
# Phillip Island and San Remo Visitor Economy Transport Needs Study

# March 2021

## Prepared by movendo Pty Ltd (incollaboration with Liftango Pty Ltd)

movendo

Destination Phillip Island Regional Tourism Board

VICTORIA State Government | Department of Transport

BASS COAST

Phillip Island NATURE PARKS

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# 1 INTRODUCTION

## 1.1 STUDY CONTEXT

The Phillip Island Visitor Economy and Transport Needs Study (PIVETNS) has been undertaken by Movendo Pty Ltd (Movendo) on behalf of the Destination Phillip Island Regional Tourism Board, Department of Transport, Bass Coast Shire Council and Phillip Island Nature Parks.

The study investigates the feasibility of establishing a permanent transport service for Phillip Island that connects and supports the visitor economy. It is envisaged that the transport service will focus on the mobility needs of Phillip Island's visitors and deliver improved experiences for tourists moving between attractions without having to resort to the use of private cars. The service will be designed to support sustainable growth in the tourism industry and the local economy generally. In this regard, it is also expected that the transport service will provide greater mobility choices and flexibility for a range of local community needs, including access to jobs.

The importance of delivering a transport service that focuses on tourism is underscored by the fact that the study area has one of the highest ratios of visitors to residents of any destination in Australia. On average, there are 80 visitors to every resident in the region. At peak times this reaches as many as 120 visitors to every resident, and this compares with just five visitors to every resident for the rest of the State of Victoria. The Phillip Island and San Remo Visitor Economy Strategy 2035 highlighted that the region is expected to significantly increase its visitor numbers from close to 2 million in 2019 to 3.4 million by 2035. These projections were prepared prior to the COVID-19 pandemic which has resulted in a sharp drop in visitor numbers to Phillip Island since March 2020. Accordingly, a future transport service that targets visitor needs, and has a complementary role in catering for the local community, provides the opportunity to transform the visitor experience and support the local economy in its recovery from the impacts associated with COVID-19.

## 1.2 STUDY AIMS

PIVETNS aims to define a sustainable island transport service and provide a realistic implementation plan by taking into consideration:

- Demand management options that reduce reliance on cars and deliver a seamless user experience
- Infrastructure requirements and funding sources
- Benefits & challenges of a tourism-based transport service
- Feasibility of transport service including indicative costs
- Seasonal and diurnal peak flows

In making recommendations for the establishment of permanent transport services, PIVETNS has been informed by:

- Population, employment and tourism trends
- Existing travel patterns and future influences for visitor transport
- Future visitor transport needs and options
- Delivery options for a seamless transport service

## 1.3 CONSULTATION

In addition to the study sponsors, extensive consultation was undertaken with several other public and private agencies and stakeholders. These included:

- Phillip Island Community Representatives
- South Coast Bus and Taxi (operator of taxi and bus services on Phillip Island)
- Volgren (manufacturer of truck and bus bodies – including electric buses)
- Phillip Island Integrated Transport Strategy Committee
- San Remo District Tourism & Business Association
- City of Logan (outer Brisbane municipality where demand responsive public transport operates)
- Department of Transport and Main Roads (Queensland's State Government department managing the demand responsive public transport service in Logan)
- "Be" (formerly known as ComLink) – a Queensland-based provider of transport solutions that help maintain and maximise independence for frail, older people and those living with a disability
- Commercial Passenger Vehicles Victoria

Key points arising from the consultation include:

- Current visitor and local community transport services link poorly with residential neighbourhoods.
- San Remo residents would like better access than V/Line provides.
- French Island residents would like better access after arriving by ferry to Cowes.
- Backpackers have very few public transport options.
- Low-emission environmentally friendly buses need to be part of the solution.
- Future visitor and local community transport services have to cater for mobility-impaired users.
- Local residents may rely on transport services for weekly shopping. Vehicles should cater for multiple carry-on bags.
- Visitors that arrive on V/Line services are typically on a limited budget. Future visitor and local community transport services need to be affordable. It is important for budget-conscious visitors as well as local residents to be able to access a 'local transport service'.
- Some residents are unable to conveniently 'get to' the tourist attractions on Phillip Island, unless they have access to a car. These residents would benefit from services that provide access to beaches, bird spotting locations, walking tracks – as well as all the other well-known tourist sites.
- People who ride bicycles on the island would like an option of 'riding' to their desired destination and then 'catching a bus back' (given the distances involved) – this necessitates buses equipped with 'bike storage' cages.
- Young residents (pre-driving age) on the Island struggle to get to work – they are reliant on family/neighbours/friends for transport.
- B&B locations are important hubs for transport.
- The Grand prix shuttle bus is of limited broader value/use as it only takes people to the track.
- A reliable visitor and local community transport service could extend the visitor season on the Island; for example, Whale Watching is popular over the cooler months; the Whale Watch platforms are along the shoreline areas where buses currently do not go.
- The Kasey Lee ferry (operated by Wildlife Coast Cruises) leaves from Rhyll for its whale watch/seek cruises; but there is no reliable transport to Rhyll except by private vehicle.
- Any future visitor and local community transport service needs to have the ability to be flexible and adaptable – 'getting off the main road' is important.
- Satellite long-term carpark should be investigated near San Remo's football ground (to discourage car use onto Phillip Island) – with bus linkages provided to that point.
- The viability of a 'user-pay' system needs to be explored.
- The 'area-of-interest' for a future visitor and local service should encompass the entire Bass Coast – not just Philip Island.

## 1.4 RECOMMENDATIONS

This PIVETNS study identifies that it is feasible, in principle, to establish a permanent visitor and local community transport service for Phillip Island. The service would largely operate in the form of a Demand Responsive Transport (DRT) system targeting both visitors and the permanent local population. This type of service is fully aligned and consistent with the aims of the recent reforms, namely enabling competition, promoting accessibility, expanding the emphasis and use of new technologies and increasing options and quality of service for passengers. Accordingly, any strategy to attract a greater number of commercial passenger vehicle operators to Phillip Island should concurrently:

- Enhance awareness of the visitor and local community transport service opportunities
- Provide mechanisms that increase the attractiveness of operating commercial passenger vehicle services on the island

Over time, actions should be taken to encourage commercial passenger vehicle operators to enhance the services on offer, through adoption of flexible door-to-door services, clean vehicles, DDA compliant vehicles and infrastructure, and vehicles with the ability to carry surfboards and bicycles to cater for the needs of visitors and residents.

Whilst the geography and the locations of attractions pose some challenges to an all-Island DRT service, there is an opportunity to consider an alternative and innovative model, using 'pure' DRT for population centres and nearby tourist attractions, and a mix of a DRT system as a feeder to a fixed timetable shuttle to major attractions such as the Penguin Parade/Nobbies during peak periods.

Simulation analysis has shown that the DRT system could initially be deployed with up to three minibuses (under a scenario where much of the domestic and international tourism is still suppressed as a result of the COVID-19 pandemic). With three minibuses in service, the DRT program would be able to deliver around 1,500 monthly trips at 92% acceptance rate, or around twice that amount – 3,000 monthly trips – at 83% acceptance rate. Response time from the receipt of bookings would be around 20 to 30 minutes, subject to peak demands. Eventually the service could expand to, possibly, six minibuses in response to tourism recovery in the post-COVID-19 phase. The simulation of the transport system has assumed that mini buses have a maximum capacity of 15 people. In addition, it is recommended that these mini buses should be spacious enough / equipped with external cages to allow the occasional carriage of surfboards and bicycles.

In recognition of widespread community, stakeholder and local government support for cleaner vehicle technologies, it would be desirable that the vehicles operate on clean energy, possibly electric or using alternative fuels. Whilst this would require a higher initial upfront capital investment by owners/operators of these vehicles – likely to be between of $1.0 to $2.0 million (for the first three mini-buses and associated charging/fuelling infrastructure) the ongoing operating costs would be lower.

Under the current regulatory framework, there is no mechanism to require commercial passenger vehicle operators to use clean vehicles. However, a range of incentives can be provided to make it more attractive for operators to use clean vehicles on Phillip Island. Such incentives could be provided by public/private agencies and could involve preferential access to parking at key destinations, discounts or exclusive experience opportunities for tourists and locals.

# 2 EXISTING CONTEXT

## 2.1 CONTEXT

Transport plays a significant role in the growth and development of the visitor economy of Phillip Island. Furthermore, recent experience from national parks and natural destination areas around the world has highlighted the importance of providing a range of transport options to visitors to concurrently promote convenient and equitable access, and promote economic growth. More specifically, these studies have illustrated that planning, implementing and managing innovative and alternative transport systems is fundamental to protect sensitive resources and provide access to visitors and local residents in an economically viable and environmentally sustainable manner.

Existing visitor and local community transport options on Phillip Island do not provide adequate coverage or sufficient frequency for effective connection to tourist attractions and experiences. Visitor and local community transport services only travel along Phillip Island Road and Back Beach Road between Cowes and the bus interchange at Anderson. As a result, travel to key tourist attractions, beaches and townships on Phillip Island and San Remo occurs primarily by private vehicles. Opportunities for locals to use transport other than private vehicles is also limited by the low frequency and limited geographic coverage of the existing services. Given the limited transport options and road capacity challenges on Phillip Island, sustainable, long term solutions are required for the provision of convenient, comfortable and affordable visitor and local community transport services to tourist attractions and experiences.

## 2.2 THE NEED FOR VISITOR AND LOCAL COMMUNITY TRANSPORT SERVICES

The Phillip Island Integrated Transport Study 2014 (PIITS) and Phillip Island and San Remo Visitor Economy Strategy 2035 (PIVES2035) studies provide the requisite strategic context for the PIVETNS.

The PIITS was endorsed by Council in 2014. Of relevance to PIVETNS, the overarching community vision established by the Phillip Island Integrated Transport Strategy was:

> *A **transport network that supports the ongoing development of Phillip Island** into a year-round destination in a **safe, prosperous and sustainable way**, and providing all residents, businesses and visitors the **opportunity to access, enjoy and share** in Phillip Island's unique attractions.*

The PIVES2035 was adopted by Council in 2016 and seeks to spread visitation more evenly across the year, increase visitor yield and protect and enhance the natural environment. In providing a blueprint for tourism growth, the PIVES2035 sets out the predicted growth of visitors to the region together with the importance of demand management (to reduce the number of vehicles travelling in the region) to help reduce the impact on the natural environment and manage peak loads on Phillip Island's road network. A key action identified in the PIVES2035 was:

> *Continue to support the concept of 'Island Explorer' summer season bus loop, with a **shift to smaller more frequent buses** (as well as exploring the potential of **alternative transport options** depending on the season) to create a **sustainable island transport service** in partnership with existing transport providers.*

## 2.3 THE NEED FOR CLEAN TRANSPORT SOLUTIONS

In 2019, Bass Coast Shire Councillors joined a growing movement of councils leading the nation in declaring a climate emergency, recognising the serious risk that climate change poses to safety of the entire Bass Coast community, that immediate and urgent action is required to reduce emissions, build community resilience against the local impacts of climate change and ultimately reverse global warming. The climate emergency declaration came as a response to a petition presented to Council at the August 2019 Council Meeting, signed by over 1,000 community members.

To this end, the Bass Coast Shire Council has voted to endorse the Draft Climate Change Action Plan 2020-2030 which outlines the strategy and actions in support of that goal (see Figure 1). The Draft Climate Change Action Plan was developed in consultation with the community through significant engagement with residents, businesses, agricultural sector and stakeholders in response to Council's declaration of a climate emergency. The Plan identifies a number of actions that individuals, community groups, businesses, the agricultural sector and Council can undertake to achieve the objective of zero net emissions over the next 10 years and to ensure a climate resilient community.


**Figure 1: Draft Climate Change Action Plan 2020-2030**

Within the Draft Climate Change Action Plan, the Bass Coast Council and community have confirmed a shared target of zero net emissions by 2030. Council acknowledges that the pathway to zero net emissions is not linear and that some emissions sources are more difficult to address than others, such as transport and agriculture, which are significant emissions sources (accounting for 29.7% and 26.7% of the Shire's emissions profile).

Numerous actions are identified that are relevant to transport, including:

- At a community level, promote a switch to walking, cycling, ride sharing and electric vehicles
- Businesses and organisations can also switch to more sustainable transport by transitioning passenger and light commercial vehicles to electric vehicles
- Bass Coast Shire Council has committed, in its update to the Phillip Island and San Remo Visitor Economy Strategy 2035, to accommodate increased visitor numbers without increasing carbon emissions and exacerbating the impact of climate change. Council recognises that the Bass Coast tourism industry is a critical part of the local economy. Visitors have an increasing expectation of sustainable travel and connection to nature. Adoption of cleaner transport technologies will ensure that the Bass Coast tourism industry is well positioned to position itself as a genuinely sustainable tourism destination. To this end Council is strongly supporting the transition to active and public transport, from private vehicles, as a highly effective strategy for community emissions reduction that also delivers a range of health and wellbeing benefits. In support of a shift to public transport use, Council has identified the need to develop partnerships and options to pilot community bus services (with a pathway to electric buses). Council recognises the need to advocate and seek State Government support to prioritise funding for public and active transport.

Numerous climate action projects have been delivered by local community groups, organisations and businesses, including "Totally Renewable Phillip Island (TRPI)" which has a charter to achieve carbon neutrality across Phillip Island by 2030. Having run many community energy events, school incursions and workshops, TRPI have commenced work on a feasibility study to determine how all of Phillip Island can be powered by 100% renewable energy. It is relevant to note that electric and hybrid vehicles that utilise energy stored in batteries to either completely or partially propel the vehicle, are now a well-established, well-accepted vehicle technology worldwide. Bass Coast Council has already installed multiple electric vehicle charging stations across Phillip Island, as shown in Figure 2, to actively support adoption of cleaner technologies.

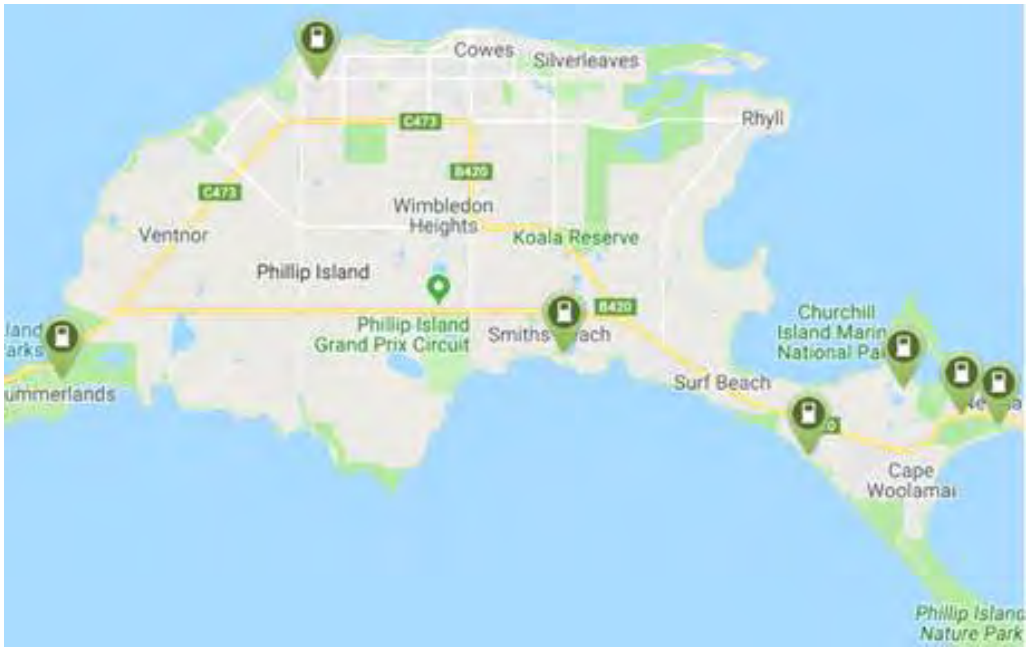


**Figure 2: Electric Vehicle Charging Stations on Phillip Island**

## 2.4 ISLAND EXPLORER – TOURIST BUS SERVICE IN PHILLIP ISLAND

The Island Explorer bus service trial was supported by a partnership between Destination Phillip Island, Phillip Island Nature Parks, Bass Coast Shire Council, Phillip Island RSL and South Coast Bus Lines. The Island Explorer was introduced to address the almost complete lack of public transport services on Phillip Island. It was created to give visitors access to tourist attractions over the peak summer period.

The bus service circulated the island in four loops, was free of charge and had a night component that serviced the Penguin Parade. The service ran for 77 days from 28 December 2015 to 13 March 2016 and carried a total of 3,709 passengers during that 11-week period.

As shown in Figure 3, international travellers represented almost 60% of the users of the Island Explorer bus service. Victorian tourists (not including local residents) accounted for around 21% of all users. Together, international and Victorian tourists accounted for almost 80% of all users of the bus service. Interstate tourists and local residents accounted for only around 20% of all users. Despite the lack of public transport services in Phillip Island, local residents accounted for around 8% of all users, which was below the initial expectation for the system. Some of the factors for the lack of use by local residents included the one-way loop configuration and the infrequent nature of services.

In terms of stop popularity, measured by surveying passengers at the collection point, Cowes represented was significantly more popular than any other location, representing around 42% of the origins of all trips. It would be useful to understand the destination of travellers to better determine the relative popularity. For example, no surveys were conducted for passengers using the night service departing from Penguin Parade, thereby underestimating the importance of that location for travellers.

