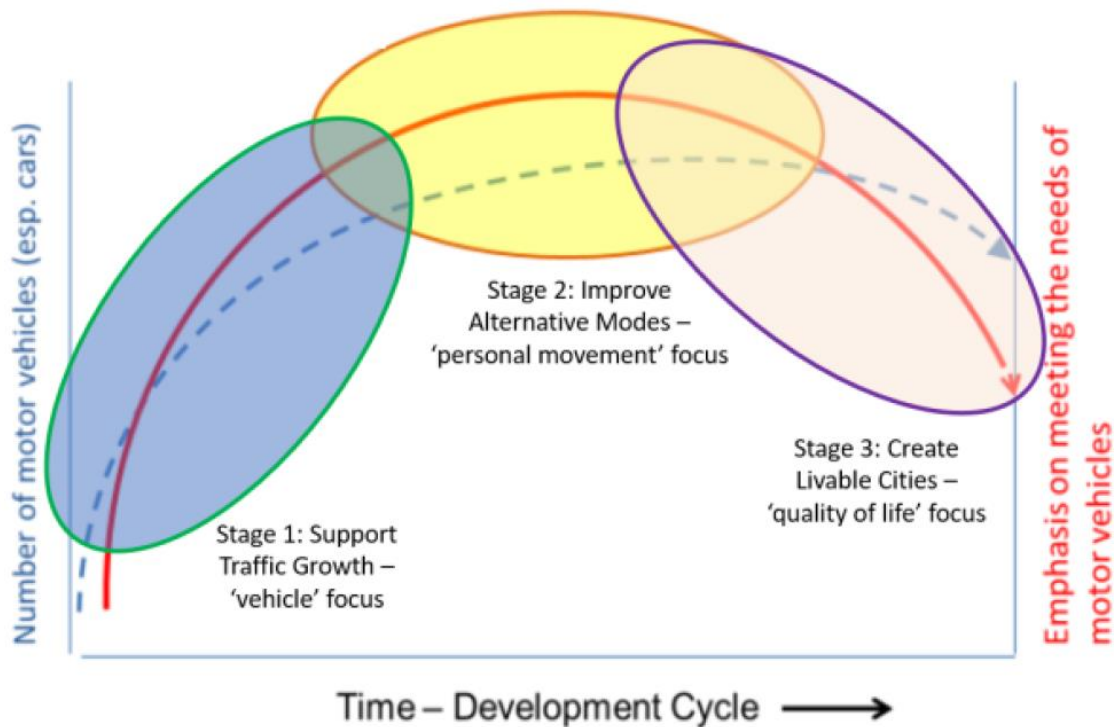
A concept that helps gain this understanding for any growth area and the supporting transport network it is located within is the Urban Transport Policy Cycle, as set out in Jones and Anciaes 2018 Create 2.1 – Urban Congestion and Network Operation – Metrics for assessing Performance, there are considered to be the following three key stages of urban transport development:

- Stage 1: Support Traffic Growth – ‘vehicle’ focus
- Stage 2: Improve Alternative Modes – ‘personal movement’ focus
- Stage 3: Create Liveable Cities – ‘quality of life’

These 3 key stages also align with the level of use and emphasis given to the use of private vehicles for travel.

DISCUSSION A NEED FOR MODE SHIFT

Figure 4.5: Urban Transport Policy Development Cycle⁷



It is clear that the first stage of infrastructure works will be to provide for car travel, which is required for development to occur in growth areas. The challenge is for growth areas to develop mechanisms to ensure that the delivery of alternate modes is able to be delivered and implemented (as identified in the 2013 VAGO report⁸). My experience in transport planning for growth areas is that delivering transport options early in development is lacking and that changing the travel habits of existing residents is a challenge.

In this regard, I recommend that as part of the PSP process, the inclusion of funding and implementation strategies be explored to ensure that the appropriate transport infrastructure is delivered at the early stages of development.

⁷ <http://www.create-mobility.eu/create/Publications/Project-deliverables>

⁸ Victorian Auditor-General, Developing Transport Infrastructure and Services for Population Growth Areas, August 2013

5. RESPONSE TO SUBMISSIONS

5.1. Response

5.1.1. Introduction

A number of submissions were received on the Framework Plan of which I have been requested to review those relating to traffic and transport. Specifically, the submissions I have reviewed are 1, 8, 10, 12, 22, 35, 36, 42, 55, 56, 57, 58, 60, 75, 79, 87, 98, 99 and 100. My Responses to each of these have been provided in a summary table located in Appendix B of this report.

In reviewing the submissions, I have sought to group the transport elements into key themes as follows:

1. **Detailed design** elements of the delivery of the transport network
2. The **road network** within the two Growth Areas
3. The delivery of an integrated network with strong **Active Travel Measures** and **Public Transport**
4. The **Clever and Creative Corridor**, noting that the detailed design elements are outside of my brief
5. Elements of the **Framework Plan** itself (i.e. changes or extensions to the wording), noting that this is also outside of my brief.

A summary of my responses to key elements of the themes are provided in the following sub sections.

5.1.2. Detailed Design

A number of these submissions query the need to the design of the transport network.

Upon my review of the specific submissions, and understanding of the process moving forward, I am satisfied that these matters will be addressed as part of the preparation of the individual PSP's and planning permits.

5.1.3. Road Network

A number of the elements relate to the alignment of the proposed road network, its hierarchy and its connections to land uses and topographical features. Some of the queries also relate to the acquisition of land to accommodate the proposed road network. In response I provide the following points:

- The proposed road alignments indicated within the Framework Plan are indicative and will be subject to further detailed design and planning that can be addressed through the PSP process.
- I note that the ultimate road network will be delivered over an extended period and will result in a fundamental change to the existing road network configuration. Whilst it is hard for some landowners to comprehend, the changes will be necessary for the full delivery of the growth areas.
- The scope of the GTA study, and my evidence, was not to review the alignment of the transport network, rather it is to assess and determine its suitability to cater for the anticipated demands generated from the new land uses.

