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DEPARTMENT OF STATE GROWTH

MARCH 2020

CONFIDENTIAL

Hobart City Deal: Southern Projects

Park-and-Ride Bus Service Model Report

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Hobart City Deal: Southern Projects
Park-and-Ride Bus Service Model Report

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EXECUTIVE SUMMARY

To be completed for Final Report.

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1 INTRODUCTION

1.1 PROJECT OVERVIEW AND OBJECTIVES

The Greater Hobart region's population and employment growth are putting increased pressure on its transport network. The growth of residential areas in Kingborough and the Huon Valley creates commuter pressures on the Southern Corridor (comprising Kingston, the Southern Outlet, and the Macquarie/Davey Street couplet) between Kingston and Hobart.

The Hobart City Deal Southern Projects (the Project) seeks to encourage modal shift in favour of public transport to address congestion and accessibility issues along the Southern Corridor. The Project is comprised of five sub-projects that together provide a comprehensive, multi-faceted approach:

- Sub-project 1: Southern Outlet Transit Lane – Concept design for a northbound transit lane on the Southern Outlet between Olinda Grove and Hobart/Macquarie Street. The lane will operate as a T3 lane for use by buses, private vehicles carrying three or more occupants, taxis, and emergency service vehicles.
- Sub-project 2: Macquarie/Davey Bus Priority – Concept design for bus priority measures on Macquarie and Davey Streets that considers how to optimise bus operations while managing impacts.
- Sub-project 3: Kingborough Park-and-Ride – Concept design for park-and-ride facilities at two locations in the Kingborough municipality. The scope of work includes selecting two locations and developing any specific attributes of the facilities in collaboration with stakeholders. At the time of this report, two sites had been chosen – Browns Road, Firthside and Huntingfield terminus.
- Sub-project 4: Bus service plan for Southern Corridor – Developing a park-and-ride bus service model to support the two Kingborough park-and-ride facilities (sub-project 3), the Southern Outlet transit lane (sub-project 1), and the bus priority measures proposed for Macquarie and Davey Streets (sub-project 2). The bus service model will be focused on encouraging modal shift to public transport with the potential for new buses, bus routes, and stops.
- Sub-project 5: Southern Outlet Transit Lane – T3 Enforcement – Concept design and a concept of operations plan for the proposed T3 lane on the Southern Outlet (sub-project 1), including the recommended locations of enforcement devices, as well as technological and legal considerations.

The project objectives are to:

- Achieve modal shift for commuters using the Southern Outlet
- Improve public transport travel reliability along the Southern Outlet corridor
- Encourage multiple occupancy of private vehicles during peak periods of travel
- Improve public transport and passenger experience for Kingborough and Huon residents.

Objectives of the Park-and-Ride Bus Service Model are to:

- Support identified park-and-ride sites
- Inform functional requirements for park-and-ride sites (feed design)
- Provide park-and-ride customers with a fast, frequent bus service
- Ensure bus network and service changes for park-and-ride minimise potential impacts on access to centres other than Hobart CBD (i.e. Kingston)
- Minimise changes to bus network and services outside of Project 2018 implementation (i.e. avoid major changes)
- Minimise increased car use by existing bus customers.

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1.2 POLICY CONTEXT AND FUNDING

The Tasmanian Government has made a commitment to addressing growth through the Greater Hobart Traffic Solution (2018–2023) and Hobart City Deal (2019–2029). The Hobart City Deal is a shared 10-year vision between the Australian and Tasmanian governments and local councils, including Hobart and Kingborough councils, to guide and encourage investment to build a vibrant, liveable and connected global city.

The Hobart City Deal and Greater Hobart Traffic Solution reflect the Tasmanian Government commitment to address the current network challenges. The Project is part of a funded program of projects that include:

- $20 million for Kingborough transport infrastructure, including creating new park-and-ride(s) and improvements to the Kingborough bus interchange
- $35 million for a Southern Outlet transit lane
- $16 million for Macquarie and Davey street bus priority.

The Tasmanian Government's Hobart Transport Vision (the "Vision") is a holistic plan that seeks to prioritise active and public transport modes to provide a reliable and cost-effective alternative transport system with a focus on prioritised rapid passenger transport as a competitive alternative to private car travel. The sub-projects are consistent with the Vision. They are also an opportunity to create synergies between Kingborough Council, the City of Hobart, the Department of State Growth, and the Royal Automobile Club of Tasmania (RACT), among other stakeholders, on a future vision for transport in Greater Hobart.

1.3 PROJECT BENEFITS

The key anticipated project benefits include:

- Improved public transport passenger experience for Kingborough and Huon residents
- Improved public transport travel reliability along the Southern Outlet and Macquarie/Davey Streets
- Improved bus operations along Macquarie and Davey streets
- Better utilisation of transport infrastructure to address congestion
- Increased capacity along the Southern Outlet corridor
- Providing long-term solutions to meet future demand and address road safety related issues.

1.4 PROJECT LOCATION

The project is in the Kingborough municipality, Hobart City Council and Kingborough Council electorate and includes the suburbs/localities of Hobart and Kingston.

The Southern Outlet (sub-projects 1 and 5) is the primary connection between the CBD, Kingston and the southern communities in the Channel and Huon Valley. It is a dual-carriage highway that operates with effective capacity most of the day, but with regular congestion experienced in the morning peak. There is also irregular, but severe, congestion when incidents occur on the network.

The Macquarie and Davey Street couplet (sub-project 2) traverses the city, providing important access to the CBD and the waterfront, and connecting the Southern Outlet to the Domain Highway. The role of these streets, and hence their design objectives for bus passengers, changes along the corridor. The Southern Outlet and Macquarie Street near the Southern Outlet (from Antill Street to Molle Street) is primarily a movement corridor; whilst the eastern end of Macquarie Street from Molle Street to the termination of the route at Elizabeth Street has a significant number of passengers disembarking to access city destinations and interacts with existing city street activities. The reverse occurs on the outward journey – the role of Davey Street between Franklin Square and Regent Street is for passengers to be able to get on the bus from city destinations, while the top end of Davey Street through to the Southern Outlet has less placemaking activity and operates more as a movement corridor.

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The park-and-ride facilities (sub-project 3) will be located at the southern end of the Southern Outlet near Kingston. StateGrowth undertook a site identification and evaluation process that identified two sites.

The first site is in Huntingfield, located adjacent to the roundabout interchange of the Channel Highway, Southern Outlet, Algona Road, and Huntingfield Avenue. The second site is in Firthside, located on Browns Road north of the Groningen Road overpass and on-ramp to the Southern Outlet.

Figure 1.1 displays a map of the local area showing the specific project locations.

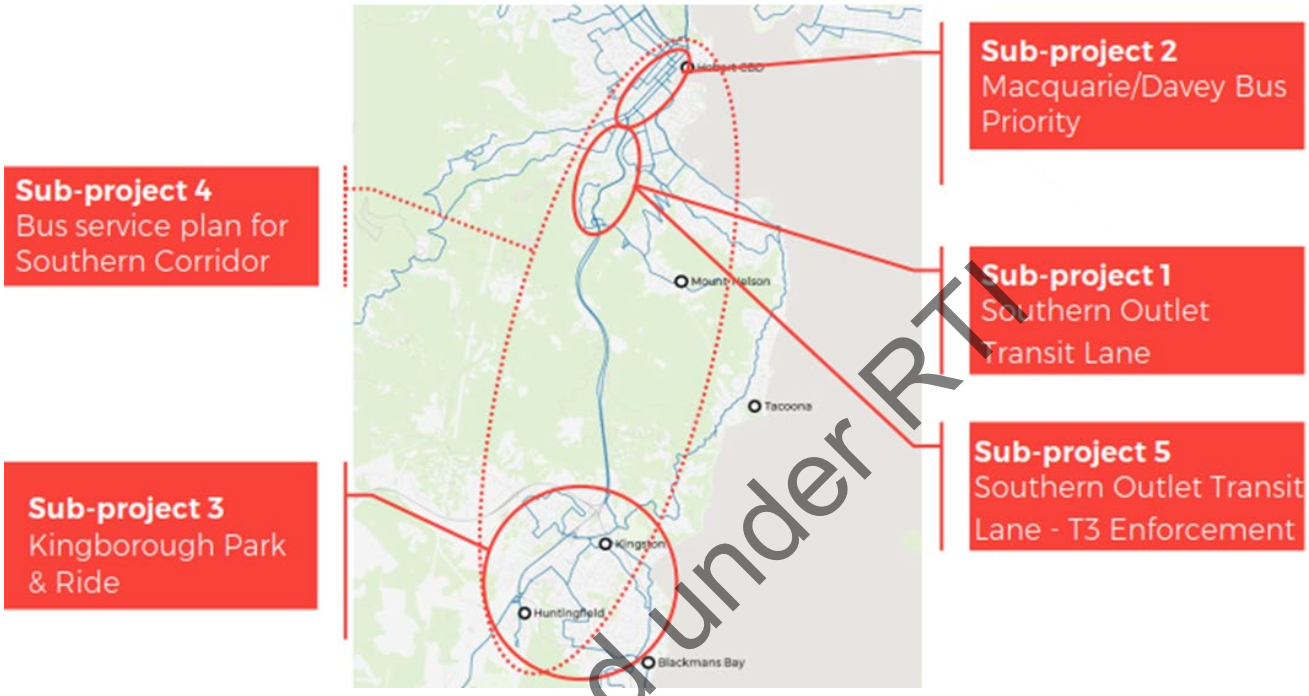

Figure 1.1 Location of sub-projects 1 to 5 within the Hobart Transport Vision

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2 EXISTING CONDITIONS

2.1 STUDY AREA

The study area for the Bus Service Model extends from Hobart City Interchange to Kingston and Kingborough via Macquarie/Davey streets and the Southern Outlet. The study area also considers the Hobart Metro bus network serving Kingston, Blackmans Bay and the Channel Highway, and the Tassielink urban fringe bus network serving the Huon Valley and Summerleas.

2.2 CURRENT BUS SERVICE STRUCTURE

2.2.1 BUS NETWORK

A simplified schematic diagram of the Kingborough bus network using the Southern Outlet is shown in Figure 2.1 below. Kingston is a key hub where bus routes on the Southern Outlet corridor disperse to serve communities to the south and west. There are two key bus corridors south and west of Kingston:

- The Channel Highway serves communities to the south, including Huntingfield (and its nearby urban development areas), Margate, Snug and Woodbridge, with services operated by Metro.
- The Huon Highway serves communities in the Huon Valley including Huonville, Ranelagh, and Geeveston. Bus services are operated by Tassielink.

In addition, suburbs south of Kingston on the isthmus towards Blackman's Bay are served by Metro routes that use Kingston as a hub.

All the bus routes on the southern corridor use bus stops in Kingston town centre before operating to Hobart city centre via the Southern Outlet or the Channel Highway via Taroona.

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Kingston and Kingborough

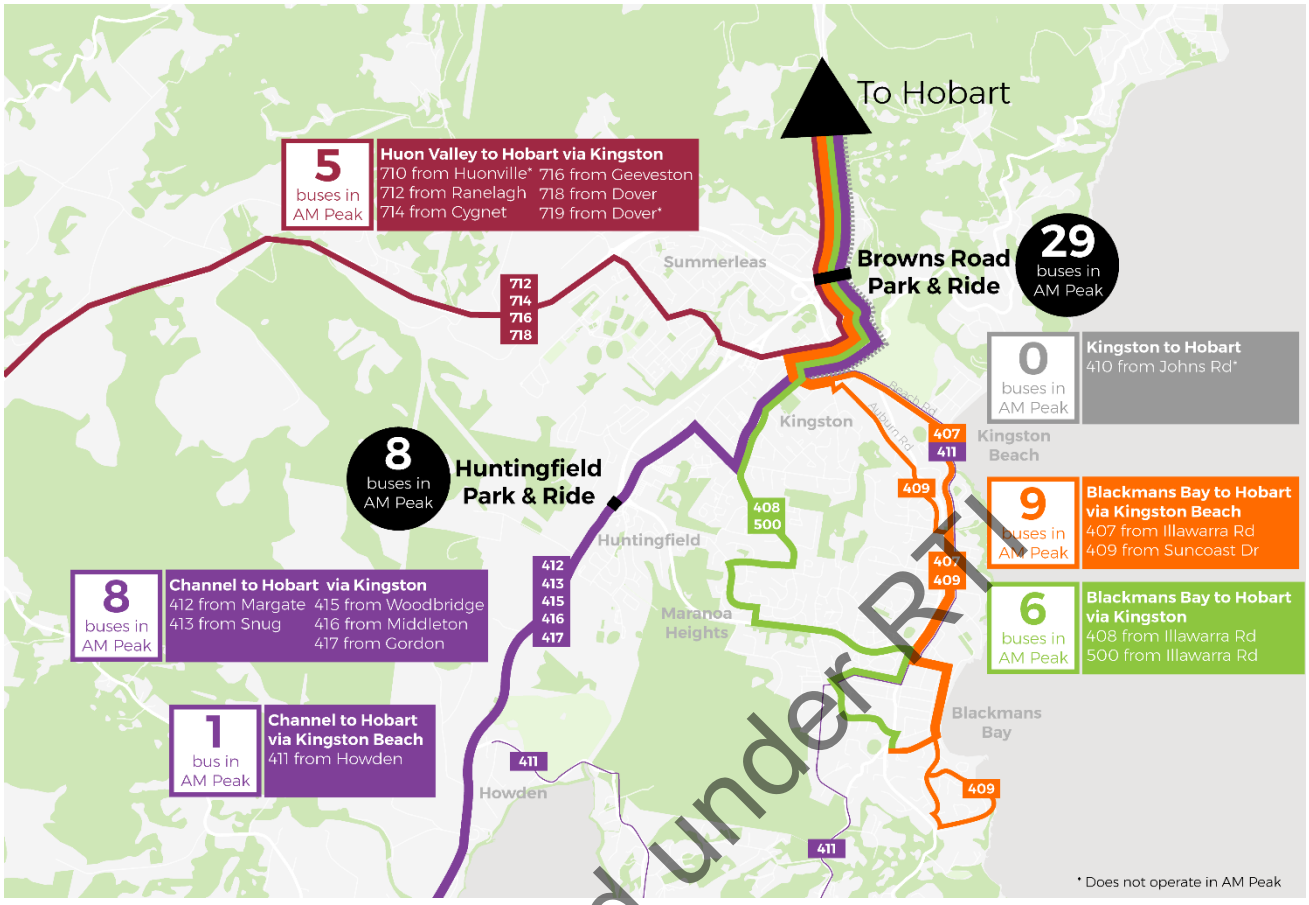

Figure 2.1 Existing bus network and inbound peak service levels in Kingston (towards Kingston/Hobart).

Table 2.1 below summarises weekday peak period frequency for bus services on the Channel Highway, the Huon Highway and in Kingston/Blackman's Bay. In general, bus services are infrequent, with Huon Valley and Channel Highway bus services less frequent than routes serving Kingston and Blackman's Bay.

Once buses join the Southern Outlet there are no bus stops between the Hobart city centre and Kingston's northern outskirt (though some routes divert to Hobart College during school terms).

