Sunshine Coast COUNCIL

Agenda

Special Meeting

(Sunshine Coast Mass Transit Update)

Thursday, 27 August 2020

commencing at 9:00 am

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1 DECLARATION OF OPENING

On establishing there is a quorum, the Chair will declare the meeting open.

2 RECORD OF ATTENDANCE AND LEAVE OF ABSENCE

3 INFORMING OF PERSONAL INTERESTS

3.1 MATERIAL PERSONAL INTEREST

Pursuant to Section 175C of the *Local Government Act 2009*, a Councillor who has a material personal interest in an issue to be considered at a meeting of the local government, or any of its committees must –

(a) inform the meeting of the Councillor's material personal interest in the matter and

(b) leave the meeting room (including any area set aside for the public), and stay out of the meeting room while the matter is being discussed and voted on.

3.2 CONFLICT OF INTEREST / PERCEIVED CONFLICT OF INTEREST

Pursuant to Section 175E of the *Local Government Act 2009*, a Councillor who has a real or perceived conflict of interest in a matter to be considered at a meeting of the local government, or any of its committees, must inform the meeting about the councillor's personal interest the matter.

The other Councillors must then decide

(a) whether the Councillor has a real conflict of interest or perceived conflict of interest in the matter and

(b) if they decide the Councillor has a real conflict of interest or perceived conflict of interest in the matter
    (i) whether the Councillor must leave the meeting room (including any area set aside for the public), and stay out of the meeting room while the matter is being discussed and voted on, or
    (ii) that the Councillor may participate in the meeting in relation to the matter, including by voting on the matter.

4 REPORTS DIRECT TO COUNCIL

4.1 SUNSHINE COAST MASS TRANSIT UPDATE

File No: Council meetings

Author: Project Manager
Liveability & Natural Assets Group

Appendices: App A - Sunshine Coast Mass Transit Community Engagement Framework 27

Attachments: Att 1 - Council Resolution 20 August 2020 33
Att 2 - Sunshine Coast Mass Transit Preliminary Business Case. Interim Findings Report 35

PURPOSE

The purpose of this report is to:

1. Outline the range of broader strategic and interconnected issues (such as the regional planning directions, urban growth challenges, coastal hazard responses, integrated transport planning and infrastructure sequencing) which will shape the future liveability of the Sunshine Coast and the importance of these considerations in considering the public transport requirements of the region and the *Options Analysis* for a mass transit system
2. Provide an overview of the scope of an *Options Analysis* document as set down in the Queensland Government's business case development framework
3. Advise Council of the progress made in preparing a business case for Sunshine Coast Mass Transit, in particular the *Options Analysis* phase of the business case process
4. Present a community engagement framework for Council's consideration to support our community's understanding of these challenging issues and to elicit their response on the options before us

EXECUTIVE SUMMARY

Over the past 20 years, the population of the Sunshine Coast has grown by 125,500 people or 67.7 per cent, at an average of 2.8 per cent per year. Overall, this is the second highest growth rate of any region in Queensland. The region's population is projected to continue to grow strongly, reaching 518,000 in 2041 and more than 600,000 by 2050.

Population growth and increasing congestion will continue to put pressure on housing, transport, lifestyle, employment, social infrastructure and the environment. At the same time, failing to plan for how to manage and accommodate growth and do so in a way that maintains the lifestyle and landscape values of the region, will only exacerbate these impacts and undermine the liveability of the region.

Through its land use and infrastructure planning work over the last 12 years, the Sunshine Coast Council has put in place a range of strategies and other policy and regulatory levers to sustainably manage the projected population growth of the Sunshine Coast over the decades ahead. These range from the Sunshine Coast Planning Scheme to our Integrated Transport Strategy to the important work currently underway on the Sunshine Coast Coastal Hazard Adaptation Strategy. The common thread across all of this work is to preserve the Sunshine Coast's character, lifestyle and outstanding natural environment as essential contributors to the region's value proposition.

But the region's lifestyle, and its valued natural environment are at risk due to the very high dependence on private motor vehicle travel, and an increasing trend towards development of new suburbs at the urban fringe as the main way to cater for population growth. Without direct policy intervention to move people more efficiently, and support an urban settlement pattern which reduces the need to travel, the region will experience declining amenity and see its coastal precincts become places more for cars than people.

The vision for the Sunshine Coast Mass Transit project is an important element of Council's plan to manage growth – in short, its vision is to provide *a step change to public transport that can set the region on a path to sustainable transport and appropriate urban development*.

Work already done by Council has shown this vision can be achieved through:

- providing a high quality regional mass transit solution to connect the region's main residential, employment and recreational precincts, supported by an integrated feeder bus and active transport network
- containing the rate of urban expansion that results in car-based suburban greenfield developments to the agreed expansion areas at Caloundra South, Palmview and Beerwah East
- locating the majority of new housing and jobs in the catchment of the mass transit system, while maintaining a recognisable low key Sunshine Coast character.

The alternative is to see urban sprawl, to continue to provide additional lanes to existing roads, build new roads, and provide major increases in car parking in and around centres and beachside precincts.

The plan to manage growth and protect our lifestyle is given effect by a broad range of Queensland Government and Sunshine Coast Council policy documents, addressing regional planning directions, urban growth challenges, habitat preservation, Greenhouse responses, coastal hazard responses, integrated transport planning and infrastructure sequencing.

An investment in a regional mass transit solution is a major intervention that can only be delivered by the Queensland Government, which is responsible for public transport on the Sunshine Coast.

However, to date, the State is yet to complete an effective master plan for a viable and accessible public transport solution for the coastal urban corridor – the area where around 80 % of the region's population lives. In 2011, Council – supported by then Councillor Vivian Griffin – took up the responsibility to start planning for a more integrated and accessible mass transit solution for the region.

For any significant public transport network to be considered for funding, it must be underpinned by a supportive business case. Council endorsed the first phase of the business case process - the *Strategic Business Case* - in July 2019. The purpose of this phase (now known as a *Strategic Assessment* under Building Queensland's April 2020 guidelines) is to define a problem or opportunity that needs to be addressed, identify potential ideas that could resolve the issues or develop the opportunity, and evaluate whether any of the ideas have the potential to be viable options.

The second phase, previously known as the *Preliminary Business Case* and now known as the *Options Analysis*, aims to "narrow the breadth of options by applying rigorous evaluation criteria before assessing the viability of any remaining options". Work on this phase has been progressed and focusses on the first stage of an integrated urban public transport solution for the region.

Draft analysis undertaken to date is supportive of the need for, and value of, a substantially improved and integrated public transport solution and a related urban transformation strategy, and identifies the unacceptable consequences of not pursuing this strategy. When

completed, the draft *Options Analysis* will provide an assessment of a shortlist of options for Stage 1 of the mass transit response.

The draft *Options Analysis* is being developed with extensive technical content. However, it also forms part of an important broader context connected with a range of urban growth planning policy issues. All of these elements need to be considered and progressed in an integrated manner to maximize the outcome for our communities and to ensure that the liveability and connectivity of the region is not only maintained, but enhanced.

With this mind it is important that Council engages with the community on this breadth of issues and to understand the views of the Sunshine Coast community about how to best respond to the challenges of growth. To that end, a community engagement framework is provided in Appendix A for Council's consideration.

The Options Analysis will be presented to Council for consideration in 2021 when it is finalised following the completion of Council's community engagement activities. Should Council approve the Options Analysis at that time, it will then be formally transmitted to the State Government for assurance review. Once finalised, the Department of Transport and Main Roads will take the lead on the development of the detailed business case, which will be needed to influence and inform any State and Federal government funding decisions for a public transport solution of this nature.

Under the approach typically followed by the State, the *Detailed Business Case* process for Sunshine Coast Mass Transit would include extensive community engagement on all detailed aspects of the proposed project.

It is considered that, if Council approves the recommendations set out below, the Council's resolution of 20 August 2020 (OM20/89 – see Attachment 1) will have been fulfilled.

OFFICER RECOMMENDATION

That Council:

(a) receive and note the report titled "Sunshine Coast Mass Transit Update"

(b) endorse the community engagement framework contained in Appendix A.

FINANCE AND RESOURCING

The preparation of the draft *Options Analysis* is being funded through the Transport Levy allocation from the budget. A total of $3,360,916 was allocated for this work in 2019/2020.

The 2020/2021 budget allocates $3,000,000 from the Transport Levy.

Implementing the community engagement framework as recommended in this report will improve the rigour of the detailed business case, should this proceed. If approved, this community engagement framework will be developed into a detailed program which can then be subjected to a cost estimating process. Typically, such an engagement strategy could be expected to cost around $300,000, although this should not be adopted as the likely cost until further explored.

CORPORATE PLAN

Corporate Plan Goal:	***A strong community***
Outcome:	1.4 - People and places are connected
Operational Activity:	1.4.1 - Implement priority activities from the Integrated Transport Strategy 2018.

CONSULTATION

Councillor Consultation

A Sunshine Coast Mass Transit Cross Departmental Working Group was established in August 2018 to steer the Sunshine Coast Mass Transit Project.

The Working Group was comprised of:

- Mayor M Jamieson
- Former Deputy Mayor Councillor T Dwyer
- Portfolio Councillor R Baberowski – Transport, the Arts and Heritage
- Portfolio Councillor C Dickson – Planning and Development
- Portfolio Councillor P Cox – Place Development and Design
- Former Division 4 Councillor J Connolly
- Division 8 Councillor J O'Pray

The Working Group was convened six times, with the most recent meeting being held on 20 January 2020.

Following the March 2020 election, the Working Group was re-established as the Sunshine Coast Mass Transit Project Control Group comprising:

- Mayor M Jamieson
- Deputy Mayor and Community (Transport) Portfolio Councillor R Baberowski
- Environment and Liveability (Place making) Portfolio Councillor P Cox
- Service Excellence Portfolio Councillor C Dickson.

The Project Control Group convened on 8 July 2020.

A series of Councillor workshops on the Sunshine Coast Mass Transit business case process were held during the period from early 2018 to July 2020.

Internal Consultation

Other participants in the work of the Sunshine Coast Mass Transit Project Control Group are:

- Chief Executive Officer
- Chief Strategy Officer
- Group Executive Liveability and Natural Assets
- Group Executive Customer Engagement and Planning Services
- Manager Transport and Infrastructure Planning.

External Stakeholder Engagement

A Business Case Reference Group has been established to guide and provide input to, and monitor the preparation of, the business case.

Participants in this reference group include:

- Infrastructure Australia (Commonwealth Government)
- Commonwealth Department of Infrastructure, Transport, Regional Development and Communications
- Queensland Department of the Premier and Cabinet

- Queensland Department of State Development, Manufacturing, Infrastructure and Planning (the relevant parts of which are now in Queensland Treasury)
- Building Queensland (Queensland Government)
- Queensland Treasury
- Queensland Department of Transport and Main Roads.

Community Engagement

Both the *Strategic Business Case* and the draft *Options Analysis* integrate the results of significant previous community consultation undertaken by Council in relation to transport policy and, in particular, mass transit proposals in 2012, 2014 and 2018, as outlined below.

2012 – The *Line in the Sand* Report

Council's *Line in the Sand* process included a broadly representative community taskforce, supported by expert advisers from Council. The process canvassed six technology options for a mass transit system as a game changer for the Sunshine Coast. An online consultation hub, launched in January 2012, attracted more than 2,900 visits.

2014 – Sunshine Coast Light Rail – route options

Consultation was undertaken in late 2014 based on a detailed Route Options and Impact Assessment report. The report covered both transport needs and city shaping opportunities. Feedback contributed to the selection by Council of a preferred route for further study.

2018 – Draft Integrated Transport Strategy

Council undertook market research and community consultation between November 2017 and July 2018 to help shape the *Integrated Transport Strategy*, which was released in early 2019. Key findings from the market research and community consultation relevant to the Sunshine Coast Mass Transit Project have been integrated with the business case workings.

Other consultation

At a broader policy level, the implications of accommodating a high population growth rate and the critical need for improved transport connections have been an important facet of:

- The Sunshine Coast Regional Economic Development Strategy adopted in 2013 and updated in 2019
- The Sunshine Coast Planning Scheme adopted in 2014
- The Environment and Liveability Strategy adopted in 2017
- The Sunshine Coast Community Strategy adopted in 2019.

The Queensland Government also undertook broad scale community consultation in relation to the extent and form of dwelling and employment provision on the Sunshine Coast to 2041 as part of the preparation of *ShapingSEQ* - the South East Queensland Regional Plan - released in 2017.

Future consultation

Appendix A to this report outlines the proposed framework for the future community engagement process for Sunshine Coast Mass Transit. This framework sets the context for the engagement process, the proposed approach to engaging, the opportunities for engagement and a proposed engagement program.

Importantly, the framework is based on principles that will ensure the community is engaged in an open, meaningful and inclusive manner and is well informed through the provision of accurate and easy-to-understand material.

The framework seeks to promote a wider understanding of the range of interconnected considerations associated with managing the region's growth and the important role that a

public transport solution, based on mass transit, has to play in managing the effects of growth and maintaining the liveability of the region.

The community engagement program will be progressively implemented over the course of the next six months to inform the finalisation of the Options Analysis. The Options Analysis will be presented for Council's consideration once it has been informed by the outcomes of the community engagement process.

As previously advised in Council reports of July 2019 and January 2020, further detailed community engagement on all aspects of the Sunshine Coast Mass Transit Project is also expected to be part of the *Detailed Business Case* phase, which will be led by the Queensland Government and is likely to occur in 2021/22 once the Options Analysis has been endorsed by Council and accepted by the State.

The Queensland Government has not yet determined its approach to the *Detailed Business Case*. When it does, a further report will be made to Council to confirm the scope and program for the *Detailed Business Case*, including the nature and timing of community engagement process.

Any recommendations for changes to land use regulations that emerge from the Detailed Business Case process would be advanced through development of future amendments and updates to the Planning Scheme, again subject to detailed consultation processes.

PROPOSAL

Over the past 20 years, the population of the Sunshine Coast has grown by 125,500 people or 67.7 per cent, at an average of 2.8 per cent per year. Overall, this is the second highest growth rate of any region in Queensland. By comparison, Queensland's population grew by only 35 per cent at an average of 2 per cent per year over the same period. The region's population is projected to continue to grow strongly, reaching 518,000 in 2041 and more than 600,000 by 2050.

With the absence of a viable, accessible and efficient public transport network, the region is heavily dependent on car transport. Furthermore, to accommodate sustained high rates of population, the region continues to rapidly expand its urban boundaries. Public transport use is very low, and the current system, while suited to a smaller regional community, cannot cope with the requirements of a major city region that the Sunshine Coast is becoming. This gives rise to major challenges in managing growth over the next three decades. Population growth and increasing congestion will continue to put pressure on housing, transport, lifestyle, employment, social infrastructure and the environment. There is a real risk of a vicious circle developing as shown opposite, diminishing the very qualities of the region that make it an attractive place to live, work, visit, raise a family and retire.

Current policy context

The Sunshine Coast Mass Transit project is a one of the critical parts of Council's growth management plan. It is an initiative that supports the achievement of the policies and objectives in a suite of Council's strategies and plans including:

- Sunshine Coast Regional Economic Development Strategy 2013 -2033
- Sunshine Coast Planning Scheme 2014
- Sunshine Coast Environment and Liveability Strategy 2017
- Sunshine Coast Integrated Transport Strategy 2019
- Sunshine Coast Community Strategy 2019 - 2041
- Sunshine Coast Council Corporate Plan 2020 to 2024
- Coastal Hazards Adaptation Strategy **"***Our Resilient Coast. Our Future***"** (under development).

Council's growth management plan also accords with the Queensland Government's regional plan for South East Queensland, known as *ShapingSEQ*.

The policy context set by each of these documents is set out below.

The Sunshine Coast Regional Economic Development Strategy 2013 (updated in 2019) included extensive stakeholder and community engagement. It provided a blueprint to develop a New Economy as the region grows through:

- securing high levels of investment and growing enduring employment opportunities
- investing in communities and delivering the essential infrastructure and services that communities require
- preserving the lifestyle and environment that is so highly valued by the Sunshine Coast.

The Strategy defined an *Enterprise Corridor* - stretching primarily along the coastal strip from the Sunshine Coast Airport to Caloundra South and bounded to the west by the Bruce Highway. The Enterprise Corridor was incorporated into the Sunshine Coast Planning Scheme 2014 and represents the key area for commercial and residential growth over the next 20 years and provides the location for many of the high-value industries to establish, expand and mature. Recognising the importance of connecting businesses to each other and to their workforce, it contained an action by 2018 to:

> "Identify and preserve future priority public transport corridors to connect major business, tourism, education and population centres within the Enterprise Corridor."

With action approved by Council on 23 April 2015 to *confirm the recommended light rail route corridor with which to proceed to more detailed feasibility and business case studies,* and the previous actions by the Department of Transport and Main Roads to declare the CAMCOS corridor as a future public transport corridor, this action is completed. The current Sunshine Coast Mass Transit business case development process takes the provision of suitable infrastructure to the next step.

The Sunshine Coast Planning Scheme 2014 was produced on the basis of very detailed and extensive community engagement process over a three year period. It provides a clear plan for managing growth until 2031. The scheme conveys a specific set of policies aimed at managing growth under Section 3.2 – Strategic Intent (p 3.3):

> *"The pattern of settlement is characterised by well-defined urban and rural residential areas and the progressive transition towards a more compact, efficient and functional urban form.*
>
> *The majority of new growth is located in the Sunshine Coast Enterprise Corridor, within and surrounding the mixed use regional activity centres of Maroochydore, Caloundra, Kawana and Sippy Downs and in the emerging communities of Palmview, Kawana Waters and Caloundra South.*

Significant new growth is also located in Nambour as the dominant major regional activity centre serving hinterland areas.

Major development areas at Maroochydore, Kawana Waters, Palmview and Caloundra South provide integrated, well planned communities which showcase sustainable development, affordable living and align infrastructure delivery with development.

These major developments are the keystones for the shift towards a more sustainable and transit supportive pattern of settlement.

Over time and in conjunction with more detailed local planning initiatives there is an increase in the intensity of development and the proportion of the population living along the Maroochydore to Caloundra Priority Transit Corridor.

This corridor links regional activity centres and the major development areas, and is part of the integrated transport system for the Sunshine Coast.

Other opportunities for infill development are provided in selected locations throughout the urban fabric, although many established low density residential neighbourhoods are retained in their current form in recognition of the high quality lifestyle and character offered by these areas.

Outside of defined urban and rural residential areas, rural and natural areas are protected and enhanced for their rural enterprise, landscape and environmental values. These areas separate the Sunshine Coast from other parts of metropolitan South East Queensland and provide the landscape setting and biological diversity for which the Sunshine Coast is renowned."

The Planning Scheme also provides a range of policies and provisions to ensure a distinct Sunshine Coast urban form is fostered. For example at:

- *Section 3.3.1. - Strategic outcomes for the settlement pattern*

  (f) The form and structure of new and consolidated urban areas contributes to the achievement of a more compact urban form and an effective and efficient transport network that supports increased use of walking, cycling and public transport and has a positive influence on the community's physical activity and health in general.

  (g) affordable, attractive and diverse living opportunities are provided with convenient access to integrated transport, employment, community, education, health, sport, recreation and other services. A range of housing choices are provided in locations that are close to activity centres and active and public transport. Housing is designed to be adaptable and reduce current costs.

- *Section 3.3.2. Element 1 -Character, lifestyle and environment attributes:*

  (ii) maintaining a settlement pattern and encouraging built form that is distinct to the Sunshine Coast and which avoids prominent symbols and negative attributes of larger metropolitan areas (i.e. undistinguishable tracts of urban sprawl and oversized transport corridors with bare acoustic walls and signage);

The **South East Queensland Regional Plan 2017 (*ShapingSEQ*)** sets a 50-year vision for the South East Queensland region to be globally positioned as a unique sub-tropical living environment. *ShapingSEQ* was also the subject of an extensive community consultation process, including on the Sunshine Coast, during 2016 and 2017. Specifically, its plan for the next 25 years recognises the growth forecasts for the Sunshine Coast and consistent with many of Council's policy settings:

- focuses 62 per cent of new residential development in the existing urban area
- prioritises public transport and active transport (i.e. walking and cycling)

- provides for the progression of region-shaping infrastructure to increase accessibility and productivity.

Shaping SEQ is a statutory document under which Council is required (as indicated above) to provide for 62% of all new dwellings to be accommodated by way of urban consolidation, primarily in the urban corridor from Maroochydore to Caloundra, as follows:

> *"The intent to use land and infrastructure efficiently will be supported by focusing density in and around appropriate locations along the urban corridor from Maroochydore to Caloundra, and in areas with superior access to public transport, employment and services."*
>
> *"Further growth and urban renewal along the proposed passenger transport corridor, between Maroochydore and Caloundra, will provide a cohesive corridor of distinctive, high-quality urban environments that are typically 'Sunshine Coast' in character and optimise access to future passenger transport services."*

The Sunshine Coast Environment and Liveability Strategy 2017 was also the subject of extensive community engagement process. It provides Council's response to a rapidly changing world where there will be many challenges and opportunities for the Sunshine Coast way of life – increasing population, changing climate, economic growth and emerging technologies.

The timely delivery of an effective and efficient transport network underpins the strategic directions of the Environment and Liveability Strategy. It also noted the need to manage and consolidate urban growth in order to protect the region's lifestyle and natural assets (p 46):

> *"Currently 70% of our residents live along the coastline putting significant pressure on the built and natural environment in this narrow strip and challenging our ability to maintain the relaxed lifestyle, protect assets from coastal hazards and retain the connection with the natural environment that is so highly valued.*
>
> *It is anticipated that the future growth will predominately be located in the coastal area with an emphasis on infill development transitioning to a more consolidated urban form supported by appropriate infrastructure, such as a light rail system, facilities and services. Creating a new way of living and minimising impacts on our natural environment.*
>
> *Future development will be modelled on the principles of self-containment and sustainability encouraging walking, cycling and access to employment, transport, open space and services."*

The Sunshine Coast Integrated Transport Strategy 2019 was also the subject of extensive community engagement process from November2017 to July 2018. It established the major transport challenges facing the region as it grows, and set key targets to reduce the dominance of private motor travel and increase sustainable transport modes. At page 43 the Strategy provided a High Frequency Public Transport Network Plan for 2041. This included a *Priority Transport Project* to improve public transport:

> *"Sunshine Coast Light Rail (Federal / State / Council). Council is developing a business case for the Light Rail project to submit to the State Government. Light rail could provide a high-frequency transit solution extending initially from the Sunshine Coast Airport, through Maroochydore and the Sunshine Coast University Hospital precinct to Caloundra and then beyond. It will serve the Enterprise Corridor where population and employment growth are expected to increase significantly."*

The Transport Strategy further noted (p 30):

> *"Consolidated and compact urban form around activity and employment centres and along major transport corridor nodes, will generally make it easier to service from*

public transport (including high-frequency passenger transport) and may assist in increasing public transport patronage and visibility."