From a network capacity perspective, I am satisfied that the proposed network, as assessed in the Movement and Access Study, will be able to accommodate the proposed land supply for the growth areas, as well as facilitating the safe and easy movement of people.

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5.1.4. Active Travel

The active travel submissions were generally in support of the proposed layout, with some recommendations for changes to some elements of the Framework Plan. I agree with (submission #22) that the network of walking and cycling trails should be connected where possible, and that joining the shared path through to the Clever and Creative Corridor would provide a suitable link. As with many responses, I note that the specific details of the connections will be investigated through the PSP and detailed design phases.

The Department of Transport submission (#99) provides general support for the elements of the Framework Plan and also recommends a Movement and Place Assessment to be undertaken which I support. A Movement and Place Assessment provides principles to the design process balancing the role and function of the street (i.e. movement) with the function of the land uses (i.e. place). Applying these principles will strike a balance for the anticipated road user and is supported. Further, I note that a Movement and Place Assessment is able to be addressed as part of the delivery of the PSP.

5.1.5. Public Transport

The two main submissions on Public Transport are #35 and #99. The submissions are all encouraging of the principles of the Framework Plan in that priority for public transport is recommended.

A number of submissions relate to the proposed railway station on the Geelong to Ballarat rail line, which does not currently provide any passenger services. The proposed station and connection into the existing precincts of Geelong are supported as it provides an opportunity for high capacity transport to be provided. The ability for mode share to be achieved with public transport requires direct, reliable and frequent services which can partly be provided through re-use of the line.

The delivery of the railway station will be subject to further investigations which will be undertaken as part of broader studies, including the Geelong Growth Areas Transport Infrastructure Strategy which is currently underway. The delivery of the railway station should be complimented with supporting land use to maximise its benefit and it is recommended that the investigations consider transit orientated development surrounding it.

The challenge, as with any growth area, will be the appetite that Government and the private sector has in implementing the public transport initiatives early in the development cycle and moreover the mechanisms that can be instilled in the PSP process to ensure their delivery. My experience with growth area planning is that public transport investment occurs well after development occurs and changing the travel habits of residents at that point in time can be difficult.

All of the Actions within the framework support the priority of public transport which is supported. I also encourage strong controls in the delivery of the PSP to ensure that these actions can be achieved, noting that this has previously been a challenge for growth areas as identified in the 2013 VAGO report.⁹

5.1.6. Clever and Creative Corridor

Ten of the submissions that I have reviewed relate to the Clever and Creative Corridor. As discussed earlier in this report, the detailed design elements of the Clever and Creative Corridor are outside of my brief and I have not provided any commentary around the elements within the corridor. The premise of the Clever and Creative Corridor is to develop a "long term commitment to establishing sustainable transport" and in this regard its fundamental intention is supported.

⁹ Victorian Auditor-General, Developing Transport Infrastructure and Services for Population Growth Areas, August 2013

5.1.7. Framework Plan

Five of the submissions raised matters directly relating to the Framework Plan document wording and content which is outside of the scope of my brief.

6. SUMMARY OF OPINION & OTHER STATEMENTS

6.1. Summary of opinion

On the basis of the information set out within this report, I note the following:

1. The Movement and Access Report prepared by GTA documents the traffic and transport conditions expected in the growth areas for the interim (2031) and full (2051) development scenarios. I confirm that this analysis is still appropriate.
2. Strategic transport modelling shows that at full development, the precincts will generate large levels of traffic with Bacchus Marsh Road (47,500vpd), Midland Highway (54,200vpd) and Hamilton Highway (63,800vpd) experiencing the highest levels of traffic on the network.
3. A business as usual approach to transport planning for the development of the NWGGA will result in high levels of congestion on the network particularly on the connections to the Ring Road.
4. There are a number of policy documents that support the shift to more sustainable travel in Geelong.
5. Travel behaviour, along with the appropriate transport investment, will dictate that mode change can be achieved. These are supported by the actions set out in the Framework Plan which are supported.
6. Many of the submissions either support the Framework Plan or can be addressed as part of the PSP process.
7. I recommend that further work be undertaken to ensure that funding and implementation mechanisms are included in the delivery of transport infrastructure for the NWGGA.
8. Overall, I do not see why from a traffic and transport perspective that the Framework Plan should not be adopted and support its inclusion in the Geelong Planning Scheme.

6.2. Declaration

I have made all the inquiries that I believe are desirable and appropriate and that no matters of significance that I regard as relevant have, to my knowledge, been withheld from the Panel.

A.CURRICULUM VITAE



REECE HUMPHREYS

Director

BE, Civil,
Victoria University - 2000



MY STORY

I have a Bachelor of Engineering degree and almost two decades' experience spanning transport planning, transport modelling, transport engineering, traffic engineering, land use development and strategic assessments. This experience covers a mixture of assignments ranging from traffic and transport modelling on large-scale projects in Melbourne and Sydney to transport planning, engineering analysis, and advice on projects across Australia.

I have also completed several projects for the Department of Transport (Vic), VicRoads and the NSW RMS that include a series of large regional transport models, strategic corridor planning, congested corridor management and transport corridor planning. I have provided expert evidence for both Government and the private clients, as well as on several high-profile transport corridor and growth area panels. I also play an active role in industry organisations; I am the Vice President of the AITPM Victoria Committee and am an inaugural member of the National Council of Transport Modellers Network.

SELECTED PROJECT EXPERIENCE

Suburban Roads Project - Victoria Role: Technical Director (Transport)

The Western Roads Upgrade is a \$1.8 billion project that will deliver a combination of road widening, duplications and intersection upgrades on eight arterial roads in the western suburbs. GTA is part of the Netflow consortium that was successful in delivering the project. As Technical Director, Reece was responsible for leading the traffic and transport analysis of the eight corridors which comprised 48 intersections and freeway interchanges. The work completed through the bid phase included a range of solutions that resulted in the submission having no departures from the scope requirements, resulting in a successful award for the consortium.