Table 2.1 Bus routes using the Southern Outlet corridor

Corridor	Routes	AM peak inbound (arr. Hobart 6–9 am)	PM peak outbound (dep. Hobart 4–7 pm)
Kingston and Blackmans Bay	407, 408, 409, 410, 411, 500	16	14
Channel Highway	412, 413, 415, 416, 417	8	8
Huon Valley	710, 712, 714, 716, 718, 719	5	5

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Macquarie and Davey street

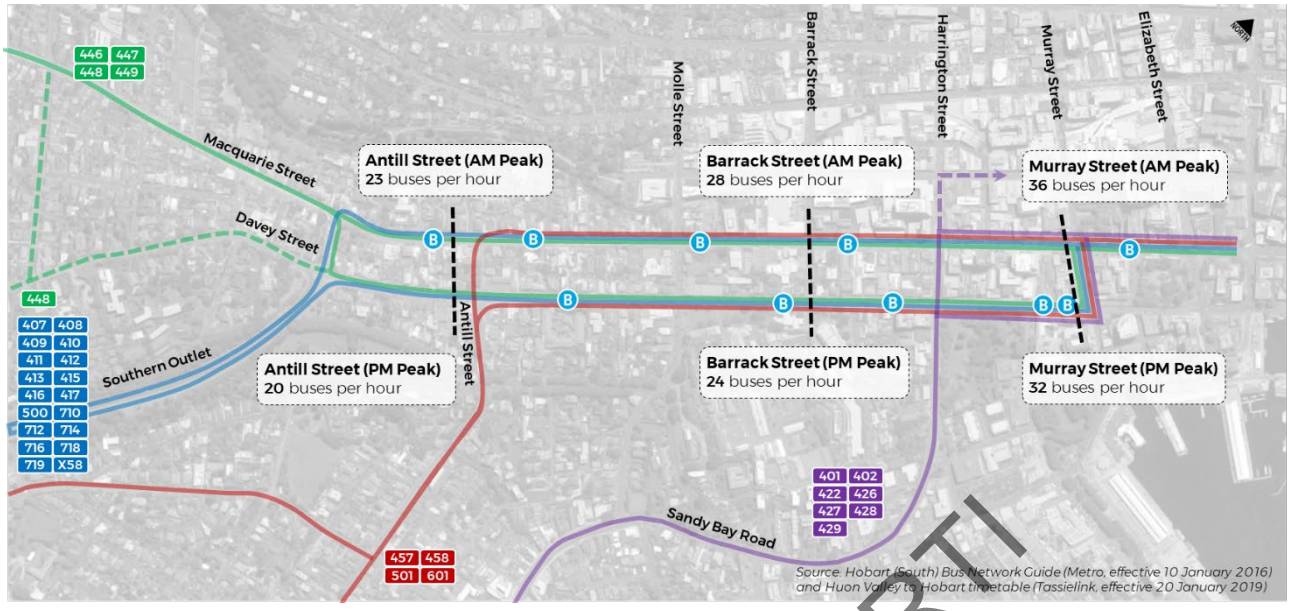

Figure 2.2 Existing bus network on Macquarie and Davey streets

Macquarie and Davey Street operate as a one-way pair between the Southern Outlet and the Hobart city centre bus station in Elizabeth and Macquarie streets, with inbound (to city) southern routes using Macquarie Street and outbound (from city) operating on Davey Street. In addition to bus routes operating on the Southern Outlet, the Macquarie/Davey Street pair is also used by South Hobart and Fern Tree services (routes 446, 447, 449 and 449) which operate west of the Southern Outlet, Sandy Bay and Mount Nelson services (routes 457, 458, 501 and 601) which join the corridor at Antill Street; and Sandy Bay Road services (routes 401, 402, 422, 426, 427, 428, 429) which join the Macquarie/ Davey corridor at Sandy Bay Road. Table 2.2 breaks down the bus flows by the different route groups.

Figure 2.2 shows peak period bus flows on different sections of Macquarie and Davey streets. Highest bus flows are closer to the city. The figure also shows the current bus stop locations on Macquarie and Davey streets.

Table 2.2 Bus routes using Macquarie and Davey streets

Corridor	Routes	AM peak services (7.30–8.30 am)	PM peak services (4.30–5.30 pm)
Cascade Road	446, 447, 448, 449	5	4
Southern Outlet	407, 408, 409, 410, 411, 412, 413, 416, 416, 417, 500, 710, 712, 714, 716, 718, 719, X58	18	16
Antill Street	457, 458, 501, 601	5	4
Sandy Bay Road	401, 402, 422, 426, 427, 428, 429	8	8

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Table 2.3 Existing bus volumes at various screenlines along Macquarie and Davey streets

Screenline	Corridors	AM peak services (7.30–8.30 am)	PM peak services (4.30–5.30 pm)
Murray Street	Cascade Road, Southern Outlet, Antill Street and Sandy Bay Road	36	32
Barrack Street	Cascade Road, Southern Outlet and Antill Street	28	24
Antill Street	Cascade Road and Southern Outlet	23	20

2.2.2 BUS STOPS AND INFRASTRUCTURE

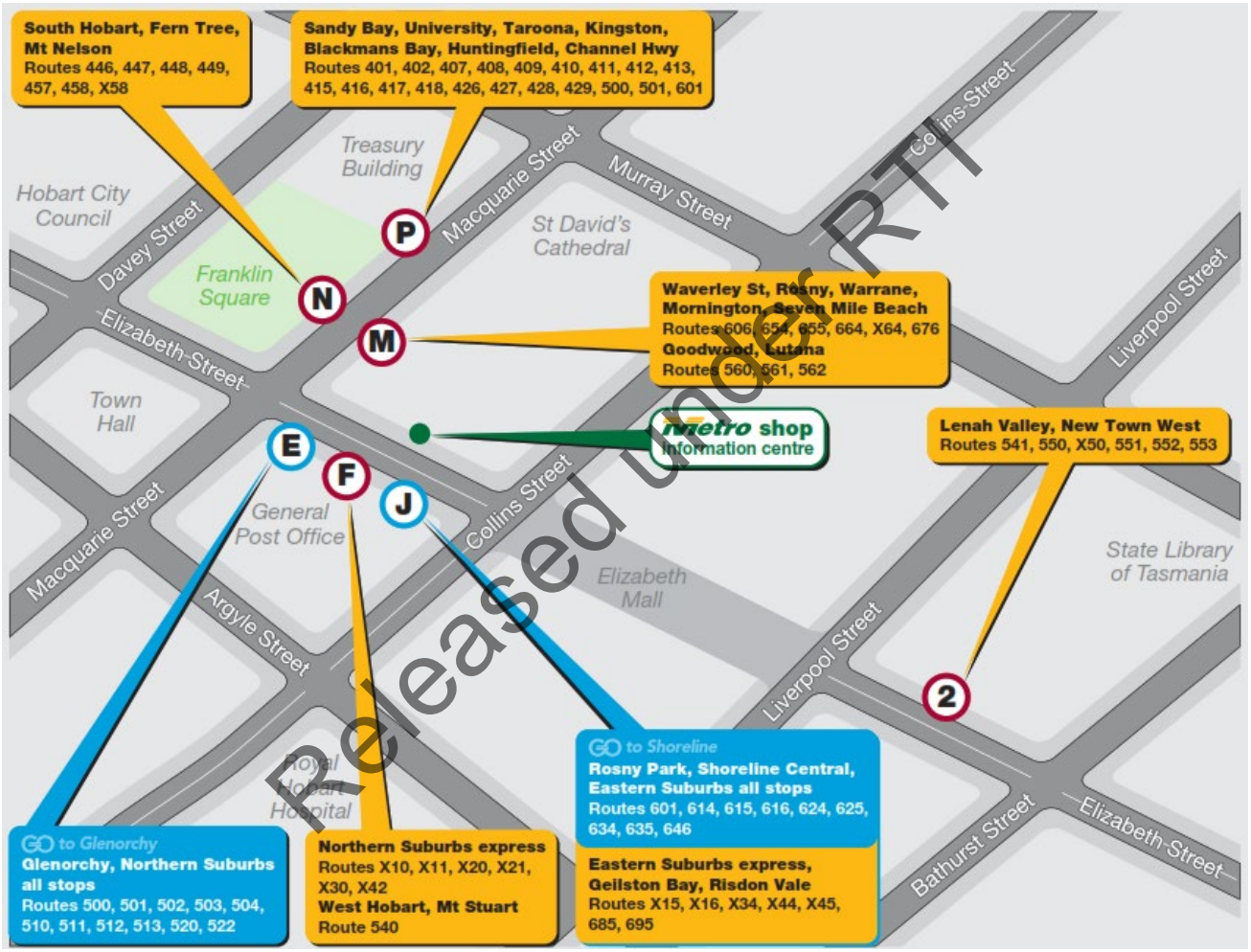

Figure 2.3 Hobart City Centre bus platforms (Metro Tasmania)

The Hobart city centre bus station is a set of on-street bus stops in Macquarie Street and Elizabeth Street. The layout is shown in Figure 2.3. Southern bus routes use Stop P in Macquarie Street opposite Franklin Square.

The Tasmanian government is investigating the feasibility of a future below-ground or surface bus station in the vicinity of the present bus station, with sufficient capacity to accommodate future bus services to 2035, including park-and-ride bus services from the south. Levels of passenger activity are discussed in section 2.3.

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2.2.3 FORMAL AND INFORMAL PARK-AND-RIDE

Kingston Park-and-Ride is a designated bus park-and-ride facility on Denison Street Kingston, opposite the Christian Reformed Church. The park-and-ride can accommodate approximately 75 cars and the nearby bus stop provides access to bus routes 408, 412, 413, 415, 416, 417, 422, 428, 500, 711 and 716 to Hobart city centre.

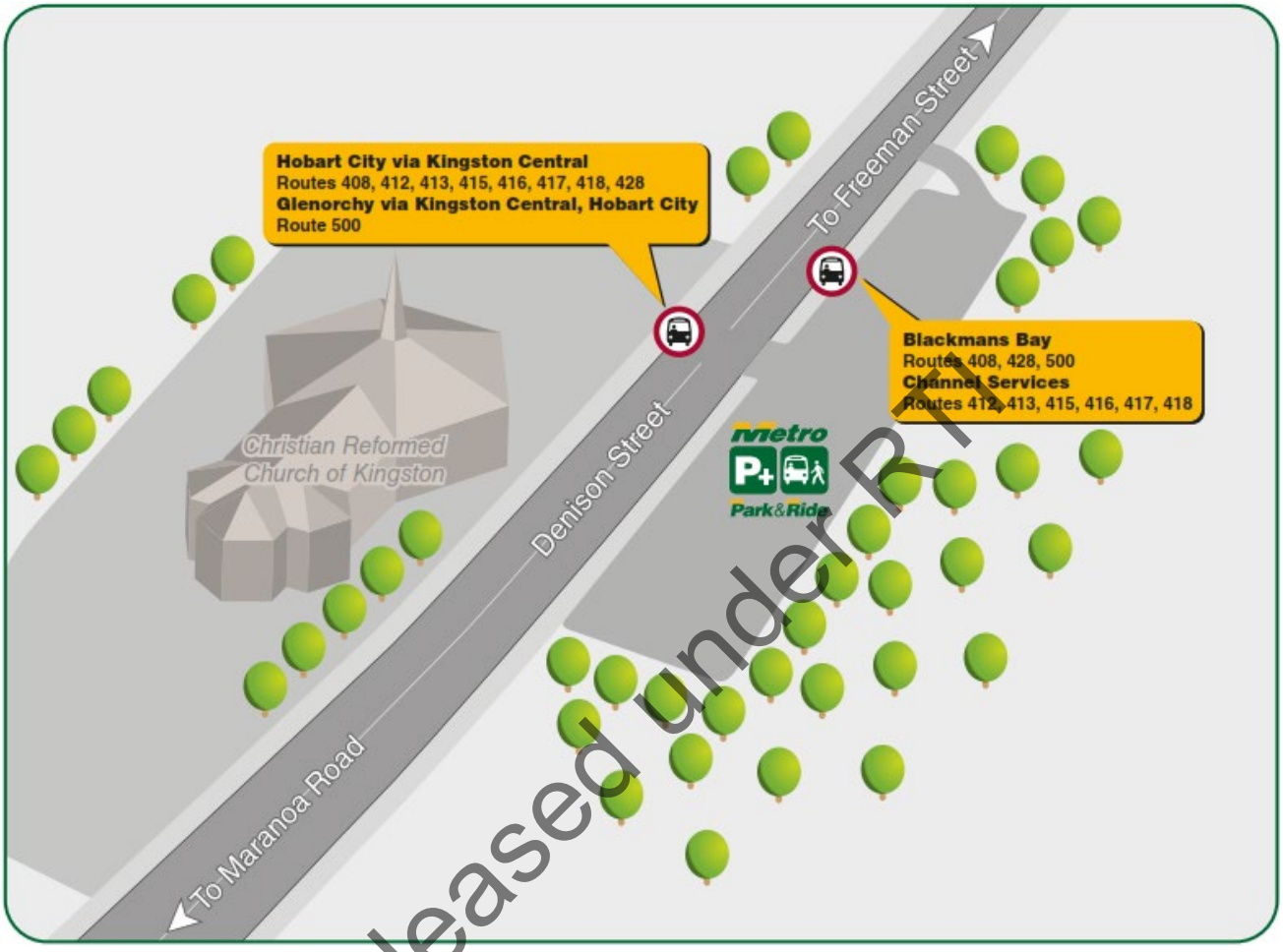

Figure 2.4 The Denison Street Park-and-Ride in Kingston (Metro Tasmania)

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Informal parking is present at both the Browns Road Firthside bus stop and the Huntingfield Terminus (this site no longer operates as a terminus), shown in Figure 2.5. The Huntingfield site is off Huntingfield Avenue, on the north side of a residential area south of the Algona Road roundabout intersection with the Channel Highway and Southern Outlet, and adjacent to the Kingborough industrial area. A large Mitre 10 hardware store is located opposite the Huntingfield terminus on the east side of Huntingfield Avenue.

At Huntingfield terminus, cars park along the unnamed loop road off Huntingfield Avenue and on vacant land between the loop road and the Channel Highway.

A survey by State Growth found that 42 cars were parked around the Huntingfield terminus on a weekday in February 2020. The majority of parked vehicles (90 per cent) were associated with nearby businesses and residences, while just five cars were parked by park-and-ride customers (each car carrying one bus passenger).

Park-and-Ride customers were outnumbered by bus passengers walking from nearby residences (22) or being dropped off by car (5). There was a small but fairly steady flow of bus customers getting on buses at Huntingfield terminus between 6.30 am and when the survey ended at 8.20 am. The day of the survey was rainy and this may have deterred some park-and-ride demand.