The Sunshine Coast Community Strategy 2019 - 2041 was similarly developed from an extensive "from the ground-up" community engagement program. It notes the Sunshine Coast is experiencing a transformation from a regional centre to a regional city, reflecting deeply entrenched trends in Australian society that are seeing attractive coastal cities continue to grow.

The Community Strategy identifies that one key priority the community expected of Council was to work with other levels of government to develop innovative responses to public transport and mobility options, as well as housing affordability and homelessness. At page 31 it includes an action to:

"Collaborate and partner with government, community and relevant sectors to find solutions to transport challenges, and encourage travel behaviour change from a reliance on vehicle use to more sustainable means of transport."

Sunshine Coast Council's Corporate Plan 2020 to 2024 conveys a vision for the Sunshine Coast as *Australia's most sustainable region. Healthy. Smart. Creative.* Based on the growth management and transport issues noted above, a step change in public transport is required to set the Sunshine Coast on a path to sustainable transport and urban development. The Corporate Plan notes (p 28):

"Council is continuing to build its case for the development of an integrated mass transit system to service the Sunshine Coast's growing population.

While other levels of government are accountable for many elements of the transport system, Council is willing to be a catalyst for improvement and innovation where it contributes to the sustainability of the region. As a key example of this, Council is continuing to build its case for the development of an integrated mass transit system to service the Sunshine Coast's growing population."

Coastal hazards adaptation strategy. The first stage of the Sunshine Coast Mass Transit is proposed to traverse the coastal corridor from Maroochydore to Sunshine Coast University Hospital, an area of focus for coastal hazard adaptation. Council is preparing **"*Our Resilient Coast. Our Future*"** - a long-term strategy to help manage the impacts of coastal hazards. Coastal hazards include erosion of beaches, and short or long-term seawater inundation of land along the coastline.

The strategy aims to better understand coastal hazards, to reduce impacts on the coastline and its communities, and to enhance the resilience of the coastline over time. The strategy is expected to be completed in 2022. When available, any relevant outputs can be progressively integrated into the detailed business case phase for Sunshine Coast Mass Transit and future land use planning to improve the understanding of adaptation responses required in the high growth coastal corridor.

Need for the Sunshine Coast Mass Transit Project

A fast growing area

The Sunshine Coast's population is forecast to increase from 320,000 to more than 518,000 over the next 20 years as more people choose to live here. The year 2041 is not an end point. Growth won't stop then, and based on historical growth patterns and trends, it is reasonable to expect another 200,000 people over the three decades after that as well.

Like all south east Queensland councils, Sunshine Coast Council has worked with the Queensland Government on a plan to manage growth, not to resist it. To do so would only stifle the region's economy, erode employment opportunities, threaten livelihoods and force up the price of housing. Adopting a mature approach to growth management means we can grow our economy away from reliance on industries that are vulnerable to global fluctuations

(e.g. tourism and retail) while protecting our quality of life and the natural assets of our region.

Through its land use and infrastructure planning work over the last 12 years, the Sunshine Coast Council has put in place a range of strategies and other policy and regulatory levers to sustainably manage the projected population growth of the Sunshine Coast over the decades ahead – this range from the Sunshine Coast Planning Scheme to our Integrated Transport Strategy to the important work currently underway on the Sunshine Coast Coastal Hazards Adaptation Strategy.

The common thread across all of this work is to preserve the Sunshine Coast's character, lifestyle and outstanding natural environment as essential contributors to the region's value proposition.

To accommodate growth, at least an additional 87,000 new dwellings will be needed by 2041. The current trend towards accelerating urban expansion would see more than half of those additional dwelling being provided in new greenfield communities, remote from major employment and beachside precincts, and relying heavily on car transport.

If growth is not managed through a careful and committed plan, we will in effect be paving the way for urban sprawl extending out to our scenic hinterland and down to our southern border, and building more roads and car parks so the residents of those sprawling suburbs can access work and services and visit our beaches, waterways and recreation reserves.

Growing transport demand

Growing transport demand is a major issue because Sunshine Coast is so heavily dependent on car travel, which accounts for 85 per cent of all daily trips.

Forecasts already show 830,000 extra car trips are anticipated each day on our roads if transport investment policy remains focussed on catering for traffic without shifting people to sustainable transport including public and active transport.

Currently only 3 per cent of trips in the region are made on public transport and this suggests most people don't see public transport as meeting their needs. The reality is the present public transport system not up to the task of inducing a large enough change in travel behaviour to protect the region from spiralling traffic congestion.

Public transport moves a lot more people in a lot less vehicles. It is the only way to meet the growing transport demands in the major activity centres and beachside precincts of the region. What is needed is a step in public transport to attract people out of cars and build on that behavioural change. Failing to do this will have significant amenity and accessibility impacts on the coastal precincts. Without an ability to reduce the growth of car based urban sprawl and make better use of limited space in the coastal precincts, investment will have to be targeted towards facilities for cars - new roads, wider roads and car parking structures. Land will have to be redeveloped for these facilities rather than being used for open space and lifestyle living choices.

The mass transit solution is aimed ensuring the region's liveability and natural assets are not compromised or undermined. In particular, it's about moving people more efficiently to where they need to go, arresting urban sprawl and protecting natural assets. A new mass transit solution can support a wider range of lifestyle choices, including an affordable low key medium density beachside lifestyle within the mass transit catchment.

As identified in the Sunshine Coast Mass Transit Preliminary Business Case, Interim Findings Report received by Council in January 2020 (refer to Attachment 2), increased growth in the coastal precinct known as Sunshine Coast Urban Corridor will only be achieved if the amenity, liveability, employment and lifestyle offering is demonstrated to be attractive to current and future residents. As noted at page 14 in the Interim Findings Report:

"New consolidated urban development in the Sunshine Coast Urban Corridor can be designed to achieve a low-key lifestyle city that maintains and enhances the Sunshine Coast's valued character and identity through:

- *A series of urban villages containing a mix of uses which create local community hubs and which are connected to the major centres of Maroochydore, Kawana and Caloundra*
- *Providing for a range of desirable housing choices suitable for an affordable coastal oriented lifestyle*
- *Containing building height and site cover to deliver a built form that is consistent with a low-key approach to urbanisation, without excessive high-rise development*
- *Increasing density and development around stops as a function of the transit system and the increased amenity that it offers*
- *Providing a public realm that supports activated, vibrant places that are green, accessible, inclusive and reflect local character*
- *Supporting healthy and active lifestyles by incorporating extensive active transport (i.e. walking and cycling) networks and enhanced access to open space and recreation facilities*
- *Capitalising on opportunities for views, aspect and walk-up access to beaches and estuaries*
- *Mandating residential building types that foster outdoor living and allow for interaction with pedestrian activity at street level*
- *Promoting climate friendly building design to reduce energy needs, capitalise on prevailing breezes, sun and shade".*

Responding to these problems and opportunities

The vision for the Sunshine Coast Mass Transit project is an important element of Council's plan to manage growth – in short, its vision is to provide *a step change to public transport that can set the region on a path to sustainable transport and appropriate urban development*.

Work already done by Sunshine Coast Council has shown this vision can be achieved through:

- providing a high quality regional mass transit solution to connect the region's main residential, employment and recreational precincts, supported by an integrated feeder bus and active transport network to attract people out of cars
- containing the rate of urban expansion that results in car-based suburban greenfield developments to the agreed expansion areas at Caloundra South, Palmview and Beerwah East
- locating the majority of new housing and jobs in the catchment of the mass transit system, while maintaining a recognisable low key Sunshine Coast character within that catchment and across the region.

The alternative is to see urban sprawl, to continue to provide additional lanes to existing roads, build new roads, and provide major increases in car parking in and around centres and beachside precincts. This alternative would see many existing urban areas become places catering more for cars and less for people, with their amenity and attractiveness irreparably compromised.

The public transport solution for the Sunshine Coast will need to be delivered by the Queensland Government and funded primarily by the Queensland and Australian Governments. However Council is undertaking the initial planning and business case work recognising the need to advocate for our sustainable future.

Business Case Process and Phasing

A major investment in any significant public transport network must be supported by an extensive business case. On the Sunshine Coast, the responsibility for the public transport network rests with the Queensland Government – not Council – and any major upgrade or expansion of the existing network will need to be funded and delivered by the Queensland Government and most likely, with Federal Government co-investment. To qualify for major capital funding, a formal business case process must be followed.

As outlined above, Council has long recognised the challenges that present in managing and accommodating forecast future growth and through a wide-range of policy and planning instruments, has identified the critical need for an efficient and accessible public transport network in the urban coastal corridor to support the functionality of this high growth area, alleviate congestion and retain and potentially enhance the liveability of the region. However, the necessary planning and business case development work for an effective public transport network has not been progressed by the State Government and in 2011, Council embarked on this planning phase in the interests of positioning a new public transport network for the urban coastal corridor for consideration and delivery by the State Government.

Council is undertaking the initial phases of the business case development process for Sunshine Coast Mass Transit in accordance with the guidelines issued by the Queensland and Australian Governments. Compliance with those guidelines will assist the process of gaining funding approval from the Queensland and Australian Governments.

Business case frameworks

Business cases for major infrastructure projects in Queensland are undertaken in accordance with Building Queensland's Business Case Development Framework. The preparation of business cases under this framework allows for consideration of the project in the Queensland Infrastructure Pipeline, which in turn supports the development of the State Infrastructure Plan. The Infrastructure Pipeline identifies endorsed Queensland Government infrastructure proposals with a minimum capital cost of $50 million. This is an essential step in the project being considered for future capital funding from the Queensland Government.

Australian Government infrastructure investment priorities are informed by Infrastructure Australia. Proposals requesting significant capital funding from the Australian Government also need to satisfy the requirements of Infrastructure Australia's *Business Case Assessment Framework*. In practice it is possible to orient the Queensland Business Case Development Framework work on a business case to also meet Infrastructure Australia's requirements, which is the approach being adopted for the Sunshine Coast Mass Transit Project.

The Building Queensland Business Case Development Framework was updated in April 2020. Table 1 shows the previous and new terminology for the various business case phases.

Previous terminology	New terminology (from April 2020)
Strategic Business Case	*Strategic Assessment*
Preliminary Business Case	*Options Analysis*
Detailed Business Case	*Detailed Business Case*

Table 1. Previous and new phasing terminology applied by Building Queensland

To reflect the new framework, the subject document currently being prepared by Council has now been retitled the draft *Options Analysis*.

The Council team has maintained close liaison with both Building Queensland and Infrastructure Australia to ensure the business case workings meet the requirements of their respective business case frameworks. Their focus on the current phase has been on defining the problems and opportunities, and ensuring a robust evaluation of transport and non-transport options.

The *Strategic Business Case* is completed

The role of the *Strategic Business Case* (now called *Strategic Assessment*) is to define a problem or opportunity that needs to be addressed, identify potential ideas that could resolve the issues or develop the opportunity, and evaluate whether any of the ideas have the potential to be viable options. It aims, *inter alia*, to establish that there is a need for a project. The *Strategic Business Case* was approved by Council on 25 July 2019, has been publically available since that time (unlike other business case documents of other agencies) and has been transmitted to relevant Queensland and Australian Government agencies. The feedback of these agencies has guided the work on developing the draft *Options Analysis*.

The draft Options Analysis is well advanced

The second phase, the draft *Options Analysis* (previously known as the Preliminary Business Case), aims *"to narrow the breadth of options by applying rigorous evaluation criteria before assessing the viability of any remaining options"*. It aims, *inter alia*, to define a project that can address the problems and shortlist viable options. Although still a preliminary planning phase, it represents a significant body of work and requires investigations of options that span engineering, environmental, urban planning and economic and financial analysis. Importantly, it does not lock in the ultimate solution and this only occurs as a result of continuing community engagement and the finer-grained analysis and evaluation undertaken through the Detailed Business Case.

A partnership to prepare the *Detailed Business Case*

If the Options Analysis is approved, the final phase is the *Detailed Business Case*, which aims "to evaluate the viability of the highest ranked option/s with surety of outcomes across all evaluation criteria and develop investment implementation plans". The means *inter alia* defining the detail of the project and recommending a tightly specified reference project option, based on evidence that the desired benefits will be realised and the project can be delivered for the estimated cost.

For the Sunshine Coast Mass Transit project (and consistent with the usual approach for detailed business case development) this work would be led by the Queensland Government, as the party that would ultimately deliver and own the solution identified.

On 8 May 2019, the Premier and Minister for Trade, the Honourable Annastacia Palaszczuk and the Minister for Transport and Main Roads, the Honourable Mark Bailey, committed up to $7.5 million which would be matched by Council to help develop a detailed business case for the first stage of an integrated urban public transport solution for the Sunshine Coast, including pricing options for light rail.

Provision was made in the 2019-20 State budget papers for the *Detailed Business Case* to be funded over the current and following financial years. The *Detailed Business Case* will be led by the Queensland Government, working in a close partnership with the Sunshine Coast Council. It would typically take about 18 months to prepare. Deliverables from the *Detailed Business Case* would include:

- Costs and benefits estimated to P 90 confidence level, meaning there is only a 10 per cent chance or less that the cost estimates will be exceeded
- A detailed reference project design that can be used to underpin procurement of providers to implement the project
- Updated land use forecasting to support demand and benefits assessment
- Extensive stakeholder and community consultation
- A recommended delivery model to build and operate the reference project.

Options for major new investment in mass transit

The *Options Analysis* will review the full range of options available to meet the identified problems and opportunities. Consistent with the policy directions already set in the Planning Scheme, the SEQ Regional Plan and the Integrated Transport Strategy, many of these options relate to a possible major investment in improving public transport.

The *Strategic Business Case* recommended that a first stage of any mass transit system upgrade should be delivered in the Priority Area 1 from Maroochydore to the Sunshine Coast University Hospital precinct, as depicted in Figure 2.

Figure 2. : Geographic breakdown and focus areas for a Sunshine Coast Mass Transit solution

As a result of the *Strategic Business Case* findings, the transport options being evaluated in the draft *Options Analysis* will consider the technologies and initiatives that could feasibly be delivered to realise the benefits sought from the project, in the identified Priority Area 1 project corridor, consistent with the characteristics of that area.

It should be noted that an option of heavy regional rail, along the lines operated by Queensland Rail, cannot feasibly and safely be installed in the Priority Areas 1 and 3, due to the need for full grade separation, and the mismatch between the heavy engineering and amenity impact of a heavy rail system vs. maintaining a high quality living environment which

is a central tenet and principle of all of Council's policy and planning instruments. Heavy regional rail does however remain an option for future stages of the mass transit system in Priority Areas 2, 4 and 5 which have the benefit of a preserved rail corridor (i.e. CAMCOS) and are generally not as close to existing urban development.

An Interim Findings Report received by Council in January 2020 and released to the public advised the Stage 1 transport options considered in the assessment process for the draft *Options Analysis* are:

1 Region-wide bus service enhancements, with no infrastructure improvements

2 Region-wide bus network upgrades, with supporting bus priority measures

3 Road network upgrades in the Sunshine Coast Urban Corridor

4 Quality Bus Corridor in Priority Area 1

5 Bus Rapid Transit in Priority Area 1

6 Light Rail Transit in Priority Area 1.

Based on the results of the Multi-criteria Assessment, the following options were recommended for progression in the draft *Options Analysis* to undergo economic analysis and more detailed assessment:

Option 6 – Light Rail Transit

Option 5 – Bus Rapid Transit

Option 4 – Quality Bus Corridor.

Legal

There are no legal implications arising from this report as this is the preliminary stage of the business case development process.

Neither the Strategic Business Case nor the Options Analysis (currently being developed) identify specific property requirements to deliver a mass transit solution. This level of detail would not be considered until future planning and consultation stages and be led by the Department of Transport and Main Roads as the agency responsible for the delivery of the network solution.

Policy

This report is consistent with Council's policy directions as articulated in:

- Corporate Plan 2020 -2024
- Sunshine Coast Regional Economic Development Strategy 2013-2033
- Sunshine Coast Planning Scheme 2014
- Sunshine Coast Environment and Liveability Strategy 2017
- Sunshine Coast Integrated Transport Strategy 2018
- Sunshine Coast Community Strategy 2019-2041.

Risk

There are two primary categories of risk to be managed for a major investment project of this nature:

- process risks
- project risks.

Process risks are risks that affect the process of advancing the project through the current and future phases. Process risks do not necessarily have a direct impact on the cost to deliver the infrastructure project. However, process risks may have significant time and management cost impacts.

Key process risks can be mitigated by close involvement of the relevant State and Commonwealth agencies in the preparation of the *Detailed Business Case*, and this already forms part of the current project governance and working arrangements.

Project risks are risks that could affect the outcomes of the project and have a range of potential impacts including time, cost, quality, health and safety, reputation and environment. They mostly relate to risks that will eventuate in the delivery and operating phases of the project. Early known key project risks have been identified and are included in a project risk register that is continuously updated for consideration in any future phases of project delivery.

Previous Council Resolution

Ordinary Meeting 20 August 2020 (OM20/89)

That Council:

(a) direct the Chief Executive Officer to ensure the Sunshine Coast Mass Transit Preliminary Business Case and Options Analysis is not finalised or advanced to the State Government Department of Transport and Main Roads interest check until such time as (b) below is completed.

(b) request the Chief Executive Officer to

(i) prepare a report for consideration at the Ordinary Meeting of 17 September 2020, regarding the Sunshine Coast Mass Transit Preliminary Business Case and Options Analysis, allowing for Council to determine to immediately release the documentation to the public at that time

(ii) develop and present a comprehensive and meaningful community engagement plan which must be undertaken, completed and incorporated in the Sunshine Coast Mass Transit Preliminary Business Case, prior to proceeding through to Phase 3 of the Detailed Business Case

(iii) communicate to the Department of Transport and Main Roads that Council will only proceed with the Sunshine Coast Mass Transit Detailed Business Case after it has completed community engagement with relation to the Preliminary Business Case and Options Analysis and

(iv) ensure the final Preliminary Business Case, including the outcome of the community engagement, is presented to Council for final endorsement and decision prior to proceeding to Phase 3.

Ordinary Meeting 30 January 2020 (OM20/3)

That Council:

*(a) receive and note the report titled "**Sunshine Coast Mass Transit - Update**" and*

(b) note the findings of the attached report entitled "Sunshine Coast Mass Transit Preliminary Business Case – Interim Findings Report" (Appendix A).

Ordinary Meeting 25 July 2019 (OM19/102)

That Council:

(a) receive and note the report titled "Sunshine Coast Mass Transit Update"

(b) endorse the Strategic Business Case for Sunshine Coast Mass Transit at Appendix A, for the purpose of facilitating further consideration by relevant State and Federal Government agencies

(c) refer the Strategic Business Case for Sunshine Coast Mass Transit and in the form of a completed "Infrastructure Australia Stage 1 Template" to Infrastructure Australia for its consideration and inclusion in the Infrastructure Priority List, and advise Infrastructure Australia of the intention to complete a Preliminary Business Case

(d) refer the Strategic Business Case for the Sunshine Coast Mass Transit to Building Queensland for its consideration and inclusion in the Infrastructure Pipeline, and advise Building Queensland of an intention to complete a Preliminary Business Case

(e) refer the Strategic Business Case for the Sunshine Coast Mass Transit to other relevant government agencies including Transport and Main Roads and Queensland Treasury, and advise the agencies an intention to complete a Preliminary Business Case

(f) update the project website to provide access to the Strategic Business Case and a summary of the Strategic Business Case.

Ordinary Meeting 23 April 2015 (OM15/59)

That Council:

(a) authorise the Chief Executive Officer to proceed in accordance with the direction given in confidential session

(b) confirm the recommended light rail route corridor with which to proceed to more detailed feasibility and business case studies

(c) confirm support for progressing the establishment of a high frequency branded forerunner bus in conjunction with the State Government

(d) authorise the Chief Executive Officer to write to the Minister for Transport outlining the findings of the Sunshine Coast Light Rail Route Options Consultation Report and the recommended route and seeking their support for progressing with more detailed feasibility and business case studies and

(e) authorise the Chief Executive Officer following completion of (d) above to release the findings on the Sunshine Coast Light Rail Route Options Consultation Report.

Related Documentation

Refer to the project website at https://www.sunshinecoast.qld.gov.au/Council/Planning-and-Projects/Major-Regional-Projects/Sunshine-Coast-Mass-Transit-Project or simply search "sunshine coast mass transit" online.

Critical Dates

No critical dates are relevant to this report. However the increasing trend towards urban expansion can only be effectively reversed by timely action to implement the responses recommended in the draft *Options Analysis*.

The timing recommended by the *Strategic Business Case* for future stages is shown in table 5 below.

Table 5. Timelines for Sunshine Coast Mass Transit

Project Phase	Dates
Strategic Business Case	Completed
Options Analysis - Stage 1 of the mass transit system	Receive by Council in first half of 2021 following community engagement
Detailed Business Case - Stage 1 of the mass transit system	2021 & 2022, with community engagement likely in 2022
Investment Decision and Procurement - Stage 1 of the mass transit system	Depending on the acceptability of the Detailed Business Case, and taking into account other investment policy priorities of the Queensland and Australian Governments, this phase could occur by the end of 2031
Delivery of Stage 1 of the mass transit system	By 2027 (indicative and as noted above, subject to Queensland and Australian Government approvals)

Implementation

Should the recommendations in this report be accepted by Council, the Chief Executive Officer will:

1. Prepare a comprehensive community engagement strategy based on the framework contained in Appendix A, to promote a more informed understanding of options for urban transformation to achieve a more compact urban form, within the context of broader strategic and interconnected issues (such as the regional planning directions, urban growth challenges, coastal hazard responses, integrated transport planning and infrastructure sequencing). This would also include engagement on mass transit technology options.
2. Present the findings of the community engagement strategy, along with a final draft of the *Options Analysis* report to Council when completed, indicatively in mid-2021.
3. Update the project website and develop a range of informative communication materials to support the community engagement strategy.

Sunshine Coast Mass Transit
Draft Options Analysis and Urban Transformation

Community Engagement Framework

Sunshine Coast Council is planning now for future growth to ensure our lifestyle, environment and liveability is maintained and enhanced into the future. The Sunshine Coast is expected to grow to more than 518,000 people over the next 20 years which necessitates a holistic and sustainable plan for growth. A critical part of that plan, which will be crucial to maintaining and enhancing the liveability of the region, will be an efficient and accessible public transport network.

It is important that our community and stakeholders have the opportunity to share their views, expertise and ideas to help shape our collective future and to inform the planning for a better public transport network for our region. This Community Engagement Framework outlines the approach to engaging with the community and stakeholders to inform the Draft Sunshine Coast Mass Transit Options Analysis and in doing so, foster a wider understanding of the challenges or managing urban growth and the opportunities associated with urban transformation in the high growth urban coastal corridor.