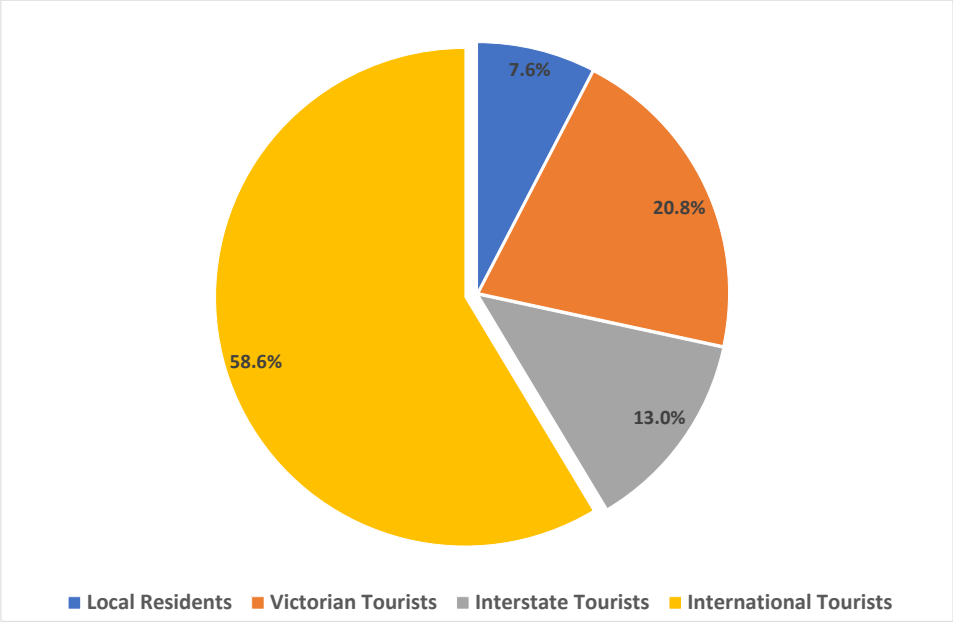


**Figure 3: Demographic Composition of Island Explorer Users**

The core service (operational) costs were funded by the supporting organisations – this included collateral development and promotion within their existing budgets. These organisations also donated significant research and development, as well as infrastructure and operational aspects to ensure the service was realised.

Despite the support from the organisations for its continuation and the positive feedback from tourists and the local community, the Island Explorer only operated during that 11-week period in 2015-2016. Some of the main aspects that limited its ability to provide a model for an ongoing service included the selection of a large bus (which was underutilised during a large proportion of trips), the fixed-route configuration and the lack of more frequent services that would provide a more convenient and attractive alternative for both tourists and locals.


**Phillip Island Explorer BUS LOOP**

*Service operates everyday from 28th December 2015 to 13th March 2016

**Monday to Sunday**

*Coach service is subject to capacity – Check local bus timetable for alternatives*

| STOPS | *TIMES | | | |
|---|---|---|---|---|
| Cowes Main Bus Stop (Chapel St) | 10:00 | 12:00 | 14:30 | 16:30 |
| Phillip Island RSL Cowes | 10:04 | 12:04 | 14:34 | 16:34 |
| Penguin Parade | 10:15 | 12:15 | 14:45 | 16:45 |
| The Nobbies | 10:21 | 12:21 | 14:51 | 16:51 |
| Grand Prix Circuit, Visitor Centre | 10:33 | 12:33 | 15:03 | 17:03 |
| Smiths Beach, Cnr Marlin & Smiths Beach Rd | 10:40 | 12:40 | 15:10 | 17:10 |
| Koala Conservation Centre | 10:45 | 12:45 | 15:15 | 17:15 |
| A Maze'N Things | 10:45 | 12:45 | 15:15 | 17:15 |
| Sunderland Bay V/line | 10:47 | 12:47 | 15:17 | 17:17 |
| Surf Beach V/line | 10:48 | 12:48 | 15:18 | 17:18 |
| Cape Woolamai V/line | 10:52 | 12:52 | 15:22 | 17:22 |
| Churchill Island | 11:00 | 13:00 | 15:30 | 17:30 |
| Phillip Island Chocolate Factory | 11:08 | 13:08 | 15:38 | 17:38 |
| San Remo Interchange | 11:12 | 13:12 | 15:42 | 17:42 |
| Silverwater Resort | 11:17 | 13:17 | 15:47 | 17:47 |
| The Big Wave | 11:22 | 13:22 | 15:52 | 17:52 |
| Woolamai Surf Beach | 11:28 | 13:28 | 15:58 | 17:58 |
| Rhyll Trout and Bush Tucker Farm | 11:42 | 13:42 | 16:12 | 18:12 |
| Koala Conservation Centre/ A Maze'N Things | 11:48 | 13:48 | 16:18 | 18:18 |
| Cowes Main Bus Stop (Chapel St) | 11:57 | 13:57 | 16:27 | 18:27 |

**Night Service to Penguin Parade***

**Monday to Sunday** **Bookings required see below*

| STOPS | JAN | FEB | MAR |
|---|---|---|---|
| Silverwater Resort | 19:35 | 19:20 | 18:50 |
| San Remo Interchange | 19:40 | 19:25 | 18:55 |
| The Big Wave | 19:42 | 19:27 | 18:57 |
| Cowes Main Bus Stop (Chapel St) | 20:02 | 19:47 | 19:17 |
| Phillip Island RSL Cowes | 20:05 | 19:50 | 19:20 |
| **Penguin Parade (arrive)** | **20:15** | **20:00** | **19:30** |
| *Estimated Penguin Arrival Time* | 20:45 | 20:30 | 20:00 |
| **Penguin Parade (depart)** | **21:45** | **21:30** | **21:00** |
| Cowes Main Bus Stop (Chapel St) | 21:55 | 21:40 | 21:10 |
| Phillip Island RSL Cowes | 21:58 | 21:43 | 21:13 |
| The Big Wave | 22:14 | 21:59 | 21:29 |
| San Remo Interchange | 22:17 | 22:02 | 21:32 |
| Silverwater Resort | 22:22 | 22:07 | 21:37 |

*Service operates everyday from 28th December 2015 to 13th March 2016

*Service subject to traffic conditions*

*Park and Ride Location*

## 2.5 TOURISM

The Phillip Island and San Remo region offers a variety of coastal environments, rare native wildlife and an annual programme of national and international scale sporting events – all of which are major attractors for visitors. The region also has an Aboriginal and pioneer history worthy of greater recognition with growing visitor interest in these areas. Domestically, the region provides high quality, accessible experiences for a range of visitor markets in a self-contained area close to the major population centre of Melbourne, South Gippsland and the rapidly growing population of Bass Coast. Globally, Phillip Island and San Remo draw from their wildlife biodiversity, world class motor racing, coastal landscapes and consistent surf. The study area plays a role in promoting Melbourne as an international destination. Figure 4 shows the primary tourist attractions in the study area.

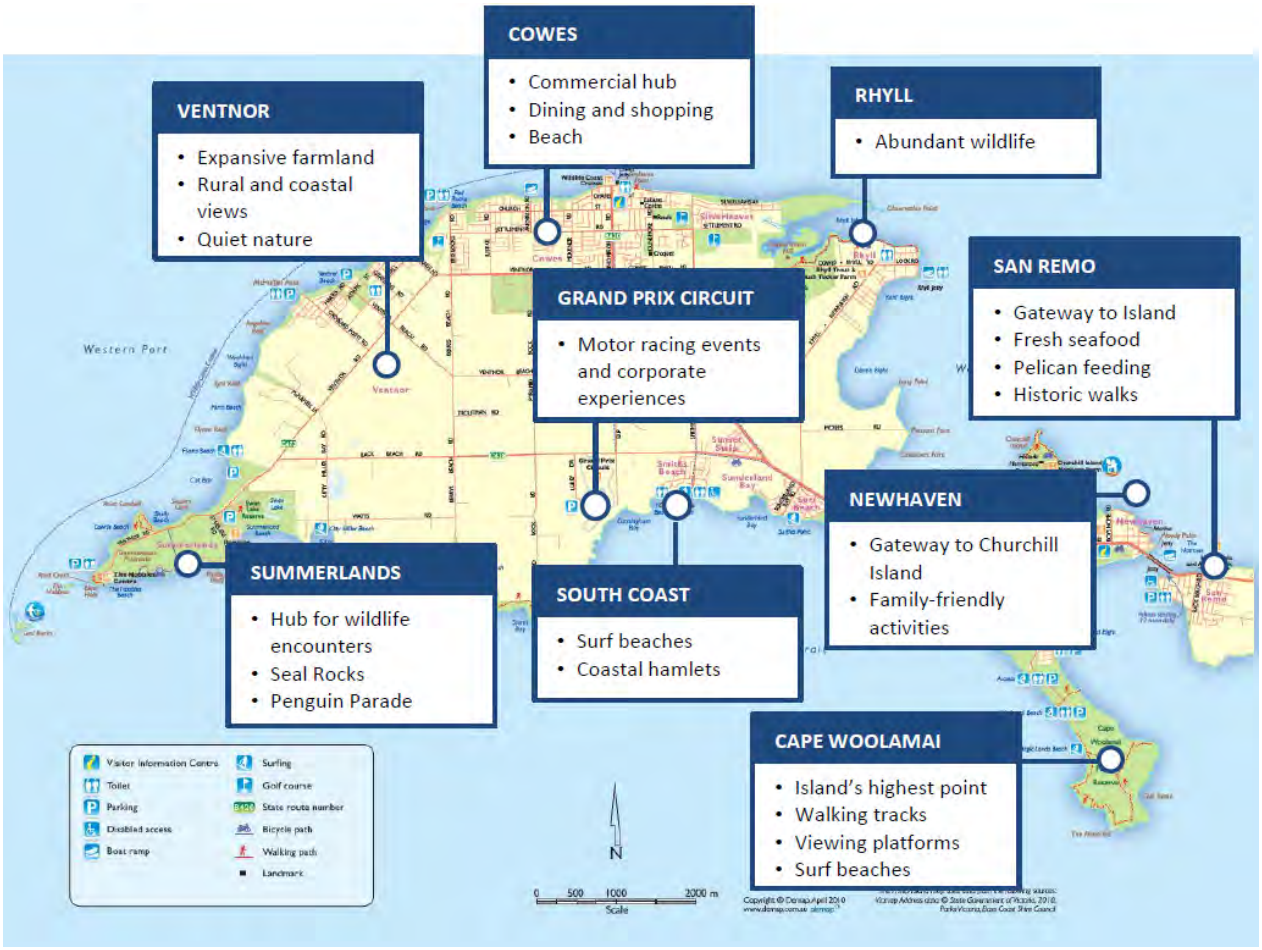


**Figure 4: Primary Tourist Attractions**

The Phillip Island and San Remo Visitor Economy Strategy 2035 highlights that the study area has one of the highest ratios of visitors to residents of any destination in Australia. On average, there are 80 visitors to every resident in the region. At peak times this reaches as many as 120 visitors to every resident, and this compares with just five visitors to every resident for the rest of the State of Victoria. This study also highlighted that the region is expected to significantly increase its visitor numbers from close to 2 million in 2019 to 3.4 million by 2035. This is equivalent to an extra 4,300 additional visitors per day, resulting in the need for over 1,000 extra accommodation rooms to satisfy that demand.

As of 2019, around 50% of all visitors stay overnight. Figure 5 and Figure 6 show the seasonal and monthly distribution of the 1.1 million overnight visitors to the study area.

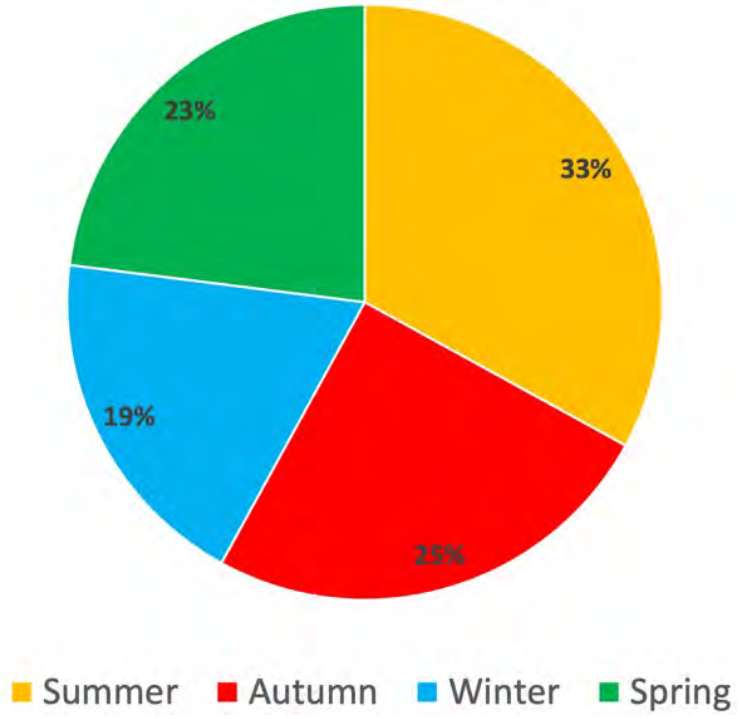


**Figure 5: Distribution of the 1.1 Million Overnight Visitors by Season**

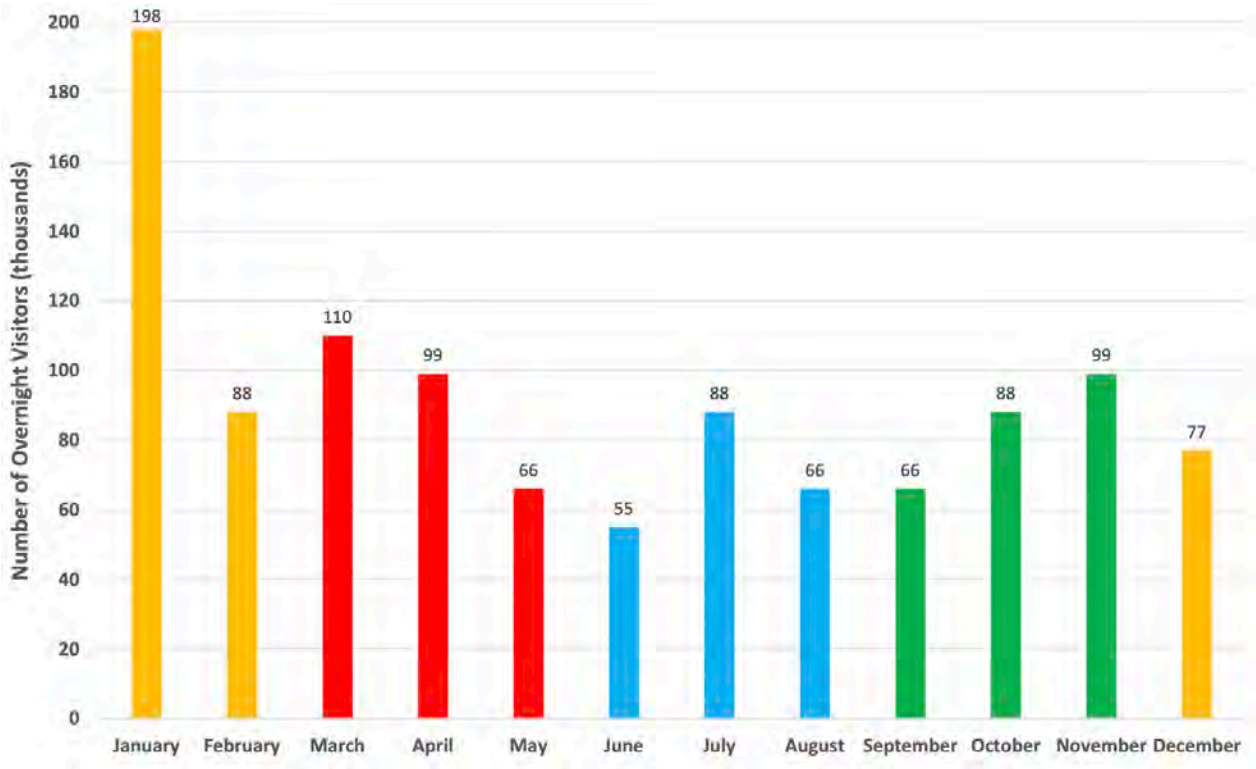


**Figure 6: Distribution of the 1.1 Million Overnight Visitors by Month**

### 2.5.1 COVID-19 AND TOURISM OUTLOOK

The COVID-19 restrictions to the movement of people between regional Victoria and metropolitan Melbourne (which were in place from the middle of 2020) together with the closure of state borders across Australia (which have been intermittently in place with respect to Victoria through 2020 and the start of 2021) have significantly affected the ability of domestic tourists to visit the Phillip Island and San Remo region. The COVID-19 travel restrictions have caused an unprecedented reduction in domestic visitor numbers to the region. In addition, Australia's closure of its borders to international tourism has further contributed to a sharp drop in overseas visitors to the region.

The drop in both domestic and international arrivals is having a significant impact on the local Phillip Island economy. The Australian Government's Trade and Investment Commission (Austrade) releases – through "Tourism Research Australia" (TRA) – annual Regional Tourism Satellite Accounts. Prior to the COVID-19 pandemic, in 2018-19, Phillip Island's tourism consumption was estimated at $897 million.