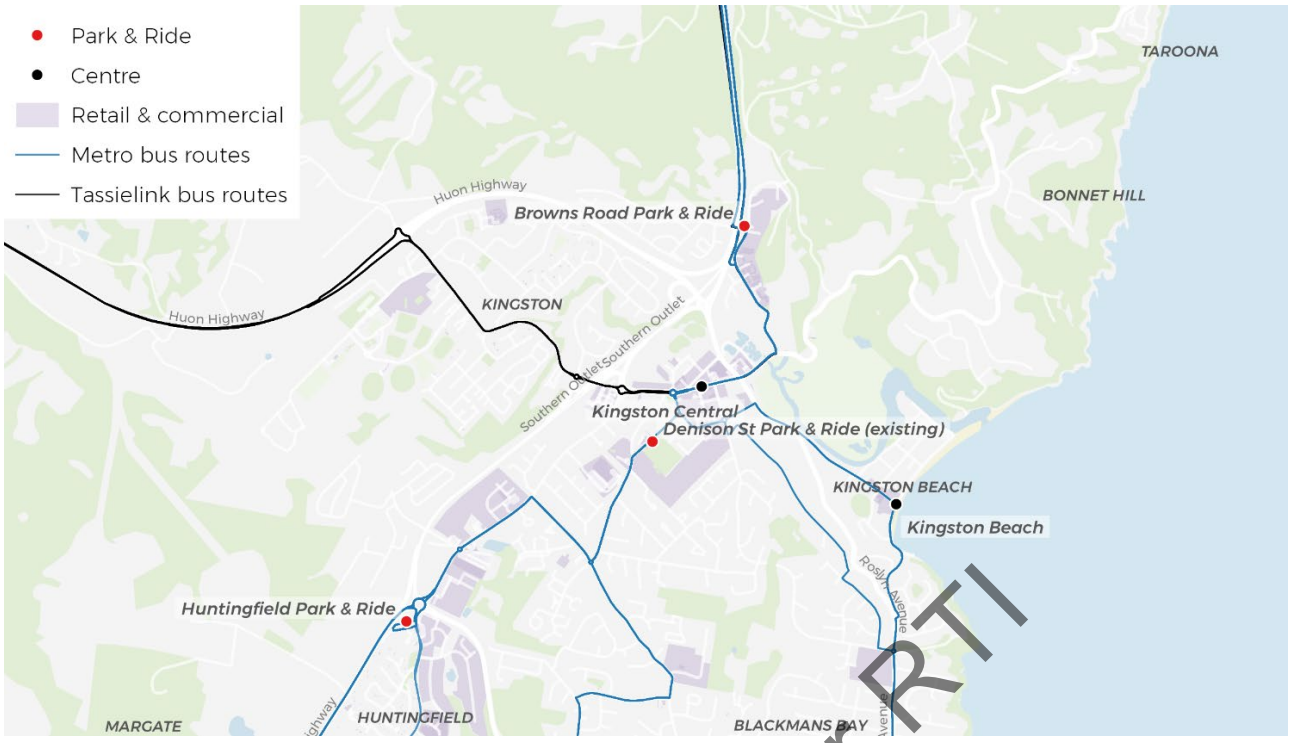

Figure 2.5 Location of the existing Denison Street Park-and-Ride and informal Huntingfield/Browns Road sites

The Browns Road Firthside site comprises on-street car parking on the west side of the Southern Outlet, generally along Groningen Road, and off-street parking on vacant land on the east side of the Southern Outlet, off Browns Road, north of Groningen Road. Some 8 vehicles typically park on the west side of the Southern Outlet, and more than 40 typically park on the land on the east side of the Southern Outlet. This car parking area is opposite the Browns Road Firthside industrial area, with a mix of small businesses operating smash repairs, vehicle repairs and machinery sales.

The inbound (to city) bus stop is off Groningen Road on the Southern Outlet on-ramp, while the corresponding outbound bus stop is on Browns Road, some 300 metres to the south (due to the Browns Road exit from the Southern Outlet being south of Groningen Road bridge).

A survey by State Growth on a weekday in February 2020 found that, as with the Huntingfield terminus informal park-and-ride, most cars parked there were not associated with bus park-and-ride. Eight cars were parked for park-and-ride between 6.30 am and 9.00 am, while 28 car park users were associated with adjacent businesses. As with Huntingfield terminus, bus passengers who walked to the bus stop (31) or were dropped by car (4) outnumbered bus park-and-ride customers.

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Figure 2.6 Informal parking at Browns Road (left) and Huntingfield Terminus (right)

2.3 CUSTOMER TRAVEL PATTERNS

As the Metro Green Card smart card ticket records passenger boardings only, our understanding of customer origins and destinations is constrained. By looking at morning peak and afternoon peak period boardings at bus stops, we can build up a picture of the scale of demand for trips to and from destinations on the southern corridor. This information is presented in Figures Figure 2.7 to Figure 2.10 below.

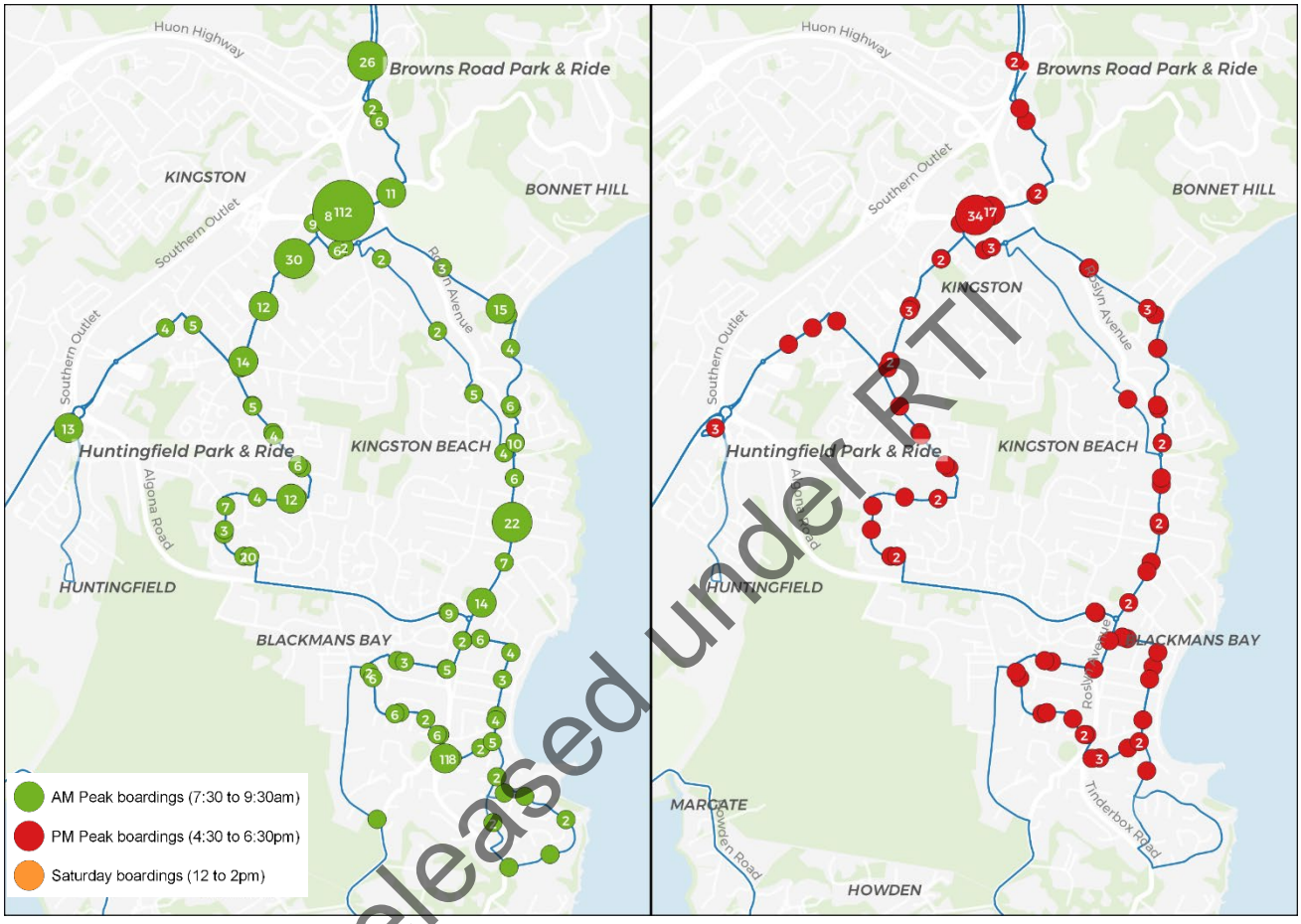

Figure 2.7 Metro Tasmania boardings in the Kingston/Blackmans Bay area (November 2019, daily average)

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Figure 2.8 Metro Tasmania boardings in the Kingston/Blackmans Bay area (November 2019, daily average)

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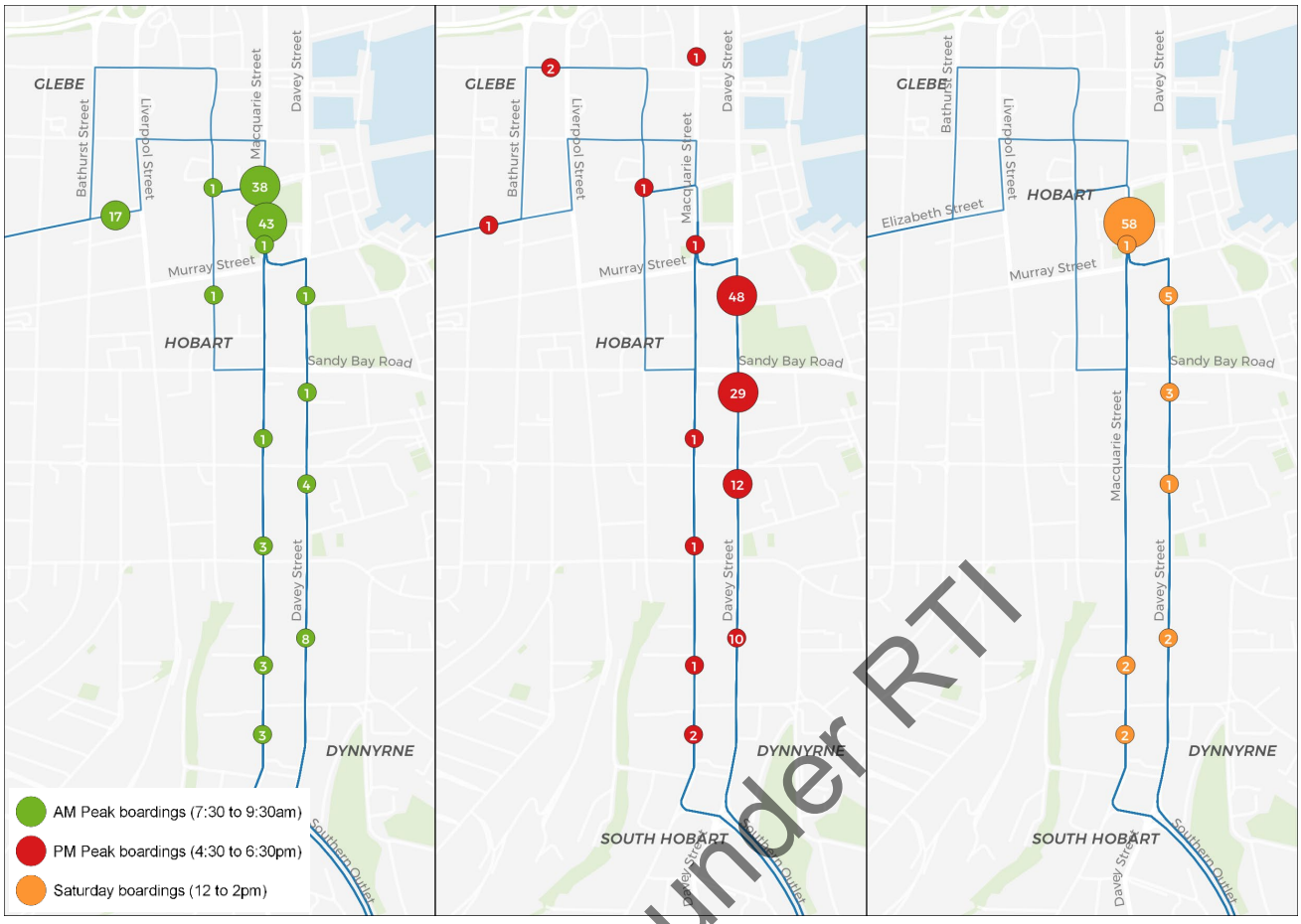

Figure 2.9 Metro Tasmania boardings on the Macquarie/Davey Streets corridor (November 2019, daily average)

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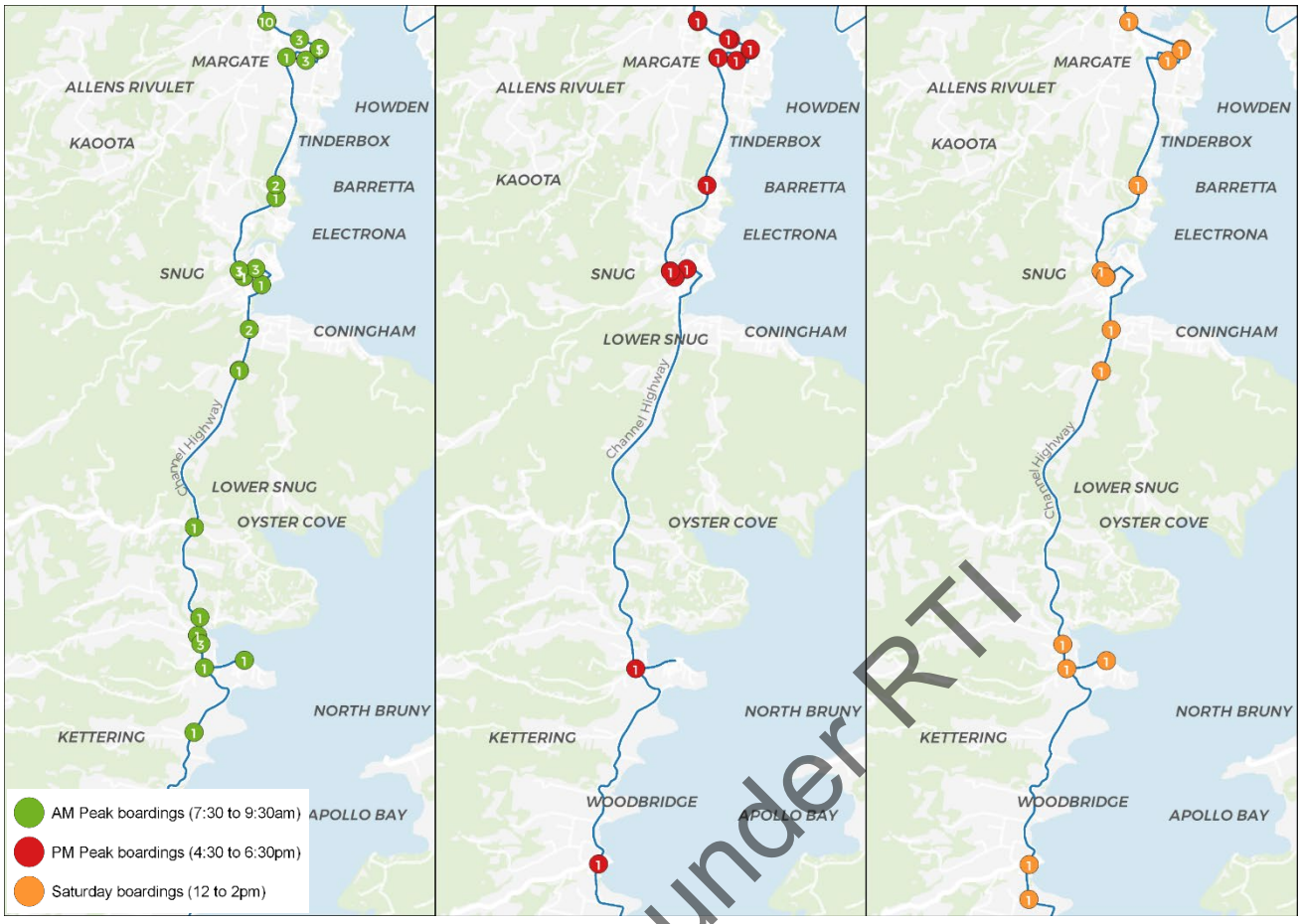

Figure 2.10 Metro Tasmania boardings on the Channel Highway corridor (November 2019, daily average)

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The following conclusions can be drawn from Metro Green Card data:

- Kingston town centre is both a major origin for bus trips in the weekday morning peak period and a destination. We can presume that morning peak boardings at Kingston primarily represent trips heading towards the Hobart CBD, and that afternoon peak boardings at Kingston are primarily passengers who work or have visited Kingston and are travelling south.
- The level of demand for boardings at the Hobart city centre bus station in the weekday afternoon peak is substantially higher than for Kingston, likely indicating that the majority of people boarding buses on the southern corridors are bound for Hobart city centre.
- In general, the number of boardings at individual bus stops south of Kingston is low, though the busier stops are at Blackman's Bay, Kingston Beach, Hawthorn, Huntingfield and Browns Road.
- For bus stops on Macquarie and Davey Streets, customer boardings in Davey Street in the weekday afternoon peak can be used to represent likely customer alighting stops in the morning peak period. Bus stops closer to the city centre (particularly those around Sandy Bay Road) are substantially busier in peak times than bus stops closer to the Southern Outlet.