Urban transformation

Through its policy and planning instruments developed over the course of the last decade, Council has identified key centres where significant opportunities can be achieved to provide greater housing and lifestyle choice, and improve and enhance local areas. The objective is on enabling Council to meet the growth targets set in *ShapingSEQ* in a sustainable way and in a manner that does not undermine or compromise the lifestyle values and characteristics of the region. This includes focusing on areas where land use change and housing diversity is most appropriate, as well as leveraging a mass transit solution to achieve urban renewal benefits.

The Sunshine Coast Mass Transit project identifies mass transit options for our coastal corridor where around 80 percent of the population lives and where a greater proportion of the population is expected to be accommodated in more accessible, connected and well serviced locations.

The approach to Urban Transformation will consider the integration of a mass transit solution including land use considerations and local area enhancements, such as more walkable suburbs with accessible paths and shade trees to access the corridor. Urban transformation will be focussed on areas close to the mass transit stations that have the greatest potential for renewal rather than existing high-quality residential areas. Consistent with the community's and Council's values, this does not necessitate high-density, expansive and significant building height adjustments across the entirety of the corridor.

Planning for a long-term transit solution

As this growth occurs, our community must be less reliant on private vehicles for short regional travel – and an efficient and sustainable public transport solution will be critical in achieving this shift.

Mass transit solutions require significant planning to undertake a rigorous assessment of viability, benefits and impacts through a business case process. The initial phase of this process, the Strategic Business Case, was completed and released in 2019. Council then commenced work on the second phase of the process, the Preliminary Business Case, which will be submitted to the Queensland Government once endorsed by Council.

The business case process is guided by the Building Queensland Framework, which recently adopted new terminology, so what was known as the "Preliminary Business Case" is now known as the "Options Analysis". The aim of the Options Analysis is *"to narrow the breadth of options by applying rigorous evaluation criteria before assessing the viability of any remaining options"*.

The Options Analysis assesses land use, transport, liveability and environmental sustainability challenges, considers options to address these challenges and defines the priority for more detailed investigations. It does not establish a definitive position on matters such as the alignment of the mass transit system or property requirements, which are subject to further investigation in the Detailed Business Case and future project delivery planning.

While significant community consultation is to be undertaken during the preparation of the Detailed Business Case, Council considers there would be benefit in seeking early input from the community at the Options Analysis phase while it remains a Council-led initiative, to build on the range of strategies, plans and consultation programs undertaken by Council in recent years.

Therefore, before considering and submitting the Options Analysis to the Queensland Government, Council will seek feedback from our community and stakeholders through an extensive consultation program. This will include a phase of technical engagement with state agencies as well as a conversation with the community around the views and ideas for the mass transit system and the form and character of the surrounding areas.

Once the engagement program is complete, the draft Options Analysis will be finalised with community and stakeholder inputs and presented to Council for consideration. The final Options Analysis will describe how the engagement program and community input have shaped the final document.

When the Options Analysis is considered and endorsed by Council in 2021, it will be provided to the Queensland Government as the basis for the preparation of the final phase of the business case process, the Detailed Business Case – to be led by the Queensland Government.

Our approach to engaging

Council is committed to best practice engagement and genuinely seeking meaningful input that will help shape the way in which we continue to live, travel, work and play.

Consultation will be based on the International Association for Public Participation (IAP2) standard as the best practice framework for community engagement. Consultation will be undertaken at a number of points through the planning lifecycle for this project, at times which are appropriate to seek input to ensure there is a genuine opportunity for the community to influence the project.

The following principles will underpin Council's ongoing community engagement process:

Timeliness – Council will engage with its community in ways that are timely, open to all, easily understood and not overly bureaucratic or resource-intensive.

Information and feedback – the community has the right to be well-informed on issues and receive feedback from Council on how its input will be used to inform Council decisions.

Mutual respect – Council's goal is one of inclusive involvement. All voices matter, all opinions are valued and considered.

Action learning – Council is committed to the development of innovative engagement approaches, learning from each engagement experience, and using such learning to improve our approaches to engagement.

Foresight – Council engages with its community not only to learn about and respond to present needs, but also to gain a better understanding of our communities' perspective on emerging issues that may affect our preferred future.

In the pursuit of best practice business case development, the Building Queensland stakeholder engagement principles will also guide the strategic engagement approach which are outlined in the *Stakeholder Engagement Guide, Business Case Development Framework.* These principles are as follows:

1. Engagement focuses on the best interests of the community
2. Engagement is open, honest and meaningful
3. Approaches to engagement are inclusive and appropriate
4. Information is timely and relevant
5. Information is accurate, easy to understand and accessible
6. Decision-making is transparent.

Opportunities for engagement

There are several opportunities for the community to have their input including:

Corporate Plan 2021-2025

As part of Council's annual review of its Corporate Plan, community and stakeholders will be invited to provide input into the broader context of managing growth including a sustainable public transport network.

Engagement on the Corporate Plan will help to provide a further context for subsequent engagement on mass transit and urban transformation and will help set the strategic drivers for Council and the Sunshine Coast. Engagement on mass transit will therefore be complementary to this engagement.

Draft Sunshine Coast Mass Transit Options Analysis and Urban Transformation

A community engagement program will be undertaken to seek feedback on the mass transit options identified in the Options Analysis and the community's views and ideas on urban transformation, including land use scenarios and urban renewal opportunities. In addition to community input received over many years on a range of Council's policy and planning instruments, further feedback will be sought on the community's values around local character, landscape, heritage and culture, mass transit design, as well as local facilities, open space and public realm enhancement opportunities.

Council will also reconfirm the community's feedback and views received to date on key elements including growth management, jobs, connectivity, liveability and accessibility.

Future opportunities

Delivering a mass transit system is a long-term process that requires years of planning and an ongoing commitment from all levels of government. This means there are several additional opportunities for stakeholders and the community to help shape the project by having their say, including:

- Detailed Business Case – community engagement is also a critical component to the preparation of the Detailed Business Case. While this process will be managed by the Queensland Government, feedback will likely be sought on the reference design, including its alignment and the proposed locations and form of the stations. Engagement will also seek input on land use planning ideas including the local character that needs to be protected and the enhancement opportunities to benefit the community.

- Planning scheme amendments – should the Detailed Business Case be approved and should the State Government decide to proceed with the project, there may be related proposals to amend the Sunshine Coast Planning Scheme, which would be subject to a separate statutory community consultation process in accordance with the *Planning Act 2016*.

Engagement program

The Draft Sunshine Coast Mass Transit Options Analysis and Urban Transformation engagement program will be delivered in three stages.

The program will give people the opportunity to have their say at a time when the community is best placed to participate (i.e. when a sufficient period is available outside school holidays, taking account of COVID-19 considerations).

The proposed timeframes provide time to plan a high-quality engagement program, prepare tools and materials to explain the technical elements of the draft Options Analysis, to enable broad understanding and meaningful participation, and to ensure resources are available to manage the engagement process and properly consider and analyse the feedback received. Prior to the formal engagement process, Council will provide additional and more informative material about the project to ensure the community has an opportunity to become more aware of the project and make the most of the engagement process to follow.

A well-planned and considered engagement program will offer a range of consultation opportunities and engagement methods to ensure equitable and informed participation. The program will incorporate digital engagement techniques alongside traditional engagement methods and tools may include web-based surveys, virtual and in-person community information sessions and focus groups.

The engagement program will be delivered through the following key phases.

Table 1: Engagement milestones for the Mass Transit Draft Options Analysis and Urban Transformation

Engagement program		
Stage	**Objective**	**Timeframe**
1 – Inform	To inform and educate the community about the mass transit project and urban transformation, the next steps and how to be involved in future stages.	Late 2020
2 – Engage	To engage with community and stakeholders on options for mass transit and to seek thoughtful and well considered feedback to inform the final Options Analysis.	Early 2021
3 – Feedback	To report back to Council, our community and stakeholders about how their input has been considered and incorporated into the final Options Analysis.	Mid 2021
Future engagement opportunities		
Future	Detailed Business Case (DBC) engagement led by the Queensland Government	Subject to the timing of the DBC process
Future	Planning scheme amendments - statutory community consultation (as required)	TBD

Attachment 1

Status of the response to Council Resolution (OM20/89)

That Council:

(a) direct the Chief Executive Officer to ensure the Sunshine Coast Mass Transit Preliminary Business Case and Options Analysis is not finalised or advanced to the State Government Department of Transport and Main Roads interest check until such time as (b) below is completed (Noted by the Chief Executive Officer; to be actioned in due course) and

(b) request the Chief Executive Officer to

(i) prepare a report for consideration at the Ordinary Meeting of 17 September 2020, regarding the Sunshine Coast Mass Transit Preliminary Business Case and Options Analysis, allowing for Council to determine to immediately release the documentation to the public at that time (the subject of the Special Meeting report for 27 August 2020)

(ii) develop and present a comprehensive and meaningful community engagement plan which must be undertaken, completed and incorporated in the Sunshine Coast Mass Transit Preliminary Business Case, prior to proceeding through to Phase 3 of the Detailed Business Case (the subject of the Special Meeting report for 27 August 2020)

(iii) communicate to the Department of Transport and Main Roads that Council will only proceed with the Sunshine Coast Mass Transit Detailed Business Case after it has completed community engagement with relation to the Preliminary Business Case and Options Analysis (Letter provided by the Chief Executive Officer to the Department of Transport and Main Roads on 25 August 2020) and

(iv) ensure the final Preliminary Business Case, including the outcome of the community engagement, is presented to Council for final endorsement and decision prior to proceeding to Phase 3 (Noted by the Chief Executive Officer; to be actioned in due course).

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Sunshine Coast Mass Transit Preliminary Business Case

Interim Findings Report

Prepared for Sunshine Coast Council

January 2020

pwc

Disclaimer

This report is a confidential document prepared by PricewaterhouseCoopers Australia (PwC) at the request of the Sunshine Coast Council (SCC) in our capacity as consultants in accordance with the Terms and Conditions contained in the consultant agreement between SCC and PwC in relation to the Sunshine Coast Mass Transit (SCMT) Preliminary Business Case (PBC).

The analysis contained in this report has been prepared by PwC from, inter alia, material provided by, and discussions with SCC and third parties with whom PwC has no official alliance, including:

- Luti Consulting
- JLL
- Cox
- Place Design
- Veitch Lister Consulting.

This report presents interim findings that are subject to change. No verification of the information has been carried out by PwC or any of its respective agents, directors, officers, contractors or employees, and in particular, PwC has not undertaken any review of the financial information supplied or made available during the course of the engagement. This report does not purport to contain all of the information that SCC may require in considering the SCMT PBC.

PwC has based this report on information received or obtained, on the basis that such information is accurate and, where it is represented, complete. PwC and its respective agents, directors, officers, contractors and employees make no express or implied representation or warranty as to the accuracy, reliability or completeness of the Information.

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Contents

1 Introduction

PricewaterhouseCoopers (PwC) is currently working with Sunshine Coast Council (SCC or Council) as Business Case advisors and Economic and Financial advisors on the Preliminary Business Case for the Sunshine Coast Mass Transit Project (SCMT Project or the Project). As part of this role, PwC has developed this SCMT Interim Findings Report to brief SCC at the January 2020 Council meeting.

The SCMT business case program includes three levels of business case:

- Strategic Business Case (SBC)
- Preliminary Business Case (PBC)
- Detailed Business Case (DBC).

The SBC was approved by Council at its meeting of 25 July 2019 and has been transmitted to relevant Queensland and Australian Government agencies. Investment in a mass transit solution is expensive and needs to be staged. Therefore, part of the business case development process focuses on a preferred staging plan, adopting a clear first stage for comprehensive investigation. On 25 July 2019, the SBC was endorsed by Council and recommended:

"The scope of the business case is proposed to be focused on the Maroochydore to Kawana corridor… with safeguarding for network extensions and/or connections to potential future mass transit solutions in the southern coastal corridor between Kawana to Caloundra, as well as the inland corridors between Beerwah and the Sunshine Coast Airport."[1]

SCC is now leading the PBC which is expected to be finalised by mid-2020. In May 2019, the Queensland Government committed funds to help develop a DBC for Stage 1 of the SCMT, which will be completed before the end of 2021. The business case program is shown in Figure 1.

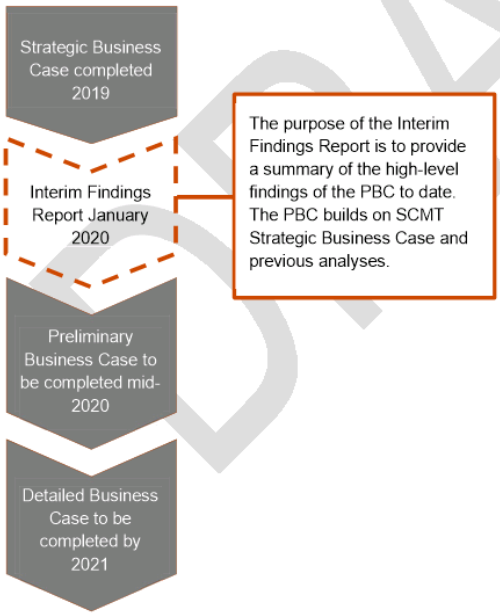

Figure 1: Business Case program and development phases

[1] Sunshine Coast Mass Transit Strategic Business Case. p 138.

2 Need for Project

2.1 Introduction

This section establishes the need for the Project by examining the challenges facing the Sunshine Coast as it seeks to accommodate significant population growth, while maintaining the Council's vision to be *"Australia's most sustainable region: Healthy. Smart. Creative."*

Identifying problems or opportunities is critical to understanding the strategic drivers that a project needs to address. Developing a sound understanding of the extent, scale, cause and effect of these service needs provides a strong evidence-based foundation for developing a project solution, and ultimately investing in that project solution.

2.2 Sustainable management of population growth

South East Queensland (SEQ) is expected to continue to experience strong population growth through to 2041 and beyond, creating pressures on housing, transport, lifestyle, employment, social infrastructure and the environment. Both the Australian and Queensland Governments have recognised the challenges of managing strong forecast growth in population in a manner which is sustainable and promotes high-quality lifestyles. This includes recognising and responding to a trend towards increased urbanisation, and the social and environmental challenges that this can create.

The defining strategy which provides a framework for managing and accommodating forecast growth is the SEQ Regional Plan – *ShapingSEQ (ShapingSEQ)*. This Queensland Government plan identifies the challenge of delivering sustainable growth in population for SEQ from 3,600,000 in 2019 to an estimated 5,349,000 people by 2041. Of the suite of strategic objectives outlined in *ShapingSEQ*, those with particular relevance to this analysis include:

- Focusing 60 per cent of new housing development in SEQ in existing urban areas
- Prioritising public and active transport
- Region-shaping infrastructure to increase accessibility and productivity.

2.3 The challenge of growth for the Sunshine Coast

The growth in population estimated for SEQ is approximately 1,749,000 between 2019 and 2041. Approximately 215,100 people or 12 per cent of this total growth is estimated to occur in the Sunshine Coast, increasing the 2016 population of 303,400 by over 70 per cent to approximately 518,000[2].

The SCC area is already one of the largest population centres in Queensland, and the tenth largest in Australia. Over the past 20 years, the population of the Sunshine Coast has grown strongly by 125,500 people or 67.7 per cent, at an average rate of 2.8 per cent p.a., as depicted in Figure 2. By comparison, Queensland's population grew by only 35 per cent at an average of 2 per cent p.a. in the same period.

[2] Queensland Government Statisticians Office. 2018. Population projections. Published 13 December 2018.

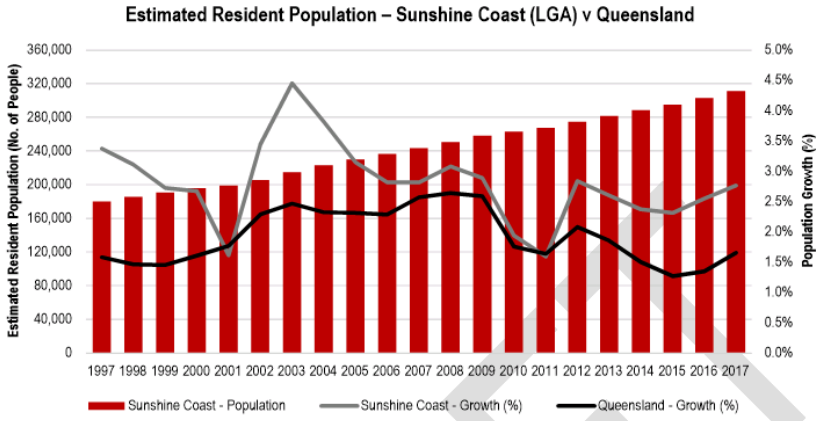

Figure 2: Population growth in Sunshine Coast 1997 - 2017
Source: Queensland Regional Database; ABS Regional Population Growth; JLL Strategic Consulting

It is expected that the Sunshine Coast region's population will continue to grow strongly, exceeding the national and state average population growth rates, as shown in Table 1. Each year the resident population experiences a net increase of about 8,300 people. By 2050, it is forecast there could be nearly 600,000 people in the SCC area.

Table 1: Comparison of forecast future population growth in Australia

Geography	Current population	Population growth rate p.a.
Australia	25.5 million	1.6 per cent
Queensland	5.14 million	1.7 per cent
South East Queensland	3.6 million	2.2 per cent
Sunshine Coast Council	320,000	2.6 per cent

To accommodate the forecast population growth in the Sunshine Coast region, *ShapingSEQ* requires the provision of 87,000 new residential dwellings across the Council area. Owing to the existing urban settlement pattern and geographic constraints, the Sunshine Coast is facing a major challenge in how it accommodates the forecast growth in population and additional dwellings.

More people will lead to more transport demand, and the number of daily trips that start or finish in the region will increase from 1.5 million to 2.4 million trips each day over the 25 years from 2016 to 2041. Currently, the region's population is highly dependent on cars, with 85 per cent[3] of all trips made by Sunshine Coast residents are made by private vehicle, and growth in car ownership[4] amongst the highest in Australia. This situation, if unchecked, would mean that the growth in transport demand would translate to spiraling traffic congestion and ever-increasing demands for more roads and car parking.

Further, if the Sunshine Coast were to accommodate forecast population growth primarily through urban expansion, this would result in urban encroachment on the region's natural resources including environmentally significantly land, highly constrained land, rural and agricultural areas. The expanded urban environment would also require significant investment in the provision of infrastructure and services over a larger geographic area.

[3] Integrated Transport Strategy, 2018, Sunshine Coast Council
[4] Integrated Transport Strategy, 2018, Sunshine Coast Council

Both the Council and Queensland Government recognise there must be a strong focus on accommodating future population growth through urban consolidation within the existing urban footprint. This policy objective is reflected in both *ShapingSEQ* and the *Sunshine Coast Integrated Transport Strategy* and the *Sunshine Coast Planning Scheme 2014*.

ShapingSEQ identifies that to accommodate the forecast growth for the Sunshine Coast, 62 per cent of new dwelling growth should be delivered through urban consolidation, similar to the average SEQ region wide target of 60 per cent. This translates to an estimated 53,700 new dwellings to be located within the existing urban area of the Sunshine Coast over the next 25 years[5].

2.4 The Sunshine Coast Urban Corridor

Council's long-standing policy objective is to progress a comprehensive agenda to increase the ability to accommodate the majority of forecast population growth through a combination of urban consolidation and greenfield development.

Under the terms of *ShapingSEQ*, urban consolidation can be achieved through:

1 Development of some parcels of land that are presently not developed but that sit within existing urban areas

2 Redevelopment of existing vacant land or buildings for a higher intensity use that includes a significant proportion of residential accommodation

3 Development of new lots within the existing urban footprint, i.e. on the immediate urban fringe.

The greatest opportunity to achieve sustainable urban consolidation occurs within the 24km urban coastal corridor between Maroochydore and Caloundra, known as the Sunshine Coast Urban Corridor. Consistent with relevant Queensland Government and Council policies and plans, the Sunshine Coast Urban Corridor holds the key to fostering more sustainable travel patterns through greater use of public transport (PT) in the major population corridor that accommodates much of the forecast growth. This not only represents a more cost-effective solution to transport infrastructure provision but also catalyses the opportunity for supporting substantial and appropriate economic growth, while enabling greater accessibility to the lifestyle advantages the Sunshine Coast offers.

In recognition of this, and to support the strategic framework established by the growth management policies and strategies of the State and Council, the SBC identified the need to deliver integrated land use, economic and transport planning outcomes to support urban renewal in the Sunshine Coast Urban Corridor[6].

2.5 Challenges

2.5.1 Growing levels of road congestion

The Sunshine Coast Local Government Area (LGA) is the tenth largest population area in Australia. As noted earlier, the region's population is expected to grow by over 70 per cent by 2041 to over 518,000 people. This population growth will inevitably translate to increasing travel demand. Currently the region's population is significantly reliant on cars, evidenced by 85 per cent of trips being made in private vehicles. Leaving this situation unchecked will only exacerbate road congestion.

As an iconic tourist destination, the region also has to cater for very significant volumes of visitor travel. In 2018/19 there were over 13 million visits to the Sunshine Coast tourism region, comprising:

- 1.7 million international visitor nights
- 7.7 million domestic visitor nights
- 4.3 million day visits[7].

[5] *ShapingSEQ*, p120
[6] Sunshine Coast Council (2019). Sunshine Coast Mass Transit Strategic Business Case. p 100.
[7] Economy.id (2019). Sunshine Coast Council economic profile. https://economy.id.com.au/sunshine-coast/tourism-visitor-summary

Traffic congestion in key tourism locations on the Sunshine Coast is already exacerbated by day trippers and overnight visitors during peak holiday seasons. On weekends, day trippers also place particular strain on both the local and State-controlled road networks, including the Bruce Highway with the local road network also experiencing a higher proportion of off-peak trips compared to weekdays[8]. This congestion is forecast to increase significantly by 2041 as increased numbers of residents and tourists compete for road space in Caloundra, Kawana, Mooloolaba and Maroochydore. Interventions to address this congestion may include road upgrades, however, this would further entrench the region's dependency on cars, fundamentally change the urban layout of the Sunshine Coast region and adversely impact the amenity and liveability of the region.

Strong growth in visitation is also expected to continue in line with national and SEQ population growth trends. The expansion of the Sunshine Coast Airport, along with development of the region's major tourist attractions, add to the accessibility and visitor appeal of the region. While major gateways to the Sunshine Coast like the Sunshine Coast Airport and the Bruce Highway will facilitate access by visitors to the region, once here, visitors need good access to key destinations and services locally. It is clear that a region heavily congested with vehicular traffic would detract from its popularity as a tourism destination.

The region's industry base is also expanding and becoming more diverse, with approximately 31,000 local businesses providing over 149,000 jobs, with more than 23,000 jobs created in the last five years in the seven high-value industries. Building on the same natural assets that make the Sunshine Coast a magnet for tourists, the region has generated thousands of jobs since 2013 in the sectors of health and wellbeing, aviation and aerospace, agribusiness, professional services and knowledge industries, innovative manufacturing and education and research. Approximately 91 per cent of people employed in the Sunshine Coast region also reside here.