Austrade has concluded that the bushfires over the 2019-20 Australian summer combined with the COVID-19 pandemic will have widespread effects on the national economy and long-lasting impacts on tourism. In its "2018-19 State Tourism Satellite Accounts" report (issued by Tourism Research Australia in May 2020) Austrade noted that the wide-reaching nature of the COVID-19 pandemic has seen the United Nations World Tourism Organization revising global tourism receipts sharply downward, with Asia and the Pacific expected to be the worst affected. Factors damaging to both domestic and international sectors of Australia's visitor economy are:

- Escalation of travel restrictions. The introduction of travel restrictions to visitors from China in February 2020 curtailed holiday travel from Australia's largest inbound market. Restrictions were extended to Korea, Iran and Italy through early March 2020, prior to a global travel ban later that month.

- Sharp reductions in air capacity. This includes both domestic and international aviation and is an effort by airlines to reduce operating costs in response to the slow-down in demand.

- Social distancing, self-quarantining and bans on gatherings. Tourism is built on person-to-person interactions and is vulnerable to dramatic changes in social behaviour.

- Restrictions on non-essential travel. Combined with state and territory border closures, these restrictions will heavily impact interstate and domestic overnight travel.

The International Air Transport Association (IATA), the world's leading air travel body, has stated that international travel is unlikely to reach pre-COVID levels until 2024. In addition, the Australian Government has repeatedly stated that international tourist travel to Australia is unlikely to resume before the middle of 2021. Moreover, the Prime Minister recently said that "…the opportunity for large-scale travel beyond our borders is not foreseeable" and the prospect of reopening international arrivals will be "very challenging".

## 2.6 DEMOGRAPHICS – POPULATION AND EMPLOYMENT

As part of the broader analysis to determine the feasibility of visitor transport service, a comprehensive examination of the existing population, demographics and employment was undertaken. Bass Coast Shire is located in south-eastern Victoria, about 130 kilometres southeast of Melbourne. The 2016 Census found that the usual resident population of Bass Coast Shire in 2016 was 32,804. Of those, 11,581 resided on Phillip Island and San Remo; namely 35% of the Shire's total.

An employment analysis was undertaken to determine the number of people who 'live and work' within the study area – these are the people who would be potentially attracted to switch from car to visitor and local community transport for their journey to/from work. The total employment in Bass Coast is 10,254 jobs. A total of 8,786 people live and work within Bass Coast (see Figure 7).


**Figure 7: Employment in Bass Coast**

Overall, 4,334 residents are employed and 3,412 (or 79% of those employed) work within the Bass Coast area. However, the Census does not provide enough spatial resolution to determine the number of people who live and work within the area. Fortunately, given the geographic characteristics of the study area, it is possible to use the Census data on distance travelled to work to estimate the number of people who do not go beyond the 'eastern end' of San Remo.

Road network characteristics and Census data on distance travelled to work were used to undertake a comprehensive modelling exercise to determine the number of people that live within the study area and work in locations west of the eastern end of San Remo. A total of 1,710 people were identified as living and working within the study area. Figure 8 shows the geographic distribution of these people.

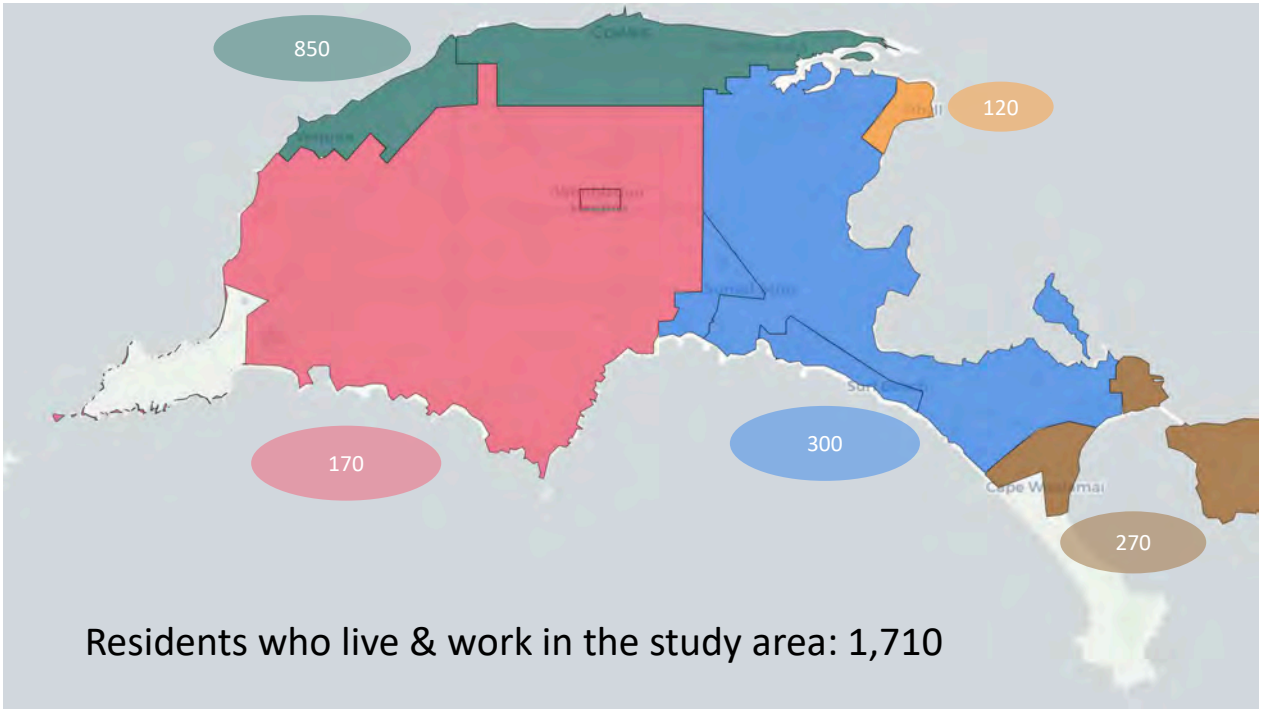


**Figure 8: Distribution of People Who Live and Work in the Study Area**

### 2.6.1 EMPLOYMENT IN TOURISM-RELATED SECTORS

It is also possible to estimate (out of the total of 1,710 people who were identified as living and working within the study area) the number of those who are most likely employed in tourism-related sectors. These are the people who nominated "Accommodation and Food Services" and "Recreation Services" as their employment sectors in the latest Census. The total involved in these tourism-related sectors was identified as 41% of those living and working in the study area (703 out of 1,710), highlighting the important role played by the visitor economy in Phillip Island (see Figure 9).

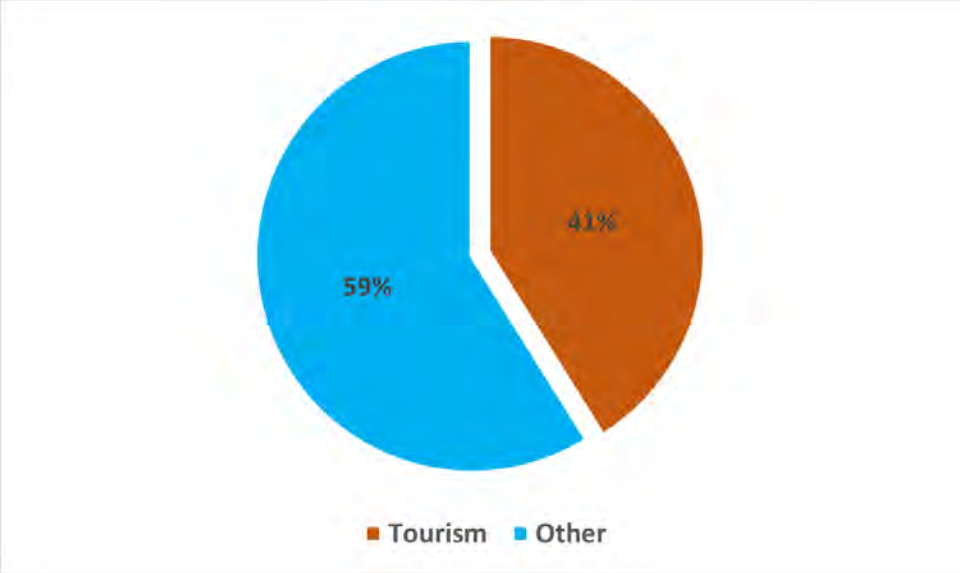


**Figure 9: Proportion of Workers in Tourism and Other Sectors (living and working in study area)**

Most people employed in tourism-related sectors relies on private transport to access their jobs. This is shown in Figure 10 ("Accommodation and Food Services") and Figure 11 ("Recreation Services").

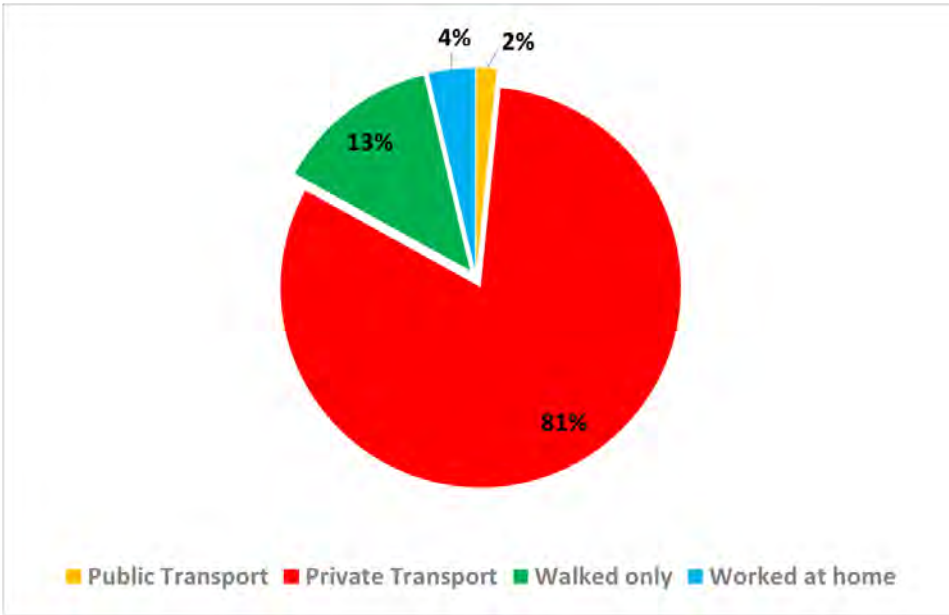


**Figure 10: Journey-to-Work Travel Mode for Workers in Accommodation and Food Services**

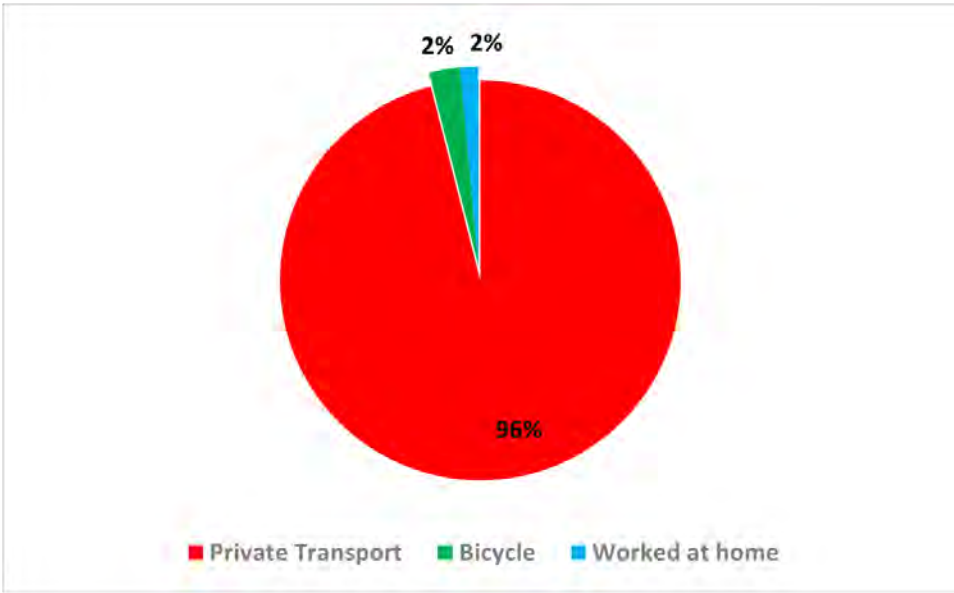


**Figure 11: Journey-to-Work Travel Mode for Workers in Recreation Services**

In addition to those "living and working within the study area" who are employed in the tourism sector there are also people from outside of Phillip Island who are employed in tourist-related activities. The Australian Government's Trade and Investment Commission (Austrade) releases – through "Tourism Research Australia" – annual Regional Tourism Satellite Accounts. In 2018-19, Austrade identified 4,489 jobs on Phillip Island's that are associated with tourism as itemised in Table 1. This represents almost half of the total employment in Bass Coast (10,254 jobs).

**Table 1: Employment on Phillip Island 2018-19 (Source Austrade)**

# PHILLIP ISLAND

**VICTORIA**

| Employment | 2018–19 NUMBERS |
|---|---|
| ***Tourism industries*** | |
| Accommodation | 807 |
| Cafes, restaurants and takeaway food services | 1,645 |
| Clubs, pubs, taverns and bars | 351 |
| Rail transport | 1 |
| Road transport and transport equipment rental | 105 |
| Air, water and other transport | 188 |
| Travel agency and tour operator services | 215 |
| Cultural services | 159 |
| Casinos and other gambling services | 6 |
| Other sports and recreation services | 149 |
| Retail trade | 566 |
| Education and training | 213 |
| All other industries | 83 |
| Total | 4,489 |

# 3 NATIONAL AND INTERNATIONAL REVIEW

This chapter summarises a comprehensive literature review of transport services of relevance to the implementation of a local and community service in Phillip Island and San Remo context. The review identified the type of service that would be most applicable, as well as the path towards the delivery of a sustainable transport system that supports the Bass Coast Shire's declaration of a climate emergency.

## 3.1 DEMAND RESPONSIVE TRANSPORT SERVICES

A review of visitor and local community transport services used in low density rural and regional areas was undertaken to determine the type of system that would be most likely to succeed in Phillip Island and San Remo. The review included an evaluation of transport services implemented in the last two decades both locally and internationally. This review identified a growing trend for the adoption of 'Demand Responsive Transport' (DRT) services across Australia and around the world.

The UK Community Transport Association defines DRT as:

> *…a user-oriented form of passenger transport characterised by flexible routes and smaller vehicles operating in shared-ride mode between pick-up and drop-off locations according to passenger needs.*

DRT is a flexible mode of transport that adapts to the demands of its user groups. More specifically, DRT is a transport service where day-to-day operation (i.e., number of services, types of vehicles to be used, routes and stops) is determined by the requirements of its users.

In its early days, DRT was primarily used for its social benefits, increasing opportunities for people with limited mobility, or those who are socially marginalised. However, DRT has gained popularity around the world in the last two decades and is now also being used for its potential to:

- Provide significant environmental benefits through reducing the number of private vehicles on the road for a variety of trip purposes
- Support multimodal transport in cities
- Act as the first/last kilometre solution for linking communities with broader transport networks
- Provide dynamic and flexible solutions for tourist areas featuring time-based (e.g., seasonal) fluctuations in demand

DRT generally refers to transport systems that utilise smaller buses and other passenger carrying vehicles and are characterised by being:

- A flexible and shared transport service that provides a solution between pick-up and drop-off locations, according to passenger needs
- Designed to make it easy to get around. The rise of ride-hailing apps has both revealed and promoted a change in the perception of transport services. Instead of passengers adapting their itinerary around a set transport schedule, the transport service functions according to the passengers' schedules and needs.
- Able to cater for the community's transport needs when other forms of public transport are not available, not 'flexible' enough or cost prohibitive. This includes areas where there is low frequency of public transport and/or low demand, such as regional areas.
- Well-suited to population groups with unique transport needs. Studies worldwide have shown that DRT services are particularly well placed to address the transport needs of adolescents and young adults, older adults and people with mobility impairment. Traditional public transport services are generally centred around work-based journeys, thereby limiting their ability to cater for population groups with more diverse and less concentrated travel needs.

### 3.1.1 HOW DEMAND RESPONSIVE TRANSPORT WORKS

Using DRT services typically involves passengers calling a booking service, which will then plan a route to pick up users and take them to their desired destination. Increasingly, DRT systems are using websites and mobile applications to enable bookings. However, given the common focus on providing transport services in regional areas and supporting the needs of specific population groups (such as older and young adults), most systems have retained the ability to call a booking service to request a ride.

Most modern DRT systems leverage the ubiquitous nature of smartphones. Passengers use a mobile app to register their request for a service. The application uses algorithms to match their requirements with vehicles riding in the desired direction. Fleet drivers are then directed according to the pick-up and drop-off information collected by the app from passenger requests. The application works as route optimisation software, calculating journeys according to the fastest route based on real-time data. In addition, a mobile app allows passengers to save specific journeys, track arrivals, and follow the route when on board.

### 3.1.2 DEMAND RESPONSIVE TRANSPORT – SERVICE TYPES

A number of DRT service types are typically used, with each variation having strengths and weaknesses, as well as different applications.