Western Growth Corridor – Transport Network Plan Role: Project Director

GTA completed the Strategic Transport Modelling of the Western Growth Corridor in Melbourne, which is forecast to accommodate an additional 500,000 people in the next 30 years. The project investigated short and medium-term transport improvements as well as a range of public transport enhancements designed to improve people's journeys on a day to day basis. The project was completed for the City of Wyndham and City of Melton who will experience the majority of the predicted growth. Leading the delivery of the project drew upon Reece's extensive range of experience in preparing transport assessments of PSPs and developments within Melbourne's growth corridors, including an understanding of the transport challenges that growth brings. This work was completed in close consultation with the Department of Transport (formerly Transport for Victoria) and VicRoads.

Northern Highway Economic Assessment - Victoria Role: Director

VicRoads is preparing a business case to upgrade a section of the Northern Highway between the Hume Freeway and Wallan township. As Project Director Reece was responsible for preparing an economic assessment using strategic transport modelling to understand the benefits of the upgrade. The project utilised and updated the Statewide Victorian Integrated Transport Model (S-VITM) and included several workshops with various stakeholders to develop the inputs into two project cases for testing. The economic assessment will form part of a business case that will be submitted to the State Government.

Albury Traffic Study - NSW Role: Director

Reece was the project lead responsible for the delivery of a multi-layered integrated model of Albury that was prepared for Albury City Council and the NSW RMS in 2017. The model is an all-encompassing four step strategic model with mesoscopic and microscopic capabilities. The model was used to test the performance of the network as a result of forecast growth and included detailed assessment of the Hume Freeway interchanges and other key intersections within the city.

'I'm an experienced professional who applies a personable approach to developing holistic solutions to complex transport issues'

SKILLS & EXPERTISE

- Transport Planning
- Transport Modelling (strategic and operational)
- Transport Engineering
- Corridor and Area Traffic Management Project Development and Design
- Network Management and Optimisation
- Peer Review and Expert Witness

ACHIEVEMENTS

"Developing a Framework for modelling regional Australian cities", AITPM National Conference 2019

"Latest Developments in Australian Modelling", NZ Modelling User Group, 2014

"Transport Planning or Land Use – Who Controls What?", AITPM National Conference, 2015

"Young Engineer of the Year", Finalist, Engineers Australia, 2012

MEMBERSHIPS AND AFFILIATIONS

AITPM Committee Member (VIC)
Victorian Vice President

Engineers Australia (MIEAust)