Congestion is currently occurring in key areas on the Sunshine Coast in peak times, most notably on Nicklin Way, Sunshine Motorway and Caloundra Road, as well as other key routes where future jobs and dwellings are to be accommodated within the Sunshine Coast Urban Corridor. There are limited arterial and higher standard road corridors in the Sunshine Coast Urban Corridor, and the existing corridors have limited capacity for widening without significant impact on adjacent properties. The Council has plans to increase the capacity of Brisbane Road at Mooloolaba to four lanes in 2020 and while this will alleviate congestion in this route, it will not encourage mode shift to PT, without a separate investment in PT infrastructure or services.

The cost of road congestion for the Sunshine Coast LGA is forecast to be approximately $3 billion per annum by 2041 and approximately $1 billion per annum from Maroochydore to Kawana, in nominal terms. As the Sunshine Coast region grows, demand on the road network will continue to rise, and without intervention, there is a risk that this situation will progressively become unmanageable.

2.5.2 Accelerating trend towards urban expansion

The population of the Sunshine Coast is forecast to grow from 303,400 in 2016 to over 518,000 people by 2041 *ShapingSEQ* forecasts the region will require a total of over 212,877 dwellings to accommodate its population, an increase of 87,000 dwellings from 2016[9], as demonstrated in Figure 3.

[8] Sunshine Coast Council (2018), Integrated Transport Strategy
[9] ShapingSEQ, p120

Need for Project

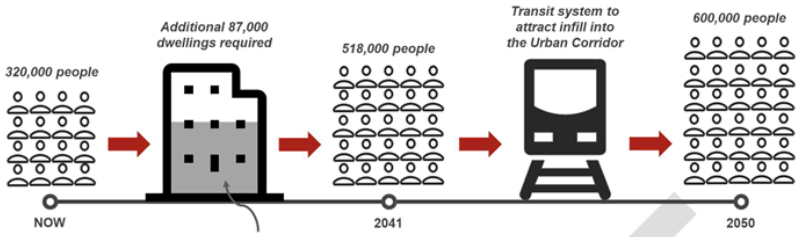

Figure 3: Population growth and infill benchmarks

To meet housing demand for the increasing population, three urban expansion areas are identified within the Sunshine Coast region; Palmview, Caloundra South and Beerwah East. The emerging expansion areas at Palmview and Caloundra South contain sufficient supply to meet the majority of expected demand up to 2031[10], subject to take up rates and land availability. Future urban expansion has been identified through *ShapingSEQ* to be accommodated at Beerwah East to further support the demand for housing within the region.

There is a strong evidence base demonstrating the net benefits that consolidated housing provides for the community when compared to urban expansion. The following costs are specifically attributable to urban expansion:

- Non-urban land consumption – with less non-urban land being available for productive uses such as agriculture, recreational, environmental and aesthetic uses.
- Infrastructure connection costs – particularly with respect to transport and utilities infrastructure, but also potentially in terms of social infrastructure service provision.
- Transport congestion costs – as greenfield residents are distantly located from jobs and services, lengthy commuting times and distances result, causing significant social and environmental costs.
- Labour force productivity costs – as agglomeration economies and human capital benefits are thwarted by spatial dislocation and congestion.
- Reduced housing choice – as constrained infill housing options fail to match the latent demand for inner and middle ring suburban living, with prospective residents prepared to trade-off private space with improved accessibility to jobs and services.

Further, the region's urban expansion areas are predominantly to the south and west of the coastal urban communities. These areas are likely to be heavily dependent on private motor vehicle transport, given they are remote from existing major employment nodes, key service centres and recreational attractions, necessitating even more investment in the road network and parking spaces. The alternative to continuous expansion of road infrastructure and car-oriented urban areas is to provide a high-quality integrated mass transit system that:

- Connects the region's major housing and employment and coastal recreation areas
- Supports urban renewal and consolidation of a significant proportion of the region's new housing within its walking catchment
- Connects to the rest of SEQ through the existing regional rail at Beerwah.

The SBC developed four project objectives for the SCMT Project to underpin delivery of a mass transit system[11]:

1 Support the Sunshine Coast's productivity, employment growth and self-containment aspirations by supporting existing and emerging strategic centres

[10] Urban Transformation – Directions Paper for the Future of the Sunshine Coast, 2017, Sunshine Coast Council, p24
[11] Sunshine coast Mass Transit Strategic Business Case. p 100

2 Maintain, and where possible, improve amenity and livability and provide a catalyst for positive change by unlocking urban renewal opportunities

3 Improve accessibility, convenience and resilience of the integrated transport network

4 Provide a deliverable and value for money solution.

2.5.3 High dependency on private motor vehicle transport

Residents are heavily dependent on private car use. In 2016, 68 per cent of working residents in the region drove themselves to work and a further 25 per cent were passengers in a car, however, only 4 per cent of journeys to work are taken on PT[12]. The remaining trips (mode share of approximately 3 per cent) are taken using active transport (i.e. walking, cycling etc.)[13]. Figure 4 depicts the proportion of Sunshine Coast mode share for travel to work.

Without intervention to provide more sustainable transport modes and reduce car dependency, an additional 787,000 daily vehicle trips are forecast on the Sunshine Coast transport network by 2041, which represents a 70 per cent increase from 2016[14]. Lack of PT accessibility and congestion resulting from car dependency has the potential to constrain growth, hamper productivity improvements, adversely impact on lifestyle and community amenity and lead to sub-optimal urban renewal outcomes. Dispersed land uses and inadequate PT provision within the region will be key drivers of these outcomes without appropriate intervention. The abundance of parking in close proximity to key centres and the lack of alternative travel options also influence high private vehicle use[15].

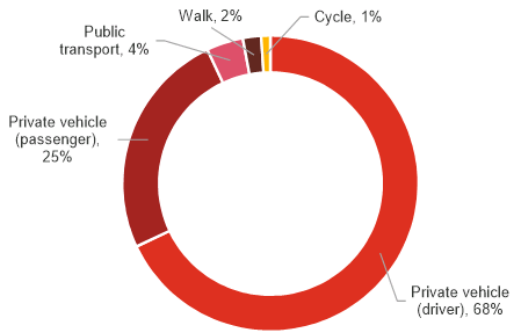

Figure 4: Sunshine Coast mode share for travel to work[16]

Council has a set a goal for PT mode share for the region to be 10 per cent by 2041, however, given the current rate of PT usage has fallen by 2 per cent between 2013 and 2016[17], the 2041 PT mode share will only be achieved if PT usage grows by a significant average of 6.6 per cent each year for 25 years.

Although it is an emerging major regional city, the Sunshine Coast presently has a PT system more suited to a regional town. The existing PT network is relatively basic in comparison to the service requirements to support forecast population growth. There has been limited service expansion and investment in PT to match the urban and population growth. It is very difficult to encourage people to elect to travel by PT if it is not an attractive, available or reliable alternative[18].

[12] Integrated Transport Strategy, 2018, Sunshine Coast Council, p24
[13] Integrated Transport Strategy, 2018, Sunshine Coast Council, p22
[14] Integrated Transport Strategy, 2018, Sunshine Coast Council, p35
[15] Integrated Transport Strategy, 2018, Sunshine Coast Council, p27
[16] Department of Transport and Main Roads (2017), *How Queensland Travels report*
[17] Calculated using Sunshine Coast total weekday boarding data received from TMR by Veitch Lister Consulting
[18] Integrated Transport Strategy, 2018, Sunshine Coast Council, p28

If supplemented incrementally, the present PT system may be adequate to play a small role in facilitating connectivity within the region. However, with significant projected population growth and current domination of the private vehicle usage, incremental improvements to PT will not achieve the desired and required major shift in mode share. Major improvements to the PT system are required for the region to avoid spiralling congestion and loss of urban amenity in the next 10 to 15 years.

2.5.4 Self-containment and connectivity to employment

The need to pursue the development and growth of high-value industries to support continued high levels of employment self-containment is critical. The Sunshine Coast Urban Corridor has very high levels of self-containment. Over 50 per cent of Maroochydore residents work within the Maroochydore region, with a further 17 per cent travelling to Kawana for work, and 21 per cent travelling to other areas within the Sunshine Coast region. Significantly, only 3 per cent of Maroochydore residents are traveling to Brisbane, 2 per cent are travelling to the Noosa LGA and less than 1 per cent are travelling to Caboolture.

However, connectivity between key employment, tourism and health centres via PT is limited. Transport connectivity is important to attracting new employers and employees as easy access to employment via efficient transport options will improve the attractiveness of the Sunshine Coast as a place to work and live. It also supports increased productivity through agglomeration. Agglomeration is when people and businesses co-locate because they draw benefit from being in close proximity to each other and thus, they become more productive through collaboration, competition and access to a larger number of employer and employee pools.

Lack of effective PT connectivity to strategic economic precincts will impact the region's ability to achieve employment containment and growth targets. If planned activity centres within the Sunshine Coast Urban Corridor remain functionally separated, there will be fewer and less diverse interactions between businesses and people. In future, the lack of physical connectivity between the major activity centres of the region, reduced business-to-business interaction (reduced agglomeration and clustering opportunities) and the lack of reliable access to local workforce will be key factors effecting new growth in employment opportunities and development of the region's key employment industries.

Without the development of the 'step-change' projects, and the other employment generating initiatives outlined in the *Sunshine Coast Regional Economic Development Strategy*[19], there is a risk the Sunshine Coast will not achieve its economic goals and the long-term sustainability of the local economy will be at risk.

This, in turn, will reduce self-containment, decrease household income growth and constrain local productivity and employment opportunities. It will create an increased demand for people to either travel to different areas for employment (such as Brisbane) or to move to those areas (which will reduce demand for core industries and further reduce local employment opportunities, thus creating a negative, self-reinforcing cycle of economic downturn).

2.6 Summary

There is a clear need for a coordinated economic, land use and transport solution that supports the region's economic, social, environmental and transport goals. There is a need to ensure the region's economy continues to develop to attract investment to the region with an accessible and productive workforce. Suitable urban consolidation needs to be attractive and to allow residents to live closer to where they work. To be successful, this urban consolidation must be supported by a high-quality integrated mass transit system that:

- Connects the region's major housing and employment and coastal recreation areas
- Supports urban renewal and consolidation of a significant proportion of the region's new housing in its walking catchment
- Connects to the rest of SEQ through the existing regional rail at Beerwah.

[19] Sunshine Coast Council. 2013. *Sunshine Coast - Natural Advantage: Regional Economic Development Strategy 2013-2033*

3 Land Use Analysis

3.1 Introduction

This chapter reports on the results of land use analysis changes that may result from differing levels of mass transit intervention by comparing a no-intervention (trend) land use scenario with an intervention land use scenario.

Council has completed a detailed assessment of the opportunity for land use change within the Sunshine Coast Urban Corridor in response to investment in the SCMT Project. This land use opportunity is quantified as an increase in the dwellings, population and jobs in the immediate walking catchment of the proposed mass transit stations, which directly addresses one of the SCMT project objectives – ***to improve liveability and provide a catalyst for positive change by unlocking urban renewal opportunities.***

The land use analysis:

- Identifies and provides context for the Sunshine Coast Urban Corridor
- Outlines the methodology employed to define and compare the land use scenarios
- Presents the results of the land use scenario analysis with and without intervention to assess the additional urban renewal resulting from the intervention i.e. the introduction of the SCMT Stage 1 Project
- Provides a summary of the population and employment redistribution analysis
- Summarises the key findings of the analysis.

3.2 Defining the Sunshine Coast Urban Corridor

ShapingSEQ identifies the need for balanced and managed growth, including setting benchmarks for consolidated (i.e. infill development) and expansion (i.e. greenfield) development of 62 per cent and 38 per cent respectively for the Sunshine Coast. To cater for increased urban consolidation, *ShapingSEQ* identifies an urban corridor from Maroochydore to Caloundra, supported by a high frequency passenger transport service. This would result in the urban corridor between Maroochydore and Caloundra becoming a cohesive corridor of distinctive, high-quality urban environments that are typically 'Sunshine Coast' in character and which optimise accessibility to future passenger services. Mixed use development opportunities, housing choice and affordability, would also be maximised.

Alongside its other objectives[20], the SCMT Project aims to give direct effect to this policy of urban consolidation within the Maroochydore to Caloundra urban corridor, delivering a coordinated agenda of:

- Urban transformation that increases housing choice and affordability and reduces the need to travel
- Efficient high-quality mass transit that can offer a realistic alternative to car travel.

As part of its input to *ShapingSEQ*, Council developed the *Urban Transformations Directions Paper* which identifies the transformation of the Maroochydore to Caloundra corridor as a key urban renewal initiative. Council has also undertaken a range of detailed investigations for mass transit dating back to 2012[21]. At its meeting on 23 April 2015, SCC confirmed a recommended PT corridor (nominally for light rail) as a basis for further feasibility and business case analysis. This corridor extends from Maroochydore to Caloundra, providing the basis for a mass transit spine to connect the major destinations within the Sunshine Coast Urban Corridor[22].

Through the SBC, the urban transformation corridor between Maroochydore and Caloundra has been designated as the '*Sunshine Coast Urban Corridor*'. This corridor has been identified as providing a significant opportunity to accommodate the *ShapingSEQ* required infill development target. It is approximately 24km in length, occupies an area of approximately

[20] Sunshine Coast Council. 2019. Sunshine Coast Mass Transit Strategic Business Case. pp 100 -101
[21] See https://haveyoursay.sunshinecoast.qld.gov.au/sunshine-coast-mass-transit-project for more detail
[22] See "Proposed Route for Further Investigation". https://haveyoursay.sunshinecoast.qld.gov.au/sunshine-coast-mass-transit-project

4,670 hectares and currently accommodates over 80,000 people[23]. The Sunshine Coast Urban Corridor incorporates the major road corridors of Aerodrome Road, Alexandra Parade, Brisbane Road and Nicklin Way.

Investment in a mass transit solution is expensive and needs to be staged. Therefore, part of the business case development process focuses on a preferred staging plan, adopting a clear first stage for comprehensive investigation. On 25 July 2019, the SBC was endorsed by Council and recommended:

"The scope of the business case is proposed to be focused on the Maroochydore to Kawana corridor… with safeguarding for network extensions and/or connections to potential future mass transit solutions in the southern coastal corridor between Kawana to Caloundra, as well as the inland corridors between Beerwah and the Sunshine Coast Airport."[24]

The SBC recommended that staged development of mass transit should proceed in the following order:

1 **The coastal northern sector of the Sunshine Coast Urban Corridor between Maroochydore and Kawana.** Investing here as a priority provides the strongest basis for achieving key policy goals of supporting urban consolidation and employment growth and managing congestion. Since it contains the major employment and business growth centres of the region, this area provides the greatest opportunity to build a connected, lifestyle community with diverse housing and employment choices, all linked by local mass transit.

2 **The growth corridor between Kawana and Beerwah, which includes the inland southern sector of the preserved mass transit corridor known as "CAMCOS".** This southern sector of CAMCOS contains significant planned residential and employment growth. Mass transit investment here will link this growth area to Kawana and Maroochydore and also link to the North Coast Railway at Beerwah for service to Brisbane. This southern sector of the CAMCOS corridor should represent a high priority for mass transit investment once connectivity between Maroochydore and Kawana is achieved.

3 **The coastal southern sector of the Sunshine Coast Urban Corridor from Kawana to Caloundra.** This sector provides integrated land use and transport opportunities, and connections from Caloundra to the regional rail services to Brisbane. This is an important area for ongoing urban transformation that should be progressed as soon as possible after completion of the priorities described in points (1) and (2) above.

4 **The central sector of CAMCOS from Maroochydore to Kawana.** This sector offers the opportunity to provide a direct rapid transit connection between Maroochydore and the major urban growth communities on the southern perimeter of the Sunshine Coast region, as well connecting the Maroochydore City Centre to Brisbane. The option of this connection should therefore be kept open as a long-term priority.

5 **The northern sector of CAMCOS from Maroochydore to the Sunshine Coast Airport**. Development of mass transit here would connect the growing Sunshine Coast Airport to its local southern catchment, through the Maroochydore City Centre. This will support interstate and overseas air connections to underpin the region's ongoing development success. Initially this connection can be provided by a dedicated limited stops bus service to Maroochydore similar to the TransLink 777 service that operates on the Gold Coast. A dedicated fixed track mass transit connection would be a long-term priority.

Having regard to the high priority attached to Areas 1 and 3 (above), land use planning for urban transformation needs to focus on the whole Sunshine Coast Urban Corridor, from Maroochydore to Caloundra. This corridor would be connected by a major new investment in local urban mass transit, adopting technology that is appropriate for safe integration within the urban fabric.

The SBC recommended[25]:

- The concept for the mass transit system must be based on a technology that offers a high-quality service capable of attracting a significant proportion of passengers out of cars. The mass transit technology must also have a demonstrated capability to act as a catalyst that will engage developers and the broader community in an urban

[23] Sunshine Coast Mass Transit Strategic Business Case.

[24] Sunshine Coast Mass Transit Strategic Business Case. p 138.
[25] Sunshine Coast Mass Transit Strategic Business Case. p 20.

transformation process that results in a significant proportion of new quality housing choices being located within the mass transit catchment.

- Modern light rail operating in a segregated right of way is a technology with proven capabilities, however, other more cost-effective options will need to be analysed in the next phase of the business case process.

Planning for the PBC has progressed the assessment of appropriate mass transit technologies, and this is discussed in Chapter 5 of this report. The work to date has supported previous findings that a staged urban mass transit system can be feasibly developed in the Sunshine Coast Urban Corridor to support the sustainable development of the region.

Planning to date has determined a reference SCMT Project within a mass transit corridor extending 22km (Phases 1 and 3 above) with up to 25 stations linking strategic centres including Maroochydore, Kawana and Caloundra. As part of the PBC, Council is currently undertaking additional analysis to confirm the findings of the SBC which recommend the stages for the SCMT Project. The two stages have been identified:

- **Stage 1** (16 stations, approximately 13km) - extending from Maroochydore to the Sunshine Coast University Hospital precinct
- **Stage 2** (9 stations, approximately 9km) - extending from the Sunshine Coast University Hospital precinct to Caloundra.

The SBC identified that the most effective development of the SCMT Project included the Maroochydore to Kawana corridor (Strategy B). This is being validated throughout the PBC. The project team has assessed the land use opportunities for both Stages 1 and 2 utilising the two following staging strategies for the *Intervention* land use:

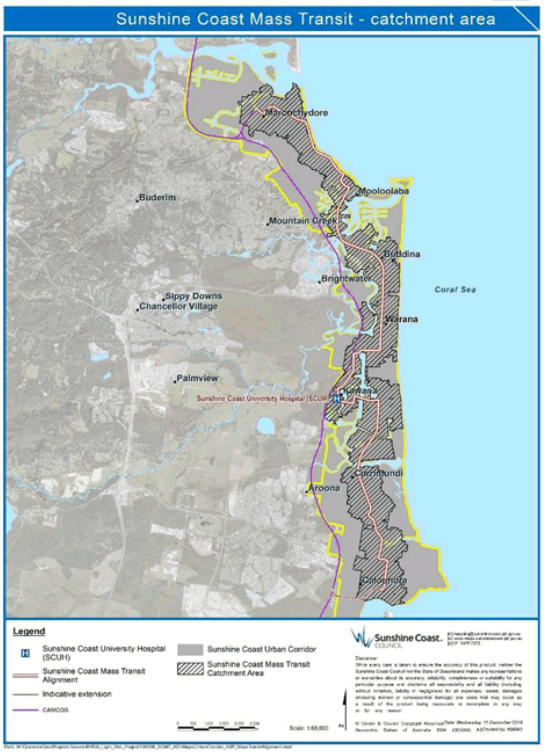

Figure 5: SCMT catchment area - Sunshine Coast Urban Corridor

- **Strategy A** - The full corridor (Stages 1 and 2) Maroochydore to Caloundra defined in Figure 5 below
- **Strategy B** - Stage 1 Maroochydore to Sunshine Coast University Hospital Precinct only.

This land use analysis (in line with the rest of the PBC) assesses **Strategy B** only and refers to the Stage 1 corridor as the SCMT Stage 1 Land Use Corridor. The SCMT Sunshine Coast Urban Corridor is shown in Figure 5.

3.3 Methodology for the land use analysis

3.3.1 General Approach and Considerations

The land use analysis was designed to determine the total quantum of urban renewal (dwellings, population and jobs) that can be unlocked by the SCMT Stage 1 Project. Analysis involved the development of two future land use scenarios:

- '*No-Intervention (trend)*' land use scenario
- '*Intervention*' land use scenario that could be compared to quantify the urban renewal opportunity enabled by the introduction of the mass transit project, in terms of both development capacity unlocked and forecast take-up.

The *No-Intervention (trend)* land use scenario represents a business-as-usual approach to

planning and transport infrastructure provision in the Sunshine Coast Urban Corridor. The assessment has been completed by SCC and its technical advisors and identified the likely property market take-up of development entitlements under existing planning controls. The assessment included a detailed analysis of historical residential and commercial market supply and demand across the Sunshine Coast and, more specifically, within the Sunshine Coast Urban Corridor. Broadly, the *No-Intervention (trend)* land use scenario has been developed in response to a "do-minimum" transport network[26], which does not involve the introduction of SCMT Stage 1.

In contrast, the *Intervention* land use scenario has been developed in response to a 'with project' transport network, which involves the introduction of SCMT Stage 1, as well as changes to planning controls that unlock existing land supply and repurposing options in response to land market conditions as a result of the SCMT Stage 1 investment.

Each scenario involved the identification of the potential development capacity as well as the likely take-up of that capacity. The potential development capacity is defined as the theoretical quantity of development that could occur under the planning scheme if all development opportunities were maximised. The likely take-up is defined as the quantity of development capacity that is forecast to actually be delivered by the market in the specified timeframe (2016 to 2041). The forecast take-up rate for growth under the *Intervention* land use scenario assumes that market impacts would commence in 2025, that is, 12 months prior to completion of construction of Stage 1 of SCMT in 2026. Other considerations include:

- The analysis in this report has been performed assuming a Light Rail Transit (LRT) intervention, given the stage of the Project. LRT is a proven technology in achieving take-up of urban renewal opportunities. A Bus Rapid Transit (BRT) land use scenario is being developed and will be incorporated into the final PBC analysis and report.
- The Queensland Government Statistician's Office (QGSO) projections for the Sunshine Coast and the urban corridor assumes infrastructure upgrades, including a mass transit spine.
- The QGSO projections have been maintained at the Sunshine Coast level. Where the *Intervention* land use scenario forecasts additional growth in the Sunshine Coast Urban Corridor, this growth has been redistributed from outside the corridor with the total population maintained at 518,000.