2.3.1 CUSTOMER APPRECIATION

It is clear from analysis of Metro Green Card data that there are two main weekday peak period bus customer groups in the southern corridor:

- customers bound for Hobart city centre from Kingston, the Channel Highway and Huon Highway corridors;
- customers bound for Kingston (primarily using the Kingston town centre bus stops)

At present, all citybound commuters on bus services serving Kingston, Channel Highway and Huon Highway communities are taken via Kingston town centre. For Channel Highway residents south of Huntingfield, Metro bus routes divert from the Channel Highway at Redwood Road on their way to Kingston. Huon Highway Tassielink bus routes leave the highway at Summerleas Road to access Kingston town centre and return to the Southern Outlet at Firthside.

While these routes maximise access to Kingston town centre, they provide an indirect route and additional travel time for bus customers travelling to the Hobart city centre.

There is modest demand for bus customer access to other destinations in the Kingston area, including businesses along the Channel Highway south of Kingston Town Centre and around Browns Road.

Another key customer group is private vehicle commuters to Hobart city centre, who travel via the Southern Outlet. Achieving the object of the overall project to reduce traffic congestion on the Southern Corridor relies on encouraging these customers to switch to bus park-and-ride, so the bus service model needs to be designed to meet their needs as much as possible.

At present, private vehicle commuters, especially on the Huon Highway corridor and Channel Highway corridor south of Huntingfield, have direct and relatively fast access to Hobart city centre via the Southern Outlet. For private vehicle users in Kingston/Blackman's Bay, Algona Road, Redwood Road, Summerleas Road, Groningen Road and Roslyn Avenue provide reasonably direct access to the Channel Highway and Southern Outlet.

To attract private vehicle users to bus park-and-ride, the service should be:

- Direct to the Hobart city centre
- Fast
- Frequent and reliable
- Safe and comfortable
- Legible and with supporting infrastructure and information.

In addition, private vehicle access to the park-and-ride sites should be as direct as possible, minimising delays or unnecessary circulation. Prospective park-and-ride users will be using a private vehicle and are likely to make decisions on whether or not to park-and-ride based on convenience relative to driving to the city. These decisions may be made daily depending on actual and perceived road conditions, as well as the park-and-ride service offer. Park-and-ride customers will be conscious of access, waiting and in-vehicle time in making this decision, so these factors are key parts of the park-and-ride offer.

Existing bus customers are also prospective park-and-ride users, particularly if they perceive that the park-and-ride offer is superior to the bus-only offer in travel time, directness or cost. It is better for the viability of Hobart's bus network that bus customers don't shift to park-and-ride.

Therefore, there is a risk that if the park-and-ride offer is attractive enough to encourage private vehicle users to shift to park-and-ride, it could also shift bus-only customers to using park-and-ride, increasing rather than reducing car travel in the southern corridor. A bus customer who has shifted to park-and-ride may also potentially be lost to the public transport network through the same actual or perceived comparative convenience of car versus bus-only or park-and-ride (since they will be using a private vehicle for part of their journey).

Data is not available on non-user attitudes to Hobart bus services, or on the access to private vehicles of existing southern corridor bus customers, that could help us better understand their propensity to shift to park-and-ride. However, the 2018 Tasmanian Travel and Physical Activity Study undertaken by the Menzies Institute for Medical Research, University of Tasmania, has some useful data on bus customers and non-users. These include:

- Overall bus use in Hobart is low, at around 4 per cent of all trips. 10 per cent of bus users find the network challenging to use primarily because of unreliability of the services and a lack of information about performance of the network. Satisfaction with Metro bus services is relatively low compared to other Australian capital cities at 76 per cent.
- Kingborough residents generally live further from a bus stop than Hobart residents.

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- Kingsborough respondents to the surveys underpinning the Tasmanian Travel and Physical Activity Study had a low frequency of bus use, particularly on the weekends.
- Kingborough residents who used buses did so mostly for work, study, social reasons and to go shopping.
- The highest proportions of bus use are among young people (18–24) and the unemployed, while the lowest use was among employed people and those living in households with children.
- Kingborough residents have high car use compared with the rest of Greater Hobart.

The study identified the following barriers to public transport use, as identified by users and non-users:

- Bus frequency and scheduling
- Bus services not catering for complicated trips
- Preferences for other modes
- Long travel times by bus
- Accessibility issues
- On-time running
- Lack of bus services
- Network and Metro Greencard legibility issues.

The study also ranked initiatives that users and non-users considered would best encourage greater bus use. These were:

1. Real-time bus information
2. Bus priority on key corridors
3. Employer incentives for bus commuting
4. Free travel periods
5. Loyalty schemes.

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3 PARK-AND-RIDE BUS SERVICE MODEL

3.1 KEY PRINCIPLES, SUCCESS FACTORS AND RISKS

The park-and-ride offer needs to be considered as a whole journey customer service, including:

- Information and trust
- Access, egress to car park
- Waiting for the bus
- On the bus
- Safety and security at car park
- Span of hours
- Frequency, directness, travel time
- Importance of brand, product and quality
- Addressing Metro's customer dissatisfaction: the frequency of the service, customer service, operating hours.

3.1.1 NATIONAL AND INTERNATIONAL BEST PRACTICE

The key objectives for park-and-ride as part of an integrated public transport network are:

- Extending the reach and accessibility of the public transport network, particularly into areas not well served by public transport, by allowing customers to drive a private vehicle part of the way on their journey (System Metrics Group, 2013, TfNSW, 2012, Translink, 2012, Translink, 2011, Hamer, 2010, City of Edmonton, 2009, Ginn, 2009, Department of Transport Victoria, 2008, Eddington, 2008, Dublin Transportation Office, 2005, TCRP, 2004).
- Increasing the attractiveness and use of public transport, and increasing public transport ridership by improving accessibility and offering a wider range of access options for customers (Wiseman et al, 2012, TfNSW, 2012, Translink, 2011, Ginn, 2009).
- Helping to transfer car parking demand from the central city, where costs are high and congestion impacts can be severe, to suburban locations. In the UK, some park-and-ride programs initially emerged as a way to overcome high parking demands in town centres, with peripheral car parks served by buses shuttling visitors to the centre, but most commuter park-and-ride facilities around the world aim to intercept car trips as far as possible from travellers' final destination to reduce vehicle kilometres travelled and maximise the travel time benefits of rapid transit (Eddington, 2008, Translink, 2012, Department of Transport WA, 2011, Ginn, 2009, Land Transport New Zealand, 2007, City of Edmonton, 2009).
- Easing congestion on roads by reducing vehicle trips and helping to give effect to transport plans, strategies and programs, such as emissions reduction, meeting public transport mode share targets, and supporting transport infrastructure investments, (System Metrics Group, 2013, Virginia Department of Transportation, 2013, Wiseman et al, 2012, Hamer, 2010, RPS, 2009, Marsden, 2006, Turnbull et al, 2004).

In the Hobart Southern Transport Vision, a key objective, related to the third objective above, is to help relieve traffic congestion on the Southern Outlet by encouraging a mode shift from private vehicles to buses. Many cities expect park-and-ride investment to help shift private vehicle users to public transport users for at least part of their journey. However, this is not always achieved – investment in park-and-ride facilities can also replace bus, walking and cycling trips to stations and stops (Hamer 2010, Semler & Hale 2010, Transport Scotland, 2012).

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Park-and-ride use by private vehicle users can provide substantial savings for commuters. Wang (2013) calculated that a car driver replacing a car trip to the Sydney CBD with a public transport trip (while retaining the car) can save an average of $8,141 per annum (based on an average cost of $13,026 per annum to drive to the city). The savings are greatest for those commuters who drive further, with the average Australian car commuter who lives 25 km from the CBD spending $14,639 per annum, compared with $7,432 for commuters 5 km from the CBD.

In addition, review of national and international best practice highlighted some supplementary roles and objectives. Park-and-ride policy work undertaken for Ridetta in the USA (Anon, 2003, p1-2) suggested that a "well- implemented park-and-ride program can be an effective transition strategy that introduces travellers to the benefits of transit and builds a market for future transit extensions" (Anon, 2003, p1-2); and a New Zealand national government park-and-ride review pointed to potential benefits for public transport service cost-effectiveness from park-and-ride programs, by helping to concentrate passenger demand on rapid transit routes, reducing the need for public transport servicing of lower-density areas (Land Transport New Zealand, 2007).

Park-and-ride are a part of most cities' public transport offer and park-and-ride is often given a high degree of prominence in many cities' public transport strategies and capital works programs.

Most transport authorities establish modal hierarchies (or priority access modes) to encourage more sustainable modes like walking, cycling, bus and train. Car access modes (kiss-and-ride and park-and-ride) are generally at the bottom of the hierarchy of access modes. However, large investments are made in park-and-ride facilities at railway stations and bus stations, with costs per space ranging from some $20,000 to over $100,000 depending on whether the facilities are on the surface or in a multi-storey structure; and whether land needs to be purchased. This means that return on investment for park-and-ride is low, especially if use of the car park is free, as it is in most Australian cities.

Despite this, park-and-ride remains, in most cities, a minor access mode. In Greater Sydney for example, on average park-and-ride is used as an access mode to train stations by around one in five peak period customers (TfNSW). In bus networks, park-and-ride can be a small proportion of customer access. In Sydney this was estimated at some 2 per cent (Daniels & Mulley, 2011) but reflects the lack of provision of formal park-and-ride facilities or promotion as a mode in conventional bus networks. In cities with bus rapid transit services where park-and-ride is often provided as part of the service offer, such as Auckland, Brisbane, Adelaide and Sydney, park-and-ride use as an access mode is higher, but still a minority as an access mode. On Sydney's Northern Beaches B-Line, with 900 formal park-and-ride spaces, park-and-ride use is some 10 per cent of boardings (TfNSW). In Auckland's Northern Busway, with 1,500 spaces, park-and-ride is estimated at 13 per cent of boardings (Auckland Transport). On Brisbane's busways, some 12 per cent of boarding customers used park-and-ride (TMR).

One outcome of increasing park-and-ride supplies can be abstraction from other more efficient access modes. DPTI in Adelaide acknowledges that increases in park-and-ride supplies at Adelaide O-Bahn stations did not increase O-Bahn patronage, despite the expanded car parks being fully utilised. It is likely that new park-and-ride users previously walked, cycled, were dropped off or caught feeder buses.

Effective park-and-ride services feature:

- Interception of private vehicle trips as far as possible from the city centre to reduce VKTs
- Have fast, direct, frequent and high quality services
- Have high legibility (often provided through branded services, special fleet or livery) and good transport information
- Have high quality passenger facilities
- Have secure car parks, but efficient access and egress
- Accommodate access by other modes.

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Figure 3.1 Sydney Northern Beaches B-Line showing high quality passenger stops with real-time information

3.1.2 CUSTOMER NEEDS

The Park-and-Ride facilities will be used by many different customer groups, each with their own unique needs.

Existing Park-and-Ride users

Some bus customers are already using informal parking facilities at Browns Road and Huntingfield to access Kingston Town Centre and the Hobart CBD for work and other activities. Their needs include:

- Maintained access to parking facilities
- Maintained bus service coverage to existing destinations including Kingston Town Centre and Hobart CBD (particularly for Huntingfield).

Existing bus customers from Kingston/Blackmans Bay, the Huon Valley and the Channel Highway

This customer group includes those who use the existing bus network to travel from the Kingston/Blackmans Bay area to Hobart CBD. Customers using the existing bus network need:

- Fast and direct service to Hobart CBD
- Competitive travel time to Park-and-Ride (to discourage them from becoming Park-and-Ride users).

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Non-bus users

Non-bus users are potential Park-and-Ride customers who currently commute to Hobart by car. To attract these customers to Park-and-Ride needs:

- Direct and convenient access to the parking facilities (with minimal queueing and circulation)
- A bus trip that is fast, convenient and competitive with driving
- A secure carpark while cars are parked and unattended for long periods of time.

Kiss-and-Ride

In addition to customers who park at the facility, there are expected to be many "kiss-and-ride" customers who are dropped off and picked up from the facility. These customers need:

- Direct and convenient access for cars in and out of the facility, avoiding delays from parking cars to the need to enter/circulate around the car park itself.

Active transport users

Both Browns Road and Huntingfield serve a pedestrian/cycling catchment and will continue to do so once upgraded. The needs of active transport customers include:

- High quality paths and crossing facilities at and leading up to the site
- Safety and security such as lighting, emergency call buttons and safe separation from vehicles
- Direct access leading to bus stops, avoiding long crossing times and circuitous delays around car or bus infrastructure
- End of trip facilities for bicycles such as secure lockers to encourage cycling and reduce the risk of theft.

Bus operators

Bus operators have a key interest in protecting the patronage and operational efficiency of their services. Their needs include:

- Strategies to reduce the risk of patronage decline on existing bus routes
- Fleet, scheduling and operational costs.

Local businesses

Site visits confirmed that many existing users of the informal parking sites are patrons or employees of surrounding local businesses. The key need for this group is to maintain parking supply and access for these uses to avoid impact to businesses or inconvenience to the local community.

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3.1.3 RISKS

The key risk of upgraded Park-and-Ride facilities and express services is that customers will abandon existing services that take a slower, less direct route, decreasing the viability of existing bus services and not achieving the mode shift objective that would help reduce congestion in the corridor.

The current low level of park-and-ride use also means that investment in upgrading and formalising car parks at Browns Road, Firthside and Huntingfield may primarily benefit non-bus users including local residents and visitors and employees of nearby businesses – this is particularly the case if bus services are not also improved to encourage park-and-ride use.

Huntingfield is inside a fare boundary between urban and non-urban fares. Existing bus customers from settlements along the Channel Highway and Huon Highways south of Huntingfield who drive to Huntingfield may perceive a substantial cost saving over catching buses at their local stop. This may encourage a shift to park-and-ride among some existing bus customers with access to a private vehicle.

3.2 PROPOSED PARK-AND-RIDE SITES

Barry Watkins and Associates for the Department of State Growth identified and assessed a long list of seven sites for their potential as Park-and-Ride locations in the Kingston and Kingborough area using a Multi Criteria Analysis (MCA) process. These included two sites near Browns Road, several sites near Huntingfield and the Kingborough Sports Centre. The Huntingfield Terminus site scored most favourably due its current informal use for commuter parking, zoning and ownership, among other factors. Huntingfield received a lower score for travel time competitiveness. The Browns Road area scored highly for existing bus service provisions and travel time competitiveness however low for planning, community support and ownership constraints. The Department of State Growth decide to progress two sites for further investigation, as shown in Figure 3.2 and described below.

The **Browns Road Park-and-Ride** site is located at the intersection of Browns Road and Groningen Road in Firthside. The site is directly adjacent to the Southern Outlet interchange, providing direct and convenient access to the Hobart City Interchange. The travel time to the Hobart City Interchange is roughly 18 minutes by bus or 13 minutes by car via the Southern Outlet and Macquarie/Davey Streets.