B.RESPONSE TO SUBMISSIONS

B

S	Requests/ key points	Theme	Comment
1	Requests that the western arterial road where it crosses the Moorabool River is modified by moving it westwards. The proposed option would enable a shorter, less visually exposed and intrusive bridge to be constructed, thus improving visual amenity, would be cheaper to develop than the FP option and enable more developable land to be accessible and fully used. They are also concerned that the FP alignment will not meet functional requirements (maximum gradient for PT will be exceeded) and sterilise part of the development land north of the escarpment	Design	This is a detailed design matter and would be addressed as part of the PSP stage.
	Concerned that the CCC conflicts with the landform and development of the Moorabool River Corridor. Proposes a relocation of CCC to the western side of the lane.	CCC	This is a detailed design matter and would be addressed as part of the PSP stage.
	Concerned that it is not clear from the figures in the Framework Plan where the various CCC configurations will be applied and it appears that considerable design development of the Framework Plan would be needed to clarify this.	CCC	I note that the CCC reserve will be require more planning and investigation through the detailed design process to determine its suitability. The reserve width is flexible enough to respond to this matter.
	Concerned that CCC reservations will be very wide and space consuming, but also that the adjoining land catchments will extend some 400m. They believe that at several locations, site landform and features will preclude the development of the CCC. It will not be possible to achieve the intent of the CCC where it is shown winding up the escarpment within the ABCL land from the Moorabool River on the east side of the future lake.	CCC	I note that the CCC reserve will be require more planning and investigation through the detailed design process to determine its suitability. The reserve width is flexible enough to respond to this matter.
	Seeks for the FP to outline principles for shared funding in the WGGA, given that there are major infrastructure items (including the CCC, major bridges and intersections) that benefit the whole of the growth areas	Funding	This item would be covered at the PSP stage.
	Concerned that the Clever and Creative Corridor is unhelpful to submitter's existing business operations	CCC	I note that the CCC reserve will be require more planning and investigation through the detailed design process to determine its suitability. The reserve width is flexible enough to respond to this matter.
8	Objects to traffic signals at Heales/Tillys Roads intersection because it is near property	Design	This is a detailed design matter and would be addressed as part of the PSP stage.
10	Concerned about the need for the upgrade and proposed duplication of Heales Road into an arterial road, with more traffic, plus public transport and shared pathways, including the construction of traffic lights and intersections.	Road network	Heales Road is expected to experience 11,500-20,000 vpd in 2051. A 2 lane arterial is required to manage the expected demand. Specific design elements of the corridor will be addressed as part of the PSP stages.
	Concerned by how much land will be taken if Heales Road is upgraded, and impact on existing trees	Design	This is a detailed design matter and would be addressed as part of the PSP stage.
	Hopes that if the road is upgraded, they are integrated into the future planned road infrastructure and pathways. And that the upgrade is delayed as much as possible to minimise impact on residents	Design	This is a detailed design matter and would be addressed as part of the PSP stage.
12	Objects to Clever and Creative Corridor along Evans Road because 400m wide Corridor requires compulsory acquisition of submitter's entire property, and is concerned that other properties which are affected are unaware	CCC	This is a detailed design matter and would be addressed as part of the PSP stage.
22	Proposes western alignment of CCC through the Batesford South Precinct, over a bridge and around the western side of the quarry lake to be more functional, and potentially better suited to the proposed multi-modal transport options (i.e. trams / light rail) outlined in the Framework Plan.	CCC	The specific elements of the CCC are outside the scope of my brief.
	Advocates the early establishment and completion of the western corridor through the entirety of the WGGA, of the two proposed north-south arterial road corridors through the WGGA. It would best facilitate connectivity of the various precinct development stages over a potentially long settlement, without impact on the final phase of operation and rehabilitation of the quarry and expedite the integration of the first four stages of the WGGA development.	Road network	The staging of road upgrades will require more planning and detailed design and will be addressed as part of the PSP stage.
	Proposes an integrated network of walking and cycling trails along the Barwon River, Moorabool River and Cowies Creek to provide an expanded "Green Ring" cycling trail around greater Geelong. The opportunity to interlink these walking and cycling trails should be detailed and protected in the Framework Plan and associated Precinct Plans, as the opportunity to establish these connected corridors may be constrained if blockages are created in the network, post-development. To support the linking of these environmental and public open space corridors, there is a need to integrate these with the 'Creative Corridor' through the Creamery Road Precinct to provide a connection between the Cowies Creek corridor and the Moorabool River corridor	Active Travel	It is agreed that the network of walking and cycling trails should be connected where possible, and that joining the shared path through to the CCC would provide a suitable link. The arrow shown in the plan is conceptual and the specific connections will be investigated through the PSP at the detail design phases.
	Fixed funding should be collected ahead of time for the timely provision of the marquee elements of the Framework Plan and drive settlement of the area (i.e. 'Creative Corridors', the two Moorabool River crossings; community lake-shore infrastructure; connected public open space along river corridors; mass-transit public transport etc.). Where benefits from these elements of the Framework Plan are to be shared, so to should the costs of their provision be universally shared from the outset across the whole of the WGGA.	Funding	This item would be covered at the PSP stage.
35	Supports aim to "provide accessible and integrated transport" which ensures "efficient and sustainable use of land and resources"	Public Transport	Noted and agreed.
	Supports the fact that the urban form (street network) shown in the maps for both areas, prioritises a network of main roads along which buses can move conveniently and directly (p.183).	Public Transport	Noted and agreed.
	Supports commitment to "frequent bus stops on arterial roads and connector streets that all households can access within a walkable distance" (p.189). As well, we agree that it is essential for bus stops to be paired and connected to footpaths, and that there are safe and convenient crossing points in close proximity to stops (p.202).	Public Transport	Noted and agreed that these elements help improve the public transport network.
	Notes that neighbourhoods must be porous for pedestrians to access public transport	Public Transport	Noted and agreed that porosity of the walking and cycling networks will increase the catchment of public transport facilities from neighbourhoods.
	Supports the bold intention to provide usable public transport services for residents from day one to avoid the growth of car dependence	Public Transport	Noted and agreed.
	Seeks clarity if public transport corridors are separated or shared with roads. Concerned that separated corridors have not survived the planning panel process for Armstrong Creek on the basis that buses could run on the road network.	Public Transport	This is a detailed design matter and would be addressed as part of the PSP stage.
	Supports the FP's recognition that public transport must be part of well-connected network and that growth areas must not be seen in isolation where public transport is concerned	Public Transport	Noted and agreed.
	Concerned that the NWGGA public transport reliance on Lovely Banks rail station a weakness - it is the only southern connection with the wider public transport network	Public Transport	Other bus routes connecting into the wider public transport network have been identified in p200-201 of the FP. However these routes should aim to have a similar level of reliability / travel time / attractiveness as the rail line.
	Concerned that passenger rail services on the Geelong-Ballarat railway between Geelong and Bannockburn (including a proposed Lovely Banks station) is problematic because: Rail service not usable if services infrequent and ineffectively connected, Rail service problematic due to proposed standard gauge conversion of railway line - won't be able to be connected to rest of network, Rail service problematic due to railway use by freight trains - Long, slow goods trains travel on the section, hampering the operation of any passenger service using the same tracks	Public Transport	This is outside of the scope of my brief. However it is agreed that the rail line would be ineffective if these issues occur. The rail line could be upgraded to avoid these issues.
	Concerned that improving road access to railway stations is only useful if it does not promote car access to them - if cars are the main way to get to stations, there will never be enough parking. Any improved road access to stations must promote sustainability by enhancing walking, cycling and public transport access to stations, with car use being actively discouraged.	Public Transport	This is a detailed design matter and would be addressed as part of the PSP stage.
36	The main determinant of successful, usable public transport is the frequency of the services provided. Two other key requirements are that they be direct and form part of a well connected network.	Public Transport	Noted and agreed.
36	Proposes that the land within the 'Clever and Creative Corridor' as it relates to Ballarat Road, be identified as 'Mixed Use' or another complementary zone which supports opportunities for a diversity of land use types.	CCC	This is outside of the scope of my brief.
42	Supports the amendment as it identifies a future railway station at the northern edge of the western growth area, because it is likely to provide strong justification for the re-opening of the Ballarat-Geelong line for passenger rail, along at least a part of the route.	Public Transport	Noted and agreed. It is noted that the rail line was not modelled in the GTA Movement and Access Study and will be addressed as part of more detailed investigations.
S	Requests/ key points	Theme	Comment
	Amend the description of the Clever and Creative Corridor by adding the following text: "Implementing the Clever and Creative Corridor The final form of the interim and ultimate Clever and Creative Corridor will be resolved through precinct structure planning. While a single interim and ultimate diagram is shown, it is likely that variation will occur at the PSP stage to take account of stakeholder discussions, further technical work and localised design responses. Variation of the details of delivery of the corridor will be considered in relation to net community benefit."	CCC	This relates to changes to the planning scheme ordinance and is outside of my brief.