The four most commonly used service types are (see Figure 12):

- Door-to-door – passengers are picked up and dropped off at locations of their choice (e.g., picked up at home and dropped off at a specific destination). This system provides the highest level of service for passengers but is less efficient.
- Hub-to-hub – pre-determined hubs are selected as designated pick-up and drop-off locations. Passengers are picked up and dropped off at the hubs that are closest/most convenient to their pick-up and drop-off locations. The system offers most of the convenience of the door-to-door service with higher levels of efficiency.
- Meeting points – similar to the hub-to-hub but the pick-up and drop-off locations are dynamically selected by the system based on demand. The system provides additional flexibility and achieves similar levels of efficiency to the hub-to-hub. This system is ideally suited to urban environments with a potentially high number of 'hubs.
- Fixed-route, skipped stops – the system operates on a fixed route with designated stops. Services use the stops based on demand, enabling the operator to skip stops when there is no demand, increasing efficiency. This system is ideally suited to areas with demand primarily concentrated in the origin/destination of each route.

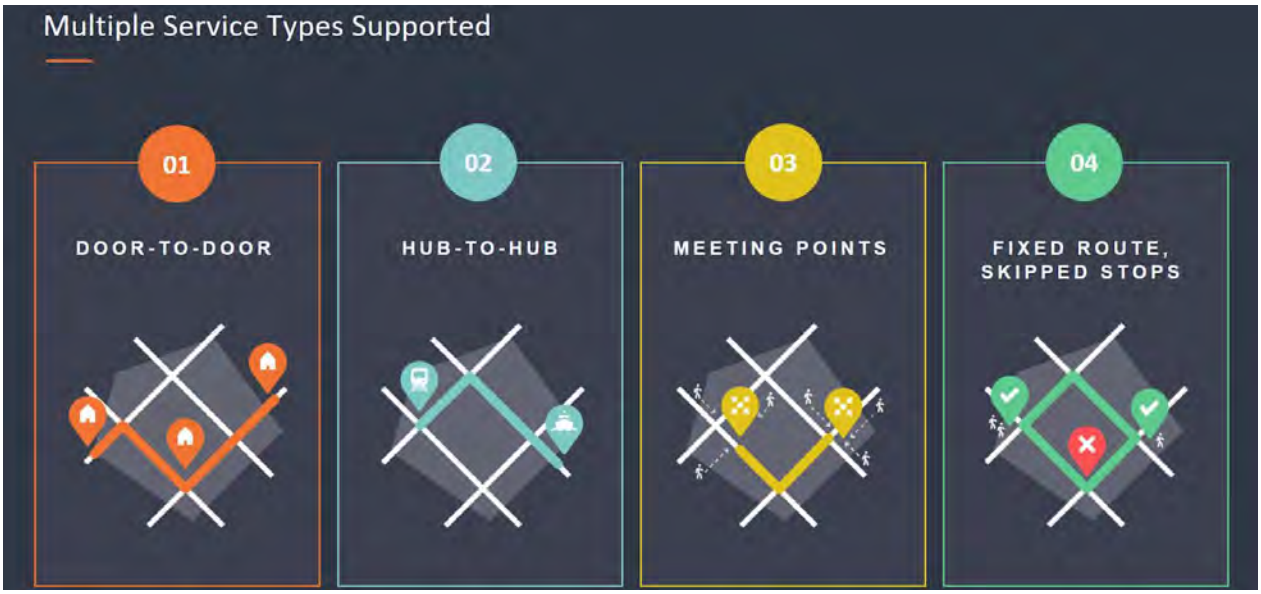


**Figure 12: DRT Service Types**

### 3.1.3 BENEFITS OF DEMAND RESPONSIVE TRANSPORT

DRT can play an important role in regional areas where public transport connectivity is not well developed, and where running fixed public transport may be prohibitively expensive. DRT services that merge the features of public and private transport provide several benefits, including:

- Connecting regional populations cost-efficiently—increasing transport options can make regional areas more attractive for residents and enhance connectivity to tourism destinations
- Supporting population groups with unique transport needs
- Reducing pollution—connecting regional areas with transport hubs such as train stations, or metro lines, reducing single-car use
- Improving estimated arrival times—passengers benefit from the visibility of on-demand services apps, they can track where their ride is and be aware of delays
- Reducing booking times—demand responsive transport software can handle bookings at short notice by tracking active drivers close to the passenger's given location

Despite its many benefits, DRT systems remain underutilised around the world. Their implementation has increased significantly over the last 10 years and it is expected that they will continue to grow, particularly in regional areas and middle to outer urban areas.

## 3.2 AUSTRALIAN EXPERIENCE

Since October 2017, there have been over 30 DRT trials launched across Australia, providing over 1 million rides to passengers in urban and regional areas. Recent research by the Griffiths Cities Research Institute showed that the number of services and monthly passengers has increased rapidly over the last few years (see Figure 13).

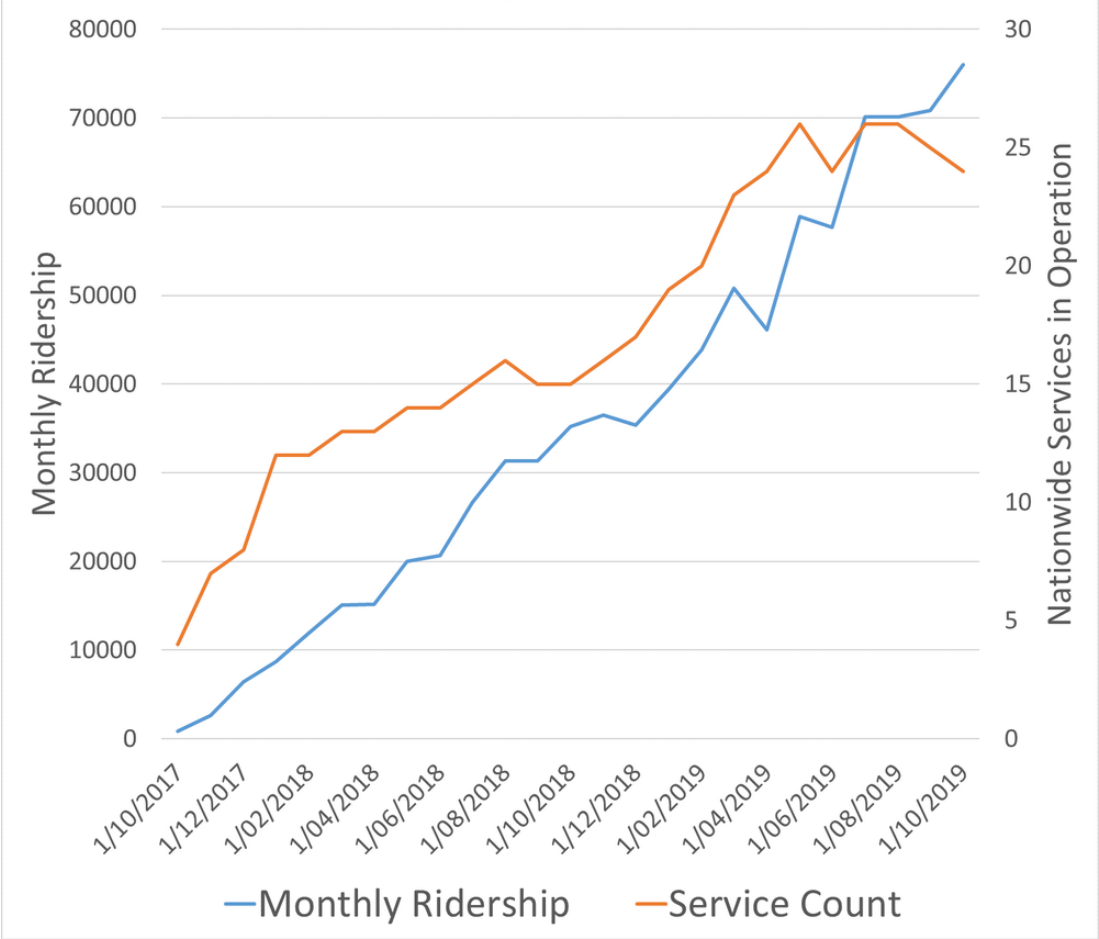


**Figure 13: DRT in Australia – Monthly Ridership and Number of Services**

The number of operators has grown from seven at the end of 2017 to 22 by the end of 2019. During this two-year period, monthly ridership has increased almost 1000%. In Australia, most trials have featured smaller buses, vans for 12-15 passengers or sedan fleets that can be adjusted based on user demand. Most DRT services in Australia allow users to simply download an app and request a ride (similar to taxis or Uber but less expensive). Passengers who do not own a smartphone or prefer not to use a smartphone app can book rides through a call centre or by using the DRT service website.

A discussion on some of the more successful DRT services is provided in the sections that follow.

### 3.2.1 DRT SERVICES IN SYDNEY

One of the most successful DRT services in Australia is the Keoride service in Sydney. It services the Northern Beaches in Sydney and is operated by Keolis Downer. The service has grown from a ridership of less than 50 passengers per month to just under 20,000 with approximately 800 passengers on its busiest weekdays. The service uses 10 buses, focussing on collecting passengers from the Northern Beaches, and feeding them into four Bus Rapid Transit hubs for onward journeys to the Sydney CBD.

In summary, the Keoride service has:

- Enjoyed extremely high patronage levels
- Facilitated access to local services – in addition to its commuter function
- Promoted better connection between communities

Similarly, the recently established DRT service in "The Ponds" area in Sydney has grown from 1,000 to 8,000 monthly riders in its first four months of operation. The DRT service is operated by Cooee Busways. It picks passengers up from an agreed point near their home and drops them off at Schofields, Tallawong or Rouse Hill stations, making it easier to connect with the Sydney Metro and Sydney Trains services.

Fares for The Ponds DRT are based on a sliding scale as shown in Table 2:

**Table 2: Sliding Fare Model for the Ponds DRT System**

| **Adult Fare** | | | **Concession Fare** | | |
|---|---|---|---|---|---|
| **Distance** | Peak | Off Peak | Distance | Peak | Off Peak |
| **0 - 3 km** | $3.20 | $1.60 | 0 - 3 km | $1.60 | $0.80 |
| **3 - 8 km** | $3.73 | $1.86 | 3 - 8 km | $1.86 | $2.40 |
| **8+ km** | $4.80 | $2.40 | 8+ km | $2.40 | $2.40 |

### 3.2.2 LOGAN, QUEENSLAND

One of the longest and most successful examples of a DRT system in Australia has been operating in Logan municipality in Brisbane outer suburbs since 2018. The parts of Logan that are semi-rural are the areas where DRT has enjoyed its greatest success. Key features of the Logan system include:

- 7-day operation: 6am-10pm
- Complement existing public transport services
- Fares: Adult: $3 / Concession: $1.50
- App-based (similar to Uber)

Logan's population is around 25,000 – comparable to Phillip Island's summer peak. Feedback from users has been exceptionally positive with respondents stating that it has "changed their lives". It has provided improved access for young people accessing jobs and education and older people accessing community services.

Queensland's State Department of Transport and Main Roads (responsible for management of the Logan DRT service) has advised that Logan's DRT service receives a level of government subsidy. Key points in relation to the funding aspects of the Logan DRT contract are as follows:

- Taxi company "13Cabs" has been contracted to provide the DRT service using their current taxi fleet
- The contract allows 13Cabs to retain all revenue collected and provides funding to the costs involved to perform the DRT service
- Variable direct operating cost items include number of booked vehicle hours, telephone cost, livery cost for designated vehicles, uniform cost, in-vehicle transaction costs for EFT payments
- Fixed direct operating cost items include trial management costs and trial technology costs
- Indirect costs include monthly overhead costs, margin payment based on percentage of direct operating costs
- The service payment is direct operating costs less revenue retained

### 3.2.3 MOREE, REGIONAL NEW SOUTH WALES

A successful application of a DRT system in regional Australia is found in Moree, New South Wales. The service began in November 2018 and is operated by Reynolds and Fogarty. The service was established to provide transport solutions for local residents and visitors and was made permanent following a successful trial. During the trial, more than 33,000 passenger trips were delivered, with around 5,000 customers using the service per month.

Key features of the Moree system include:

- Contracted by the NSW Government through Transport for NSW
- Vehicle types: Mini-bus – Toyota
- The system includes an on-demand component and a twice daily fixed route service
- The on-demand service must be pre-booked (can be via phone or text message) and can pick passengers up at or near your home and drop them off at their desired destination within Moree. The twice daily fixed route service connects the Moree Train station with selected points within Moree.
- Fares: single trip adult: $3 / concession: $1.50; and daily adult: $6.90 / concession: $3.40
- 7-day operation: 7am-7pm

## 3.3 INTERNATIONAL EXPERIENCE

The international review indicates that DRT can play an important role in regional areas where public transport connectivity is not well developed, and where running fixed public transport may be prohibitively expensive. The review focused on locations with a similar context to Phillip Island, in order to gather useful insights to inform the definition and appraisal of visitor transport options. Given their success and growing popularity, the review had a particular focus on locations using DRT and small vehicles with clean technologies. Fixed public transport solutions were only found to operate better than DRT where the population density is much higher than typically found in rural and regional areas.

In Europe and North America studies have highlighted the increasing popularity of DRT services characterised by operations that are often highly flexible with drivers making stops as required by the users. The studies have shown that DRT can provide a cost-effective solution for linking regional tourist destinations with existing towns and transport infrastructure. In many cases, small electric vehicles have been adopted for DRT services.

### 3.3.1 BENEFIT TO LOCAL COMMUNITIES

A recent review of sustainable transport systems for natural and protected areas in North America and Europe identified that transport can deeply affect the quality of life of human communities living within or around a natural area for at least three reasons. First, transport allows local residents to move and manage their daily activities. Second, transport allows visitors to move, therefore sustaining business and tourism activities, which contribute to the local economy. Third, transport has direct negative impacts on the local population (e.g., emissions, noise and landscape changes).

The review also highlighted that a sustainable transport system can enhance the quality of life of local communities by promoting access to tourist and other attractions, providing freedom of movement to the local population, sustaining the local economy and minimising the negative externalities associated with transport activities. When evaluating the implementation of transport systems, it is important to balance the objective of promoting tourists' mobility and safeguarding (or enhancing, if possible) the mobility needs of local communities. To achieve this, for example, road restrictions should target tourists and local and residents differently to minimise socio-economic consequences (e.g., impossibility to carry on normal businesses).

The participation of local communities and the private sector in transport system decisions will ensure that tourists and residents can benefit from each other: tourists having convenient access to their desired destinations and through their use of the system increasing demand and sustaining the visitor and local community transport system that is also used by residents. The design of a transport system can do much for the local economy by driving visitor flows to the places where they would bring the greatest economic benefit (e.g., placing bus stops or planning DRT drop-off areas in front of a restaurant or shop that sponsors the system). Design is also fundamental to minimise the exposure of the local population to some of the negative outcomes of transport, including pollution, noise, aesthetic impacts, that may be more easily hidden to visitors (e.g., big parking lot not visible from hotels but visible from residential properties).

### 3.3.2 FINANCIAL SUSTAINABILITY

Visitor and local community transport service costs are borne by both individuals, who pay for the expenses associated with the use of private vehicles, and agencies, which are responsible for transport systems. The international review illustrated that, in areas with sensitive natural resources that generate significant levels of tourism, attempts at shifting tourists from private vehicles to sustainable modes of transport are generally challenged by the cost of the latter and the fact that visitors may be reluctant to pay for it, especially if such forms of transport do not guarantee a sufficient degree of convenience and freedom.

This results in a vicious cycle where agencies, being constrained by available funds, can only provide a limited transport service (e.g., small number of routes with low frequency), which in turn attracts few people and subsequently generates little revenues to be used for improvements. The review highlighted that the solution to this problem is not straightforward, especially because the extra investment needed to make the service attractive may not always be paid back.

A sustainable transport system has its costs entirely covered by direct or indirect revenues and is managed in a way that allows it to function efficiently over a long period. This requires both a detailed business plan, which thoroughly considers the revenues coming from public and private contributions, as well as the payment of fares and a sound design, which minimises the cost of running the system. The business plan and the design should be conceived simultaneously and informed by detailed knowledge about how service quality and user fees affect the willingness of visitors to choose a given transportation mode. In an attempt to favour a shift from private to visitor and local community services, government agencies have successfully imposed fees on the use of private vehicles (e.g., parking charges and road tolls) through which to sustain the transport system and improve its quality, while providing a disincentive for private car use by tourists (and locals).

The review also highlighted that public-private partnerships are another valuable instrument to subsidise a transport system. In this case, the private investor may not offer only the transport, but a wider package of services (e.g., panoramic buses, discounts to attractions and financial incentives for low-impact travellers) that ensure higher ridership and adequate revenues. The review showed that in natural areas with a relatively significant resident population, as is the case of Phillip Island and San Remo, the cost for transport can be considerably limited by providing DRT services that are attractive to both tourists and locals. This brings significant advantages to the local population and can invert the above-mentioned vicious cycle.

### 3.3.3 KEY LESSONS FROM INTERNATIONAL REVIEW

Key lessons learnt from the international review and applicable to Phillip Island include:

- There is no unique or perfect solution that suits all situations. There are many different solutions implemented across the world, with different levels of flexibility with respect to routing and pick-up locations, timetables, booking systems, etc.
- Ultimately, the choice of a system needs to take into consideration multiple criteria such as population density, tourist influences, geography, level (if any) of existing regular public transport services, the target customer base of the proposed service. Each choice has to be made on a case-by-case basis.