The **Huntingfield Park-and-Ride** site is located at the junction of the Channel Highway, Southern Outlet and Algona Road. The site is directly adjacent to the Southern Outlet interchange, providing direct and convenient access to the Hobart City Interchange. The travel time to Hobart City Interchange is roughly 27 minutes by bus or 16 minutes by car via Kingston Central. A faster travel time could be achieved by implementing a direct park-and-ride service via the Southern Outlet, bypassing Kingston Central and Browns Road.

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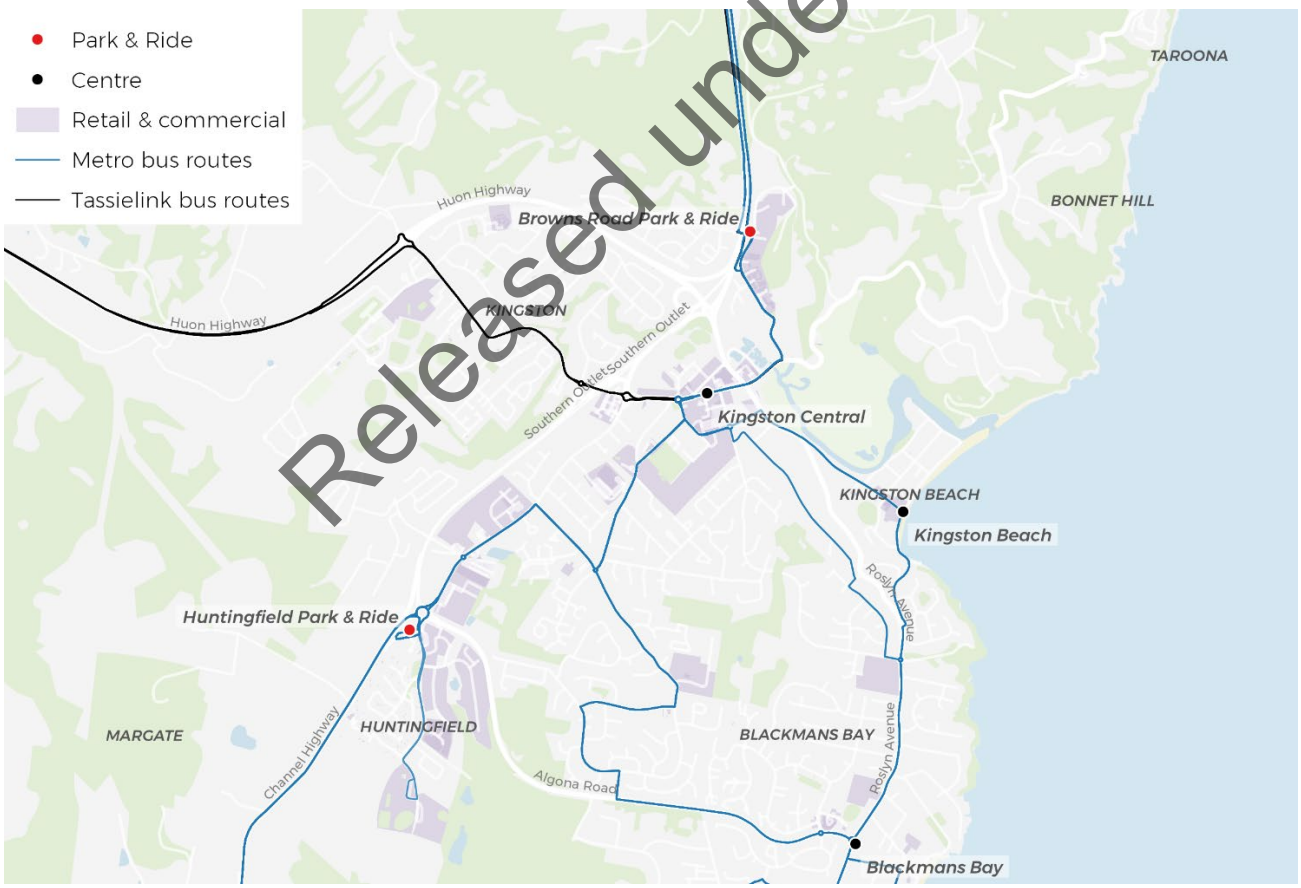

Figure 3.2 Location of the proposed Park-and-Ride sites in Kingston

3.2.1 BUS SERVICING

Existing bus routes serving the Browns Road site include the 407, 408, 409, 411 and 500 to the Kingston and Blackmans Bay area, and routes 412, 413, 415, 416 and 417 along the Channel Highway, and Tassielink services to the Huon Valley. There is a combined 10-minute frequency in peak periods, supplemented by some additional Tassielink services from the Huon Valley.

Table 3.1 Existing bus service level at the Browns Road Park-and-Ride site

Route	Area/Corridor	AM peak inbound (Arr. Hobart 6–9 am)	PM peak outbound (Dep. Hobart 4–7 pm)
407	Blackmans Bay	7:22, 7:34, 7:58, 8:13, 8:34	4:17, 4:57, 5:22, 5:42, 6:21
408	Blackmans Bay	7:13, 8:46	4:37, 5:37, 6:46
409	Blackmans Bay	7:26, 7:47, 8:18, 8.55	4:29, 5:29, 6:28
411	Kingston Beach	7:54	5:52
412	Channel Highway	6:31, 7:59, 8:18	4:51, 5:26, 6:38
413	Channel Highway	7:52	5:42
415	Chanel Highway	7:27, 8:04	4:33, 6:10
416	Channel Highway	7:08, 8:05	4:38
417	Channel Highway	–	5:12
500	Blackmans Bay	7:29, 7:45, 8:05, 8:25	5:07, 6:07
710, 712, 714, 716, 718, 719 (Tassielink)	Huon Valley	7:22, 7:52, 8:18, 8:22, 8:37	4:26, 5:26, 5:40, 5:57, 6:53
Combined frequency		~ 10 mins	~ 10 to 20 mins

The Huntingfield site is served by fewer routes, including the 412, 413, 415, 416 and 417 which operate to various points along the Channel Highway corridor. The Huntingfield Terminus has a combined 20-minute frequency in peak periods.

Table 3.2 Existing bus service level at the Huntingfield Park-and-Ride site

Route	Area/Corridor	AM peak inbound (Arr. Hobart 6–9 am)	PM peak outbound (Dep. Hobart 4–7 pm)
412	Channel Highway	6:31, 7:59, 8:18	4:51, 5:26, 6:38
413	Channel Highway	7:52	5:42
415	Chanel Highway	7:27, 8:04	4:33, 6:10
416	Channel Highway	7:08, 8:05	4:38
417	Channel Highway	–	5:12
Combined frequency		~ 20 to 30 mins	~ 20 mins

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3.2.2 ACCESS AND TRAVEL TIME

Access to the Park-and-Ride sites

The Browns Road Park-and-Ride serves the catchment of Kingston, Kingston Beach and Blackmans Bay. Bus routes serve various corridors before converging at Kingston Central and continuing along Browns Road and the Southern Outlet towards Hobart City Interchange. The Channel Highway bus routes also serve Browns Road, however commuters in this catchment are more likely to use the Huntingfield site as its access is more direct.

Table 3.3 compares travel times by bus and car from key locations in the Kingston/Blackmans Bay area to the Park-and-Ride site. Locations in Blackmans Bay have a travel time saving of roughly 50 per cent by car compared to bus routes, however bus travel times are more competitive for locations in Kingston and Kingston Beach.

Table 3.3 Comparison of bus and car travel times to Browns Road from bus stops in the Kingston area

Map ref	Bus stop name	Inbound (mins)			Outbound (mins)		
		Bus	Car	Dif.	Bus	Car	Dif.
L	Kingston Central, Channel Highway	2	2	**0**	2	2	**0**
K	Maranoa Road/Redwood Road	7	7	**0**	5	5	**0**
J	Hawthorn Drive, Kingston Fire Station	10	10	**0**	8	8	**0**
I	Algona Road/Opal Drive	16	10	**6**	13	9	**4**
H	Woodlands Drive/Edison Avenue	19	12	**7**	16	12	**4**
G	Auburn Road/Heath Court	12	5	**7**	8	6	**2**
F	Kingston Beach, Beach Road	10	6	**4**	8	6	**2**
E	Roslyn Ave/Algona Rd	17	9	**8**	13	8	**5**
D	Blackmans Bay, Illawarra Road	20	12	**8**	19	10	**9**
C	Wells Parade/Kulgoa Place	21	12	**9**	16	12	**4**
A/B	Wells Parade/Clearwater Court/Suncoast Drive	24	12	**12**	21	12	**9**

The Browns Road Park-and-Ride also serves the Huon Valley catchment to the south and west of Kingston. Tassielink services follow Summerleas Road to Kingston Central and continuing along Browns Road and the Southern Outlet towards Hobart City Interchange.

Table 3.4 compares travel times by bus and car from key locations in the Huon Valley to the Park-and-Ride site. Locations in Huon Valley have a travel time saving of roughly 30 per cent by car compared to bus routes to access the Browns Road site, however bus travel times are more competitive for locations closer to Kingston such as Sandfly and Lower Longley.

Table 3.4 Comparison of bus and car travel times to Browns Road from bus stops in the Huon Valley

Map ref	Bus stop name	Inbound (mins)			Outbound (mins)		
		Bus	Car	Dif.	Bus	Car	Dif.
M	Kingston Central, Channel Highway	3	3	**0**	3	3	**0**
J	Sandfly, Huon Highway/Sandfly Road	23	14	**7**	14	10	**4**
I	Lower Longley, Huon Highway/Huon Road	28	16	**12**	19	12	**7**
H	Grove, Huon Highway/Mountain River Road	35	20	**15**	25	16	**9**

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Map ref	Bus stop name	Inbound (mins)			Outbound (mins)		
		Bus	Car	Dif.	Bus	Car	Dif.
G	Huonville, Bus Station, Skinner Drive	43	28	**15**	33	24	**9**
F	Ranelagh, Marguerite Street	46	26	**20**	38	22	**16**
E	Franklin, Huon Highway near Old Road	59	35	**24**	41	28	**13**
D	Geeveston, Honeywood Lane	73	50	**23**	55	40	**15**
C	Dover, Huon Highway near Station Road	94	65	**29**	80	55	**25**
B	Cradoc, Channel Highway/Cradoc Park	50	40	**10**	43	30	**13**
A	Cygnet, Esplanade Road/Channel Highway	61	45	**16**	53	40	**13**

The Huntingfield Park-and-Ride site serves the catchment south along the Channel Highway, including the towns of Margate, Electrona, Snug, Kettering, Woodbridge, Middleton and Gordon. The bus routes along this corridor share a common route, however, terminate at various points along the Highway giving a higher service level for locations closer to Kingston and Hobart.

Table 3.5 compares travel times by bus and car from key locations along the Channel Highway to the Park-and-Ride site. Stops closer to the site such as Margate and Snug have a minimal decrease, while stops further afield including Kettering, Woodbridge, Middleton and Gordon have a travel time saving of 10 to 20 minutes which equates to a 30 per cent reduction in travel time by car compared with bus.

Bus customers from these areas may be more likely to use the Park-and-Ride due to the travel time saving compared with their existing bus services and their less frequent bus service compared with locations closer to Kingston and Hobart.

Table 3.5 Comparison of bus and car travel times to Huntingfield from bus stops along the Channel Highway

Map ref	Bus stop name	Inbound (mins)			Outbound (mins)		
		Bus	Car	Dif.	Bus	Car	Dif.
I	Margate Central, Channel Highway	10	9	**1**	6	6	**0**
H	Margate, Incana Road/Brigalow Street	13	12	**1**	10	9	**1**
G	Snug Central, Channel Highway	19	16	**3**	15	12	**3**
F	Snug, Charlton Street/Cutana Parade	23	16	**7**	18	14	**4**
E	Kettering Cemetery, Channel Highway	33	22	**11**	26	18	**8**
D	Kettering, Ferry Terminal	36	24	**12**	28	20	**8**
C	Woodbridge, Channel Highway/Thomas Road	44	28	**12**	36	24	**12**
B	Middleton, Channel Highway/Beach Road	52	35	**17**	44	35	**9**
A	Gordon, Channel Highway	57	40	**17**	49	40	**9**

The Browns Road and Huntingfield sites are located off the Southern Outlet, meaning that potential park-and-ride customers would be required to make a detour from their journey to park at the site and board a bus when compared to an end-to-end car journey to Hobart CBD. Current users of private vehicles for travel to Hobart city centre will be conscious of the potential disadvantages of park-and-ride compared with an end-to-end private vehicle journey, particularly in terms of the time taken to access the car park.

Figure 3.3 and Figure 3.4 demonstrate the distance that can be travelled directly by car in the same amount of time that it takes to access the park-and-ride from various corridors.

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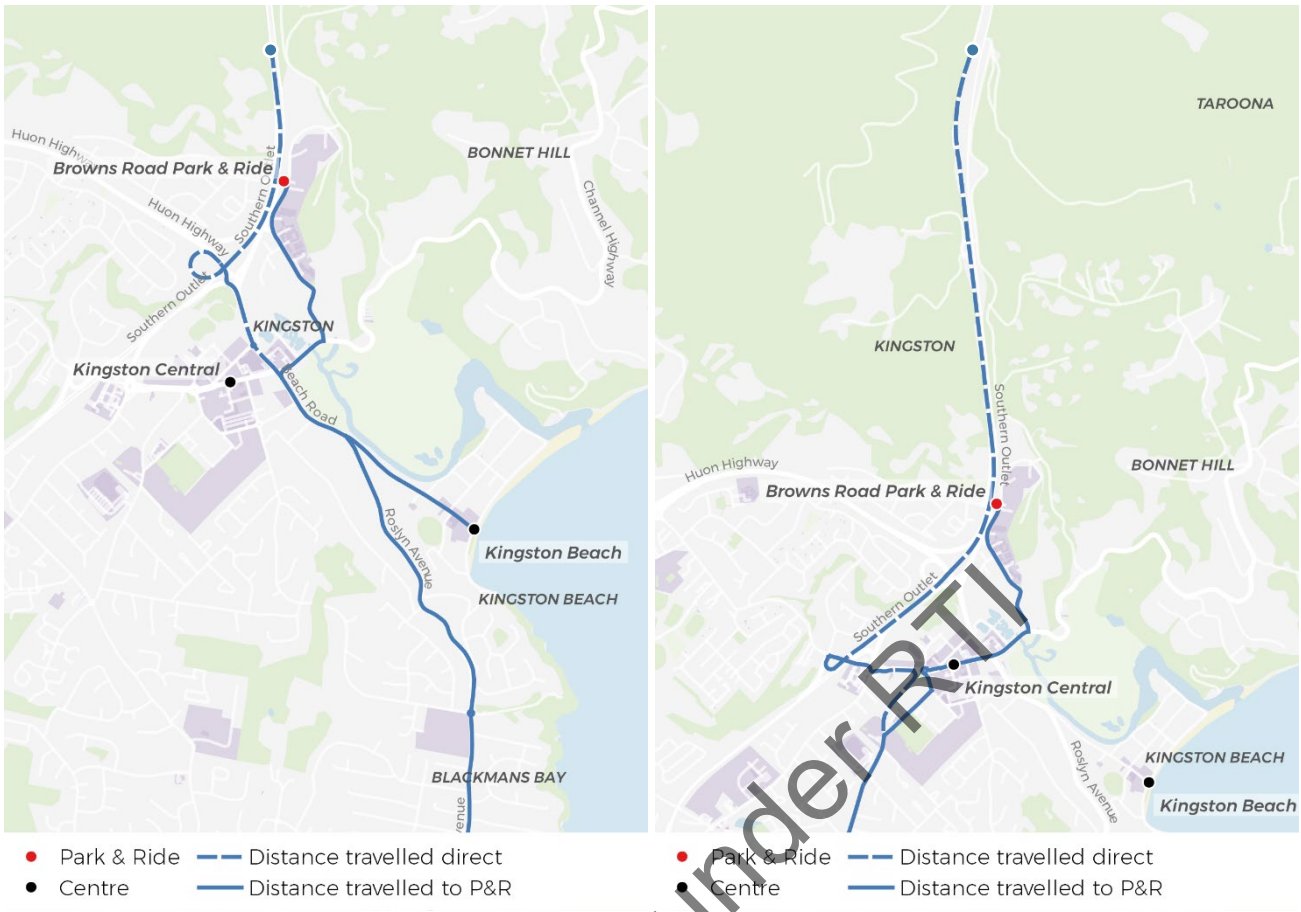

Figure 3.3 Distance covered by car vs bus in the same travel time from Kingston Beach to Browns Road (left) and from the Huon Highway to Browns Road (right)

The Browns Road site has the largest access penalty as there are no south-facing ramps at the interchange. Customers are required to drive through Kingston Central to access the site from all directions. When approaching from Rosslyn Avenue, a direct car journey reaches just a few hundred metres along the Southern Outlet when compared to the park-and-ride site (Figure 3.3). Customers from Maranoa Road can travel roughly 3 km further along the Southern Outlet (Figure 3.4) in the time taken to drive to the site. Customers approaching from the Huon Highway have the highest travel time penalty, and can reach Tolmans Hill by car in the time taken to access the park-and-ride site via Kingston Central (Figure 3.4).