55	Delete reference to specific measurements for the Clever and Creative Corridor and simplify the description of components currently set out in dot points. If necessary, include a suitable range to describe the potential width of the corridor.	CCC	The specific elements of the CCC are outside the scope of my brief.
	Amend Action N1.3.4 as follows: "The integrated transport network will protect, minimise impacts and revegetate significant roadside vegetation."	Framework Plan	This relates to changes to the planning scheme ordinance and is outside of my brief.
	Amend Action N2.1.1, N3.1.1 and other references in the documents to replace '20-minute neighbourhoods' with '10-minute neighbourhoods'. This design principle better reflects Council's unique vision for the two growth areas.	Framework Plan	This relates to changes to the planning scheme ordinance and is outside of my brief.
	Amend Action N2.1.7 to refer to "200 – 400 metres" and "400 – 800 metres" instead of "400" and "800". This will introduce greater flexibility in the implementation of housing density and diversity across the project. (Medium density housing within 400 metres of neighbourhood activity centres and locations on the Clever and Creative Corridor that offer employment, public transport access and community hub)	CCC	This relates to changes to the planning scheme ordinance and is outside of my brief.
	Amend Action N2.2.6 as recommended by GTA in the supporting report exhibited with Amendment C395 to add the following new sentence: "New arterial road reserves are expected to provide a mid-block reserve sufficient for 4 traffic lanes to maximise walkability".	Design	This is a detailed design matter and would be addressed as part of the PSP stage.
	Notes strong alignment between the principles in the Framework Plan and the LBDG's vision including: Action N2.1.1 Urban development will adopt 20 minute neighbourhood design principles; Action N2.1.2 Walkability and cycling for local trips will be prioritised;	Active Travel	Noted.
	LBDG propose an additional Neighbourhood Centre is included in the north east area of the site, which will result in a different road network	Framework Plan	The land use is outside of my area of expertise.
	LBDG submits an alternative alignment for Elcho Road that will reduce cost, increase amenity, achieve better integration and have less impact on the natural landform.	Design	This is a detailed design matter and would be addressed as part of the PSP stage.
	LBDG suggest the indicated alignment of the CCC is adjusted to ensure that the CCC connects the proposed Neighbourhood Centres, walkability of the CCC in the northern areas of the growth area is improved, the CCC engages and activates key sections of the Monocline and the third external link from the Town Centre to GREP and rail is supported.	CCC	This is a detailed design matter and would be addressed as part of the PSP stage, noting that the cross section of the CCC is indicative.
	Lovely Banks recommends that greater diversity is allowed for in the physical form of the CCC including opportunities for asymmetrical linear open spaces along one side of the CCC, road sharing of public transport and vehicles including potential public transport only conditions, and compact urban 'Main Street' conditions. Diversity that delivers net community benefit should be able to be achieved at Precinct Structure Planning stage.	CCC	The specific elements of the CCC are outside the scope of my brief, noting that the cross section of the CCC is indicative and will be addressed as part of detailed design.
It needs to be acknowledged that the commercial development opportunities within the growth areas will be limited, and that it would therefore be beneficial to focus these opportunities within or close to designated activity centres rather than allowing commercial activity to be 'diluted' along the length of the corridor.	Framework Plan	This relates to changes to the planning scheme ordinance and is outside of my brief.	
The Plan encourages medium density housing within 400m of the Corridor, with higher densities within and close to activity centres. The depiction of this in Plan 23 (p130) implies that a large proportion of the NGGA will be developed at medium or higher density. In my opinion the language should be tempered to lower the expectation that such a large volume of medium and high-density housing can be delivered through the precinct structure planning process.	CCC	This is outside of my area of expertise.	
56	Proposes that the submitter's site is better associated with the Creamery Road Growth Area rather than Batesford South	Framework Plan	This is outside of the scope of my brief, noting that it can be addressed as part of detailed design.
57	Requests that the submitter's land be included in the Creamery Road development, as an integrated part of Precinct Structure Plan 1. The Midland Highway frontage enables services to be easily connected as a continuation of the Creamery Road development.	Framework Plan	This is outside of the scope of my brief.
58	Concerned that entire residential land will be acquired by the CCC, along with 30 houses along Evans Road which will be disturbed	CCC	The specific elements of the CCC are outside the scope of my brief.
60	Concerned that the proposed Ring Road and Church Street interchange as it is currently shown on the Framework Plan has both significant physical delivery challenges as well as financial implications. Proposes new alignment for the proposed Ring Road and Church Street interchange	Design	The plans show that the interchange and Church Street connection will be subject to further investigation. I would expect that the further investigation would seek to understand the optimum alignment and land take for any new connections having regard for their benefit, constructability and cost.