3.3.2 Nine Step Assessment

A detailed nine-step assessment was used to define the land use scenarios, their development capacities and likely forecast growth projections to 2041 for each station catchment within the corridor. This sequential process is summarised as follows:

1 Determine station locality and catchment

2 Conduct a constraints analysis to identify the likely impediments to further growth

3 Identify existing constrained sites and opportunity sites that could contribute to the transformation of the station

4 Determine the *No-Intervention (trend)* capacity by identifying development capacity under current planning controls

5 Develop the urban design considerations and future land use plan for each catchment

6 Develop the *Intervention* land use scenario

7 Identify the additional capacity unlocked by the SCMT Project

8 Conduct a market-based assessment to forecast the likely take-up of both the *No Intervention (trend)* and the *Intervention* land use scenario capacities

9 Determine the total urban renewal unlocked by the SCMT Project and identify forecast growth based on take-up rates for the *No-Intervention (trend)* and the *Intervention* land use scenarios.

[26] See section 6.3 below for more detail.

3.4 Land use analysis

3.4.1 Urban renewal unlocked by *No Intervention (trend)* and *Intervention* land use scenarios

The land use scenario capacities and forecast take-up in 2041 for both the *No-Intervention (trend)* land use scenario and the *Intervention* land use scenario are detailed in Table 2. The 2016 dwelling, population and jobs reflect the ABS 2016 Census information. The results demonstrate that the *Intervention* land use scenario unlocks significant additional capacity and additional urban renewal above the *No Intervention (trend)* land use scenario. Specifically, the *Intervention* land use scenario unlocks 9,575 dwellings, 19,597 new residents, and 6,336 new jobs over and above the *No Intervention (trend)* land use scenario, by 2041.

The forecast take-up is lower than the theoretical capacity as it is reflective of historical trends and future demands on a catchment-by-catchment basis. It shows that the land use changes and the SCMT project together unlock significant demand for housing and thus jobs to largely service new residents along the corridor.

Table 2: SCMT Stage 1 land use corridor *No Intervention (trend)* vs *Intervention* land use scenario capacity and take-up

	2016 (ABS /QGSO)	2041 NO INTERVENTION CAPACITY	2041 INTERVENTION CAPACITY	ADDITIONAL CAPACITY UNLOCKED	2041 NO INTERVENTION TAKEUP	2041 INTERVENTION TAKEUP	ADDITIONAL GROWTH UNLOCKED
Dwellings	11,209	21,533	50,761	**29,228**	17,436	27,011	**9,575**
Jobs	30,973	61,183	85,092	**23,909**	49,334	55,670	**6,336**
Population	23,222	-	-	-	35,475	55,072	**19,597**

Figure 6 graphically compares the *No Intervention (trend)* and *Intervention* land use scenario dwelling and job capacities and forecast 2041 growth. The *LRT-Intervention* land use scenario is forecast to result in additional potential dwelling capacity of more than 29,000 dwellings, and additional potential job capacity of more than 23,000 jobs.

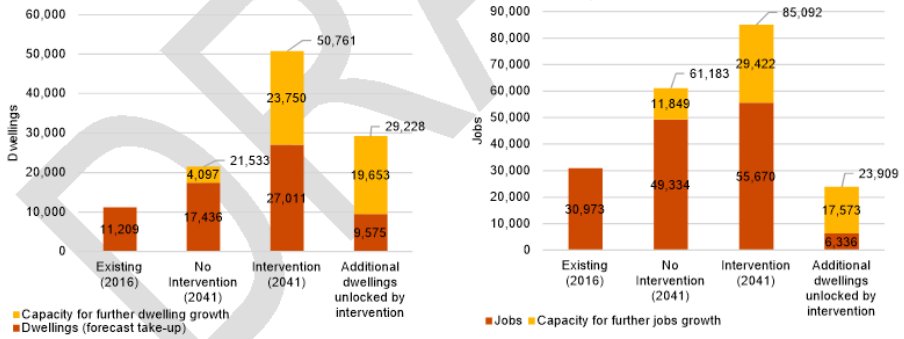

Figure 6: *No Intervention (trend)* and *Intervention* land use scenario dwelling and job capacity and forecast growth (2041)

The overall performance of the residential, retail and commercial markets relative to SCMT Stage 1 relate to multiple factors, with the ultimate urban renewal potential that may be unlocked in the corridor requiring an integrated approach addressing appropriate built-form outcomes, local amenity, and an implementation framework and/or land-use planning control amendments that support and promote the desired outcome. Without the combined impact of proactive rezoning implementation measures (e.g. a Priority Development Area (PDA) or planning scheme amendments) designed to concurrently improve and support existing retail and recreational amenity, deliver market certainty and provide for master planned precinct-based outcomes, the expected benefits from SCMT Stage 1 may be reduced.

3.4.2 Benchmarks – Rail Infrastructure projects in Australia

Since 2000, Australia has seen a variety of light rail infrastructure projects implemented, aimed at improving accessibility between residential and employment hubs, reducing congestion on major roads, or catalysing urban regeneration projects, often resulting in increased population density within the areas serviced by the rail networks. To provide context to the potential upper and lower take-up rates which may be achieved within the corridor, a detailed assessment of the historic market performance of five identified light rail corridors (Gold Coast Light Rail Stage 1, Sydney Inner West Light Rail Stages 2 and 3, Canberra Metro Stage 1, and the Glenelg Entertainment Centre Extension) was undertaken.

While each of the benchmark case studies demonstrate that urban regeneration has occurred from introduction of the respective rail projects (despite significant barriers in many cases) the case studies highlight the need for planning intervention in order to realise maximum benefits from urban consolidation opportunities that are enabled in proximity to transit stations and corridors. Analysis highlights that station catchments where changes to planning controls (namely the use of the PDA for Gold Coast Light Rail Stage 1) had been implemented with sufficient time to enable market response to the light rail infrastructure had experienced more significant take-up than catchments where no intervention had occurred.

3.5 Redistribution of intervention scenario growth from within Sunshine Coast LGA

The *Intervention* land use scenario results in greater dwelling, population and employment growth in the Sunshine Coast Urban Corridor than would otherwise occur without a major intervention to improve mass transit options. Without intervention, this additional growth would likely otherwise have occurred in other localities within the Sunshine Coast LGA. The modelling approach redistributed the difference in population and broad industry category of employment (i.e. retail, service, professional, industry and other) relative to travel zone forecasts. The redistribution model is informed by two key factors – the planning intent of the travel zone and the level of transport network constraint.

The results of the modelling indicate that significant population redistribution into the corridor is drawn from Eumundi and west of Beerwah, while the employment impacts are less significant, aside from drawing jobs away from the Sunshine Coast Public Hospital to a degree.

3.6 Urban transformation that suits the Sunshine Coast lifestyle

Increased growth in the Sunshine Coast Urban Corridor will only be achieved if the amenity, liveability, employment and lifestyle offering is demonstrated to be attractive to current and future residents. New consolidated urban development in the Sunshine Coast Urban Corridor can be designed to achieve a *low-key* lifestyle city that maintains and enhances the Sunshine Coast's valued character and identity through:

- A series of urban villages containing a mix of uses which create local community hubs and which are connected to the major centres of Maroochydore, Kawana and Caloundra
- Providing for a range of desirable housing choices suitable for an affordable coastal oriented lifestyle
- Containing building height and site cover to deliver a built form that is consistent with a low-key approach to urbanisation, without excessive high-rise development
- Increasing density and development around stops as a function of the transit system and the increased amenity that it offers
- Providing a public realm that supports activated, vibrant places that are green, accessible, inclusive and reflect local character
- Supporting healthy and active lifestyles by incorporating extensive active transport (i.e. walking and cycling) networks and enhanced access to open space and recreation facilities
- Capitalising on opportunities for views, aspect and walk-up access to beaches and estuaries
- Mandating residential building types that foster outdoor living and allow for interaction with pedestrian activity at street level
- Promoting climate friendly building design to reduce energy needs, capitalise on prevailing breezes, sun and shade

- Providing for renewable energy generation and water conservation and reuse as integral features of private and public buildings
- Delivering extensive native sub-tropical landscaping in streets, public spaces and private properties.

3.7 Further measures to support urban transformation

Expert analysis to support the PBC has confirmed that mass transit, combined with a proactive land use response, has the potential to facilitate a fundamental shift towards new infill renewal and improved take-up rates. These expert reports caution, however, that it is clear the process of achieving urban transformation in the face of accelerating trends for urban expansion will be difficult. There will also be a need to provide a range of stimulus measures and incentives to ensure the timely activation of the desired types of new residential and commercial infill development and to maximise the amenity and liveability of the Sunshine Coast Urban Corridor.

An "Urban Renewal Facilitation Toolkit" is being prepared to provide Council with a set of intervention levers, policy directions and incentives to be implemented in conjunction with mass transit and land use changes. This "toolkit" can assist the residential take-up rates and the 'consolidation' growth benchmarks under the *ShapingSEQ* to be achieved while retaining the Sunshine Coast's character and identity. The implementation of these "toolkit" measures alongside the mass transit investment will be essential to ensure the overall success of the urban transformation agenda in the Sunshine Coast Urban Corridor and to achieve the *ShapingSEQ* growth targets.

3.8 Summary

The land use analysis undertaken to date for the SCMT Project has found that the right type of mass transit can act as a catalyst for the consolidation of new housing and business within its catchment. This will enable a higher proportion of dwelling growth to occur within the Sunshine Coast Urban Corridor and support access to key destinations and employment nodes without having to drive long distances in private motor vehicles. In particular:

- The SCMT Project will deliver a significant region-shaping opportunity when combined with complementary and appropriate changes to planning controls
- Investment in the SCMT will help drive a stronger, more competitive and sustainable economy and generate substantial and lasting economic, social and environmental benefits
- Project benefits include a combination of the initial increased demand for dwellings serviced by the new infrastructure and the benefits that come from changes in land use zoning and increased development densities
- By 2041 the *LRT-Intervention* land use scenario would result in take up of:
  - 9,575 additional dwellings in the corridor beyond forecast growth without intervention, as a key contributor to the region meeting its 62 per cent urban consolidation target
  - a population of 19,597 additional people in the corridor beyond forecast growth without intervention
  - 6,336 additional jobs in the corridor beyond forecast growth without intervention.
- A fixed infrastructure and high frequency solution would provide greater certainty for residential, retail and commercial property investment
- There would be significant additional dwellings in almost all station catchments as a result of the mass transit project, and significant employment activation in Maroochydore and Kawana (Point Cartwright Drive precinct)
- The SCMT Project could potentially unlock greater dwelling, population and employment growth through additional market influence, however, the analysis has taken a conservative view to reflect historical residential and commercial market demand along the corridor
- The process of achieving a major swing to urban consolidation will be difficult and will require the support of additional measures envisaged in the "Urban Renewal Facilitation Toolkit" alongside the major investment in mass transit.

4 Options Assessment

4.1 Introduction

This chapter describes the options assessment process resulting in a shortlist of options to be taken forward to the detailed economic and financial analysis for the Preliminary Business Case.

The options assessment process delivered for the SCMT Project Stage 1 was undertaken over multiple stages, leveraging the work undertaken during the SBC phase and previous transport planning undertaken for SCC by expert technical advisors.

The options assessment process was delivered in accordance with best practice guidance issued by Infrastructure Australia, Building Queensland and Queensland Treasury. The process undertaken included the following key steps:

1 Identifying and costing the problem

2 Identification of the current and future states i.e. the 2016 situation and the projected "do minimum" scenario

3 Options identification

4 Scoping and development of the options, including transport modelling and cost estimation

5 Quantitative MCA to identify the preferred option(s) for consideration through economic assessment.

4.2 Cost of the problem

During the SBC phase of the project, and to inform the completion of the IA 'Template for Stage 1: Problem Identification and Prioritisation', transport and economic modelling was undertaken to monetise and quantify the problems identified. Through this process it was estimated that the cost of the problem (nominal), relating to congestion (including externality costs) was:

- $500 million per annum for the entire Sunshine Coast LGA in 2016, rising to $3.0 billion per annum in 2041
- $350 million per annum for the urban corridor from Maroochydore to Caloundra, rising to $2.2 billion in 2041
- $160 million per annum for the urban corridor from Maroochydore to Kawana, rising to $1.0 billion in 2041.

In addition to these costs directly relating to congestion, the analysis also discussed the relative cost to the economy and to government and the private sector (in terms of infrastructure provision) of greenfield developments as opposed to infill growth. This cost of the problem establishes the boundaries for the funding envelope that could be considered. Given its significance, this cost justifies a fairly substantial intervention to resolve and address this cost.

4.3 The *do-minimum* transport investment scenario

The *do-minimum* transport investment scenario includes the roads and PT within the study area. The future road and PT network infrastructure upgrades include only those upgrades that are:

- Funded and/or committed projects which form the basis of the economic analysis
- Funded and planned projects which form the basis of the planning analysis, where upgrades are currently planned by the Council and/or the Department of Transport and Main Roads (TMR) and are expected to be funded through recurrent funding
- Projects that represent *do-minimum* intervention including minor works and maintenance.

4.4 QGSO demographic scenario adopted for options testing

The Land Use analysis in Chapter 3 demonstrated that differing land use scenarios will result in 2041, depending on the level of mass transit investment. However, it would be difficult and confusing to rely on these differing scenarios to assess the performance of investment options. Accordingly, a single projected demographic scenario as developed by the Queensland Government Statisticians Office (QGSO) for the Sunshine Coast LGA in 2041, has been adopted for the

Options Assessment. The QGSO distribution of population for the Sunshine Coast LGA is based on inputs from Council that assume certain infrastructure upgrades including a major investment to provide a mass transit spine in the Sunshine Coast Urban Corridor.

4.5 Options identification and longlist – SCMT Stage 1

The options identification process for the PBC focussed on the Stage 1 corridor from Maroochydore to Sunshine Coast University Hospital precinct (SCUH) to build on the findings and recommendations of the SBC

4.5.1 SBC options assessment and SCMT program

The SBC follows on from the Council's *A line in the sand* report and is the first stage of the formal business case assessment of the Project. The purpose of the SBC was to:

- Identify, articulate and analyse the current and forecast economic, land use and transport opportunities and challenges on the Sunshine Coast to effectively understand what is needed to achieve the strategic aspirations for the region
- Identify and assess a range of initiatives that could respond to the opportunities, challenges and service needs
- Recommend a way forward to the next stage of the Project's assessment, being a PBC.

The SBC identified and assessed 16 current and potential initiatives that are, and could be progressed, by Council or the Queensland Government. The initiatives included:

- 10 non-capital initiatives covering reform and better use
- Six capital investment initiatives to improve mass transit.

Non capital initiative options
An assessment of the non-capital initiatives showed the following:

- Eight current initiatives are not sufficient in their own right to address the challenges of growth management on the Sunshine Coast. They will form the basis of the "base case" or "without project case" against which any future investment could be measured.
- An initiative based solely on land use reform will not adequately address challenges nor fully realise desired benefits. However, in order to achieve urban renewal policy goals, a land use strategy must accompany any preferred mass transit solution as the integration of land use and transport planning is critical to achieving optimal economic and social policy outcomes for the region.
- Implementation of significant road travel demand management and restraint of car parking supply would be insufficient to respond to the major growth in travel expected.

4.5.2 PBC options identification

The SBC recommended that a first stage of mass transit delivered in the Priority Area 1 from Maroochydore to Kawana was the best option for the development of PT on the Sunshine Coast and the preferred first stage of intervention. The development of options for the PBC was undertaken by the project team, considering the technologies and initiatives that could feasibly be delivered to realise the benefits sought from the Project, within the identified project corridor.

Overall the Stage 1 options considered in the PBC options assessment were:

1 Bus service enhancements

2 Bus network upgrades

3 Road network upgrades

4 Quality Bus Corridor

5 Bus Rapid Transit (BRT)

6 Light Rail Transit (LRT).

These options reflect a range of PT solutions, mode options and levels of capital investment to understand the incremental benefit that could be realised from an increasing level of investment and intervention in the corridor.

4.6 Options scoping and development

The identified options were subsequently scoped by the project team. For each option, sufficient design effort was undertaken to develop a strategic level cost estimate and enable transport modelling to be undertaken. All options follow the same route for Stage 1 from Maroochydore to the SCUH. For each of the options, an updated region-wide PT network including bus service enhancements was used as the basis for the strategic transport modelling.

4.6.1 Option 1 – Bus service enhancements

The bus service enhancements option reflects an expanded future PT network on the Sunshine Coast. This network was developed as part of the *Southern Sunshine Coast Public Transport Study* for TMR. It consists of a trunk corridor extending from Beerwah to the Sunshine Coast Airport (via Caloundra, Kawana, Mooloolaba, Maroochydore) which is serviced by 3 high-frequency routes. Connections to other activity centres (including new centres) and the North Coast Rail Line are provided by new and existing connector routes with improved frequencies. The level of service of bus kilometres of this network would also be deployed across all options. Greenfield growth areas are provided with new coverage services, and frequencies and routing on some existing coverage routes are improved.

4.6.2 Option 2 - Bus network upgrades

The bus network upgrades reflect a low capital solution, providing localised treatments throughout the corridor to improve the current bus network service. These upgrades represent an incremental improvement to the current service offering. Features include:

- Improved service with a combined service frequency of 8 vehicles per hour (7.5-minute headways)
- Bus services as specified in the bus service enhancement option (Option 1 – Bus service enhancements)
- Queue jumps at key locations along the corridor
- Park n Ride at Sunshine Motorway as it is a key transfer point for road, east-west bus services, and the coastal transport corridor.

4.6.3 Option 3 - Road network upgrades

The road upgrade option considers the ability to make amendments and investment in the road network to alleviate congestion and improve the transport functionality within the corridor. This also incorporates the base bus service enhancements of Option 1. The level of new infrastructure is consistent with the Quality Bus Corridor providing a similar scale of investment as PT. This option will include road upgrades along Aerodrome Road, Venning Street, Walan Street, Brisbane Road and Nicklin Way

4.6.4 Option 4 - Quality Bus Corridor (QBC)

The Quality Bus Corridor reflects the development of a high-quality bus corridor, with high frequency service provision. It represents a significant capital investment in bus technology and includes corridor level treatments, as compared to the bus network upgrades, to attract passengers and increase PT mode share. The design leverages previous detailed investigations undertaken by TMR on the *CoastConnect: Caloundra to Maroochydore Quality Bus Corridor* study undertaken in 2010-11. Key features of this option include:

- Improved vehicles - higher specification branded vehicles, articulated or double decker buses
- Pre-paid boarding, no tickets sold on buses
- Dedicated bus lanes along Aerodrome Road - Rose Street to Horton Parade
- Dedicated bus lanes along Nicklin Way (2 road lanes + 1 bus lane + active transport)
- No priority at traffic signals
- Improved service with a combined service frequency of 8 vehicles per hour (7.5-minute headways)
- Bus services as specified in the bus service enhancement option (Option 1 – Bus service enhancements)
- Quality bus stops along corridor
- Park n Ride at Sunshine Motorway.

4.6.5 Option 5 – Bus Rapid Transit (BRT)

A BRT reference design was developed for the PBC and reflects a significant level of capital investment to create a dedicated high-quality bus-based PT spine in the corridor. The solution includes high-quality vehicles and stations with features as described by the *Bus Rapid Transit Standard*[27]. Key features of the BRT option include:

- Identical alignment to the LRT alignment across the corridor with aligned station locations and function
- Modern battery electric buses
- Pre-paid boarding, tag on platform, all doors, no contact with driver
- Dedicated right of way corridor
- 8 vehicles per hour, 7.5-minute headways
- Priority at traffic signals
- Journey time of 30 minutes from Maroochydore to Kawana
- Park n Ride at Sunshine Motorway.

4.6.6 Option 6 – Light Rail Transit (LRT)

The LRT reference design was developed for the PBC, and as for the BRT design intention, represents a significant level of capital investment to create a dedicated high-quality dedicated PT spine in the corridor. The LRT option reflects the highest specification, largest infrastructure intervention and highest cost solution considered in the options assessment. Features of the design include:

- Identical alignment to the BRT alignment across the corridor with aligned station locations and function
- Pre-paid boarding, tag on platform, no contact with driver
- Dedicated right of way corridor
- 8 vehicles per hour, 7.5-minute headways
- Priority at traffic signals
- Journey time of 30 minutes from Maroochydore to Kawana
- Park n Ride at Sunshine Motorway.

4.6.7 Trackless trams

"Trackless tram" is an emerging technology solution that is essentially a subset of BRT in form and function. A trackless tram is an electric powered rubber tyred vehicle that would be autonomously guided via an optical or radio service guidance system. "Trackless tram" systems are currently in a demonstration/ pilot technology phase of development, in China, and are a proprietary product of the Chinese rail company CRRC with a demonstration/pilot system operating in Zhuzhou.

During the identification stage of the options assessment process, trackless trams were considered as a potential option for inclusion in the Multi Criteria Assessment (MCA) process. Research undertaken into the technology, and discussions with the technical advisors to the project, determined that trackless tram is a technology variant that fits within the BRT portfolio and as such is considered in that context, with similar, if not identical infrastructure requirements and land use outcomes.

The current CRRC "trackless tram" vehicle dimensions are larger than existing buses in Australia (2.65 m wide by 3.4 m high), and purportedly can be lengthened or shortened by adding or removing sections from each consist. The propulsion systems are electric with onboard energy storage systems (supercapacitors) being recharged at stations. This requires power supply infrastructure and services to each station for quick recharging. The manufacturer also claims that the

[27] ITDP. 2017. **Bus Rapid Transit Standard**. https://www.itdp.org/library/standards-and-guides/the-bus-rapid-transit-standard/

vehicles are 100% low floor, though with a floor height of 330mm. This is 30mm higher than standard low floor LRT vehicles[28].

Like BRT systems, trackless trams would require a rigid pavement to handle the repetitive and localised loading profile from the guided wheels and would need to operate in their own right of way, with dedicated stations. The guidance technology system remains unproven for various environmental conditions including heavy rain (experienced on the Sunshine Coast).

Given the new nature of such technology it would require certification and approval for operation in Australia and the pathway for such is unknown at this point in time. The guiding approach for the project has been to consider technologies and solutions that have a level of proven commercial service, thereby reducing the technological and commissioning risks and enabling the Council (and any operators) the ability to leverage off experience from similar systems globally during commissioning and operations. At this stage "trackless trams" do not have proven commercial service experience that can be relied upon to reduce this risk for Council and its partners and this solution is considered "proprietary" technology- thus adding further risks for project owners when locked into a single supplier.

Based on such similarities, and the likely relative costs to other BRT (and indeed LRT) solutions, the delivery of a mass transit system through trackless trams was seen as a technology that needs further development and some degree of proven commercial service to be considered a solution in its own right.

Its exclusion as an explicit option in the PBC phase does not prevent its future consideration in the DBC phase if the technology becomes more advanced as part of a BRT solution, if this is progressed as the preferred Reference Project.