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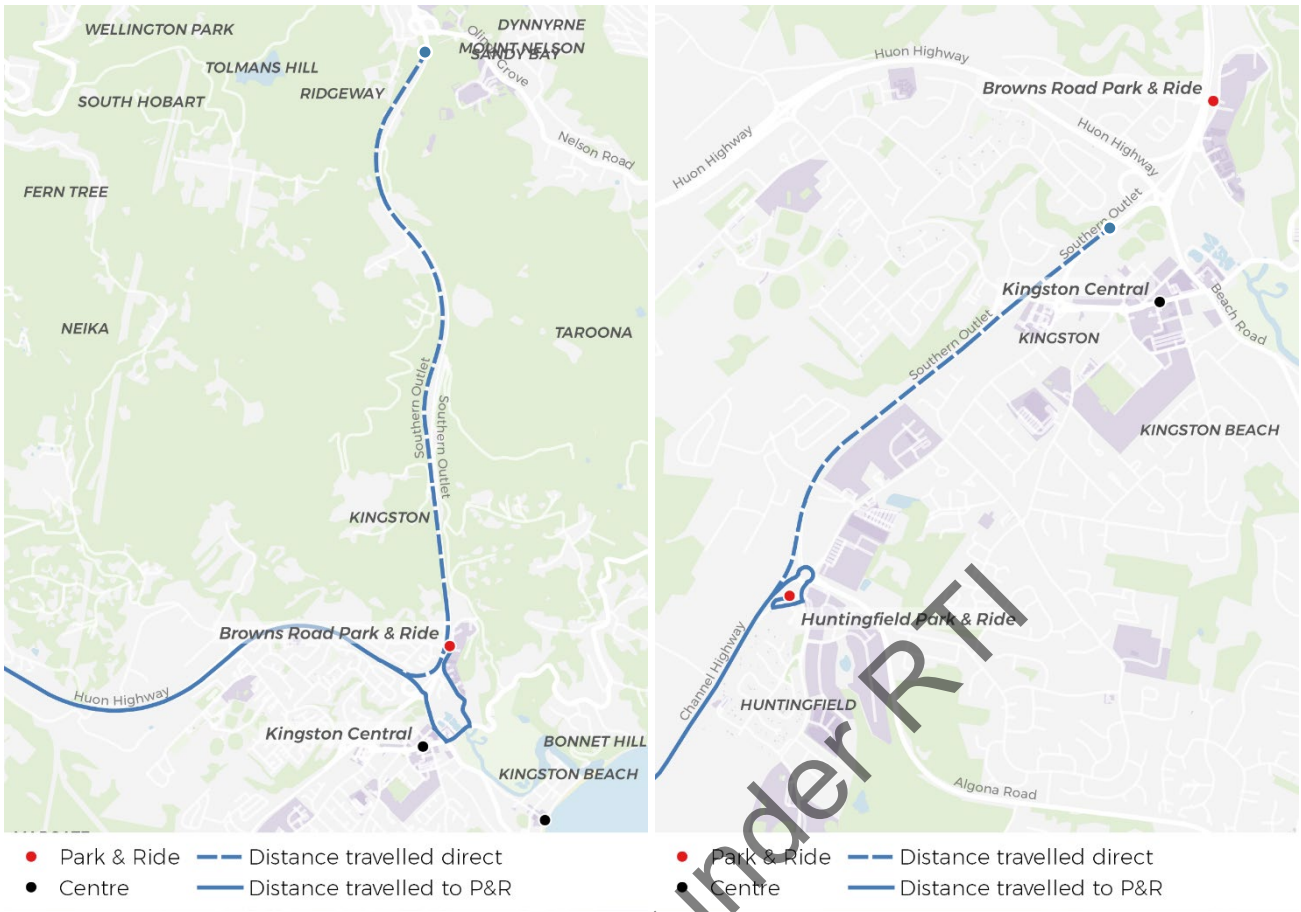

Figure 3.4 Distance covered by car vs bus in the same travel time from Maranoa Road to Browns Road (left) and from the Channel Highway to Huntingfield (right)

The Huntingfield park-and-ride site is more conveniently located adjacent to the Southern Outlet and Channel Highway. There is a travel time penalty to exit the highway, with a direct car journey reaching the interchange of the Southern Outlet and Huon Highway in the time taken to access the park-and-ride (Figure 3.4).

End-to-end travel time

Although there is a travel time penalty to access the proposed sites when compared with a direct car journey, end-to-end travel times using park-and-rides would be competitive with existing direct bus journeys and may approach direct car journeys with bus priority improvements along the Southern Outlet and Macquarie and Davey Streets (though it is noted that these priority measures will benefit existing bus users as well). The figures and tables below compare expected travel times of park-and-ride journeys with and without bus priority measures to existing direct bus and car journeys to the CBD. It is assumed that there is a 5-minute transfer time at the park-and-rides to park-and-walk to the bus stop, however average wait times are not included.

Park-and-Ride travel times without bus priority are similar to direct bus journeys for the Kingston and Blackmans Bay area due to the relatively short distance between the origin stops and the Browns Road site. For closer stops near Kingston Central, the overall travel time could be longer when accounting for the time needed to park and transfer.

The example of Blackmans Bay is shown in Figure 3.5. The Park-and-Ride travel time for the Browns Road site is competitive with a direct car journeys to Hobart CBD when bus priority measures are taken into account. This suggests that there is minimal benefit for existing bus customers to use the park-and-ride facility as the time taken to transfer would outweigh the travel time saved by driving to the Browns Road stop. End-to-end travel times for all key bus stops in the Kingston and Blackmans Bay area are shown in Appendix A, Table A.1.

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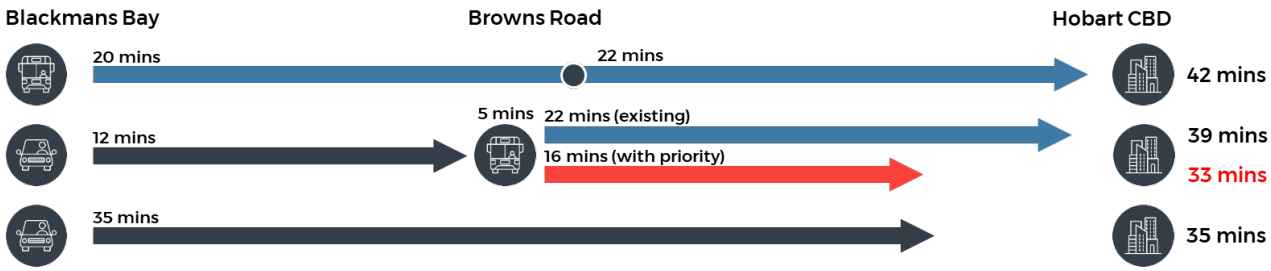

Figure 3.5 Travel time comparison from Blackmans Bay to Hobart CBD by bus, car and park-and-ride

Travel times from the Huon Valley to Hobart CBD vary more greatly between bus and car due to the longer distances travelled. Nearer locations such as Sandfly have bus travel times roughly 15 minutes longer than driving, while for further locations such as Dover the difference is as much as 40 minutes.

The example of Huonville is shown in Figure 3.6. The Park-and-Ride travel time is 8 minutes faster than the bus under existing conditions, and 14 minutes faster with bus priority. The park-and-ride travel time with bus priority is just four minutes slower than a direct car journey of 45 minutes to the Hobart CBD. End-to-end travel times for all key bus stops in the Kingston and Blackmans Bay area are shown in Appendix A.

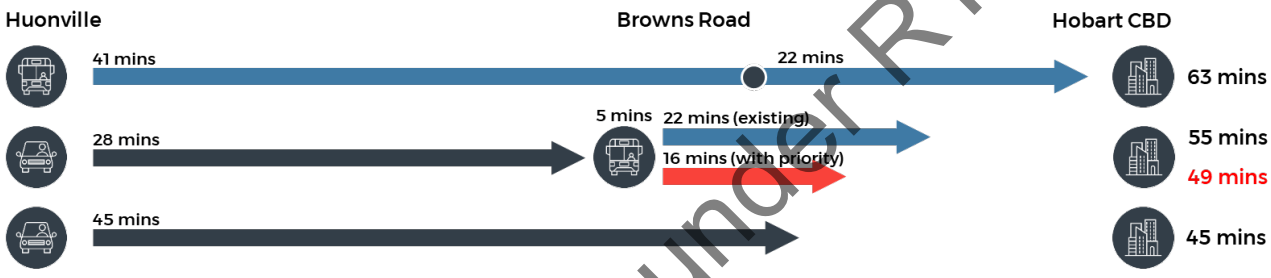

Figure 3.6 Travel time comparison from Huonville to Hobart CBD by bus, car and park-and-ride

This table also includes two bus service scenarios: the existing route via Kingston Central and Browns Road, and a potential express route that bypasses Kingston Central via the Southern Outlet. Bus journeys take roughly 30 per cent longer than car journeys for most stops along the corridor. Park-and-Ride travel times are similar to existing bus journeys under existing conditions, however, are closer to car journey times when express routes and bus priority are considered.

The example of Snug is shown in Figure 3.7. The Park-and-Ride travel time is 4 minutes slower than the bus under existing conditions, but nearly the same as a direct car journey with an express route and bus priority. End-to-end travel times for all key bus stops along the Channel Highway corridor are shown in Appendix A.

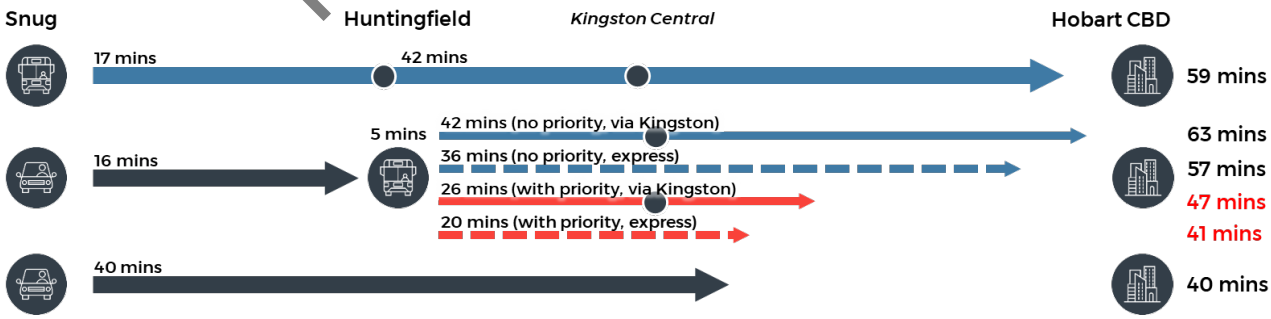

Figure 3.7 Travel time comparison from Snug to Hobart CBD by bus, car and park-and-ride

The two park-and-ride sites will offer park-and-ride customers competitive travel times compared with private car, assuming direct express bus services and the provision of effective bus priority on the Southern Outlet. This suggests that park-and-ride supported by quality bus services and infrastructure, may be an attractive option for private vehicle users. However, at the same time, park-and-ride, particularly with express bus services, will offer substantial travel time savings compared to existing bus services, highlighting the potential for existing bus customers to be attracted to park-and-ride.

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The Browns Road park-and-ride site has less direct access by car than the Huntingfield site for most customers south of Kingston.

3.2.3 SITE OPPORTUNITIES AND CONSTRAINTS

Car access to the Browns Road Park-and-Ride site is difficult and not likely to be improved. It should also be noted that many users of existing parking opportunities off Browns Road are likely staff and visitors of nearby businesses. For Kingborough and Huon Valley residents, park-and-ride from this site offers some travel time benefit over bus-only journeys. Priority improvements on the Southern Outlet and Macquarie/Davey Streets will benefit all bus users. The bus frequency serving the park-and-ride is reasonably good which may be a factor in attracting park-and-ride among existing bus customers.

However, existing outbound bus routes discourage park-and-ride; and pedestrian access to stops is poor, because the closest outbound bus stop is some 300 metres south of the car park site. Pedestrian improvements required to and around inbound bus stop. The best option for encouraging park-and-ride at the Browns Road site would be the introduction of an additional park-and-ride bus service that could reduce transfer time car-bus by having inbound and outbound stops at the car park. Diverting all outbound buses closer to the park-and-ride would disadvantage other bus customers. Two outbound buses per hour could initially be diverted to the stop, providing capacity for around 100 park-and-ride customers per hour.