- To be efficient, the service should be defined in consultation with potential users in order to meet their needs – and be truly demand-responsive.
- It is difficult to establish unit costs for DRT as the kilometres travelled vary and consequently the kilometre-related costs (fuel costs, maintenance costs) can vary significantly.
- The cost per passenger for DRT services is usually much higher than for fixed public transport. Depending on the booking system used and service frequency offered, drivers have to be available in case the DRT service is booked. Drivers in this instance are considered as fixed costs for the system.

The review also found that a combination of incentives to use DRT systems and disincentives to private car use is critical to shifting the behaviour of both tourists and local residents in regional areas from car to public and active travel modes. The mix of initiatives to be implemented was found to be highly place-specific, given the need to balance stakeholder interests and consider the unique natural and socioeconomic characteristics of each place – this, to maximise the ability to meet the accessibility needs of tourists and residents.

Lastly, the review highlighted that in the majority of cases, providing extensive public transport systems may not be enough to attract users in regional areas and that a large proportion of people will still elect to drive. The likelihood of people switching was shown to increase significantly when the systems implemented provided a mix of fixed and demand-responsive systems – the most successful examples reduced driving by up to 70% and increase public transport use by 80%.

Table 3 summarises the types of incentives and disincentives that have been successfully implemented around the world.

**Table 3 Incentives for DRT Systems and Disincentives for Private Car Use**

| Incentives for DRT Systems | Disincentives for Private Car Use |
|---|---|
| Low-cost, frequent and high-quality systems | Less direct paths for vehicles |
| Clean technologies | Traffic restrictions |
| Financial incentives for low-impact travellers | Low speed limits |
| Vehicles that can fit bicycles and other gear | Access tolls |
| Protected infrastructure for walking and cycling | Parking fees |

## 3.4 ADOPTION OF CLEAN TECHNOLOGIES

As discussed in Section 2.3, there is a need for a clean, smart mobility and visitor and local community transport solution for Phillip Island that promotes the goals of the Climate Change Action Plan. More specifically, the transport system to be implemented should promote the use of clean technologies and supports Bass Strait's goals to reduce CO2 emissions, diversify energy sources and improve air quality. Trials and adoption of cleaner technologies have been underway in Australia for some time.

In Adelaide, a solar-electric bus service was set up in in 2013, where buses required 18 hours to charge to achieve 6 hours of operation per day. Named after an Aboriginal word for "sun", the Tindo was designed to be part of the Adelaide City Connector bus service, a free service run by the City Council serving the city and North Adelaide, and linking major tourist attractions, key destinations and facilities. The Tindo received electric power from solar panels located on the city's central bus station. The City Connector bus service has since been transferred to the State Government's Adelaide Metro authority and operates using normal buses.

The ACT Government in 2017, through Transport Canberra, ran a 12-month trial comparing two fully electric buses and two hybrid buses against three low-emission diesel buses. The trial quantified the economic, environmental and operational performance of electric buses in the network, compared to diesel buses. Despite some operational glitches (primarily affecting the fully electric buses – associated with poor spare parts availability) Transport Canberra trial has shown that zero-emissions vehicles are a viable alternative for Canberra's public transport network going forward.

There is also a clear opportunity to introduce clean vehicle technologies in collaboration with the Victorian State government. In October 2019 Victoria launched of the first Victorian built electric bus. The trial is being run by Transdev in partnership with the Victorian Government until January 2021. Vehicles use a 324 kWh lithium phosphate battery and have a 300-kilometre range.

Internationally, the deployment of electric buses has accelerated very quickly in the past ten to fifteen years, influenced by national energy policies and driven more by environmental requirements than by commercial considerations. In Europe, the starting point for the current development trajectory was the introduction, in the late 1990s, of the first small electric vehicles dedicated to public transport. Pioneered in Italy, these vehicles were mainly operated on inner-cities routes. Deployment of minibuses and mid-sized buses was followed by the full-scale operation of 12-metre-long full battery electric buses at the 2008 Beijing Olympic Games.

The technology proved to be reliable, although vehicles with a 75-kilometre range needed to be plugged in two to three times a day for recharging. Building on this initial success, a 12-metre full battery electric bus was launched in China in 2010, with a promising range of 250-300km. This new step opened the way for numerous other Chinese manufacturers to enter the electric bus market. However, demand remained below expected levels despite the strong incentives offered by the Chinese government. American and European bus manufacturers have also rapidly developed electric bus models, although these are currently operated at a smaller scale through numerous pilots and local projects. Since 2013 these small-scale tests, involving one or two vehicles, have grown into larger schemes and shifted entire bus lines from internal combustion engine to electrical power. In more recent times, cities such as London, Paris and Warsaw have placed larger orders for this type of vehicle. It is expected that they will be rapidly followed by other cities, heralding a ramp-up in production to answer increased demand.

## 3.5 PRIVATE SECTOR INVESTMENT MECHANISMS

In recent decades, there has been growing international involvement by private sector investment in public infrastructure and services. In 2013, the Organisation for Economic Co-operation and Development (OECD) recognised this trend and published Environment Working Paper No. 56 regarding private financing of transport systems. The paper was titled "Mobilising Private Investment in Sustainable Transport" and provides insights into attracting private sector investment for transport systems. The OECD recognised that the public sector had traditionally played a key role in financing land-based passenger transport services but, given the growing constraints on public finances, it also identified that the private sector had an increasingly important role in the delivery of transport solutions. Governments on their part must play a central role in mobilising private sector investment particularly for sustainable transport services.

A key concern identified by the OECD (and that is relevant for this PIVETNS study) is that direct user fares are often set too low to cover operational costs, due to social affordability concerns. The OECD identified several financial tools and risk-sharing mechanisms that are available to improve the relative risk-return profile of transport projects. Those of most relevance to this PIVETNS study include:

- Public-private partnerships (PPPs) are procurement methods that allow for private sector participation and risk sharing. To be effective, they must offer sufficient "value for money" compared to traditional public procurement. The right institutional capacities and processes must also be in place. Currently in Victoria, as previously discussed, PPPs are defined for projects with a value of $50 million or more – which would most likely exclude the provision of transport services for Phillip Island under the current PPP governance structure.

- Short-run subsidies can be used to provide transitional support to sustainable transport options and technologies. They notably can be used to foster innovation, ramp-up production, offset upfront capital costs, and compensate for network infrastructure bias toward fossil fuel-based road transport. Examples include support to charging infrastructure for electric vehicles (EVs) and plug-in hybrid vehicles (PHEVs).

The Victorian State Government's Department of Treasury and Finance (DTF) has published "Partnerships Victoria Guidance Material" to provide advice on private investment in public infrastructure and services. The DTF recognises that the PPP term covers a range of different structures where a private sector consortium delivers a public infrastructure project and/or service. DTF also highlights that concession-based transport and utilities projects have existed in some countries for many years, particularly in France, Italy and Spain, with revenues derived from payments by end users, for example road tolls. Ultimately, the DTF defined a PPP project in a Victorian context in much narrower terms, as *'a contract for a private party to deliver public infrastructure-based services'*.[1] This definition explicitly excludes outsourcing or other service delivery arrangements where no capital investment is required. A PPP project in Victoria may, therefore, involve the design, construction, financing, maintenance, and, in some cases, operation of public infrastructure or public facilities by the private sector under a long-term contract.

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[1] Department of Treasury and Finance, *Partnerships Victoria Guidance Material*, *Practitioners Guide*, June 2001, p.4

DTF has established the *Partnerships Victoria* policy to provide a framework for developing contractual relationships between the State and private sector for delivering of public infrastructure and related services through PPPs.

*Partnerships Victoria* defines PPP projects more specifically in terms of contracts. [2]

- With a value of $50 million or more
- That integrate design, construction, operation and maintenance over the life of the asset, in a single project package
- That focus on services rather than on assets
- With scope for significant allocation of risk to the private sector
- That provide opportunity for innovation and transfer of risk to a third party
- That provide business opportunity and sufficient capable private sector parties to create an effective and competitive bidding process.

In terms of governance, the DTF has indicated that its governance framework comprises three discrete components: governance, probity and compliance.[3] The *Partnerships Victoria* guidelines note that good governance for projects requires relevant staff having clear roles, appropriate skills and resources. It defines senior managers (usually the chief executive officer or deputy secretary) and contract directors as having overall responsibility for the project and for the successful delivery of government services.[4]

The department advised that Cabinet involvement in decision making occurred at the following points:[5]

1. Initial business consideration of the project business case as part of normal budget allocation for funding approval and project approval.
2. The approval to invite expressions of interest for the proposed *Partnerships Victoria* project.
3. Application for approval to issue a project brief and contract, against which private bids may then be accepted.
4. Finalisation of the contract management strategy.

These steps provide a framework by which private sector investment into a visitor and local community transport service for Phillip Island may be sought. It is unlikely however that such a service would trigger the formal definition of a PPP in Victoria by having a value of $50 million or more.

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[2] Department of Treasury and Finance *Partnerships Victoria Guidance Material, Overview*, July 2006, p.8

[3] ibid., p.69

[4] ibid., p.71

[5] Department of Treasury and Finance, *Partnerships Victoria Guidance Material, Overview*, July 2006, p.15

## 3.6 CHARACTERISTICS OF SUCCESSFUL SYTEMS

The comprehensive review of Australian and international examples enabled the identification of a number of characteristics that are typical of the most successful visitor and local community transport services implemented.

In summary, the following are the key success factors:

- Strong coalition of private and public stakeholders. In the case of Phillip Island and San Remo, this would include park management agencies, state transport agencies, local government agencies, local communities and a range of private sector representatives (including the tourism industry)

- Selection of a system that provides the maximum flexibility and is designed specifically for the local conditions. The review highlighted that DRT systems would be particularly suited for a visitor and local community transport service for Phillip Island and San Remo. This would maximise benefits to the tourism industry by providing a sustainable and efficient way for tourists to travel, while also helping to promote the local economy.

- Vehicle fleets characterised by a relatively small number of small vehicles (e.g., vans and small buses) have been proven to be the most sustainable and successful in Australia, the United States and Europe. In the context of Phillip Island and San Remo, the number of vehicles will be determined by the demand characteristics (see Chapter 4) and the vehicle size would ideally be in the 10-15 passenger range. In addition, vehicle fleets need to be flexible to cater to multiple types of tourists and local users (e.g., DDA compliance and have the ability to carry bicycles or surf boards). Lastly, given government policies and customer views, the use of clean technologies (ideally electric vehicles) has been identified as a key success factor, particularly in areas with sensitive natural resources that attract environmentally conscious tourists.

- Implementation of a mix of incentives for using the visitor and local community transport service, and disincentives for private car use. The review highlighted strongly that high-quality and frequent transport services alone (even when free for the customer) are not generally sufficient to attract sufficient demand – a large proportion of tourists and locals will still elect to drive their private cars instead of switching to the DRT system. In order to improve the attractiveness of the system, incentives and disincentives need to be place-specific, balance stakeholder interests and address the mobility and accessibility needs of both users and the local population groups most likely to use the services.

# 4 VISITOR AND LOCAL COMMUNITY TRANSPORT SYSTEM

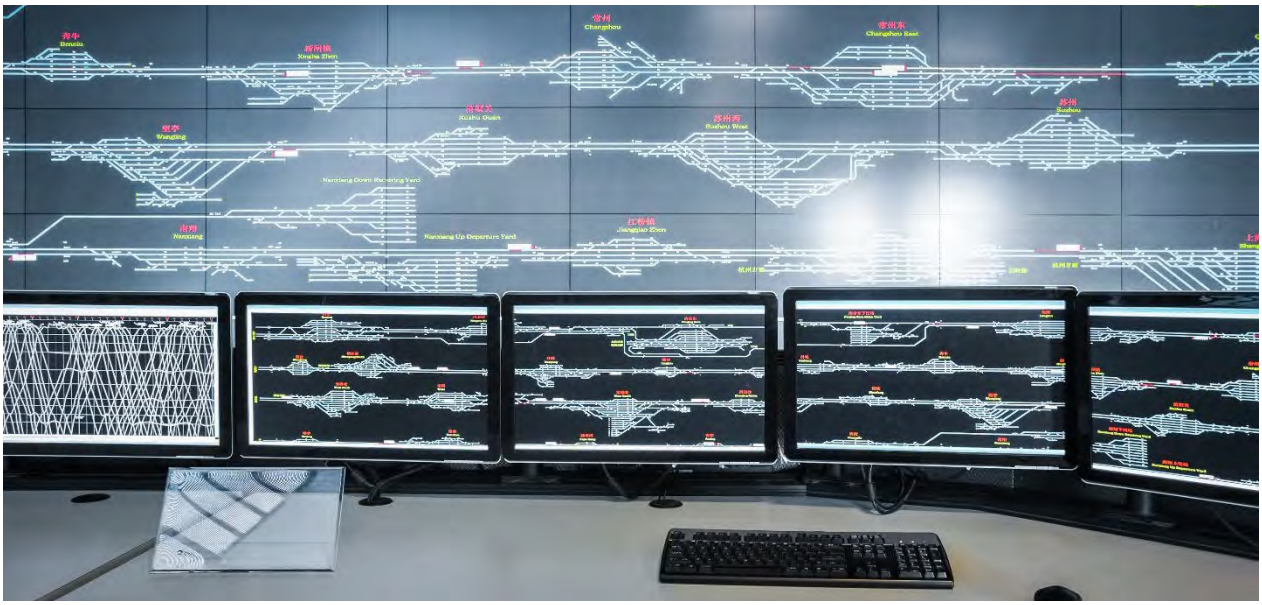
## 4.1 TRANSPORT DEMAND SIMULATIONS

In order to understand whether the concept of demand-responsive transport (DRT) is applicable to the study area, transport demand simulations were undertaken. There is currently limited transport available to residents of Phillip Island and San Remo for access to services, jobs and other day-to-day activities. The only transport services available focus on connecting residents to the mainland, as well as for onward travel using various regional services. Similarly, tourists do not have a simple and user-friendly transport option for exploring the Island, and instead rely heavily on car travel or paid transport offered for specific events (e.g., Moto GP) or other purposes (tourists arriving on cruise ships). Therefore, the simulations undertaken explored whether a DRT service could improve the current transport options in the study area. In addition, this analysis explored how such a service would work, including its attractiveness and usability for tourists and residents alike.

### 4.1.1 SIMULATION SCENARIOS

The rate at which both domestic and international tourism will recover is difficult to predict, whilst the COVID-19 pandemic is still affecting numerous countries worldwide. In the immediate future, if the pandemic can be reasonably contained and managed across Victoria and Australia, it is possible that a gradual return of domestic tourism will occur. The outlook for international tourism is even less certain. However, until visitor numbers and the growth in tourism return to pre-pandemic levels, any transport service may not be fully viable servicing tourists alone. A transport solution may have to, at least in the initial implementation phase, partly rely on servicing a range of complementary local community transport demands. Within this context, this study set out to explore the feasibility of two scenarios:

- Stabilisation Scenario: conditions likely until mid to late 2021 with COVID-19 stabilisation (with the potential for permanent/intermittent travel restrictions) and moderate levels of, primarily, domestic tourism
- Progressive Scenario: longer term conditions characterised by a progressive return to pre-COVID-19 patterns with stronger return of both domestic and international tourism



### 4.1.2 BASELINE DATA

Table 4 shows the baseline data points used to estimate patronage levels for the two scenarios.

**Table 4 Data Inputs**

| Baseline Data | Assumptions |
|---|---|
| **Employment (residents living & working in study area)** | 1,710 |
| **Target percentage for local uptake** | 30% |
| **Target percentage for tourist uptake** | 20% of pre-COVID numbers |
| **Patronage targets**<br>**(Keoride service in Sydney was used as a reference, being the most successful DRT system in Australia, servicing 800 passengers/day with 10 buses)** | • Midnight to 7am = 4% of daily work trips<br>• 7am to 9am = 12% of work trips (6% per hour)<br>• 9am to 4pm = 56% of work trips (8% per hour)<br>• 4pm to 6pm = 12% of work trips (6% per hour)<br>• 6pm to 8pm = 10% of work trips (5% per hour)<br>• 8pm to midnight = 6% of work trips |

Based on the specific geographic and demographic conditions of Phillip Island and San Remo, as well as the focus on providing a transport system for visitors and locals, the door-to-door- and hub-to-hub services are the most applicable. In order to maximise convenience for both tourists and locals, as well as to provide greater flexibility and achieve higher levels of efficiency, a combination of the two service types is proposed, namely a “door-to-hub” service.

Under this arrangement, passengers are able to book a trip from anywhere within the service zone and travel to a set of pre-defined destinations (hubs). This combination service is ideally suited for a visitor and local community transport service for Phillip Island and San Remo, as it will provide convenience for customers and leverage the relatively small number of likely destinations.

### 4.1.3 SERVICE ZONE

The service zone (or area within which a booking can be made is shown in Figure 14). A number of locations were chosen as representative of likely destinations for both employment and tourism. Each scenario was assigned different probabilities of the destinations being chosen by passengers in order to represent a likely pattern of behaviour by users of the service.