4.7 Options assessment

4.7.1 Criteria

The six shortlisted options for Stage 1 were assessed against a range of criteria chosen to link directly to the service requirements and project objectives developed in the SBC, and the options were assessed on their ability to deliver the outcomes desired by the Council. The criteria used for the quantitative MCA are outlined in Table 3.

Table 3: MCA criteria

Criteria	Description	Core Assessment Weighting
Transport Outcomes	Impacts of the option on mode share, travel times, congestion, PT reliability, future transport network development. Focused on PT impacts.	45%
Land Use	How the option impacts on the land use outcomes in the corridor and enables urban renewal and promotes infill development. This criterion considered the amount of development around the mode and its ability to satisfy the infill criteria of Council.	30%
Cost	Comparative whole of life costs including capital and operating cost estimates for each of the scoped options, discounted at 7 per cent real (economic discount rate).	15%
Sustainability / Environmental	The overall sustainability and environmental impact of the option.	10%

4.7.2 Results

Table 4 presents the outcomes of the core MCA assessment, along with the results of the sensitives. To test the robustness of the results from the MCA, several sensitives were also run using alternative scenarios across these criteria. These sensitivities considered:

- An equal weighting, to test the outcome if all criteria are considered to be equivalently important
- Cost criteria greater than land use, to test the outcome if cost and transport are considered more important

[28] "Debunking the myths around the optically-guided bus (trackless trams), 21 January 2019" Yale Wong, University of Sydney

- Only the Transport Outcomes, Land Use and Cost criteria, as these act as a proxy for an economic assessment.

Table 4: Quantitative MCA results and sensitivities

Criteria		Bus service enhancements	Bus network	Road network	Quality Bus Corridor	BRT	LRT
Core result Rank	Score	5.2	5.0	4.1	5.8	7.5	8.7
	Rank	**4**	**5**	**6**	**3**	**2**	**1**
Equal weightings on all criteria	Score	5.1	5.1	4.0	6.2	7.1	7.9
	Rank	***5***	***4***	***6***	***3***	***2***	***1***
Cost weighting > Land Use weighting	Score	6.7	6.2	5.4	6.7	7.1	7.6
	Rank	***4***	***5***	***6***	***3***	***2***	***1***
Transport, Land Use and Cost criteria only	Score	5.8	5.1	4.7	5.0	6.1	7.4
	Rank	***3***	***4***	***6***	***5***	***2***	***1***

4.8 Summary

The quantitative MCA results presented in Table 4 demonstrate that an LRT solution from Maroochydore to Kawana is the highest performing option when assessed against a range of criteria and transport infrastructure. LRT performed the strongest in the Core scenario as well as across all sensitivities. BRT performs second, and this result is also consistent across all sensitives. Based on the results of the MCA, the following options were recommended for progression in the PBC to economic analysis and more detailed assessment through development of a Cost Benefit Analysis:

1 LRT

2 BRT

3 Quality Bus Corridor.

The options assessment process concluded that only the LRT option and potentially the BRT option are considered to have significant benefits in achieving the important land use criterion. The Quality Bus Corridor option is based on bus lanes, and although it performs well in terms of transport and cost, cannot achieve the full range of urban renewal benefits sought for the SCMT Project in the Sunshine Coast Urban Corridor.

5 Reference Projects

5.1 Introduction

This chapter describes the key features that comprise the SCMT Reference Projects for the shortlisted options identified in Chapter 4. The LRT Reference Project was used as the benchmark against which to develop the BRT Reference Project, and it is described in the most detail. A higher-level overview of the Reference Project – BRT and the alternative Quality Bus Corridor option is also provided.

5.2 Operational Assumptions

The LRT and BRT have been analysed and designed based on the initial operating assumptions shown Table 5.

Table 5: Operational assumptions

Item	Assumption
Alignment length	13.6km
Number of stations	16
Number of substations	LRT – 9 at approximately 2km intervals, plus the depot BRT – Assumed to be battery electric, 3 recharging at both terminus and deep recharging in the depot
Structures – number of major bridges	5 bridges Canal within Maroochydore CBD Creek on Brisbane Road Tucker Creek on Brisbane Road Mooloolah River North on Brisbane Road Mooloolah River South on Brisbane Road
Depot location	Single site for stabling and maintenance is yet to be confirmed.
System configuration	Shared driver amenities at both terminus locations
Journey time – BRT	Proposed to use standard 30-minute journey time with a 15-minute change over at each terminus (recharging, driver amenity break, driver change for driver break)
Journey time – LRT	Proposed to use standard 30-minute journey time with a 6-minute change over at each terminus (driver amenity break, driver change for driver break)
Vehicle size / length – BRT	Based on Brisbane Metro. Approximate values: Length – 24 metres Static width – 2.55 metres Passenger capacity – 60 seated, 70 standing
Vehicle size / length – LRT	Based on Gold Coast Light Rail. Approximate values: Length – 45 metres Static width – 2.65 metres Passenger capacity – 80 seated, 220 standing
Vehicle floor height	300 to 350mm (100 per cent low floor)
Platform height	
Maximum gradient	8 per cent
Speed performance	To match adjacent road, posted speed limits up to 80km per hour
Running way – BRT	High strength asphalt pavements for running way, except for concrete pavement at the following locations: • Stops including approach and departures • Intersections

5.2.1 Public Transport Network

A project specific bus network has been developed to support operation of the light rail route. The network includes a high frequency trunk connection running from Sunshine Coast Airport through to Beerwah via Maroochydore CBD, Mooloolaba, Birtinya, Caloundra South and Beerwah East. The trunk route is comprised of high frequency busses and the LRT corridor.

5.2.2 Providing opportunities to access the mass transit system

To maximise passenger convenience, the ability to transfer between the various public transport services, and the ability to transfer to the mass transit system from other modes of transport, must be central design features. While most people walk to access public transport, not all passengers originate from points close enough to allow this. As with any integrated public transport system, passengers must have maximum ability to access the mass transit services even in cases where they cannot walk to the stop. The proposed arrangements for access and transfers for Stage 1 of the mass transit system are shown in Table 6.

Table 6: Proposed Intermodal transfer arrangements for SCMT Project

Access mode	Response	Location
Walk, cycle, micro-electric transport	Improve direct pathway connections between mass transit stations and their catchments Provide bicycle storage and/or allow bicycles to be carried on services	All mass transit stations
Transfer from intersecting local buses	Provide passenger interchange, and bus layover facilities	Maroochydore Town Centre, Mooloolaba south, Kawana Town Centre, Kawana University Hospital
Transfer between mass transit and regional rail	Provide convenient transfer points with a short walk between regional rail and mass transit at key stops	Maroochydore Town Centre, Kawana Town Centre
Passenger pick up and set down	Provide facilities for at major stops for "kiss + ride" private vehicle and booked hire services and taxis	Maroochydore Town Centre, Mooloolaba south, Kawana Town Centre, Kawana University Hospital
Park + Ride	Provide car parking spaces close to mass transit stations that are outside of busy or congested areas and have good road access	Mooloolaba south, and possible smaller facilities at local stops not located in major centres.

5.2.3 Park n Ride facilities

Park n Ride facilities allow people to drive to mass transit stations and leave their car there for the period of their journey. Park n Ride is a primarily way of intercepting motorists before they arrive in major activity centres or congested parts of the road network and allowing them to transfer to public transport. These facilities are popular with users but expensive to provide and maintain. In particular they consume large amounts of land which in central locations can be prohibitively expensive to attain. The Park n Ride facilities can also sterilise land around stations that might be used for other more valued purposes such as medium density housing and mixed use commercial development. Importantly, Park n Ride facilities need to be located so motorists do not drive into congested areas, as this is a key reason to provide the mass transit as an alternative way to access centres.

On Stage 1 there is one highly suitable location for a large Park n Ride and a bus transfer facility at Mooloolaba south, as part of the major Mooloolah River Interchange works for the Sunshine Motorway. Future detailed planning may also identify other opportunities for smaller Park n Ride facilities at other stations located outside of busy centres.

5.3 Reference Projects – general characteristics of LRT and BRT

This section outlines the characteristics of the LRT and BRT Reference Projects.

Reference Projects

5.3.1 Route alignment

The Stage 1 SCMT corridor (see Figure 7) has been divided into seven segments to assist with selection of the most suitable alignment options within the corridor. The segments have been identified based on the function of the segment from a land use and transport planning perspective. The segments are:

- Segment 1 - Maroochydore CBD
- Segment 2 - Aerodrome Road
- Segment 3 - Alexandra Parade and Venning Street
- Segment 4 – Mooloolaba
- Segment 5 - Mooloolah River
- Segment 6 - Nicklin Way
- Segment 7 - Birtinya Town Centre.

When considering the alignment, the following key criteria were used in the selection process of suitable options:

- Safety - Where there is private property access directly onto the corridor, placing the mass transit alignment on the same side of the corridor as the private property access points results in conflicts that need to be managed for the safety of people using the private property access and the mass transit. For safety reasons, all interactions between LRT or BRT vehicles and road vehicles will be signalised.
- Operational efficiency - Efficiency in the operations and the road network is improved by minimising the number and complexity of interactions between the two forms of transport. Reducing the number of interactions improves allowable speeds for the vehicles and any delays associated with the operation of the traffic signals.
- Place and context - The position of the LRT or BRT within the corridor and the finishes used for the track slab (concrete, paved, grassed) can provide varying levels of benefit for the development of place along the corridor. The position of the alignment controls the position of the stops across the corridor. Connectivity of the stops to their surrounding precinct can be enhanced depending on the position within the corridor.

The alignment with 10-minute walking catchment isochrones catchment area is shown in Figure 7.

Reference Projects

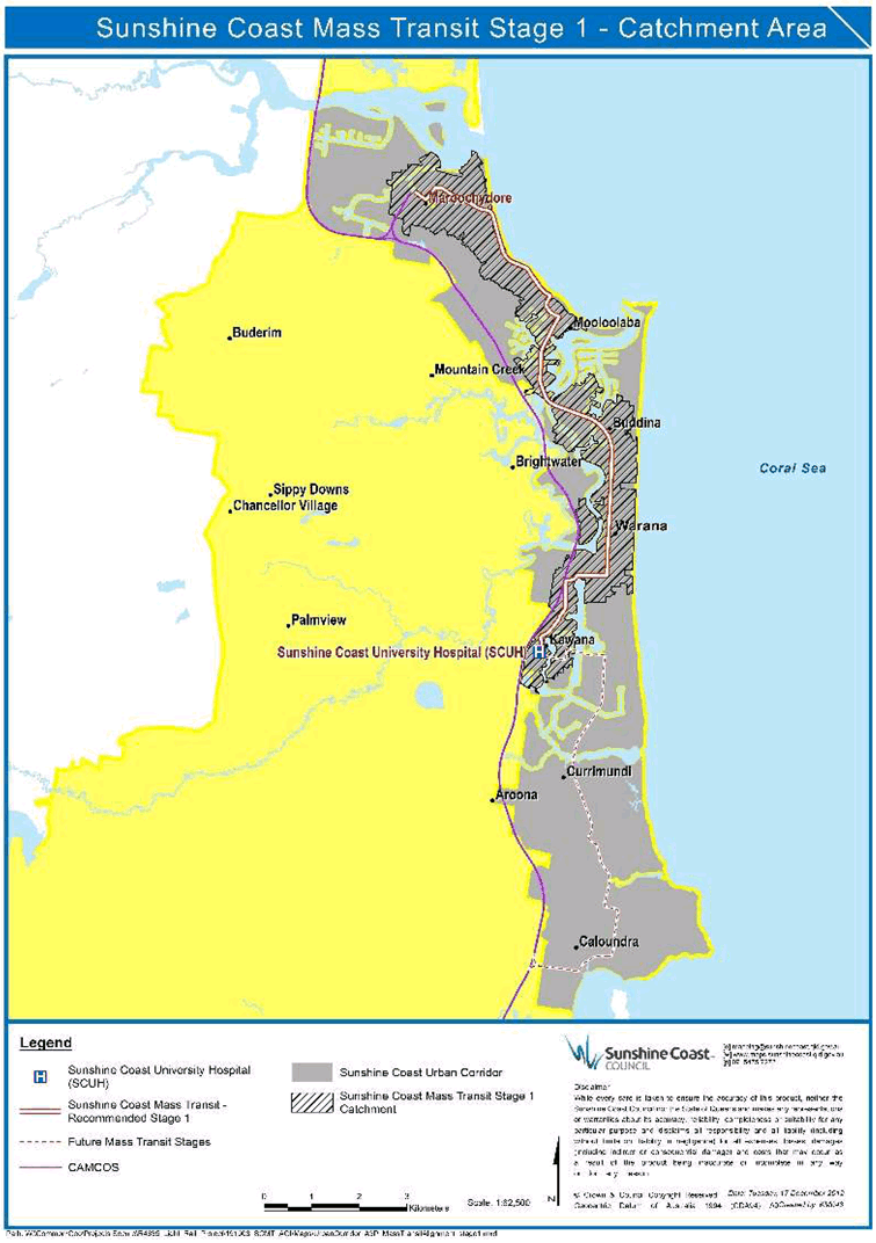

Figure 7: SCMT Stage 1 catchment area

Reference Projects

5.3.2 Corridor configuration

The corridor route follows existing road corridors. The approach taken aims to minimise the scale and impacts of the infrastructure, integrate the alignment within the urban environment, and achieve a suitable journey time and reliability to encourage mode shift to PT.

To minimise the impacts, a balanced mixture of LRT or BRT running way, traffic lanes, parking, active transport and open space is required. For the PBC this has resulted in the configurations proposed in Table 7.

Table 7: Corridor configuration

Segment	Road	Footpaths	Cycle	Through Lanes (each way)	Corridor type	Running way
1	Corso	Both sides	Shared with road traffic	One	Verge	Grassed / Paved
1	First Avenue	Both sides	Dedicated on western side	One	Narrow median – partially segregated	Concrete
1	Maroochydore	Both sides	Not applicable	Not applicable	Verge	Concrete
2	Aerodrome Road	Both sides	None (PCN provided on Maroubra Street)	Two	Narrow median – segregated	Concrete
3	Alexandra Parade	Both sides	M2M cycleway on eastern side	One	Verge	Concrete
3	Venning Street	Both sides	None	One	Narrow median – partially segregated	Concrete
4	Walan Street	Both sides	None	One	Narrow median – partially segregated	Concrete
4	Brisbane Road	Both sides	Bidirectional cycleway on south side	Two	Narrow median – segregated	Concrete
5	Brisbane Road	South side	Bidirectional cycleway on south side	Various	Verge	Concrete
6	Nicklin Way (Mooloolah River to Jessica Blvd)	Both sides	Bidirectional cycleway on east side	Two	Verge	Concrete
6	Nicklin Way (Jessica Blvd to Main Drive)	Both Sides	Uni directional on both sides	Two	Narrow median – segregated	Concrete
7	Main Drive	Both sides	Shared with road traffic	One	Narrow median – partially segregated	Concrete
7	Metier Linkway	Both sides	Shared with road traffic	One	Narrow median – partially segregated	Concrete
7	Kawana Way (Metier Linkway to Central Blvd)	Both Sides	On road lanes	Two	Narrow median – segregated	Concrete
7	Kawana Way (Central Blvd to past Lake Kawana Blvd)	Both Sides	On road lanes	Two	Verge	Concrete
7	Park	Water front	Water front	Not applicable	Dedicated	Grass
7	Bragg Street	Both sides	On road lanes	One	Verge	Concrete

5.3.3 Stations

Stations, along with the vehicles, are the key interface points between the travelling public and the mass transit system and will need to provide facilities and information which make the user experience as inviting and enjoyable as possible. It is intended that the stations will have a consistent design across the network to improve legibility and will be designed to suit the Sunshine Coast design principles. Stations will be located so they:

- Will allow the convenient movement of people between the mass transit system and surrounding origins and destinations
- Allow interchanges with other forms of transport to occur at convenient locations
- Provide a safe and inviting environment
- Can be made to safely and effectively fit with, and integrate into, the surrounding urban landscape and traffic network
- Meet geometric design standards including being located on a straight section of track and flat grade at the station.

Figure 8 depicts the minimum level of facilities to be provided at each station.

A standardised arrangement of these facilities will lead to customer familiarity and ease of maintenance. However, each station platform needs to be designed in relation to its local context. For example, access points and pedestrian storage provisions on each platform will vary.

For the SCMT Project, four physical station typologies have been identified: island, side, terminus and intermediate intermodal.

Figure 8: Station facilities

Island stations are located between the tracks with facilities centrally located on the stop to provide safe access and movement paths to both platform faces. The stops require additional corridor width to allow the tracks to widen around the platform. Island stations apply only to LRT.

Side stations require two platforms located outside the running way with duplicate facilities on the stop so that passengers do not need to change platforms to reach help points, top up go cards, or use other facilities on the stops. Side platforms have a shelter covering a minimum 70 per cent of the platform. All BRT stations would be side stations due to location of the doors on the vehicle (one side only).

Terminus stations are located at the end of the alignment when vehicles complete their journey in one direction, the driver changes ends of the vehicle and returns in the other direction. Terminus platforms require additional facilities for passengers as there are normally more passengers using these stops. These stops will aim to have 100 per cent shelter and additional top-up machines, touch on/off points, and seating. Terminus stations apply to both LRT and BRT.

Intermediate Intermodal stations are provided where passengers are able to transfer to the bus network and generally have more passengers using them so require additional shelter and facilities. This station-types apply to both LRT and BRT.

The general location, type and features of each of the 16 proposed stops are categorised as follows:

- 2 Terminus stations
- 4 Side stations for LRT (13 for BRT)
- 9 Island stations (LRT only)
- 1 Intermodal station.

5.4 Reference Project – LRT

5.4.1 Description

The LRT Reference Project has been designed along the lines of the successful Gold Coast and Canberra light rail systems with high quality vehicles and stations, with light rail trackage provided through an embedded railway track. As with these other systems, the LRT is assumed to utilise electric traction power delivered through overhead line equipment. Some LRT systems utilise battery powered trams with fast-charging at stations, and this may prove to be an economic proposition for the Sunshine Coast in the future. The LRT and its technical assumptions will be reviewed and refined in the subsequent phases of the Project.

From an operational perspective, the LRT's service frequency is eight vehicles per hour at 7.5-minute headways and a 30-minute journey time for Stage 1. Provided that this headway of 7.5 minutes or similar can be maintained in the face of passenger demand, all LRT vehicles will be given a level of priority at traffic signals to enable quicker journey times. For the purposes of the analysis, which is based on 2041, it is assumed parking charges would be applied in Maroochydore and Mooloolaba and based on current charges applied in Caloundra.

As with BRT and the Quality Bus Corridor options, a feature of the LRT option is a Park n Ride facility planned at the Sunshine Motorway junction, in a location yet to be determined.

5.5 Reference Project – BRT

The Reference Project – BRT has been designed to create a dedicated high-quality PT spine in the corridor. The solution includes high-quality vehicles and stations to resemble as closely as possible an LRT system. The BRT option is made up mostly of a dedicated right of way centre-running corridor with a width varying from 8.2 metres to 11.2 metres. The solution includes high-quality vehicles and stations with features to qualify as a "Bronze BRT" as described by the international *Bus Rapid Transit Standard*. Higher standards, i.e. Gold and Silver are possible under the BRT Standard, and these generally aim to allow BRT to compete with very high capacity passenger transport modes like metro rail. Adopting a higher standard BRT would add significant costs which were judged by technical experts to unfairly penalise the BRT option when compared to LRT.

The BRT right of way would be made up of multi-layered pavement running way, concrete stations and approaches. As with LRT and the Quality Bus Corridor options, a feature of the BRT option is a Park n Ride facility planned at the Sunshine Motorway[29]. Its station locations and function are similar to the LRT option, with paid space for stations with tap-on at platform facilities. Unlike the LRT, all stations for the BRT are side platforms due to the available BRT vehicles only having doors on one side of the vehicle. The BRT vehicle itself will be an electric vehicle similar to the proposed Brisbane Metro bi-articulated vehicles which measure 24.5 metres.

From an operational perspective, the BRT's service frequency is eight vehicles per hour at 7.5-minute headways and a 30-minute journey time for Stage 1, identical to LRT. Provided a headway of 7.5 minutes can be maintained in the face of passenger demand, all BRT vehicles will be given a level of priority at traffic signals to enable quicker journey times. For the purposes of the analysis, which is based on 2041, it is assumed kerbside parking charges would be applied in Maroochydore and Mooloolaba based on current charges applied in Caloundra. The financial and economic costs of the BRT are reflective of an increase in bus kilometres consistent with a re-orientated network around the mass transit spine.

[29] Exact location to be advised.

5.6 Quality Bus Corridor

This option is the development of a high-quality bus corridor and service, including a significant level of capital investment and corridor level treatments focused on increasing PT mode share. The key features of this option include:

- Improved vehicles – higher specification branded vehicles, articulated or double decker buses 12 to 18 metres long
- High frequency bus services with dedicated right of way on Nicklin Way with frequency of eight services per hour and headways of 7.5 minutes
- Pre-paid services only with no cash fares, similar to Brisbane BUZ services
- Infrastructure inclusions:
  - Dedicated bus lanes along Aerodrome Road, Rose Street to Horton Parade
  - Dedicated bus lanes along Nicklin Way (two road lanes, one bus lane and AT)
- Quality bus stops along corridor
- Brisbane Road, Walan Street and Venning Street – upgraded to four lanes of general traffic. These costs are excluded from project estimates as works are being undertaken by Council in 2019/20
- Park n Ride at Sunshine Motorway
- Increase in bus kilometres and enhanced network connectivity
- It is assumed that by 2041 parking charges would be applied in Maroochydore and Mooloolaba, based on current charges applied in Caloundra.

5.7 Summary

The reference project development and assessment confirmed that it is technically feasible to deliver a mass transit project from Maroochydore to Sunshine Coast University Hospital precinct and has considered the potential impacts and benefits of the SCMT Project. Vehicles ranging from 12m for double decker buses for BRT, to 45 metres for LRT, are considered in the options.

The PBC will provide full economic cost benefit analyses for these three options. It will also identify key areas that require further investigation in the subsequent Detailed Business Case (DBC) phase. These include:

- Detailed Public Utility and Plant (PUP) investigations to identify affected services and develop mitigating treatments
- Refinement of corridor impacts, particularly the station locations to reduce and/or mitigate the property impacts
- Refinement of the journey time and intersection performance using an advance real time simulation tool
- Refinement of the construction schedule and subsequent cost estimate.

6 Transport Outcomes

6.1 Introduction

This chapter provides the results of transport and land use modelling performed using combinations of transport network and land use scenarios to comprise two comparative cases:

- Without any project – a base case titled ***'Without-project base case'***
- With the development of Option 6 in the Stage 1 corridor from Maroochydore to the SCUH precinct titled ***'With-LRT project case'.***

Transport models require inputs based on assumptions of a future demographic scenario devised for the forecast year. Transport outcomes for all options including LRT, BRT and Quality Bus Corridor have been previously modelled in Chapter 4 utilising a single future demographic scenario for 2041 developed by the QGSO. For chapter 4 the transport outcomes were modelled at a higher level to enable comparison between options in the quantitative MCA process.