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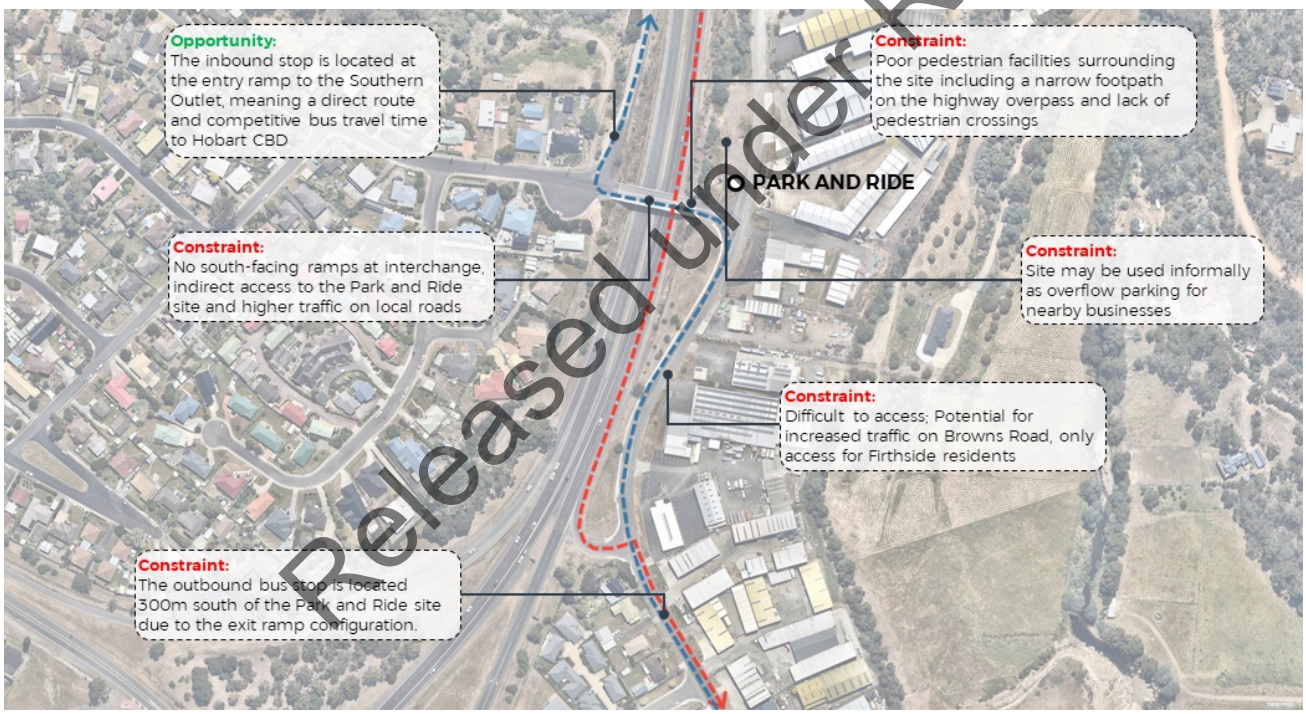

Figure 3.8 Opportunities and constraints – Browns Road Park-and-Ride site

The Huntingfield Park-and-Ride is most accessible for residents to the south of the site as it has reasonably direct access to and from the Channel Highway with the potential for express bus services to Hobart CBD from this site, rather than operating via Kingston town centre. Existing inbound and outbound bus routes discourage park-and-ride as all services run through Kingston Central and Browns Road, offering a less attractive journey than private vehicles which can use the Southern Outlet directly. Park-and-ride could offer substantial travel time benefits over a bus-only journey if services were to use the Southern Outlet from Huntingfield, approaching car travel times. Priority measures on the Southern Outlet and Macquarie/Davey would also improve travel times and benefit all bus users in Kingborough. The focus of the bus service model for Huntingfield should be on improving frequency, directness and reducing bus travel times to the city centre.

There is however a risk of cannibalisation from other bus services via Kingston Central if only park-and-ride buses have improved travel time – there may be a need to consider express services from the south to deter existing bus users from changing to park-and-ride. There is also a need to consider the impact on access to Kingston Central and Browns Road if services are diverted via the Southern Outlet. Bus frequency at the stop is poor and should be supplemented to provide an attractive travel time and frequency for Park-and-Ride customers. There is also potential for an active transport connection from new development to the west of the site.

It was also observed that the existing informal parking at Huntingfield likely has some private vehicle ridesharing and use by local businesses.

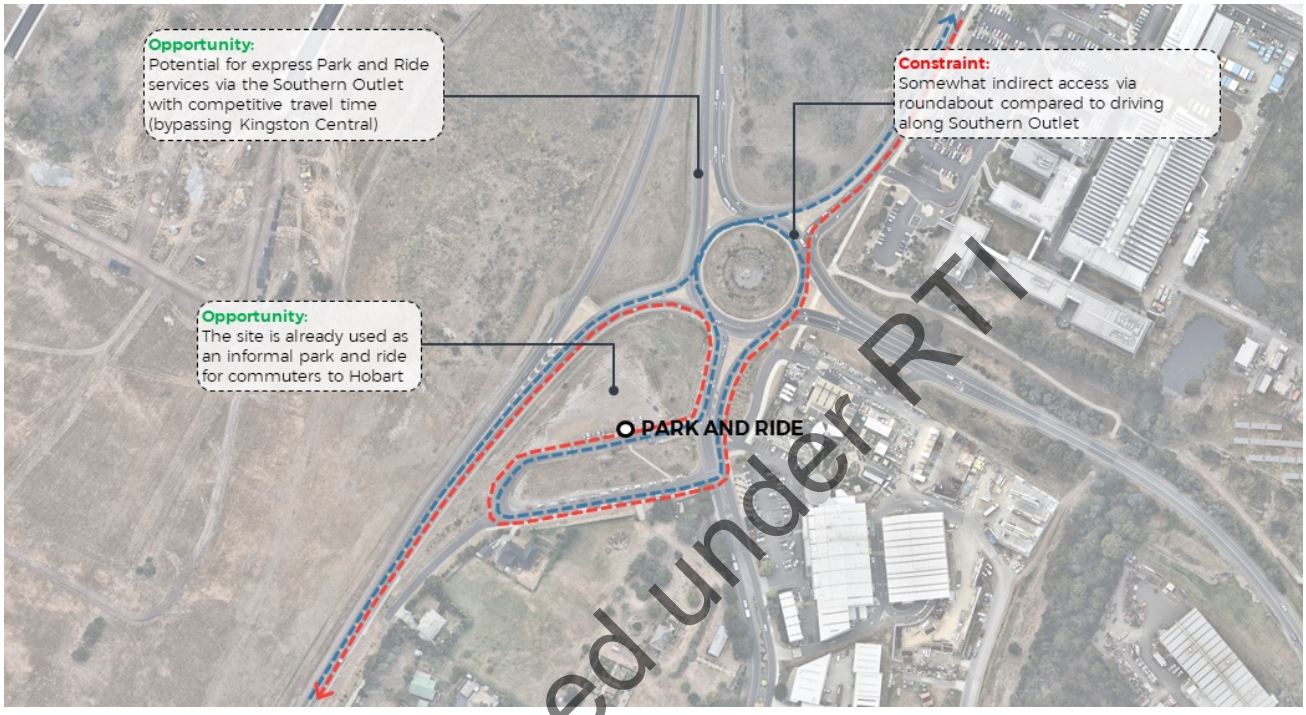

Figure 3.9 Opportunities and constraints – Huntingfield Park-and-Ride site

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3.3 BUS SERVICING OPTIONS

There are three key bus servicing options for the park-and-ride sites, each with different characteristics:

- Serving park-and-ride sites by existing bus services
- Introducing a separate bus service, differentiated from the rest of the bus network (similar to a Skybus style operation)
- Integrating supplementary park-and-ride bus services with the existing bus network.

Table 3.6 Bus servicing options and characteristics

Existing bus network	Stand-alone Park-and-Ride	Integrated Park-and-Ride
— Existing bus routes serve both sites, with varying levels of service frequency and accessibility. — Market park-and-ride and improve bus stop infrastructure. — Build on informal park-and-ride with formal park-and-ride facilities.	— Dedicated fleet, livery. — Tailored park-and-ride infrastructure. — Designated stops. — Real-time information. — Separate tickets/fares. **Examples:** — Orbiter-style branded product, separate to city bus network (Christchurch, NZ). — Numerous examples in major cities in the UK such as Cambridge, Oxford and York. — SkyBus (not Park-and-Ride focused but has dedicated fleet and livery).	— Park-and-ride integral to overall service offer (provided as one way to access Hobart bus services). — Standard fleet, may have different livery for park-and-ride routes; or services differentiated by route number (i.e. like Auckland's NX routes). — Services commencing from park-and-ride or nearby to provide capacity; and operating more direct or more frequent routes. — Other bus network improvements to supplement park-and-ride. — Park-and-ride access with metro card. **Examples:** — Northern Busway (Auckland, NZ). — Northern Beaches B-Line (Sydney, NSW). — Doncaster Area Rapid Transit (DART) (Melbourne, VIC).

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3.3.1 BROWNS ROAD

The three bus servicing options for the Browns Road park-and-ride site are shown in are shown in Figure 3.10 to Figure 3.12.

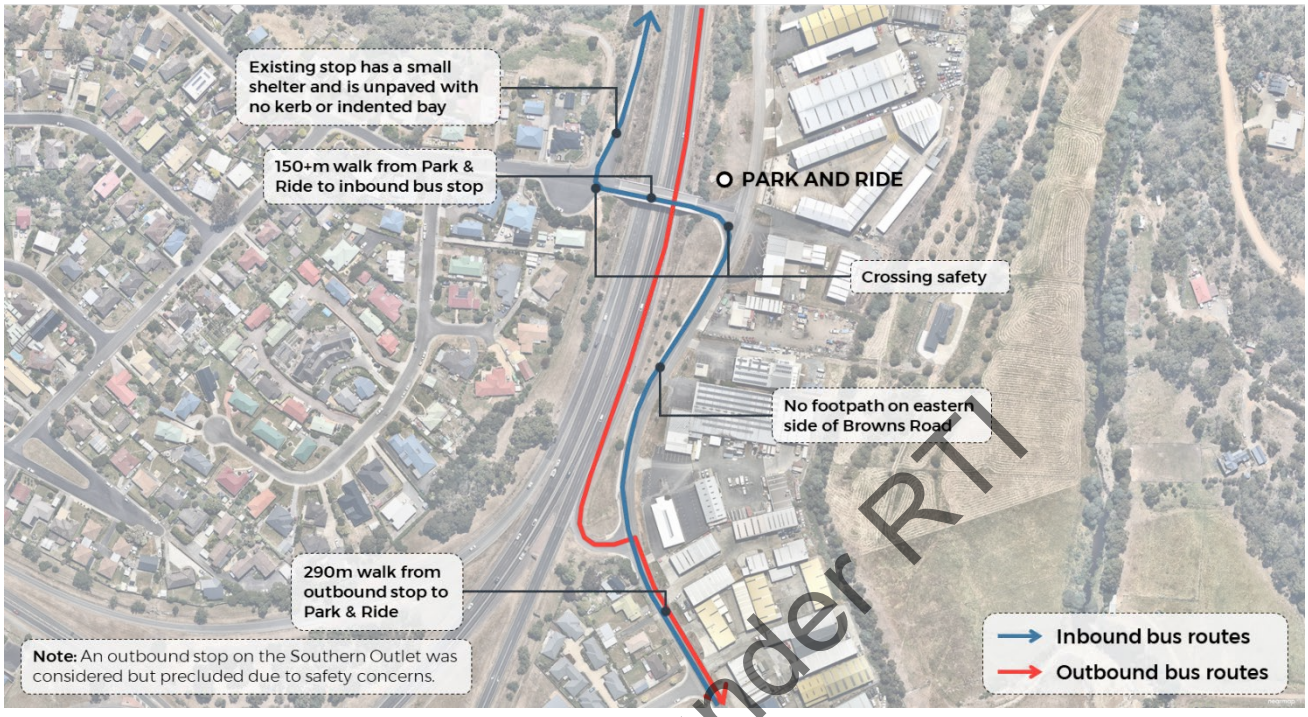

Figure 3.10 Browns Road – Option 1 (existing service)

Figure 3.11 Browns Road – Option 2 (dedicated service)

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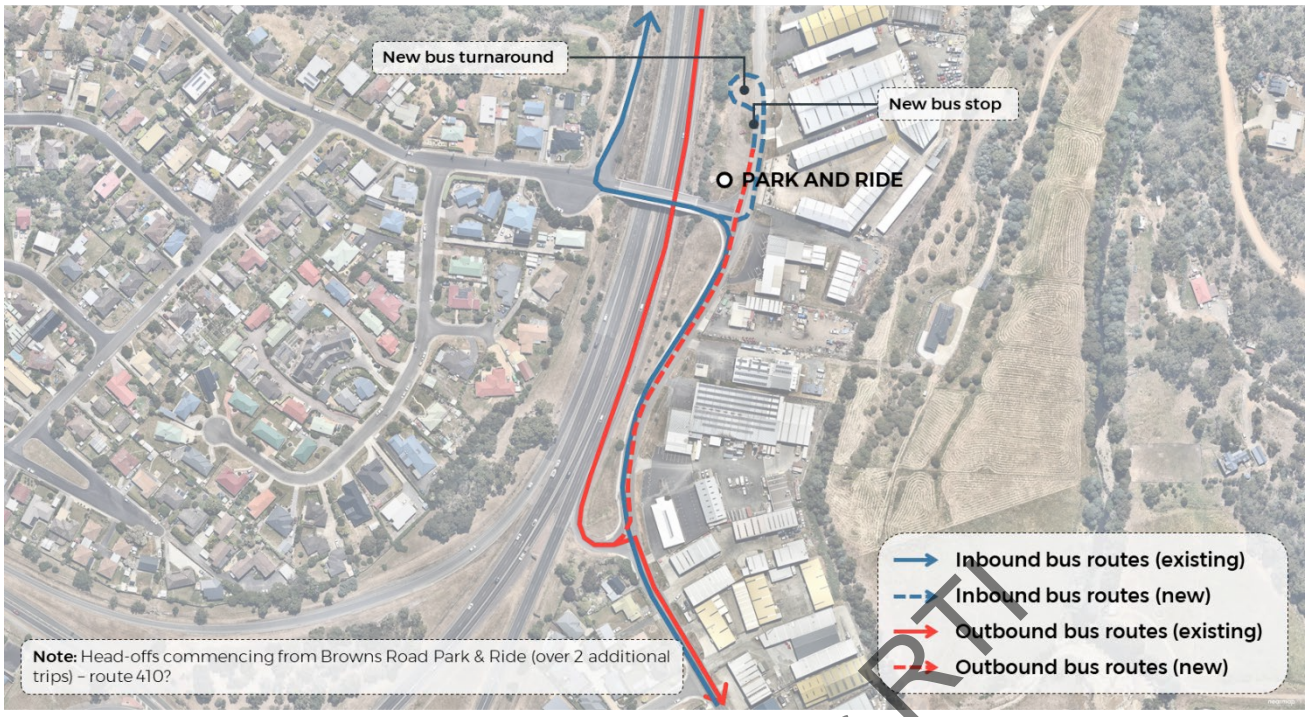

Figure 3.12 Browns Road – Option 3 (integrated service)

In the Existing Bus Network Model, the frequency of buses passing the site is reasonable, though we understand capacity on peak period buses varies and there may not be sufficient capacity at peak times to accommodate a higher park-and-ride demand.

While the inbound bus stop is relatively close to the car park site, the outbound bus stop is some 300 metres south, because of the location of the Kingston exit of the Southern Outlet. While park-and-ride users would have relatively direct access to the inbound bus stop, the outbound stop would require an almost 5-minute walk back to the car park. Existing bus services don't offer an attractive park-and-ride experience; and diversion of bus routes to better serve the park-and-ride site would increase travel time for other bus customers.

These factors likely explain the low use of the site by park-and-ride users. In addition, park-and-ride facilities are informal, footpaths are incomplete and park-and-ride users would need to negotiate numerous conflict points with vehicles.

In the Stand-Alone Park-and-Ride service option, a new bus route would be introduced commencing from the park-and-ride site and operating direct to and from the Southern Outlet. This would require a new bus stop and layover at the car park, as well as a facility for buses to turn. It is not clear if the park-and-ride site has sufficient capacity to support a stand-alone bus service.

The Integrated Park-and-Ride service option would operate in a similar way to the Stand-Alone option and have similar infrastructure requirements. Services would be provided by variations to an existing bus route (say by introducing supplementary services) or diversion of an existing route. The relative infrequency of services on bus routes serving the site means it would be impractical to serve the site by diverting one bus route. It is likely supplementary services would need to be introduced as part of the existing bus network.

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3.3.2 HUNTINGFIELD

The three bus servicing options for the Huntingfield park-and-ride site are shown in are shown in Figure 3.13 to Figure 3.15.