**Figure 14: Service Zone**

### 4.1.4 SIMULATION PARAMETERS

The following are the key parameters adopted in the simulation:

- 20 hubs within the service zone and distributed to reflect likely movement patterns
- Residential population distribution based on ABS
- Trip requests distributed to addresses in line with population breakdown by Suburb and by SA1 block
- Each of the 2 scenarios was fed different probabilities of the destinations being chosen by passengers
- Represent likely pattern of behaviour by users of the service

### 4.1.5 VEHICLE NUMBERS AND CAPACITY

Based on a review of DRT services of similar size and scope, cost optimisation was undertaken for buses of up to 15 passengers, as follows:

- Scenario 1 – 2-3 buses
- Scenario 2 – 3-6 buses

### 4.1.6 DISTRIBUTION OF TRIP REQUESTS

The trip request origin locations (leave from) were randomly generated and weighted by population distribution (see Figure 15):

- Scenario 1 – locations within Cowes were collectively weighted to be destinations for 60% of all booking requests. Collectively, the employment areas centred along Thompson Avenue were weighted to be destinations for 40% of all booking requests. Other tourist-centric destinations were weighted low, collectively receiving 8% trip requests.
- Scenario 2 – weightings were used to reflect an increase in trips to tourist-centric locations, while still maintaining use among resident-centric and mixed-use hubs. Locations within Cowes were collectively weighted to be destinations for 45% of all booking requests, with the "employment" hubs receiving 40% weighting. Seven new tourist-specific hubs were introduced, which were collectively weighted to receive 32% of all destination requests. The weightings of the remaining hubs were modified to reflect a higher overall patronage of tourists.

For each scenario, a range of passenger numbers, vehicle numbers and booking profiles were simulated to evaluate:

- Target market
- Proportion of trip requests accepted/rejected (function of capacity, trip requests, time of request & origin/destination)
- Peak & off-peak trips
- Times and origin-destination of accepted and rejected trips

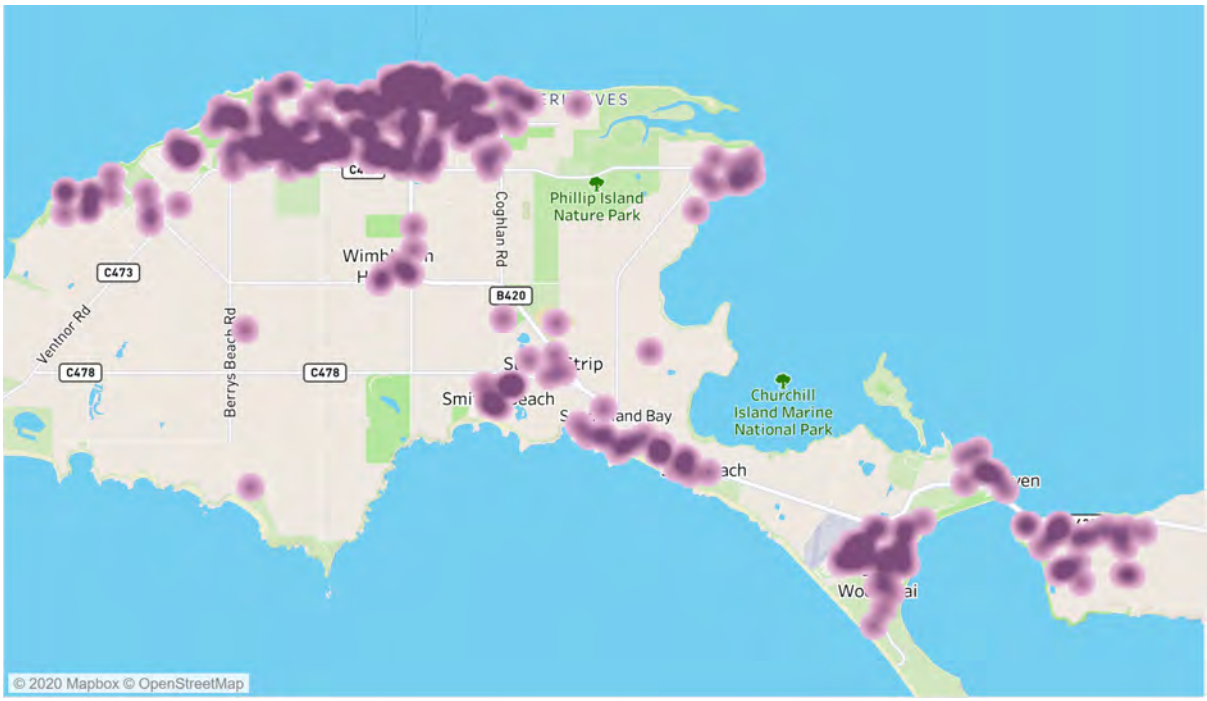



**Figure 15: Location of trip request origin locations (leave from)**

## 4.2 RESULTS

The data was analysed using Liftango's proprietary simulation software. Given the absence of reliable public transport patronage data, the patronage expectations represent an informed estimate. A number of permutations were simulated to expand the reach of these estimations.

One of the most important aspects to determine the potential success of a DRT system under consideration is the level of acceptance of trip requests. Generally, a trip request is accepted if the bus has available capacity, the locations of other booking origins/destinations are similar or convenient, and the times of other bookings are also similar or convenient. Conversely, a trip request would be rejected due to the bus being at capacity, or the locations of the buses at the requested trip time being unable to serve the combination of origin/destination and time.

The accepted and rejected ride rate is a function of the number of vehicles, the capacity of those vehicles and the volume of trip requests. In mathematical terms, the higher the number of vehicles and the lower the volume of trip requests, the higher the likelihood of trips being accepted. The optimisation balances the desirability of higher trip request acceptance levels with the costs of providing more vehicles.

### 4.2.1 SCENARIO 1

In this scenario, the majority of users of the service are expected to be residents of the study area who wish to travel to/from work and access other destinations within the community. A low level of tourism usage from domestic visitors is anticipated. The simulations with two buses produce rejection rates of around 14% (even at low levels of trip requests per day). Since the desired level of acceptance is 90% or higher, the modelled rejection rate with two buses results in an unacceptable level of service. The addition of an extra bus results in improved performance across all levels of patronage. When simulating Scenario 1 with three buses, the following results were obtained (see Figure 16):

- 50 trip requests/day – 92% accepted
- 100 trip requests/day – 83% accepted
- 170 trip requests/day – 76% accepted

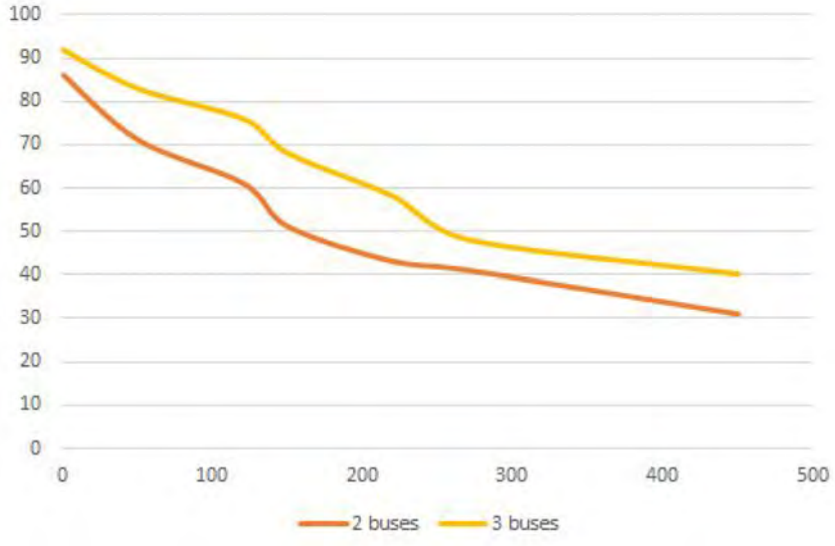



**Figure 16: Ride acceptance rates for two or three buses (Scenario 1)**

The addition of the third bus results in a significant improvement of the accepted/rejected ride ratio at low to medium patronage levels. Logically, the addition of further buses will continue to result in improvements to acceptance rates. It is theoretically possible to continue this analysis until we reach the optimal conditions resulting in extremely low rejection rates at any level of patronage.

However, there are three main factors to consider at this stage:

- Cost of additional buses
- Reasons for trips being rejected
- Service modifications that will increase acceptance rates without increasing the number of buses required

To determine the reason for the high rate of rides being rejected, an evaluation of where and when rides are being requested was undertaken. From a time perspective, rides were found to be rejected primarily during the busiest peak periods.

From a spatial perspective, the acceptance analysis showed that:

- 75% of accepted trips were less than 9 kilometres in length
- 75% of rejected trips were more than 7 kilometres in length

Overall, trips of less than 8 kilometres in length have a high probability of being accepted, regardless of the time of the day. In addition, there is a relatively higher booking acceptance for longer trips off-peak.

The analysis showed that under Scenario 1, the concept of a DRT service is feasible at some levels of patronage. Particularly for people moving in and around Cowes, passenger experience is projected to be positive, with high booking acceptance rates and short trip durations. For longer journeys, key performance metrics were worse, with a correlation between travel distance, high level peak demand and failed trips. Additional analysis can be undertaken to determine success thresholds for the service, including aspect such as:

- Modify “pickup anywhere” to “pickup at meeting points” - this approach will create virtual bus stops where people travelling on similar journeys (time and destination) are grouped together. This would reduce the total number of pickups and allow for other trips to be accepted
- Modify “pickup anywhere” to “pickup at fixed hubs” - this approach would further limit the number of pickup choices, e.g., Rhyll would have only one pickup location, which would expand the grouping effect of the previous modification

Overall, the DRT simulations show that a large number of trips from a wide variety of locations around the Island can be served. Since the DRT buses can go “anywhere” on the Island, the system can cover most of the population. With a system of three buses undertaking 1,500 monthly trips, the acceptance rate would be 92%. If 3,000 trips were undertaken each month, the acceptance rate would be 83% (this is below the desired 90% acceptance threshold).

In contrast, a fixed route and fixed timetable service with three buses could cover only a small portion of the Island and would be highly unlikely to deliver same level of patronage and convenience.

### 4.2.2 SCENARIO 2

In this scenario, a marked increase in demand for the DRT service is expected, reflecting a return to higher levels of both domestic and international tourism in the study area. The trip profiles used reflected a distribution skewed more towards tourist attractions, while maintaining popularity of the primary residential areas.

To reflect the expected increase in patronage, and the skew towards geographically disparate destinations (e.g., Penguin Parade), the effect of 3-6 buses was simulated in this scenario. Using three buses provides a good level of trip acceptance only at low patronage levels; trip acceptance drops sharply in line with increased patronage. In comparison, the addition of more buses results in improved performance across all levels of patronage. When simulating Scenario 2 with six buses, the following results were obtained (see Figure 17):

- 50 trip requests/day – 100% accepted
- 170 trip requests/day – 94% accepted
- 300 trip requests/day – 71% accepted

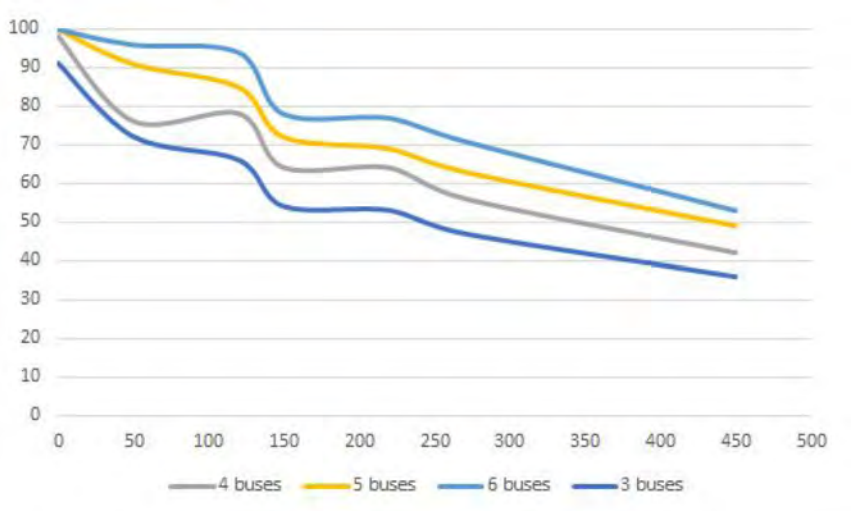



**Figure 17: Ride acceptance rates for three to six buses (Scenario 2)**

Under Scenario 2 there is a skew towards tourist destinations. As such, it is important to consider the locations where trips are being accepted and rejected. In a real-world situation, we would expect tourists to be staying in the various accommodations around the study area and requesting trips into town centres and tourist destinations. Key tourist destinations (e.g., Penguin Parade/Nobbies) are located away from the population centres. This geographical characteristic presents a challenge for a DRT service, which relies to a degree on geographic convergence to provide a high level of trip acceptance. More specifically, a review of the geography of Phillip Island provides interesting indicators to understand the success rate of bookings in Scenario 2:

- The main population centre of Cowes is to one side of the zone
- The secondary population centre of Newhaven, Cape Woolamai and Surf Beach is at a zone extremity, with a single access road
- Penguin Parade/Nobbies is at the western end of the zone, with few other likely destinations nearby

These characteristics, whereby tourist attractions and population centres are geographically dispersed, create a low geographical convergence factor. More specifically, the acceptance analysis showed that, since some of the key tourist destinations are far from population centres, there would be a high number of requests for these locations but with low acceptance rates (given the inefficiencies in the system as a result of the long distances that would need to be travelled). Conversely, higher acceptance rates were identified for areas where there is geographic convergence of residential and tourism destinations.

It is unlikely that changing "pickup anywhere" to "pickup at meeting points or fixed hubs" (as in Scenario 1) will result in significant level of service improvements (given the geographic divergence of locations of interest). To deliver a high-quality user experience for tourists and reduce the high rejection rates for trips to tourist destinations at the end of zones (such as the Penguin Parade/Nobbies), the following measures could be implemented:

- Encouraging advanced bookings – when tourists can book well in advance, planning software can lock these trips in, resulting in other trips to Penguin Parade/Nobbies having a much higher likelihood of acceptance. This approach has been proven to be effective in other tourist settings.
- Introduce a flexible peak fleet – for periods of high demand (either during the day or on weekends) additional vehicles may be made available to assist with the peak. This may be Council fleet vehicles, or potentially vehicle(s) belonging to community groups, under a suitable arrangement.
- Integrate both fixed and demand-responsive services – local government may consider providing a fixed timetable service to Penguin Parade only at peak times, which would function alongside DRT services. For example, fixed timetable shuttles could leave Cowes for Penguin Parade at fixed times during the late afternoon period. DRT shuttles could act as a feeder service, bringing people from around the study area to connect with the shuttle.
- Factor in ramped patronage – given the current public health situation, there is an opportunity to experiment with a DRT service to gain deeper understanding of low tourism dynamics.
- Start with a smaller zone – an initial rollout of a DRT service could be centred on the resident population and focussed on the northern and south eastern population centres. This would limit the maximum trip length, create better convergence, reduce the number of buses required to meet requirements and provide a learning opportunity to assess uptake and demand, before expanding the service to the whole study area and marketing towards tourists.

## 4.3 SUMMARY OF SCENARIO ANALYSIS

A DRT solution is feasible, cost effective and has value for:

- Residents – work & leisure
- Tourists – access destinations

The unique geography and attractions in the study area present challenges and opportunities. Innovative models should be further considered for implementation, including a system that provides:

- 'Pure' DRT services for population centres and nearby attractions
- A mix of a DRT system and fixed public transport services for attractions farther from population centres (such as the Penguin Parade/Nobbies)

## 4.4 FRAMEWORK FOR ESTABLISHING COMMERCIAL PASSENGER VEHICLE SERVICES

Commercial passenger vehicle industry reforms were recently delivered in Victoria through two sets of legislative changes:

- The Commercial Passenger Vehicle Industry Bill 2017 passed the Victorian Parliament on 10 August 2017.
- The Commercial Passenger Vehicle Industry Amendment (including further reforms) Bill 2017 passed the Victorian Parliament on 12 December 2017.

The reforms have been progressively implemented from 2017. The new regulations have been introduced since July 2018 to better protect passengers and drivers and reduce costs for industry. These new arrangements were introduced across Victoria as part of a broad review of regulations affecting passenger transport services. Since 2018, licensing has been replaced with a simple vehicle registration system that enables low-cost entry / exit for operators in the passenger vehicle market:

- All commercial passenger vehicles can operate across Victoria.
- Taxis were classified as commercial passenger vehicles that provide booked and unbooked services.
- Hire cars were re-classified as commercial passenger vehicles that provide booked services only.
- Booked services are trips booked via an application, or over the phone or website.
- Unbooked services are trips hailed from the street, hired from a recognised taxi rank or trips that have not been booked via an application, over the phone or website.
- All booked commercial passenger vehicle fares are unregulated and maximum fare rates do not apply
- Unbooked commercial passenger vehicles fare rates are unregulated in the country and regional zones and a maximum fare rate does not apply.
- Unbooked commercial passenger vehicles fare rates have been regulated in the metropolitan, urban and large regional zones. The Essential Services Commission sets the maximum fare rate.