The transport outcomes presented in this chapter represent only the results of strategic transport model runs for the *With-LRT project case due to the timing of this Report*. The final PBC will include detailed transport modelling results for each of the three Reference Projects, Quality Bus Corridor, BRT, and LRT.

The transport outcomes in this chapter now reveal transport demand and network performance in 2041 when changes to land use attributable to the investment in a major mass transit project occur. This will be important in the final PBC to establish the full range of economic benefits of investing in mass transit[30]. These include the benefits to the community of increased urban renewal within the mass transit catchment, which results in shorter journeys, less emissions and supports higher use of sustainable transport modes.

The demographic scenario used in this chapter to test transport outcomes is drawn from Chapter 3 which assumed a LRT intervention, as LRT is a proven technology in achieving take-up of urban renewal opportunities. Other technology options, including BRT, would be expected to have different demographic scenario results that will be modelled in the final PBC analysis.

As a reference check, a further demographic scenario has been developed by TMR to project the desired policy outcomes of *ShapingSEQ* onto the ground in the Sunshine Coast Region in 2041. This will be used in the PBC to test the results of mass transit investment under the circumstance where the full intent of *ShapingSEQ* in achieving urban renewal is achieved by 2041. Figure 14 depicts the relative difference in population and employment resulting from the various demographic scenarios currently in place for the PBC modelling process.

6.2 The SCMT Project specific transport and land use model

The transport modelling task for the SCMT Project has been completed by consultants VLC using the 'four-step' Zenith Strategic Transport Model. The Zenith Model has been refined to create a project-specific model for the SCMT PBC. The features of this model and analyses include:

- Extensive geographic coverage
- Disaggregated local zone system which is essential in PT studies where accessibility is a major factor
- Several access modes to transit including walking, park 'n' ride and kiss 'n' ride
- Multi-period assignment with AM, PM and Interpeak
- Demand matrices that vary in response to the network and demographic scenarios being modelled.

[30] See section 9.3 below.

6.2.1 General transport model assumptions

The model and its parameters were applied in the same way as those used for recent Business Cases developed for the M1 Projects by TMR. The general transport model assumptions include:

- Base year of 2016 and modelling of future years 2026, 2036 and 2041
- The zone system of Sunshine Coast Statistical Area (SA) 4 is made up of 1,496 Travel Zones covering 646 SA1s
- An applied 'buffer' area (intermediate zonal detail) which is broadly consistent with TMR's SEQ-Strategic Transport Model Level 2 zone system
- An applied 'balance' area (aggregate zones) consistent with SA2 boundaries.

The zone system detail is depicted in Figure 10. The approach to developing demographic and land use inputs to the transport model is demonstrated in Figure 9.

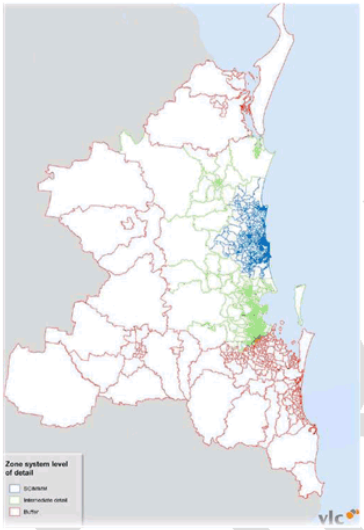

Figure 10: SCMT zone system level of detail

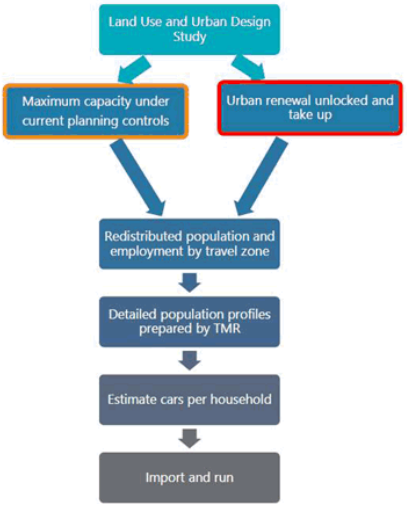

Figure 9: Approach to developing land use inputs

6.2.2 Population and employment

The forecast 2041 mobile population and employment by area is depicted in Figure 12 and Figure 11, respectively.

Figure 12: Mobile population by area (2041)

Figure 11: Employment by area (2041)

The modelled demographics include the average number of cars per household for each travel zone which is derived from simple regression models that consider household size and dwelling densities.

6.3 Transport outcomes from the *'Without-project base case'*

The *Without-project base case* is constructed using:

- The *No-intervention (trend)* demographic scenario developed in Chapter 3
- A *Do-minimum* transport network

The *Do-minimum* transport network includes only committed and funded works and is used in the base case modelling as it represents the network that will exist in the absence of specific project funding for the SCMT Project. This approach has been adopted to align with Infrastructure Australia's (IA) assessment framework and the Australian Transport Assessment and Planning (ATAP) Guidelines. This *Do-minimum* network includes both roads and PT.

The existing committed road projects are listed in Table 8.

Table 8: *Do-minimum* committed road works

ID	State Project	Year
1	Bells Creek Arterial (Caloundra Road to Baringa)	2017
2	Sunshine Coast University Hospital access improvements (Kawana Way upgrade)	2018
3	Sunshine Coast University Hospital access improvements (Production Avenue link)	2019
4	Bruce Highway Upgrade – Caloundra Road to Sunshine Motorway	2021
5	Bruce Highway – Deception Bay Road Interchange upgrade ***Outside SC LGA***	2022
6	Bruce Highway Upgrade – Maroochydore Road and Mons Road Interchanges	2023
7	Bruce Highway Upgrade Project (Caboolture – Bribie Island Road to Steve Irwin Way) upgrade to 6-Lanes	2023
8	Beerburrum to Nambour Rail – road upgrades including level crossing removal	2024
9	Bells Creek Arterial – 2-lane at-grade intersections (full length Caloundra Road to Bruce Highway at Roys Road)	2026

Transport Outcomes

The *Do-minimum* PT includes extensions into new greenfield areas, realignment of routes so they terminate in the Maroochydore Town Centre which results in an additional 850 bus kilometres per day. The *Do-minimum* PT network routes affected are outlined in Table 9.

Table 9: Do minimum PT network

Location	Routes affected	Comments
Maroochydore CBD	600, 602, 610, 611, 612, 614, 615, 616, 617, 619, 620, 622	Extended/diverted all routes that currently start/end at Maroochydore Station (Horton Parade) into the new CBD. Nambour/Noosa routes still use old station on Horton Parade, then continue into CBD. Other routes no longer use it, going straight into the CBD instead.
Palmview	615, 618	Diverted 615 to run through Palmview between Sippy Downs and Landsborough. Extended 618 to provide local coverage.
Caloundra South (Aura)	606	Extended 606 through Caloundra South future stages.
Beerwah East	605	Diverted 605 between Caloundra and Beerwah, to serve Beerwah East.

A strategic transport model run was performed to analyse transport demand and network performance under a *Do-minimum* transport network and the *No-intervention (trend)* demographic scenario as developed in Chapter 3. This provided the *Without-project base case*.

The *Without-project base case* traffic conditions and PT outcomes are outlined in Table 10. The *Without-project base case* transport outcomes demonstrate that sustainably accommodating growth on the Sunshine Coast requires investment in a transport system that reduces dependence on single-occupant cars and supports dense, compact, and mixed-use development. Modelling shows without an attractive, convenient and competitive mass transit system the urban footprint will inevitably expand and transport costs will increase.

Table 10: *Without-project base case* transport outcomes – *Do-minimum* transport network only

Base Case Traffic Conditions Outcomes	Base Case PT Outcomes
• 200,000 additional residents (+69 per cent) • 2.4 million trips will either start or end on the Sunshine Coast each day (+60 per cent) • An additional 787,000 trips within the LGA each day • 95 per cent of trips that start on the Sunshine Coast will end on the Sunshine Coast • Journey to work self-containment will remain high across the LGA at 85 per cent less than 6 per cent of (journey to work) JTW trips are made to Brisbane LGA • 31 per cent of JTW trips will end within the mass transit corridor • Congestion along key links worsens and delays increase • On average people making car trips are likely to spend 6 times longer in excessive congestion when compared to 2016.	• Uptake of PT is limited with practically no increase in overall mode share (<1 per cent to 1.2 per cent) • JTW mode share increases from 1 to 3 per cent • In 2041 JTW PT mode share within the Sunshine Coast Urban Corridor is just 1.5 per cent • PT loads on key links do not increase significantly • PT has limited competitive advantage because buses are in the same congestion as cars • PT Journeys between the SCUH and Maroochydore CBD in the AM peak will take approximately 40 minutes longer than car • Patronage on the 600 service grows at 1.0 per cent p.a. from 3,100 to 3,900 (the catchment grows at 2.7 per cent).

6.4 Transport outcomes from the *'With-LRT project case'*

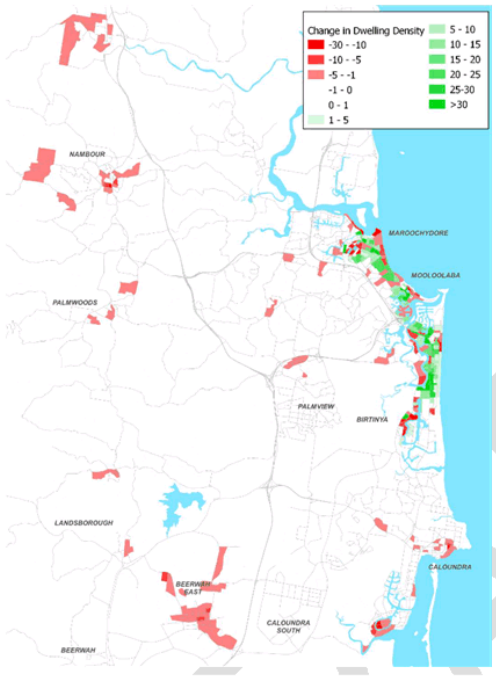

Figure 13: Change in dwelling density - LRT intervention in 2041

This section outlines the core assumptions for modelling the LRT intervention. The *With-LRT project case* is constructed using:

- The light rail intervention – Stage 1 demographic scenario developed in Chapter 3
- A transport network that includes light rail in Stage 1, an upgraded project-specific bus network and a do-minimum road network.

6.4.1 *With-LRT project case* –Stage 1 demographics

The Stage 1 LRT project intervention demographics are based on a different pattern of growth to the *No-intervention (trend)* demographic scenario. The *With-LRT* demographics are based on far higher rates of infill development as a result of mass transit investment.

Infill development is facilitated through investment in mass transit that unlocks increased capacity for housing development and increases market take-up within its walk-up catchment. As a result, growth in Beerwah East and other potential urban expansion areas within the Sunshine Coast is tempered beyond 2041. Under the *With-LRT* demographic scenario there are 19,597 more people residing in the Stage 1 Sunshine Coast Urban Corridor that would otherwise have been located within other locations of the Sunshine Coast. The difference in dwelling density between the *No-intervention (trend)* and *With-LRT project* intervention demographics is illustrated Figure 13.

6.4.2 Transport outcomes *With-LRT project case* against *Without-project base case*

The headline statistics from modelling the *With-LRT project case* against the *Without-project base case* include:

- There are 390,500 fewer vehicle kilometres travelled within the Sunshine Coast in 2041. This represents a reduction in Vehicle Kilometres Travelled (VKT) of approximately 2.4 per cent when compared to the *Without-project base case*.
- Within the Sunshine Coast LGA there are 49,400 PT trips each day in 2041, more than double the number of PT in the *Without-project base case*.
- PT mode share within the Sunshine Coast LGA increases from 1.2 per cent in the base case to 2.3 per cent.
- Change in mode share is far more pronounced when considering trips within the Stage 1 Sunshine Coast Urban Corridor. In this area, PT mode share increases from 1.3 per cent to 4.5 per cent with the intervention of the LRT.
- The total number of PT trips that start and finish within the Sunshine Coast Urban Corridor increases from 5,100 to 20,400 trips per day with the intervention of the LRT, representing a 300 per cent increase.
- 8.8 per cent of journeys to work, within the Stage 1 Sunshine Coast Urban Corridor, are made by PT. This represents a step change in travel behaviour when compared to the base scenario which observes a mere 1.5 per cent of internal journeys to work made by PT.
- 31,100 trips per day are made on LRT in 2041.

- There is significant demand for the park 'n' ride around Mooloolah with approximately 1,100 car fed PT trips per day. This is due to the location's high car accessibility relative to the mass transit station.
- The highest number of transfers from bus to LRT occur at the SCUH (590), Mooloolah River crossing (470) and the Maroochydore Transit Centre (330). This supports the case for a bus-LRT interchange facility at the Mooloolah River crossing.
- The pattern of development is far more concentrated around existing urban areas. As a result, 85 per cent of all boardings on LRT services are walk-up trips.
- 23,000 fewer car trips start in the Sunshine Coast LGA each day when compared to the base scenario. Of these, 19,800 are local trips that have moved completely to alternative modes due to more realistic alternatives and land use that support alternatives to car-based trips.
- A light rail intervention is projected to increase the resident population in the Sunshine Coast Urban Corridor by at least 19,597 people.
- An increase in population means there are more trips made by car each day within the Sunshine Coast Urban Corridor, but the number of car trips per person reduces by 8 per cent with intervention of the LRT.

6.5 Summary

This section has highlighted the transport outcomes from transport modelling of the *Without-project base case* against the *With-LRT project case* with intervention of LRT. Comparisons to the *base case* are made to demonstrate the beneficial transport and land use outcomes that could be achieved through the delivery of mass transit solutions that include a trunk transit route between Maroochydore and SCUH precinct.

7 Social and Environmental Impacts

7.1 Introduction

The criticality of the Sunshine Coast Urban Corridor as a key economic, population and tourism corridor means that the stakeholders and communities impacted by the Project reach beyond the immediate study area. Social and environmental impacts have been identified through the SBC and PBC development and include social and environmental costs, and disadvantages to be addressed by the Project.

7.2 Social impacts

Table 11 describes the social costs and disadvantages to be addressed by the Project that arise from the problems identified and described in the Need for Project section.

Table 11: Social impacts

Social Impact Baseline	Key Stakeholders	Change with preferred option/s
Urban growth/land use challenges		
Increasing costs of urban expansion	Residents, motorists, businesses within the Sunshine Coast Urban Corridor, Local Government	Investment in a mass transit system throughout the Sunshine Coast Urban Corridor will attract residents and businesses to the region via better accessibility and connectivity, helping to achieve consolidation benchmarks.
Reversing the current dominance of low-density housing	Residents, property owners, Local Government	Increasing the range of dwelling types available in desirable and/or typically high-cost areas, such as the Sunshine Coast Urban Corridor, will increase accessibility for lower income households to these locations and attract people to live in this corridor, accommodating population growth, further development and lessening of pressure for further urban expansion.
Transport network		
Current PT system hinders urban and economic growth	Businesses within the Sunshine Coast, property owners	A quality PT mass transit system will create a more liveable and efficient urban environment that will relieve expected future chronic road network congestion that has the potential to constrain planned urban growth and economic development.
High dependency on private motor vehicles and declining PT use	Residents, motorists, potential pubic transport users	The provision of an efficient and well-connected mass transit system will increase PT mode share on the Sunshine Coast and reduce dependency on private motor vehicles.
Growing car parking demand	Residents, businesses within the Corridor, potential PT users, tourists	A frequent, reliable mass transit system will reduce the need and incentive to travel to locations within the Sunshine Coast Urban Corridor via private vehicle, decreasing the need for provision of car parking. The Project may also require land resumptions where existing car parks are situated, thereby reducing the parking available in the corridor.
High level of road congestion on key arterial roads in the Sunshine Coast	Residents, businesses within the Sunshine Coast, freight operators, motorists	Dependency on the private vehicle will be reduced, relieving congestion and improving travel times for motorists and freight operators.
Effects of congestion on business and industry	Tourists, businesses within the Sunshine Coast, freight operators	Reducing congestion increases the attractiveness of the Sunshine Coast to residents, business investors and

Social Impact Baseline	Key Stakeholders	Change with preferred option/s
		tourists. Freight costs and lost hours of productivity as a result of congestion will also be improved.
Economic development		
Impacts of reduced levels of employment self-containment	Residents, motorists, potential PT users, businesses within South East Queensland	Investment in PT on the Sunshine Coast will encourage intra-regional commuters away from private motor vehicles and onto PT to reduce greenhouse gas emissions and deliver significant long-term productivity improvements for the region.
Future jobs and productivity growth	Residents, businesses of South East Queensland	Providing a major improvement to the local PT system in the region can provide reliable connectivity between major population and employment centres in the Sunshine Coast Urban Corridor. This is essential to facilitate the growth and expansion of the regional economy and support workforce retention.

Identification of social impacts is ongoing and will continue to be identified and mitigated throughout the business case process. Currently, there are no fatal flaws that affect the feasibility of the Project.

7.3 Environmental impacts

A review of publicly available information relevant to environmental, heritage and planning matters of interest was undertaken, as well as an assessment of potential environmental and heritage risks associated with the SCMT Project. Key environmental risks of the Project include:

- Impacts on matters of national environmental significance (MNES) located either within, or in proximity to the Project area
- Impacts on matters of State environmental significance (MSES) located either within, or in proximity to the Project area
- Hydrology and flooding impacts, including climate change impacts.

This Environmental Assessment has identified further investigations and/or monitoring is recommended to refine the assessment of potential environmental and/or heritage impacts as the Project design progresses, these may be required to support future stages of the Project. Potential mitigation measures have been identified for key environmental elements where impacts are unable to be avoided.

7.3.1 Identified environmental impacts

Key findings of the Environmental Assessment also confirmed that:

- No known Indigenous heritage sites will be impacted by the Project and no previously registered non-indigenous heritage sites will be impacted by the Project area.
- No mapped vegetation within the Project area, therefore the likelihood of threatened ecological communities occurring is low
- No high-risk areas for protected plants were identified on the Flora Survey Trigger Map within the Project area
- No essential habitat is mapped within the Project area however, essential habitat is mapped directly adjacent to the Project area on Maroochydore Beach
- No scenic routes, as identified in Schedule 2 of the Sunshine Coast Regional Plan 2014, intersect or occur in proximity to the Project and the development does not impact on the regional or sub-regional inter-urban break

The key environmental risks of the Project identified at this stage include:

- Impacts on Matters of National Environmental Significance (MNES) located either within, or in proximity to the Project area, potentially including:
  - Listed threatened ecological communities (may occur within the Project area)
  - Listed threatened flora and fauna species (may occur within the Project area)

- Ramsar declared wetland of international importance, Moreton Bay Ramsar wetland (occurs adjacent to the Project area)
- Impacts on Matters of State Environmental Significance (MSES) located either within, or in proximity to the Project area, potentially including:
  - Essential habitat for protected plants under the *Nature Conservation Act 1992*
  - High risk areas for protected plants under the *Nature Conservation Act 1992*
- Moreton Bay Ramsar wetland of international importance (High ecological value waters) under the Environmental Protection (Water and Wetland Biodiversity) Policy 2019, Schedule 1 (In accordance with MSES definitions (e) and (f))
- Hydrology and flooding
  - Climate change impacts relating to rising sea levels and increased flood events
  - Impacts on the natural hydrology of creeks and wetlands (e.g. levels and flows)
  - Impact on the current hydrological regime of the creeks within and adjacent to the Project area
  - Impacts on flow pathways and afflux (change flood levels) and flow velocities resulting in scouring of waterways and changes in velocities.

7.3.2 Environmental Benefits

The SCC is working towards carbon neutrality, with key developments in sustainable transport, biodiversity, land use and social planning initiatives for the region. The SCMT Project is part of the objective to improve sustainable transport methods within the Sunshine Coast region.

The Project is expected to result in a reduction in local contributions to regional Green House Gas (GHG) emissions. This reduction in GHG emissions will assist in the transition to a lower carbon economy and in mitigating contributions to climate change. However, it is anticipated that there may be short term impacts (i.e. increase in GHG emissions) associated with construction activities of the Project. The PBC and subsequent DBC will assess the environmental benefits of the Project including reducing carbon emissions through increased PT mode share.

7.4 Summary

The Environmental Assessment completed to date identified further investigation and/or monitoring to refine the potential environmental and/or heritage impacts as the Project progresses. An assessment on the likelihood for significant impact to MNES and MSES (if confirmed to be impacted) as a consequence of the Project will be required, and this will be informed by site investigations.

Potential mitigation measures have been identified for key environmental elements where impacts are unable to be avoided and will be required to be refined in parallel with design progression to enable impacts from key environmental and heritage risks to be appropriately mitigated or offset where these options are available. Environmental offsets to mitigate impacts will need to be investigated and informed by these future studies.

Identification of potential environmental impacts is ongoing and will continue to be identified and mitigated throughout the business case process. Currently, there are no fatal flaws that affect the feasibility of the Project.

8 Project Cost Estimates

8.1 Introduction

This section presents an overview of the components involved in the whole of life cost estimates for the SCMT Project options. The project cost estimate consists of two key categories:

- Capital costs incurred during the development and construction phase
- Operating costs based on a 30-year operating period.

Information on the methodology to develop the cost estimates is presented in the following sections.

8.2 Capital cost estimates

The risk adjusted capital cost estimates are being prepared using a base estimate date of November 2019 to reflect the forecast cost of delivering the planned works for each of the Reference Project options. In developing the cost estimates, it will be necessary to adopt a number of different cost estimating techniques according to the nature of the activity being estimated and the level of design information available. The techniques used range from:

- A fully resource-based estimate of labour, plant and materials priced using local market rates
- Allowances for packages of work based on actual costs obtained from completed comparable projects and adjusted to suit local market conditions.

The estimates include allowances for all direct and indirect construction costs, Principal costs for all stages of project development, property acquisition costs, and appropriate vehicle purchase costs. The capital cost estimates will be risk adjusted using quantitative risk assessment techniques to account for the risk and uncertainty associated with the various elements of the estimate. The key elements of the cost estimates are shown in Table 12.

Table 12: Capital cost estimate categories

Cost category	Quality Bus Corridor	BRT	LRT
Principals costs – all phases	✓	✓	✓
Vehicle purchase costs	✓	✓	✓
Property costs	✓	✓	✓
Construction costs			
Detailed Design	✓	✓	✓
Environmental management	✓	✓	✓
Traffic management	✓	✓	✓
Public utilities and plant	✓	✓	✓
Bulk earthworks, drainage	✓	✓	✓
Bridges and retaining walls	✓	✓	✓
Trackslab and rail track			✓
Landscaping	✓	✓	✓
Pavement works	✓	✓	✓
Stations, stops and interchanges	✓	✓	✓
Depot construction		✓	✓
Rail systems including power supply, rail control systems, communications			✓
Traffic signal integration	✓	✓	✓
Risk adjustment	✓	✓	✓

Escalation is applied to the cost estimate to determine the outturn cost based on the delivery timeframes shown in Figure 14.