	Concerned about the flexibility around the delivery of the 'Clever and Creative Corridor' that traverses the Northern and Western Growth Areas, but supports the intent of delivering the planned CCC that will ultimately connect the Northern and Western Growth Areas.	CCC	Noted and agreed.
	Proposes that Council should delete references to specific measurements and simplify the description of the components of the Clever and Creative Corridor to allow for future flexibility, given that the final form of the interim and ultimate Clever and Creative Corridor is likely to change, during precinct structure planning and in consultation with the Department of Transport (DoT).	CCC	The specific elements of the CCC are outside the scope of my brief.
75	Supports the concept of the Clever and Creative Corridor - in particular, the vision for well connected, integrated neighbourhoods supported by active and public transport solutions.	CCC	Noted and agreed.
	Concerned about the proposed width of the cross-section - will create a psychological urban barrier with the impact of 'splitting' or effectively 'separating' communities on each side of the corridor by creating an undesirable crossing width. The significant width does not adopt a 'human scale' approach to city infrastructure planning with the likely impact of reducing the walkability of the precinct and limiting its potential to operate as a truly cohesive neighbourhood.	CCC	The specific elements of the CCC are outside the scope of my brief, noting that the cross section of the CCC is indicative and will be addressed as part of detailed design.
	Proposes that the FP allow for alternative design options of the Clever and Creative Corridor that continue to provide the functionality of a well-designed transport corridor, while acknowledging the possible impacts on overall liveability. These options should take into consideration the Movement and Place Guidelines and be designed to: <ul style="list-style-type: none"> • Ensure that the Clever and Creative Corridor represents 'best practice' with a greater emphasis on the amenity impacts of such a wide cross-section on the future low rise, low density urban environment. • Reflect likely use, demand and frequency of the public transport infrastructure based on the population projections including a review of projected movement patterns. • Explore an approach to 'grass' the tracks providing green relief along the extent of the transit corridor and consequentially reducing the need for a combined 7 m landscape buffer within the centre of the corridor. • Provide for canopy trees adjacent to the footpaths, to enhance the pedestrian experience. • Adopt 'Copenhagen-style' bike lanes, with lanes provided kerb side or adjacent to the public transport lanes, rather than in between proposed car parks and vehicular traffic. • Review the access connection between the Corridor and the proposed Western Geelong Growth Employment Precinct to ensure direct public transport opportunities to the proposed local employment precinct. • Consider the need for car parking along the extent of the corridor and, where appropriate remove the car parking spaces. • Remove the dimensions from the Framework Plan 	CCC	Whilst the specific items of the CCC are outside of my brief, I will note that some of the broader items raised are supported in particularly the movement and place approach, and having reliable public transport reliability. These will be addressed as part of the PSP planning stage.
We agree that the proposed external upgrade to Evans Road / Ballan Road and the use of this road as the connection between the two growth regions is sensible. This link will maintain a local access feeder route from the predominantly residential and recreational areas to local services shared within the Growth Corridor	Road Network	Noted and agreed that the upgrade is required to support the growth.	
S	Requests/ key points	Theme	Comment
	Proposes that the proposal to upgrade and duplicate Evans Road be reviewed following modelling undertaken that reflects the Council's objectives of a 50% mode shift to public transport for job related travel, instead of the 1.7% mode shift to public transport within the Western Growth Area by 2051 and a maximum shift to public transport of 15% at 2051 [GTA Northern and Western Geelong Growth Areas Movement and Access Report 14/06/2019].	Road Network	The S-VITM outputs are that of the current trends and data available, highlighting what the outcome would be under a business as usual approach to travel in Geelong and the growth areas. Further, the modelling provides a conservative estimate that should be considered, given that that behaviour change can be very gradual process. In terms of the road space allocation, maintaining the Evans Road cross section will allow the road space to be potentially used for dedicated PT lines and other modes.
	Recommends that the Framework Plan 02, Plan 04 and Plan 37 be amended to show the Creamery Road flyover as an 'existing condition' through the use of a new symbol.	Framework Plan	This is outside of the scope of my brief.
	Recommends that the FP clearly state that all internal and local traffic moving from within the Creamery Road Precinct to and from the Geelong Ring Road be directed to the Midland Highway to avoid local road congestion and 'rat running' within the Creamery Road Precinct.	Road Network	The way in which people travel within and through the PSP's is addressed in the Neighbourhood Section of the Framework Plan. An appropriate design response will also be addressed as part of the PSP.