Within the context of these recent regulatory changes, the Victoria Department of Transport has concluded that commercial passenger vehicle services provide flexible, convenient options for people to travel within Victoria using taxi, hire car and ride-share services. The deregulation of the taxi industry has enabled the State to embrace the rideshare economy and focus on how commercial passenger vehicle transport can support more choice in growing suburbs and regions.

The Victoria Department of Transport has determined that the recent reforms to industry and the creation of Commercial Passenger Vehicles Victoria have led to reduced fares, shorter waiting times and more wheelchair accessible vehicles. In addition, there has been a significant increase in the number of accredited commercial passenger vehicle services available in Victoria. Aside from providing greater choice for passengers, this new marketplace is expected to promote safe, accessible, customer-focussed and competitive commercial passenger vehicle services throughout the State.

In summary, because of these recent reforms, any commercial passenger vehicle operator in Victoria is able to set up booked services on Phillip Island and charge fees at levels they deem appropriate. Despite the ease by which operators are able to set up on Phillip Island, the current scarcity of such operators may reflect the lack of awareness of the potential market opportunities in this region and, possibly, the perceived low profitability associated with offering commercial passenger vehicle services on Phillip Island.

This PIVETNS study has identified that it is feasible, in principle, to establish a permanent visitor and local community transport service for Phillip Island. The service that has been deemed to be feasible through this study is a Demand Responsive Transport (DRT) system targeting both visitors and the permanent local population. This type of service is fully aligned and consistent with the aims of the recent reforms, namely enabling competition, promoting accessibility, expanding the emphasis and use of new technologies and increasing options and quality of service for passengers.

Accordingly, any strategy to attract a greater number of commercial passenger vehicle operators to Phillip Island should concurrently:

- Enhance awareness of the visitor and local community transport service opportunities
- Provide mechanisms that increase the attractiveness of operating commercial passenger vehicle services on the island

In the fullness of time, actions should be taken to encourage commercial passenger vehicle operators to enhance the services on offer, through adoption of:

- Flexible door-to-door services
- Clean vehicles
- DDA compliant vehicles and infrastructure
- Vehicles with the ability to carry surfboards and bicycles to cater for the needs of both visitors and residents

The recent reforms to the operation of commercial passenger vehicles in Victoria, whilst significantly simplifying the process and costs for entering/exiting the market and setting fares for booked services, have resulted in operators being fully responsible for covering their own capital investment and operational costs. These recent reforms are promoting private sector competition and do not envisage formal government subsidies or financial support for commercial passenger vehicles services in Victoria.

## 4.5 IMPLEMENTATION PLAN

Under the recent Victorian Government reforms discussed in the previous section, commercial passenger vehicle operators enjoy unhindered and equal access across Victoria. More specifically, no limitations have been set (geographically or operationally) on where, when and how commercial passenger vehicle services can be provided. In summary, there is little (if any barrier) to operators of commercial vehicles establishing services in Phillip Island.

Given that the recent reforms have made it easier for operators of commercial passenger vehicles to enter and exit the passenger transport market at minimal cost and risk, this implementation plan identifies actions to encourage a more active presence by commercial passenger vehicle operators on Phillip Island. Through the identification and delivery of those actions, the implementation plan also, progressively, aims to provide the appropriate operational environment to achieve the study's preferred outcomes, namely:

- Flexible door-to-door services
- Clean vehicles
- DDA compliant vehicles and infrastructure
- Vehicles with the ability to carry surfboards and bicycles to cater for the needs of both visitors and residents

Under the recent Government reforms, the provision of those features cannot be mandated and can pose a considerable additional cost to an operator wishing to provide services on Phillip Island. As such, incentives or other mechanisms should be considered to support operators that meet certain requirements (e.g., clean vehicles and DDA compliance).

A three-step implementation plan is provided in Table 5.

**Table 5: Implementation Plan**

| Action | Description | Responsibility | Timing |
|---|---|---|---|
| **Identification of potential project sponsors and incentives for operators** | • Establish a working committee to identify all possible public and private agencies (including local businesses and institutions) that may be willing to participate in promoting the new visitor and local community transport service<br>• Coordinate recruitment of public and private agencies<br>• Define potential incentives for operators. Examples may include premium parking access, discounts for attractions, sponsorship and advertising, and technology support. For example, several operators (e.g., Uber and Lyft) have already deployed smartphone-based booking systems, whereas others may need to build their own solutions. A few technology service providers are known to offer booking software services. It is understood that the initial setup costs would be in the order of $80,000 to $100,000 per annum. | Collaborative effort between Department of Transport and Bass Coast Shire Council, with support from Destination Phillip Island and Phillip Island Nature Parks | 0-6 months |
| **Promote market opportunity for the establishment of a visitor and local community transport service** | • Education and advocacy for new transport service<br>• Increase awareness within the commercial passenger vehicle industry and other stakeholders of the visitor and local community transport opportunity on Phillip Island<br>• Highlight desired future features of the visitor and local community transport service as identified in this study<br>• Highlight benefits to both operators and customers | Collaborative effort between Department of Transport and Bass Coast Shire Council, with support from Destination Phillip Island and Phillip Island Nature Parks | 6-12 months |
| **Implement first round of incentives to attract commercial passenger vehicle operators to Phillip Island** | • Incentives provided unconditionally to all commercial passenger vehicle operators offering services for tourists and the local community, irrespective of vehicle types, fare structures and operational aspects | Collaborative effort between Department of Transport and Bass Coast Shire Council, with support from Destination Phillip Island and Phillip Island Nature Parks | 12-24 months |
| **Implement ongoing incentives to promote a shift to desired services** | • Ongoing incentives only provided to operators who incorporate the preferred features for their transport services, namely: flexible door-to-door services, clean vehicles, DDA compliant vehicles and infrastructure, and vehicles with the ability to carry surfboards and bicycles to cater for the needs of both visitors and residents<br>The working committee will determine what combination, number and type of features will attract what level of incentives. | Collaborative effort between Department of Transport and Bass Coast Shire Council, with support from Destination Phillip Island and Phillip Island Nature Parks | 24 months onwards |

## APPENDIX A –DEMOGRAPHIC ANALYSIS

Bass Coast Shire is located in south-eastern Victoria, about 130 kilometres southeast of Melbourne. The 2016 Census found that the usual resident population of Bass Coast Shire in 2016 was 32,804. Of those, 11,581 resided on Phillip Island and San Remo; namely 35% of the Shire's total. Phillip Island and San Remo comprise 27 SA1 blocks (the smallest statistical area level used by the Census)[6] (see Figure 18).

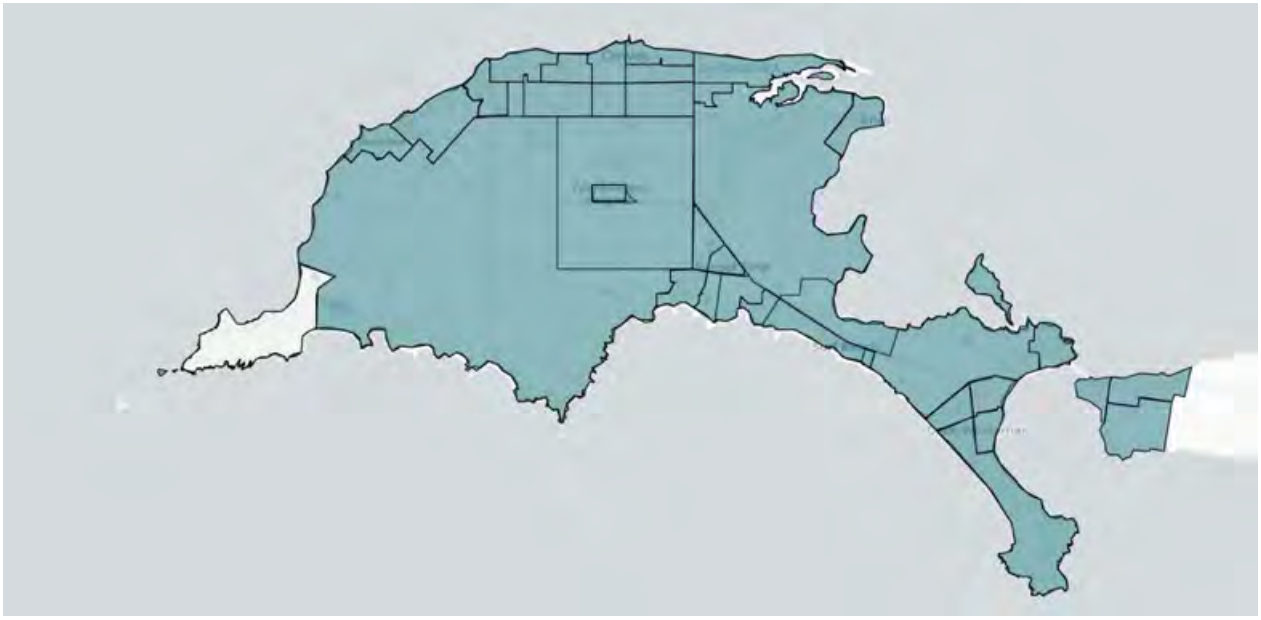


**Figure 18: Area covered by the study – Census SA1 Blocks**

These blocks are contained within fourteen suburbs: Cowes, Cape Woolamai, San Remo, Ventnor, Surf Beach, Rhyll, Newhaven, Smiths Beach, Silverleaves, Churchill Island, Sunset Strip, Wimbledon Heights, Sunderland Bay, Summerlands (see Figure 19), which are within the Bass Coast area (SA2[7]).

[6] Statistical Areas Level 1 (SA1) are geographical areas built from whole Mesh Blocks.

[7] Statistical Areas Level 2 (SA2) are medium-sized general-purpose areas built up from whole Statistical Areas Level 1. Their purpose is to represent a community that interacts together socially and economically.

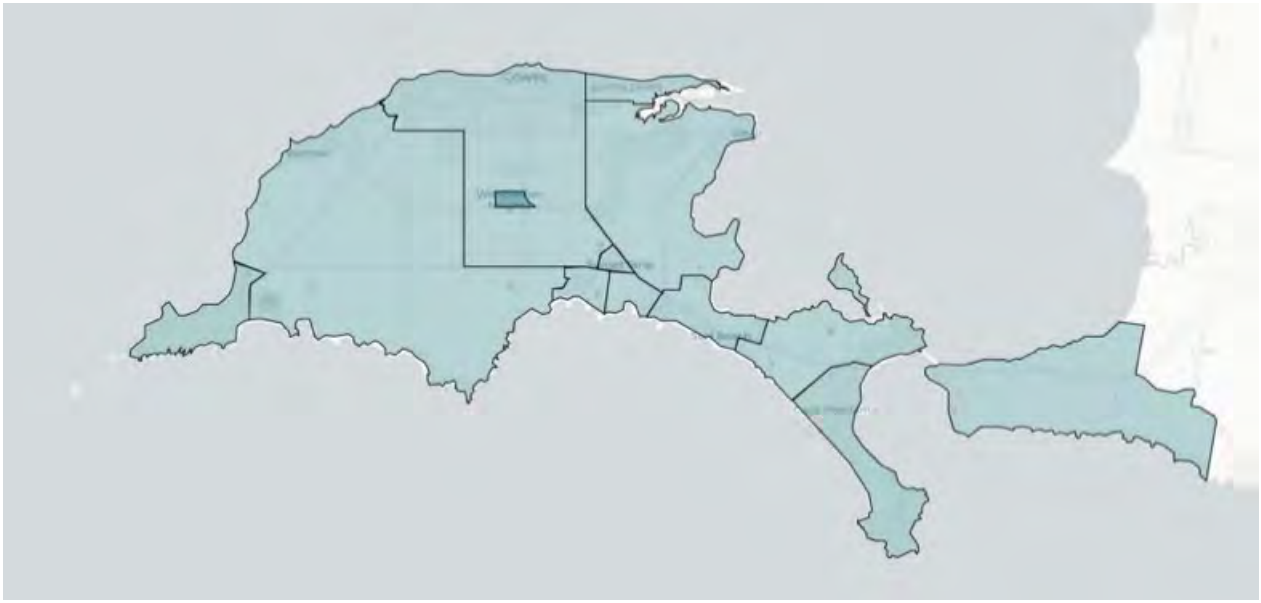


**Figure 19: Area covered by the study – Suburbs**

Table 6 shows the population distribution within the fourteen suburbs.

**Table 6: Population of area covered by study – Breakdown by Suburb**

| Suburb | Population (2020 estimate) | Proportion (Census 2016) | Cumulative proportion (Census 2016) |
|---|---|---|---|
| **Cowes** | 5,979 | 48% | 48% |
| **Cape Woolamai** | 1,744 | 14% | 62% |
| **San Remo** | 1,246 | 10% | 73% |
| **Ventnor** | 997 | 8% | 81% |
| **Surf Beach** | 872 | 7% | 87% |
| **Rhyll** | 747 | 6% | 93% |
| **Newhaven** | 374 | 3% | 96% |
| **Silverleaves** | 249 | 2% | 98% |
| **Smiths Beach** | 249 | 2% | 100% |
| **Churchill Island** | 0 | 0% | - |
| **Sunset Strip** | 0 | 0% | - |
| **Wimbledon Heights** | 0 | 0% | - |
| **Sunderland Bay** | 0 | 0% | - |
| **Summerlands** | 0 | 0% | - |
| **Total** | 12,457 | 100% | - |

As highlighted in Table 6, the estimated 2020 population is 12,457. The 2020 estimates were calculated by assuming that the proportion of people living in the different suburbs (relative to the total for Phillip Island and San Remo) has not changed from that captured in the 2016 Census. The geographic distribution of the cumulative population proportions is represented in Figure 20.

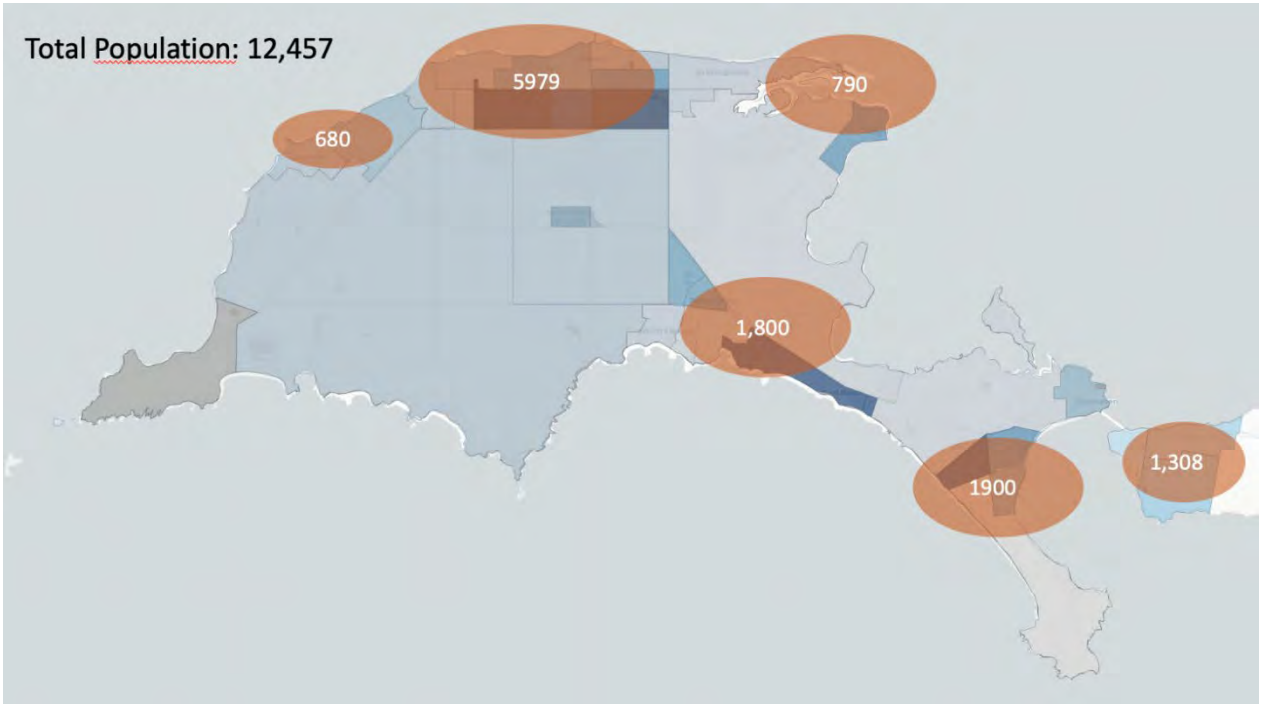



**Figure 20: SA1 blocks with the greatest population**

Table 7 shows the proportion of people living within each of the 27 SA1 blocks, as well as the cumulative proportion (by ordering the blocks in descending order from the one with the highest number of residents to the one with the lowest).