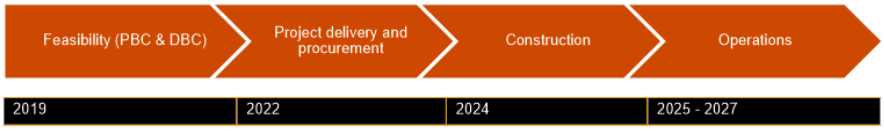

Figure 14: Project timing

8.3 Operations cost estimates

An Operations and Maintenance (O&M) cost estimate is also being prepared for each of the Reference Projects. The O&M cost estimates for the BRT and the LRT use a first principles approach and reflect the cost to establish and operate a standalone LRT or BRT system on the Sunshine Coast. The BRT and LRT costs are estimated based on Australian precedent projects including Gold Coast Light Rail and Brisbane Metro.

The cost estimate for the Quality Bus Corridor option reflects the cost to operate a new fleet of high-quality buses as an expansion of the existing Queensland Government contracted bus services on the Sunshine Coast. The key cost components of the O&M costs are shown in Table 13.

Table 13: Key elements of the operations and maintenance costs

Cost Category	Quality Bus Corridor	BRT	LRT
Client costs	✓	✓	✓
Operational staff and corporate staff	✓	✓	✓
Electricity		✓	✓
Fuel	✓		
Routine maintenance	✓	✓	✓
Vehicle lifecycle maintenance	✓	✓	✓
Depot costs	✓	✓	✓

8.4 Summary

The cost estimates for each project option (and associated benefits and revenues) will be modelled in the economic and financial appraisal work streams. The cost estimates for the LRT and BRT options are undergoing a process of value engineering and peer review to provide assurance to the cost components of subsequent economic, financial and commercial analyses. Costs will be presented in real, outturn (i.e. nominal) and present value costs and will represent the total funding requirement. All costs will present a range from P50 to P90 risk to reflect the level of risk and uncertainty at this stage of development.

The cost estimates are being prepared in accordance with the requirements of the relevant frameworks for a project at this stage of development and will be refined and tested in future phases of development.

9 Benefits

9.1 Introduction

Investment in region-shaping projects can lead to positive transport, liveability and economic outcomes, as well as significant urban renewal benefits, higher productivity and improved transport benefits across the network which collectively drive economic efficiency. The three preferred options from the options assessment (LRT, BRT and Quality Bus Corridor) will be progressed to an economic assessment which will consider the relative ability of each option to deliver the greatest economic outcomes to society, measured through a Cost Benefit Analysis (CBA).

9.2 Economic appraisal approach

The economic appraisal will be undertaken using accepted industry practices, in line with feedback and guidance from IA, Building Queensland, TMR and Queensland Treasury. The appraisal also draws on best practice transport economics guidance issued by Australian and international organisations. The approach used has been applied on a range of projects across Australia, including the DBC for the recently funded Gold Coast Light Rail Stage 3A.

9.3 Benefit estimation

A Total Appraisal Framework has been applied in this economic analysis to comprehensively assess the benefits of the reference project. This framework assesses benefits across the two land use scenarios developed for the project:

1 The first round (without mass transit intervention) isolates the transport impacts and Wider Economic Benefits (WEBs) of the project that are independent of land use changes i.e. it assesses the benefits of the project under the *No-intervention (trend)* demographic scenario.

2 The second round (with mass transit intervention) assesses the benefits of the project inclusive of land use changes that reflect urban renewal within the corridor. This intervention case is currently only estimated for the LRT, as the other options, except potentially BRT, are not expected to result in a significant land use change above the *No-intervention* scenario. The resultant land use change from a BRT intervention will continue to be investigated throughout the course of the business case.

Outlined in Figure 15 is a summary of the benefits that are expected to be quantified in the economic assessment for SCMT. All of the 'Transport benefits' and 'WEBs' will be measured across both the first round and second round estimation. However, it is only under the second-round scenario that urban renewal benefits from land use change will be realised.

Benefits

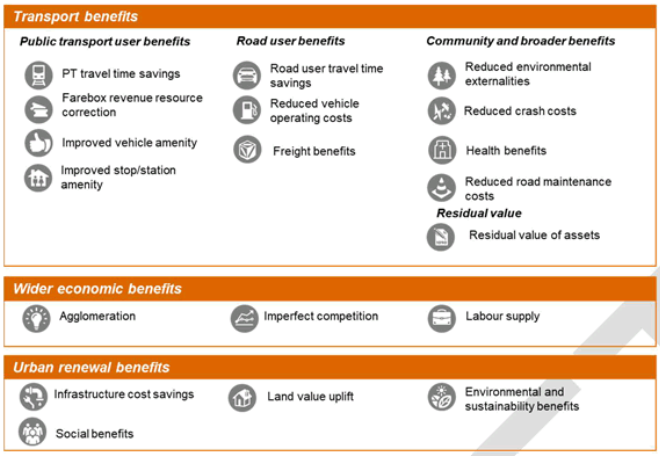

Figure 15: Economic benefits

Table 14 provides a brief description of the economic benefits outlined above, and their significance in the project assessment. The approaches to the estimation of these benefits will be undertaken in line with industry leading and best practice approaches.

Table 14: Description of economic benefits

Benefit	Summary
PT Benefits	
Travel time savings (PT user)	Measures the reduction in door-to-door journey time for PT users as a result of improved network performance.
Improved station amenity	Uplift in the quality of journeys as a result of the introduction of new station and interchanges.
Improved vehicle amenity	Uplift in the quality of journeys as a result of the introduction of new, higher quality LRT or BRT vehicles.
Road User Benefits	
Travel time savings (Road user)	Measures the reduction in door-to-door journey time for private vehicle users and commercial vehicles as a result of improved network performance.
Reduced vehicle operating costs	Calculates the reduction in vehicle running costs (fixed and operational) of the such as depreciation, fuel, repairs and maintenance as a result of improvement in average road speeds as passengers shift from road to PT.
Freight benefits	Reduction in congestion, journey times and vehicle operating costs for freight road users resulting from the easier movement of freight as passengers shift from road to PT.
Broader Community Benefits	
Reduced accident costs	Reduction in accident costs owing to a reduction in vehicle kilometres travelled resulting in a decrease in the number of accidents.
Environmental benefits	Reduction in environmental pollution as result of the project encouraging mode shift away from cars to PT and reducing the number of vehicle kilometres travelled.

Benefits

Benefit	Summary
Health benefits	The project may result in increased health benefits from an increase in active transport (AT). This can be associated with increased AT mode share or increased km's walked transiting to, from and between PT.
Avoided road maintenance costs	Reduction in wear and tear on road network because of an overall reduction in total kilometres travelled.
Wider Economic Benefits (WEBs)	
WEBs	Wider Economic Benefits (WEBs) refer to the economic impacts of transport investments that are additional to transport user benefits. WEBs are improvements in economic welfare that arise from market imperfections: that is, prices of goods and services differing from costs to society as a whole. As a city-shaping project, the SCMT is expected to improve the transport accessibility as well as attract jobs and businesses to relocate to into the corridor. The change in transport accessibility and change in land use will generate WEBs.
Urban Renewal Benefits	
Avoidable costs	Avoidable costs (also known as 'infrastructure and service cost savings') are potential benefits that can be accrued by facilitating greater rates of urban infill over the alternative of greenfield expansion (i.e. urban sprawl). The reference projects are anticipated to reduce urban sprawl by encouraging people and jobs to relocate to the corridor rather than moving to greenfield developments. The avoidable costs may be estimated for this project through an assessment of development diverted from greenfield areas and estimation of the avoidable infrastructure costs as a result of the avoided dwellings.
Land value uplift	Raising land to its highest and best use and increasing its development intensity (to match the capacity unlocked by the reference projects) is likely to be the most significant urban regeneration impact attributable to the project option/s. The 'improved land use' benefit is monetised into land values and can be quantified.
Social benefits	Some urban renewal projects can bring about an increased level of amenity, either by improving public spaces and infrastructure (e.g. public parks and plazas) or reducing negative externalities (e.g. urban blight or crime). The land value impacts associated with the increased levels of amenity within the corridor as a result of the reference projects can be used to estimate the social benefits arising from the projects.

9.4 Summary

The economic appraisal for the Project will be completed in accordance with accepted industry practices and will comply with all relevant guidelines. The economic appraisal will be completed and included in the PBC.

10 Interim Findings

10.1 Introduction

The purpose of the Interim Findings Report is to provide a summary of the high-level findings of the PBC to date. Based on the work completed to date, the interim findings of the PBC are summarised in this section. This report has been developed to present findings to brief Council on progress to date, which are subject to change throughout completion of the PBC.

10.2 Need for project

The PBC work to date has established the need for the SCMT Project. The Sunshine Coast is challenged by growing levels of road congestion, an accelerating trend toward urban expansion, high dependency on private motor vehicle transport and the need to continue to strengthen the economy to support continued high levels of employment self-containment. There is a clear need for a coordinated economic, land use and transport solution that supports the region's economic, social, environmental and transport goals. There is a need to ensure that the region's economy continues to develop to attract investment to the region in high-value industries and associated employment opportunities, with an accessible and productive workforce. Suitable urban consolidation needs to be attractive to residents to encourage them to live closer to where they work, supported by an integrated and sustainable PT network.

10.3 Land use

The land use analysis undertaken for the Project to date has found that the right type of mass transit can act as a catalyst for the consolidation of new housing and business within its catchment. This will enable a high proportion of dwelling growth to occur within the established urban footprint and support access to key destinations and employment nodes without having to drive long distances in private motor vehicles. In particular:

- The SCMT Project, if based on LRT or other technology with a similar influence on land development take-up, will deliver a significant region-shaping opportunity when combined with complementary and appropriate changes to planning controls.
- Investment in the SCMT, if based on LRT or other technology with a similar influence on transport accessibility and land use development, will help drive a stronger, more competitive and sustainable economy and generate substantial and lasting economic, social and environmental benefits.
- Project benefits include a combination of the initial increased demand for dwellings serviced by the new infrastructure and the benefits that come from changes in land use zoning and increased development densities.
- By 2041 the intervention land use scenario would result in:
  - 9,575 dwellings in the corridor beyond forecast *No-intervention (trend)* growth, as a contributor for the region to achieve its 62 per cent urban consolidation target
  - An additional population of 19,597 accommodated in the corridor beyond forecast *No-intervention (trend)* growth
  - 6,336 new jobs accommodated in the corridor beyond forecast *No-intervention (trend)* growth.
- If the mass transit investment was based on LRT or technology with a similar influence on land development take-up, there would be significant additional dwellings in almost all station catchments as a result of the mass transit project, and significant employment activation in Maroochydore and Kawana (Point Cartwright Drive station).

A fixed track mass transit such as LRT would provide certainty for residential, retail and commercial property investment. This is one vital factor leading to considerable intensification of property development around fixed track mass transit stations. If carefully planned and based on technology that has a real influence on land use development, a major investment in the Stage 1 SCMT Project could potentially unlock greater dwelling, population and employment growth through additional market interventions.

The analysis has taken a conservative view to reflect historical residential and commercial market demand along the corridor, and results could be higher than expected with the right approach to urban transformation.

The process of achieving a major swing to urban consolidation will be difficult and will require the support of additional measures envisaged in the Sunshine Coast Council's "Urban Renewal Facilitation Toolkit" alongside the major investment in mass transit.

10.4 Options assessment

The cost of road congestion for the Sunshine Coast LGA is forecast to be approximately $3 billion per annum by 2041 and approximately $1 billion per annum from the Maroochydore to Sunshine Coast University Hospital, in nominal terms. A multi criteria analysis process was completed to rank six options: bus service, bus network, road network, Quality Bus Corridor, BRT and LRT. The MCA demonstrates that an LRT solution from Maroochydore to Kawana is the highest performing option when assessed against a range of criteria and transport infrastructure. LRT performed the strongest in the Core scenario as well as across all sensitivities. BRT performs second, and this result is also consistent across all sensitives. Based on these results of the MCA, the following options were recommended for progression to economic analysis and more detailed assessment through development of a Cost Benefit Analysis:

1 LRT

2 BRT

3 Quality Bus Corridor.

Only the LRT option and potentially the BRT option are considered to have significant benefits in achieving the important land use criterion. The Quality Bus Corridor option, although it performs well in terms of transport and cost, cannot achieve the full range of benefits sought for the SCMT Project in the Sunshine Coast Urban Corridor

10.5 Reference projects

The LRT and BRT have been analysed and designed based on the initial operating assumptions shown in Table 15.

Table 15: Operational assumptions

Item	Assumption
Alignment length	13.6km
Number of stations	16
Number of substations	LRT – 9 at approximately 2km intervals, plus the depot BRT – Assumed to be battery electric, 3 recharging at both terminus and deep recharging in the depot
Structures – number of major bridges	5 bridges Canal within Maroochydore CBD Creek on Brisbane Road Tucker Creek on Brisbane Road Mooloolah River North on Brisbane Road Mooloolah River South on Brisbane Road
Depot location	Single site for stabling and maintenance is yet to be confirmed.
System configuration	Shared driver amenities at both terminus locations
Journey time – BRT	Proposed to use standard 30-minute journey time with a 15-minute change over at each terminus (recharging, driver amenity break, driver change for driver break)
Journey time – LRT	Proposed to use standard 30-minute journey time with a 6-minute change over at each terminus (driver amenity break, driver change for driver break)
Vehicle size / length – BRT	Based on Brisbane Metro. Approximate values: Length – 24 metres Static width – 2.55 metres Passenger capacity – 60 seated, 70 standing
Vehicle size / length – LRT	Based on Gold Coast Light Rail. Approximate values: Length – 45 metres Static width – 2.65 metres Passenger capacity – 80 seated, 220 standing

Item	Assumption
Vehicle floor height	300 to 350mm (100 per cent low floor)
Platform height	300 to 350mm
Maximum gradient	8 per cent
Speed performance	To match adjacent road, posted speed limits up to 80km per hour
Running way – BRT	High strength asphalt pavements for running way, except for concrete pavement at the following locations: • Stops including approach and departures • Intersections
Service pattern – length of services	All services run full length
Overhead power line – LRT	Assumed 100 percent overhead power line for LRT

The key features of the Quality Bus Corridor option include:

- Improved vehicles – higher specification branded vehicles, articulated or double decker buses
- High frequency bus services with frequency of at least eight services per hour and headways of 7.5 minutes or less
- Pre-paid services only with no cash fares, similar to Brisbane BUZ services
- Dedicated bus lanes along Aerodrome Road, Rose Street to Horton Parade and Nicklin Way (two road lanes, one bus lane and active transport).

10.6 Transport outcomes

Transport modelling has been conducted to compare the transport outcomes of the *No-intervention base case* and the *With-LRT project case* that assumes the intervention of the LRT. This focussed on Stage 1 of the trunk light rail route between Maroochydore and SCUH precinct.

The headline statistics from modelling the Stage 1 *With-LRT project* (light rail) intervention include:

The headline statistics from modelling the *With-LRT project case* against the *Without-project base case* include:

- There are 390,500 fewer vehicle kilometres travelled within the Sunshine Coast in 2041. This represents a reduction in Vehicle Kilometres Travelled (VKT) of approximately 2.4 per cent when compared to the *Without-project base case*.
- Within the Sunshine Coast LGA there are 49,400 PT trips each day in 2041, more than double the number of PT in the *Without-project base case*.
- PT mode share within the Sunshine Coast LGA increases from 1.2 per cent in the base case to 2.3 per cent.
- Change in mode share is far more pronounced when considering trips within the Stage 1 Sunshine Coast Urban Corridor. In this area, PT mode share increases from 1.3 per cent to 4.5 per cent with the intervention of the LRT.
- The total number of PT trips that start and finish within the Sunshine Coast Urban Corridor increases from 5,100 to 20,400 trips per day with the intervention of the LRT, representing a 300 per cent increase.
- 8.8 per cent of journeys to work, within the Stage 1 Sunshine Coast Urban Corridor, are made by PT. This represents a step change in travel behaviour when compared to the base scenario which observes a mere 1.5 per cent of internal journeys to work made by PT.
- 31,100 trips per day are made on LRT in 2041.
- There is significant demand for the park 'n' ride around Mooloolah with approximately 1,100 car fed PT trips per day. This is due to the location's high car accessibility relative to the mass transit station.
- The highest number of transfers from bus to LRT occur at the SCUH (590), Mooloolah River crossing (470) and the Maroochydore Transit Centre (330). This supports the case for a bus-LRT interchange facility at the Mooloolah River crossing.

- The pattern of development is far more concentrated around existing urban areas. As a result, 85 per cent of all boardings on LRT services are walk-up trips.
- 23,000 fewer car trips start in the Sunshine Coast LGA each day when compared to the base scenario. Of these, 19,800 are local trips that have moved completely to alternative modes due to more realistic alternatives and land use that support alternatives to car-based trips.
- A light rail intervention is projected to increase the resident population in the Sunshine Coast Urban Corridor by at least 19,597 people.
- An increase in population means there are more trips made by car each day within the Sunshine Coast Urban Corridor, but the number of car trips per person reduces by 8 per cent with intervention of the LRT.

10.7 Social and environmental impacts

Potential social impacts were identified as urban growth/land use challenges, impacts to the transport network and economic development impacts. Identification of social impacts is ongoing and will continue to be identified and mitigated throughout the business case process. Currently, there are no fatal flaws that affect the feasibility of the Project.

The Environmental Assessment to date confirmed that:

- No known Indigenous heritage sites will be impacted by the Project
- No previously registered non-indigenous heritage sites will be impacted by the Project area
- No mapped vegetation within the Project area, therefore the likelihood of threatened ecological communities occurring is low
- No high-risk areas for protected plants were identified on the Flora Survey Trigger Map within the Project area
- No essential habitat is mapped within the Project area. However, essential habitat is mapped directly adjacent to the Project area on Maroochydore Beach
- No scenic routes, as identified in Schedule 2 of the *Sunshine Coast Regional Plan 2014*, intersect or occur in proximity to the Project and the development does not impact on regional or sub-regional inter-urban break.
- The SCC is working towards carbon neutrality, with key developments in sustainable transport, biodiversity, land use and social planning initiatives for the region. The SCMT Project is part of the objective to improve sustainable transport methods within the Sunshine Coast region.
- The Project is expected to result in a reduction in local contributions to regional Green House Gas (GHG) emissions. This reduction in GHG emissions will assist in the transition to a lower carbon economy and in mitigating contributions to climate change. However, it is anticipated that there may be short term impacts (i.e. increase in GHG emissions) associated with construction activities of the Project. The PBC and subsequent DBC will assess the environmental benefits of the Project including reducing carbon emissions through increased PT mode share.

10.8 Cost estimates

The project cost estimate consists of two key categories:

- Capital costs incurred during the development and construction phase
- Operating costs based on a 30-year operating period.

The cost estimating techniques applied are based on the nature of the activity being estimated and the level of design information available. The techniques used range from:

- A fully resource-based estimate of labour, plant and materials priced using local market rates
- Allowances for packages of work based on actual costs obtained from completed comparable projects and adjusted to suit local market conditions.

The cost estimates for the LRT and BRT options are undergoing a process of value engineering to and peer review to provide assurance to the cost components of subsequent economic, financial and commercial analyses. All costs will present a range from P50 to P90 risk, in accordance with relevant Government frameworks and guidelines.

10.9 Benefits

Figure 16 is a summary of the benefits that are expected to be quantified in the economic assessment for SCMT. All of the 'Transport benefits' and 'WEBs' will be measured across both the first round and second round estimation. However, it is only under the second-round scenario that urban renewal benefits from land use change will be realised.

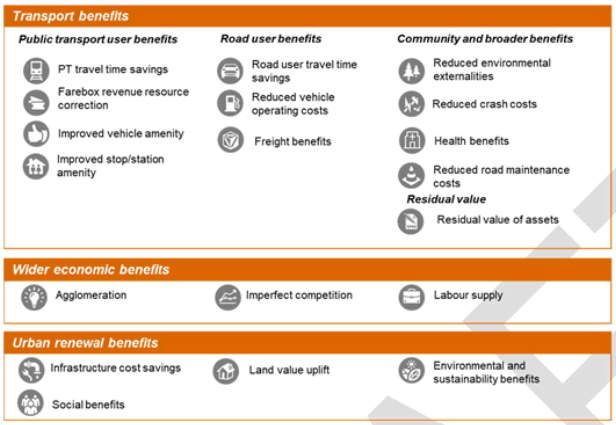

Figure 16: Economic benefits

11 Next Steps

11.1 Introduction

This report has documented the interim findings of the SCMT Project completed to date for the PBC. The PBC is due to be completed by mid-2020 prior to commencement of the DBC.

11.2 Complete the PBC

The key outstanding tasks and inputs to the PBC are listed in Table 16.

Table 16: Remaining tasks for the PBC

Chapter	Task	Current Timeframe
Reference Project – BRT	Further refinement and development of BRT business case chapter	January 2020
Reference Project – Quality Bus Corridor	Further refinement and development of the Quality Bus Corridor business case chapter	January 2020
Transport Outcomes	Further refinement and development of the transport outcomes for the BRT and Quality Bus Corridor and development of the business case chapters	January 2020
Cost and Risk	Additional value engineering tasks	January 2020
Economic Analysis	Complete analysis, pending required inputs	March 2020
Financial and Commercial Analysis	Complete analysis, pending required inputs	March 2020
Affordability Analysis	Complete analysis, pending required inputs	April 2020
Review	State and Federal agency review	April - May 2020
Report PBC Findings to Council	Presentation of findings to Council	June 2020
DBC	Completion of the DBC	End of 2021
Investment Decision & Procurement	Indicative and subject to State and Commonwealth funding approval	End of 2023
Delivery	Indicative and subject to approval and funding commitments by State and Federal governments	By 2027

11.3 Future phases of the project

The future phases of the Sunshine Coast Mass Transit Project are expected to be as follows

1 Complete the PBC in accordance with Building Queensland's Business Case Development framework

2 Complete the DBC in partnership with the TMR as agreed, with completion expected by December 2021

3 Commission peer view and assurance audits

4 Obtain approval of the DBC by the Building Queensland Board and include the Project in the *Queensland Infrastructure Pipeline Report*

5 Obtain agreement with Infrastructure Australia that the project is supported based on the DBC and obtain listing on the national *Infrastructure Priority List*

6 Obtain capital budget funding from both the Queensland and Australian Governments

7 Undertake procurement to deliver the Project

8 Deliver the capital works and operational readiness activities

9 Obtain safety accreditation and commence operations of the Project

10 Progress corridor planning and design to support urban renewal within the Project catchment as part of the SCMT Business Case process.

5 NEXT MEETING

Nil

6 MEETING CLOSURE