	<p>Seek the following changes to the Northern and Western Geelong Growth Areas Framework Plan map at clause 21.20-5:</p> <ul style="list-style-type: none"> -In the Drawing Key under "Arterial Roads" add: "not to scale, subject to further traffic and movement analysis". -On the Map remove the "Geelong Ring Road upgrade connections" icon at Creamery Road. -Create a new icon on the Map at the Creamery Road overpass, and in the Drawing Key include the new icon for the Creamery Road overpass with the description "Existing condition - Creamery Road overpass". 	Framework Plan	This is outside of the scope of my brief as it seeks to change the planning scheme ordinance.	
79	Proposes that properties on Western side of Lynburn Road to be designated as 'Residential' instead of 'Rural Living'. If Lynburn Road is designated an Arterial Road or a Connector Road then the proposed area of residential zoning would be consistent with the level of the road and would also be consistent with development opposite on the same road and further North and South of the area on the same road. Changing Lynburn Road to a connector road or an arterial would significantly change the character of the road for residents. Changing this small section to residential would acknowledge the changed character and would allow development consistent with the opposite side of the street, and the proposed extensions of Lynburn Road.	Road Network	Lynburn Road is expected to experience over 28,000 vpd at full development of the Growth Areas. The typical volume threshold for a connector road is 7,000vpd and the expected volumes would exceed this level.	
	Proposes the Realignment of the North-South Arterial Road so that it joins up with the Clever and Creative Corridor at the Midland Highway. The current road reserve is not wide enough for the construction of an arterial road and would require acquisition of land and negotiation with multiple land-owners along the length of Lynburn Road. The proposed alignment would affect less individual properties	Road Network	This is a detailed design matter and would be addressed as part of the PSP stage.	
	Proposes an alternate alignment for the Clever and Creative Corridor to affect less individual properties. This would bring the arterial road that passes the West side of the quarry lake back to meet the Clever and Creative Corridor at the Midland Highway, or immediately South of the Midland Highway. This option would see the Clever and Creative Corridor become the Arterial route north of the Midland Highway along the Geelong Ballan Road	CCC	The specific elements of the CCC are outside the scope of my brief.	
	Proposes that Lynburn Road be a two-lane connector road north of the Midland Highway. Even if Lynburn Road becomes an Arterial Road south of the Midland Highway there is an opportunity for Lynburn Road north of the Midland Highway to be a connector road. This would reduce the impact of the residences on Lynburn Road, particularly those closest to the road reserve.	Road Network	Lynburn Road is expected to experience over 25,000 vpd north of the Midland Highway at full development of the Growth Areas. The typical volume threshold for a connector road is 7,000vpd and the expected volumes would exceed this level. I note that the alignment is indicative at this stage and will be subject to more detailed design.	
87	Objects to upgrading Heales Road as an arterial road with extra lanes, buses, big shared pathways and traffic lights due to location of parents property and impact on peaceful rural life	Road Network	This is a detailed design matter and would be addressed as part of the PSP stage.	
98	Objects further northward extension of the existing Ocean Grove Growth Area as it would seriously impact on the rural landscape enjoyed by travellers along this part of the Bellarine Highway.	Framework Plan	This is outside of the scope of my brief.	
S	Walking and cycling will be central to the design of neighbourhoods and promote mode shift from private vehicles to active transport.	- DoT supports this action as it aligns with the aims of the Victorian Cycling Strategy (VCS) to increase the number, frequency and diversity of Victorians cycling for transport by investing in a safer, lower-stress, better- connected network, prioritising Strategic Cycling Corridors (SCC's) and making cycling a more inclusive experience.	Active Travel	Noted and agreed.
	Walking and cycling will be central to the design of neighbourhoods and promote mode shift from private vehicles to active transport.	- SCC's are the arterials of the bicycle network, which join up important destinations such as the central Geelong and major activity centres.	Active Travel	Noted and agreed.
	Walking and cycling will be the highest priority in the design and management of the integrated transport network.	- This action is supported by DoT in principle as per the above comment, however it is DoT's preferences that a Movement and Place assessment is used to prioritise movement and place function of the transport network for all modes. This includes high movement corridors such as Hamilton and Midland Highway and the Ballarat to Geelong rail line.	Active Travel	Agreed, a Movement and Place Assessment should be applied to the detailed design of the transport network to ensure it is applied appropriately. This would be addressed as part of the PSP stage.
	The Clever and Creative Corridor will be a key destination for active transport by supporting walkable neighbourhoods, delivering commuter-based cycling infrastructure and encouraging the adoption of new technologies. Dedicated active transport infrastructure will be delivered from 'day one' in the corridor to encourage early adoption of active transport in new neighbourhoods.	- This action is supported by DoT subject to provision of a DCP to fund the required infrastructure.	Active Travel	This is a detailed design matter and would be addressed as part of the PSP stage.
	Active transport will be designed along the gas pipeline easement to provide an attractive linear corridor with safe transitions between the Clever and Creative Corridor and the arterial road network	- Commuter-based cycling infrastructure should be designed to cater for the increasing use of E-Bikes.	Active Travel	This is outside of the scope of my brief. Notwithstanding, this item should be addressed as part of the detailed design of the corridor.
	Active transport will be designed along the gas pipeline easement to provide an attractive linear corridor with safe transitions between the Clever and Creative Corridor and the arterial road network	- This action is supported by DoT. DoT is working with City of Greater Geelong (COGG) to develop and promote SCC's to increase the mode share of commuter cyclists over time. The planning being done for the NWGGA should align with this work and be consistent with the principles outlined in the VCS.	Active Travel	Noted and agreed, noting that the alignment of the corridor is outside of my scope.
	Active transport will be designed along the monocline ridgeway to provide an attractive linear corridor that connects activity centres and key open space nodes along the top of the Lovely Banks monocline escarpment.	- This action is supported by DoT.	Active Travel	Noted and agreed.
	Active transport infrastructure will be designed along the Moorabool River corridor, lake precinct and Geelong Ring Road to manage safety and access constraints associated with the topography of the area.	- This action is supported by DoT. Measures to mitigate steep grades to provide a lower stress cycling environment are supported and are consistent with the Victorian Cycling Strategy.	Active Travel	Noted and agreed.
Active transport infrastructure will be designed along Heales Road and Elcho Road to manage safety and access constraints associated with the topography of the Lovely Banks monocline.	- Plan 35 Active Transport Western Growth Area shows a proposed shared path along Dog Rocks Road and a portion of Friend in Hand Road. It is recommended that this path be extended southwards along the full length of Friend in Hand Road to create a direct north south connection between Hamilton Highway and Midland Highway.	Active Travel	The design of this section of road should cater for some form of cycle and pedestrian link.	
Active transport infrastructure will be designed along Heales Road and Elcho Road to manage safety and access constraints associated with the topography of the Lovely Banks monocline.	- This action is supported by DoT. Measures to mitigate steep grades to provide a lower stress cycling environment are supported and are consistent with the VCS.	Active Travel	Noted and agreed. This will be addressed at the PSP stage.	
Requests/ key points		Theme	Comment	
99	Active transport infrastructure will be designed along Heales Road and Elcho Road to manage safety and access constraints associated with the topography of the Lovely Banks monocline. Greater Geelong's Principal Bicycle Network will expand into each neighbourhood to provide cycling connections to the broader city network and deliver: - A pedestrian bridge across the Geelong Ring Road that links to the Ted Wilson Trail - Upgrades to active transport infrastructure at the Bacchus Marsh Road freeway interchange and Anakie Road freeway interchange	- This action is supported by DoT in principle. It is recommended that Council works with DoT through Active Transport Victoria to develop and integrate all active transport planning. The Geelong Ring Road creates a significant east west barrier to pedestrian and cycling movements and this should be mitigated through further investigation of opportunities such as those identified in this action.	Active Travel	Noted and agreed that opportunities should be investigated to manage the east-west barrier to pedestrians and cyclists created by the Geelong Ring Road.