**Table 7: Population by SA1**

| Suburb | SA1 | Proportion (Census 2016) | Cumulative proportion (Census 2016) |
|---|---|---|---|
| **Cowes** | 2109107 | 8% | 8% |
| **Cowes** | 2109119 | 7% | 15% |
| **Surf Beach** | 2109108 | 7% | 22% |
| **Cape Woolamai** | 2109104 | 7% | 28% |
| **Cowes** | 2109120 | 6% | 35% |
| **Cape Woolamai** | 2109102 | 4% | 39% |
| **Cowes** | 2109101 | 4% | 44% |
| **Rhyll** | 2109115 | 4% | 48% |
| **Cowes** | 2109109 | 4% | 52% |
| **San Remo** | 2109336 | 4% | 56% |
| **Cowes** | 2109122 | 4% | 59% |
| **Cowes** | 2109121 | 4% | 63% |
| **San Remo** | 2109337 | 3% | 66% |
| **Cape Woolamai** | 2109103 | 3% | 70% |
| **Newhaven** | 2109116 | 3% | 73% |
| **Cowes** | 2109112 | 3% | 76% |
| **San Remo** | 2109328 | 3% | 79% |
| **Ventnor** | 2109123 | 3% | 82% |
| **Cowes** | 2109106 | 3% | 85% |
| **Cowes** | 2109105 | 3% | 87% |
| **Cowes** | 2109117 | 3% | 90% |
| **Ventnor** | 2109113 | 2% | 92% |
| **Ventnor** | 2109118 | 2% | 95% |
| **Smiths Beach** | 2109111 | 2% | 97% |
| **Silverleaves** | 2109110 | 2% | 99% |
| **Rhyll** | 2109114 | 1% | 100% |
| **Cape Woolamai** | 2109124 | 0% | 100% |

Analysis of this data reveals that 70% of the population in the study area live in 14 SA1 blocks in five suburbs: Cape Woolamai, Cowes, Rhyll, San Remo and Surf Beach (see Figure 21).

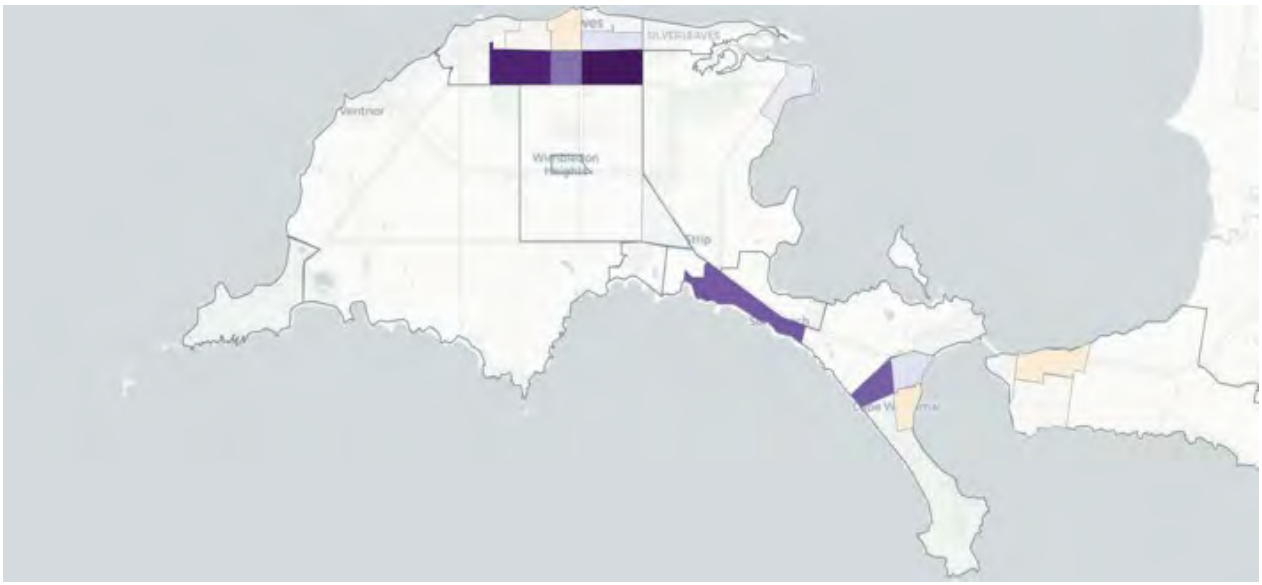


**Figure 21: Geographic Population Distribution – Cumulative proportion 70%**

## EMPLOYMENT

### LOCAL EMPLOYMENT

An employment analysis was undertaken to determine the number of people who 'live and work' within the study area – these are the people who would be potentially attracted to switch from car to visitor and local community transport for their journey to/from work. The total employment in Bass Coast is 10,254 jobs. A total of 8,786 people live and work within Bass Coast (see Figure 22).


**Figure 22: Employment in Bass Coast**

Within the 27 SA1 blocks, 4,334 residents are employed and 3,412 (or 79% of those employed) work within the Bass Coast area. However, the Census does not provide enough spatial resolution to determine the number of people who live and work within the 27 SA1 blocks. Fortunately, given the geographic characteristics of the study area, it is possible to use the Census data on distance travelled to work to estimate the number of people who do not go beyond the 'eastern end' of San Remo.

Road network characteristics (Figure 23) and Census data on distance travelled to work by SA1 block was used to undertake a comprehensive modelling exercise to determine the number of people (by SA1 block) that live within the study area and work in locations west of the eastern end of San Remo (shown in Table 8).

**Figure 23: Existing Road Network Map**

### Table 8: Distances between Residential and Employment Clusters

| Suburb | SA1 Block | Distance (kilometres) to eastern end of San Remo | Persons |
|---|---|---|---|
| **Ventnor** | 2109113 | 18.975 | 57 |
| **Ventnor** | 2109118 | 22.276 | 53 |
| **Ventnor** | 2109123 | 21.543 | 77 |
| **San Remo** | 2109328 | 22.276 | 42 |
| **San Remo** | 2109336 | 22.276 | 32 |
| **San Remo** | 2109337 | 22.276 | 28 |
| **Smiths Beach** | 2109111 | 13.452 | 37 |
| **Cape Woolamai** | 2109102 | 5.515 | 36 |
| **Cape Woolamai** | 2109103 | 6.967 | 40 |
| **Cape Woolamai** | 2109104 | 6.503 | 71 |
| **Cape Woolamai** | 2109124 | 8.258 | 0 |
| **Silverleaves** | 2109110 | 18.343 | 26 |
| **Surf Beach** | 2109108 | 9.99 | 135 |
| **Rhyll** | 2109114 | 12.627 | 23 |
| **Rhyll** | 2109115 | 15.847 | 120 |
| **Newhaven** | 2109116 | 3.459 | 25 |
| **Cowes** | 2109101 | 17.605 | 23 |
| **Cowes** | 2109105 | 20.967 | 44 |
| **Cowes** | 2109106 | 18.138 | 55 |
| **Cowes** | 2109107 | 17.797 | 159 |
| **Cowes** | 2109109 | 12.586 | 103 |
| **Cowes** | 2109112 | 16.064 | 108 |
| **Cowes** | 2109117 | 21.116 | 71 |
| **Cowes** | 2109119 | 19.917 | 144 |
| **Cowes** | 2109120 | 18.864 | 86 |
| **Cowes** | 2109121 | 18.868 | 51 |
| **Cowes** | 2109122 | 19.731 | 55 |

A total of 1,710 people were identified as living and working within the study area. Figure 24 shows the geographic distribution of these people.

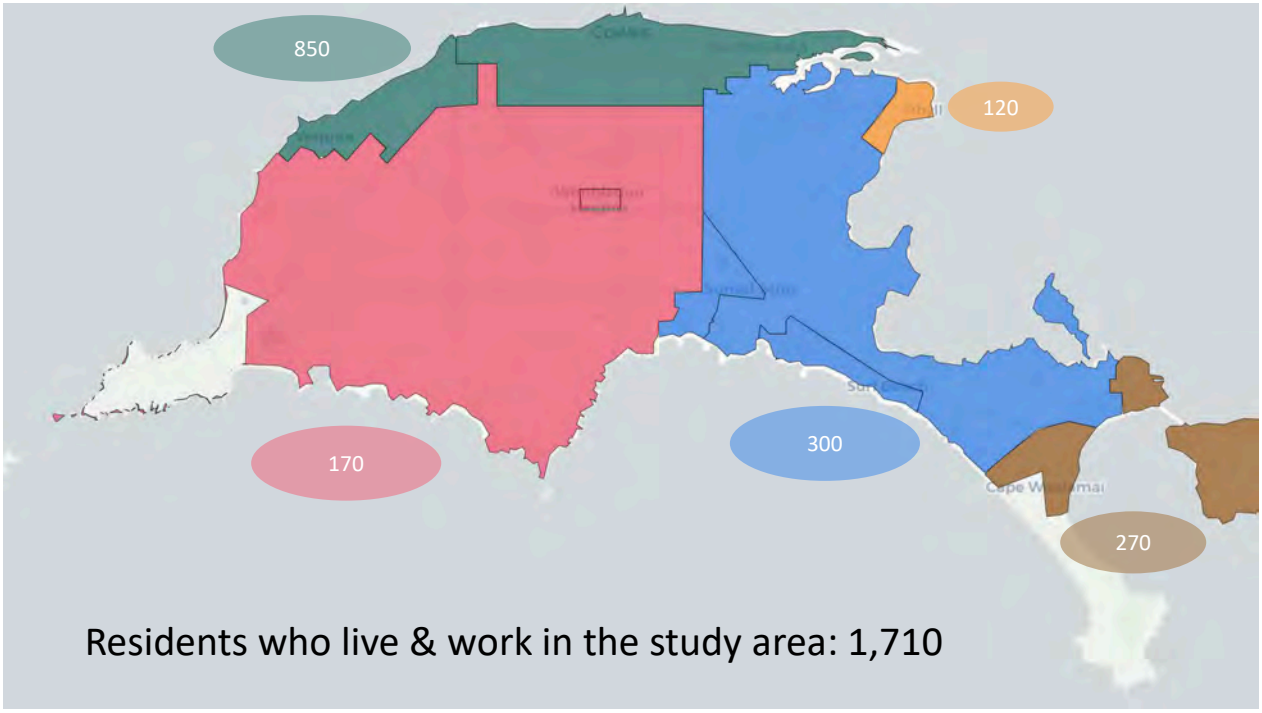



**Figure 24: Distribution of People Who Live and Work in the Study Area**

## EMPLOYMENT IN TOURISM-RELATED SECTORS

It is also possible to estimate (out of the total of 1,710 people who were identified as living and working within the study area) the number of those who are most likely employed in tourism-related sectors. These are the people who nominated "Accommodation and Food Services" and "Recreation Services" as their employment sectors in the latest Census. The total involved in these tourism-related sectors was identified as 41% of those living and working in the study area (703 out of 1,710), highlighting the important role played by the visitor economy in Phillip Island (see Figure 25).

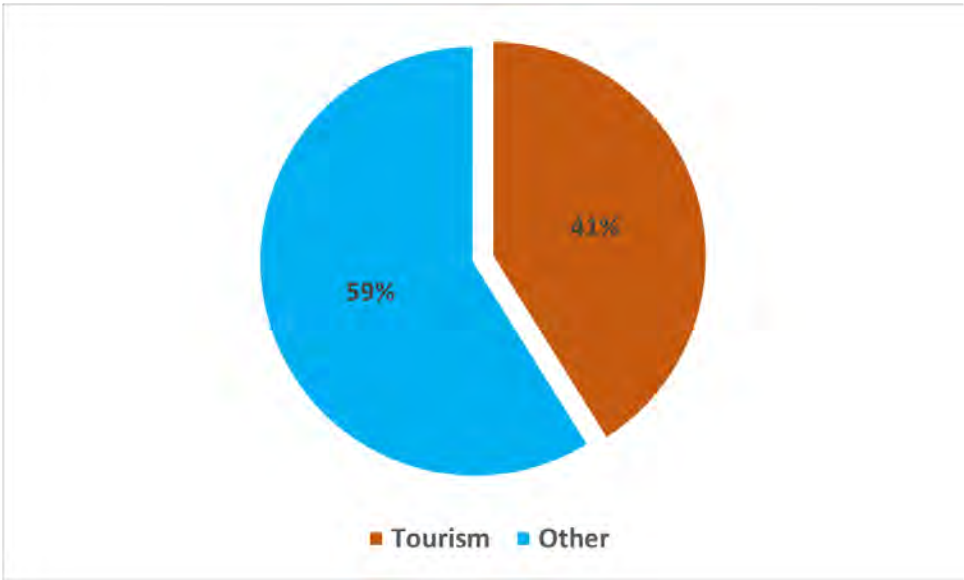



**Figure 25: Proportion of Workers in Tourism and Other Sectors (living and working in study area)**

The majority of people employed in tourism-related sectors relies on private transport to access their jobs. This is shown in Figure 26 (for those employed in "Accommodation and Food Services") and Figure 27 (for those employed in "Recreation Services").

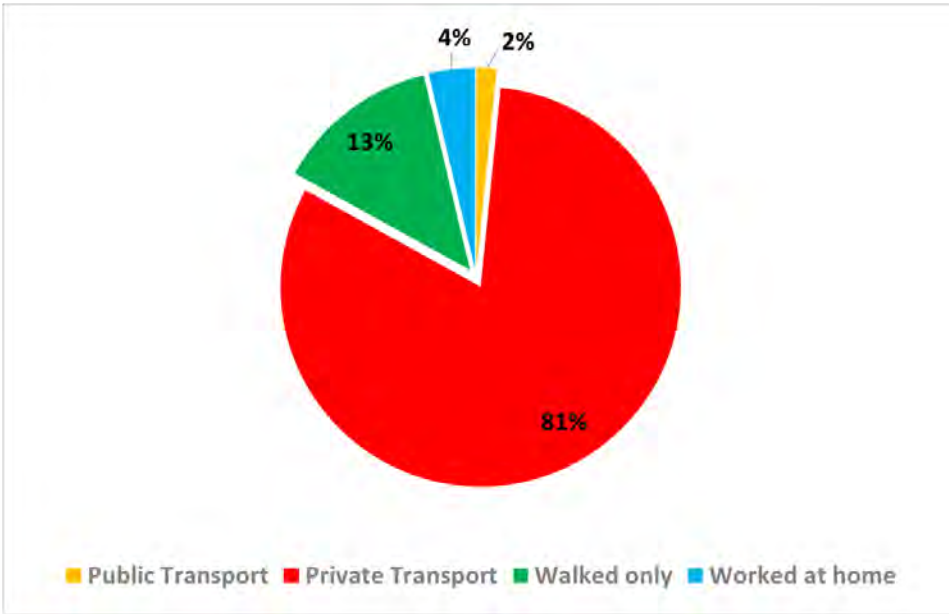



**Figure 26: Journey-to-Work Travel Mode for Workers in Accommodation and Food Services**

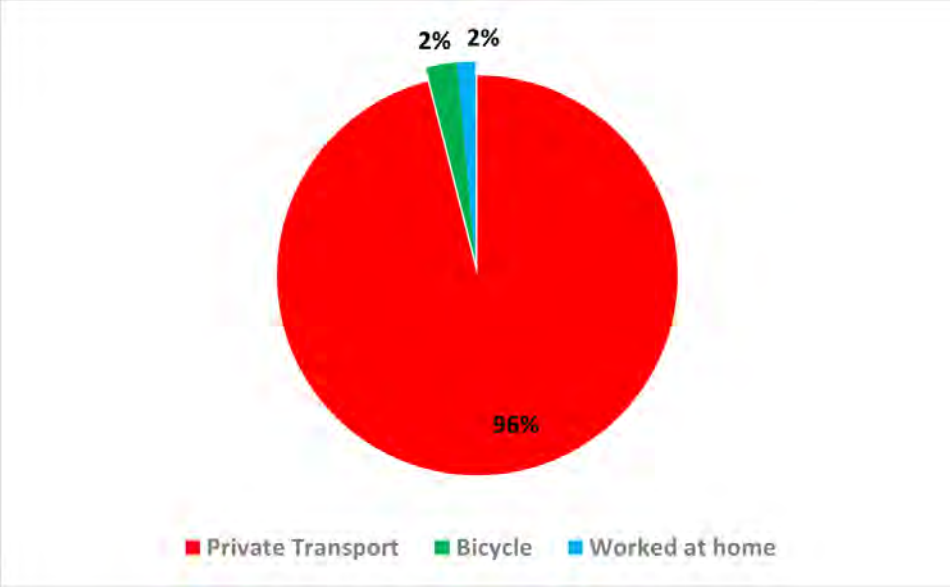



**Figure 27: Journey-to-Work Travel Mode for Workers in Recreation Services**

In addition to those "living and working within the study area" who are employed in the tourism sector there are also people from outside of Phillip Island who are employed in tourist-related activities. The Australian Government's Trade and Investment Commission (Austrade) releases – through "Tourism Research Australia" – annual Regional Tourism Satellite Accounts. In 2018-19, Austrade identified 4,489 jobs on Phillip Island's that are associated with tourism as itemised in Table 9. This represents almost half of the total employment in Bass Coast (10,254 jobs).

**Table 9: Employment on Phillip Island 2018-19 (Source Austrade)**

# PHILLIP ISLAND

**VICTORIA**

| Employment | 2018–19 NUMBERS |
|---|---|
| ***Tourism industries*** | |
| Accommodation | 807 |
| Cafes, restaurants and takeaway food services | 1,645 |
| Clubs, pubs, taverns and bars | 351 |
| Rail transport | 1 |
| Road transport and transport equipment rental | 105 |
| Air, water and other transport | 188 |
| Travel agency and tour operator services | 215 |
| Cultural services | 159 |
| Casinos and other gambling services | 6 |
| Other sports and recreation services | 149 |
| Retail trade | 566 |
| Education and training | 213 |
| All other industries | 83 |
| Total | 4,489 |