	<p>Public transport will be central to the design of neighbourhoods and promote mode shift from private vehicles.</p> <p>A comprehensive street network will be designed and established that prioritises public transport movements within and between neighbourhoods. The network will:</p> <ul style="list-style-type: none"> -M aximise safety and connectivity for public transport users -P rovide direct access to the Clever and Creative Corridor via local bus routes - Support ultra-low-floor buses and convenient and frequent bus stops on arterial roads and connector streets that all households can access within a walkable distance -C onnect and interchange at key destinations in the urban landscape, including activity centres, community hubs, schools, employment precincts and arterial roads -O vercome or avoid challenges associated with topography in its design. 	<ul style="list-style-type: none"> - This action is supported by DoT. - All infrastructure to be designed in accordance with DoT's Public Transport Guidelines for Land Use and Development - As the majority of trips to employment, education and services will be outside of the growth areas and orientated toward central Geelong, the established network within urban Geelong is unlikely to be able to cater for this increase of trips unless a significant component of mode share is taken up by public transport. - The Greater Geelong Growth Area Transport Infrastructure Strategy will need to provide strategic direction on the above. 	Public Transport	Agreed, it is noted that this study is currently in progress.
	Public transport will be the highest priority beyond active transport in the design and management of the integrated transport network.	<ul style="list-style-type: none"> - This action is supported by DoT in principle, however it is DoT's preference that a Movement and Place assessment is used to prioritise movement and place function of the transport network for all modes. - COGG will need to work with DoT to develop and integrate all public transport planning 	Public Transport	Agreed, a Movement and Place Assessment should be applied to the detailed design of the transport network to ensure it is applied appropriately. This would be addressed as part of the PSP stage.
	The Clever and Creative Corridor will be a key destination for public transport by supporting higher density neighbourhoods, delivering fast and convenient services and encouraging the adoption of new technologies. Land for a dedicated, separated public transport infrastructure will be secured from 'day one' along the corridor to ensure that large-scale public transport modes can be supplied as part of urban development.	This action is supported by DoT.	Public Transport	Noted
	Urban development will provide 'day one' public transport services for initial residents of new neighbourhoods to combat reliance on private vehicles for commuter trips. Public transport services will be provided for initial residents of new communities that link to central Geelong at morning and afternoon peak times. Early provision of services may necessitate developer-operated shuttle bus services.	<ul style="list-style-type: none"> - DoT supports this action noting that 'day one' PT services are proposed to be implemented using developer funded shuttle services at morning and afternoon peak times linking to central Geelong. It is recommended that connections to other key destinations such as train stations and off-peak services are also provided from 'day one.' - It is likely that an extension of the Geelong Bus Network servicing the growth areas would be implemented by DoT when patronage numbers warrant such services. Funding for this will be considered and prioritised on a state-wide basis 	Public Transport	Noted and agreed that day one public transport services should connect to other key destinations and during off-peak periods. This is also a funding matter which would be addressed as part of the PSP process.
	Capacity to deliver public transport infrastructure will be a key consideration in the design of the integrated transport network where constraints are associated with the topography of the Lovely Banks monocline.	This action is supported by DoT	Public Transport	Noted and agreed.
	Greater Geelong's Public Transport Network will expand into each neighbourhood to provide public transport connections to the broader city network and deliver: <ul style="list-style-type: none"> -U pgrades to the Bacchus Marsh Road freeway interchange and Anakie Road freeway interchange -U pgrades to the external road network connecting to Corio Railway Station -U pgrades to the external road network connecting to Lara Railway Station 	DoT supports strong public transport connections to the growth areas. Any infrastructure upgrades will need to be informed by the GGATIS and supported by a robust infrastructure delivery plan as well as an Infrastructure Contribution Plan as proposed in amendment to Clause 21.08 of the municipal strategic statement.	Public Transport	Noted. The study is currently in progress.
	Sequencing of urban development will protect the opportunity for transit-orientated development along the Geelong-Ballarat railway between Geelong-Ballan Road and Evans Road.	Page 201 Public Transport - Western Growth Area notes that new public transport infrastructure includes commuter-based passenger rail services on the Geelong-Ballarat line between Geelong and Bannockburn including a new railway station near Geelong-Ballan Road. It is recommended that this statement be reworded to align with the associated action (W4.2.7) which talks about "retaining the capacity" for future passenger rail services on the line.	Public Transport	Noted.
	Investigate a 'rail corridor precinct' approach to infill opportunities from North Geelong Station through to Breakwater. (Settlement Strategy)	DoT supports this direction in principle and would request this direction is reworded to cover the full extent of the corridor from North Geelong to Waurn Ponds as infill opportunities also exist around Marshall and Waurn Ponds stations. It is also unlikely that a station at Breakwater would be re-activated given current land use and engineering constraints.	Public Transport	This is outside the scope of my brief.
100	Strongly supports the development of a new train station in the location indicated in the FP, and the adaption of the Geelong Ballarat Railway to accommodate passenger trains.		Public Transport	Noted and agreed.
	Supports the proposed location of the railway station on the railway line, given its close proximity to the CCC and proposed neighbourhood activity centre (NAC) to the south. Connectivity is then enhanced by the planned public transport routes along this corridor, as well as proximity to the Geelong-Ballan Road		Public Transport	Noted and agreed.
	Objects to alternative locations of the train station to the east and west due to land constraints and further distance from the CCC respectively		Public Transport	Noted.
	Supports realignment and widening of Evans Road for accommodating future growth and connectivity		Road network	Noted and agreed.
	Consider realignment of Evans Road so that it does not require a new crossing over Cowies Creek or unduly compromise the developable area of the site. Potentially achieved by repositioning the new intersection of Geelong- Ballan Road and Evans Road further to the south		Design	This is a detailed design matter and would be addressed as part of the PSP stage.
Proposes reviewing the CCC alignment at the PSP stage to include proposed train station and adjoining land, to ensure the station is well connected to the corridor, including the higher density residential buildings and employment areas, as well as ensuring it is well connected to the neighbourhood activity centre		CCC	The specific elements of the CCC are outside the scope of my brief. Noting that detailed elements of the CCC are conceptual and will be reviewed at the PSP stage.	

C. NWGGA MOVEMENT AND ACCESS REPORT