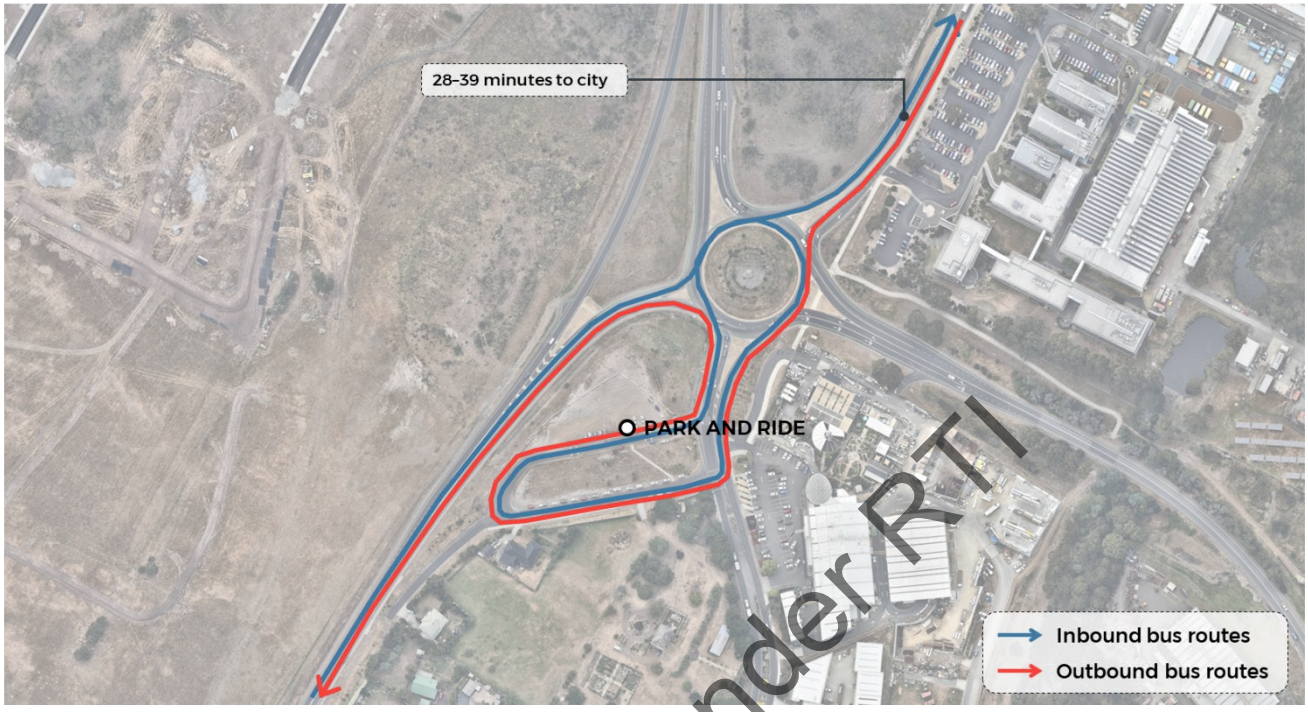

Figure 3.13 Huntingfield – Option 1 (existing service)

Figure 3.14 Huntingfield – Option 2 (dedicated service)

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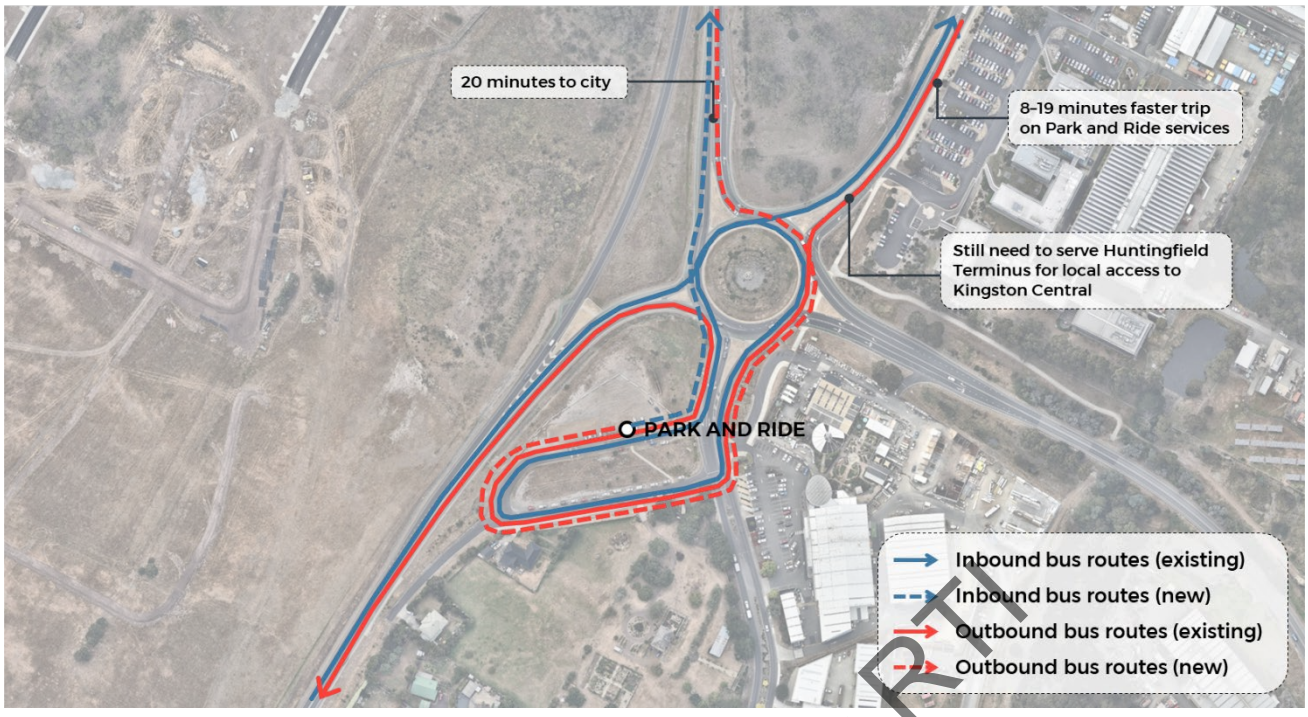

Figure 3.15 Huntingfield – Option 3 (integrated service)

In the existing service option, the park-and-ride at Huntingfield would be formalised and continue to be served by existing Channel Highway bus routes as part of their normal route. However, these services are infrequent, with only eight bus departures in 3 hours during the morning peak period. In addition, existing bus services operate via Kingston town centre, increasing travel time compared to more direct routes on the Southern Outlet by private vehicle.

Under the Stand-Alone service option, a new park-and-ride bus service would be introduced commencing at the park-and-ride site and operating direct to Hobart city centre via the Southern Outlet, bypassing Kingston town centre.

In the Integrated Service option, while existing bus services would continue to serve the site, operating to Kingston and Hobart city centre, additional supplementary services would commence at the site, operating via the Southern Outlet direct to Hobart city centre.

As with the Stand-Alone option this service approach would provide a high quality service for park-and-ride customers, with travel times substantially shorter than existing bus services and would be likely to see existing bus users attracted to park-and-ride, or kiss-and-ride, depending on access to a private vehicle.

This service option would likely need to include improvements to existing bus services to reduce travel times, to avoid abstraction from bus customers south of Kingston and along the Channel Highway.

3.3.3 PREFERRED OPTION

WSP consulted with State Growth about the bus service options, recommending the Integrated Service option would best balance provision of a park-and-ride offer with promotion of public transport in Hobart more generally.

Following a review of the bus service plan and the opportunities and constraints of both sites for provision of car parking and supporting infrastructure, the Department of State Growth determined that the park-and-ride bus service model would focus on the Huntingfield site. While improvements would be made to customer facilities at the Browns Road Firthside site, no bus service changes would be made for that site to encourage park-and-ride there.

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3.4 PROPOSED BUS SERVICING PLAN

The proposed bus servicing plan includes a new park-and-ride route from Huntingfield to Hobart CBD express via the Southern Outlet. This route would be supplemented by three peak-only express routes from Blackmans Bay, Snug and Huonville to ensure that park-and-ride customers are not the only beneficiaries of improved travel time and directness (given the low frequency of bus services, particularly south of Huntingfield, and customer demand for destinations between Huntingfield and Kingston, it is not feasible to divert existing routes to operate only on the Southern Outlet). These proposed routes are shown in Figure 3.16 and detailed in Table 3.7. Some minor adjustments and potential on-demand services also proposed to existing routes in the Kingston area.

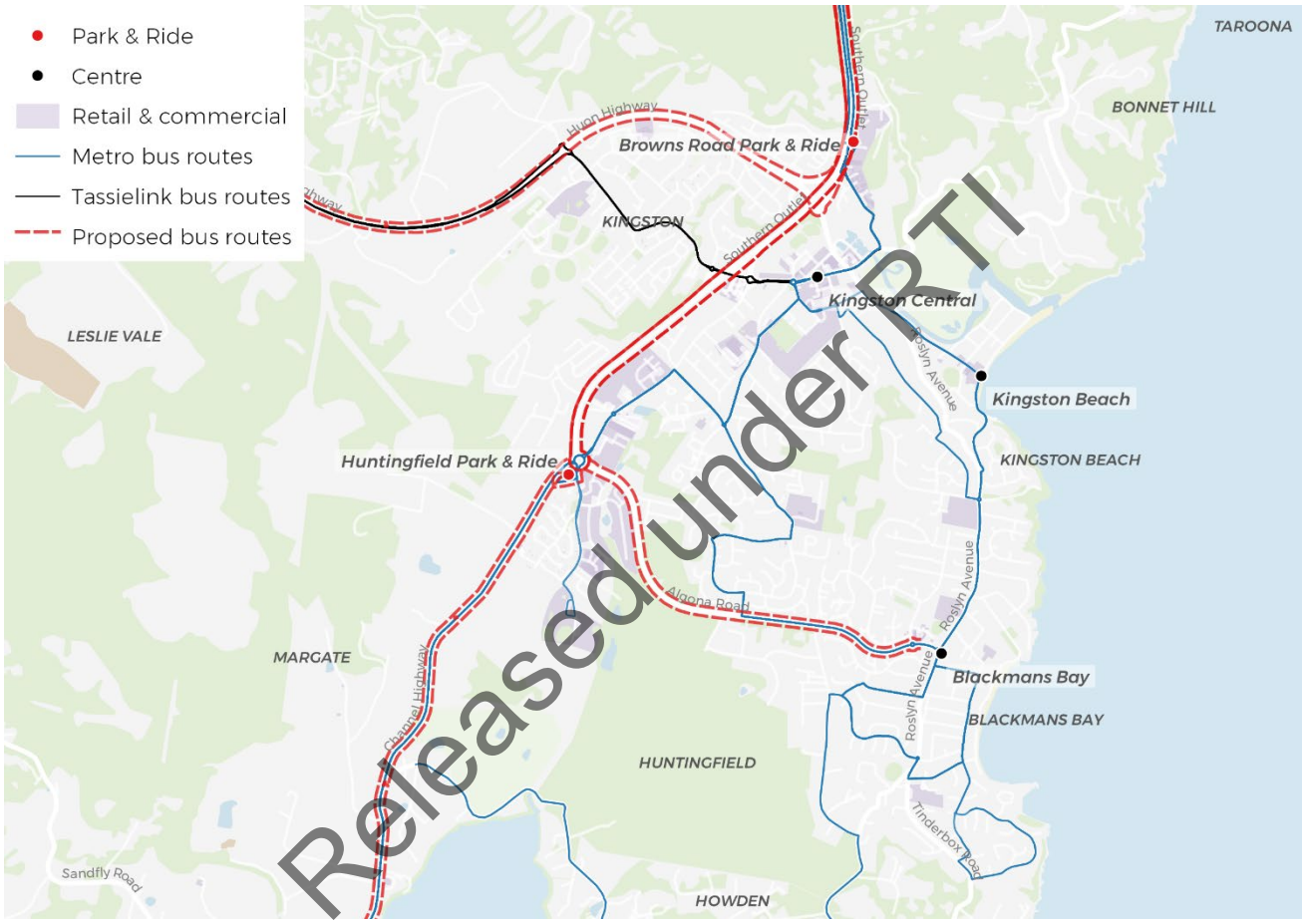

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Figure 3.16 Proposed bus routes included in the Bus Service Model

Table 3.7 Proposed park-and-ride and express routes

Route	Destination	Operating hours	Peak frequency (6–9 am, 4–7 pm)	Counter-peak frequency	Off-peak frequency
Park-and-ride Route	Huntingfield Terminus	6.00 am to 9.00 pm	30 mins	30 mins	60 mins
Express Route 1	Blackmans Bay	Peak-only	30 mins	-	–
Express Route 2	Snug	Peak-only	30 mins	-	–
Express Route 3	Huonville	Peak-only	60 mins	-	–

3.4.1 PARK-AND-RIDE ROUTE

A park-and-ride route is proposed for the Huntingfield Park-and-Ride, running express to Hobart CBD via the Southern Outlet and bypassing Kingston Central. This route is proposed to operate Monday to Friday, every 30 minutes in peak hours and every 60 minutes off-peak. This would provide relatively frequent services, with fast and direct access to Hobart city centre, with travel times approaching car-only travel times from Huntingfield. The proposed service level would have capacity for around 100 people per hour, potentially providing a substantial reduction in private vehicles on the Southern Outlet, assuming use by existing private vehicle users.

It will be important that the park-and-ride route operates at peak and off-peak periods on weekdays at least, to allow for park-and-ride users who may need to travel or retrieve their vehicle outside peak periods.

The park-and-ride route should have a different route number to differentiate it from other routes, and to aid in promotion.

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Figure 3.17 Proposed Huntingfield Park-and-Ride route running express along the Southern Outlet, bypassing Kingston Central and Browns Road

No dedicated park-and-ride route is proposed for the Browns Road site as there is a high existing service level and no reductions are proposed to other services.

3.4.2 SUPPLEMENTARY EXPRESS ROUTES

Blackmans Bay express route

The bus network in Blackmans Bay connects to Kingston Central via two corridors – routes 408 and 500 via Redwood Road, and routes 407, 409 and 411 via Roslyn Avenue. The Huntingfield Terminus is currently only served by the Channel Highway corridor, and there are no bus routes that provide an east-west connection between Blackmans Bay and the Huntingfield Park-and-Ride. When the park-and-ride is implemented, it can be expected that existing and prospective bus customers in this area would be attracted to drive the short distance to Huntingfield on Algona Road and use the new express park-and-ride service.

To mitigate this potential shift, a peak-only express service, as suggested by the Department of State Growth bus planners, is proposed to operate from Blackmans Bay to Hobart CBD via Algona Road and the Southern Outlet but would not stop at the park-and-ride. This service would operate every 30 minutes in the peak direction only to supplement the existing network. This service would alleviate parking demand at Huntingfield and provide a faster alternative for the Blackmans Bay catchment, encouraging new and existing customers to stay on buses. The proposed route and existing network are show in Figure 3.18.

This route should have an express (X) designation to differentiate it from other services.

Figure 3.18 Proposed Blackmans Bay peak-only express service via Algona Road and the Southern Outlet (does not stop at Huntingfield or Browns Road Park-and-Ride)

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Snug express route

All bus services from the Channel Highway corridor currently operative via Kingston Central and Browns Road, adding a notable travel time penalty compared with the Southern Outlet. Customers from the Channel Highway are expected to be a large proportion of park-and-ride users due to the travel time savings for areas further south.

A peak-only express service is proposed to operate from Snug to Hobart CBD express via the Southern Outlet, not stopping at the Huntingfield Park-and-Ride. This service would operate every 30 minutes in the peak direction only, supplementing existing services in the peak hours and providing a faster alternative for bus customers in the Snug and Margate areas. There is also some informal commuter parking available in the Snug area which could further reduce parking demand in Huntingfield. The route of the proposed service in the Kingston area is shown in Figure 3.19.

This route should have an express (X) designation to differentiate it from other services.

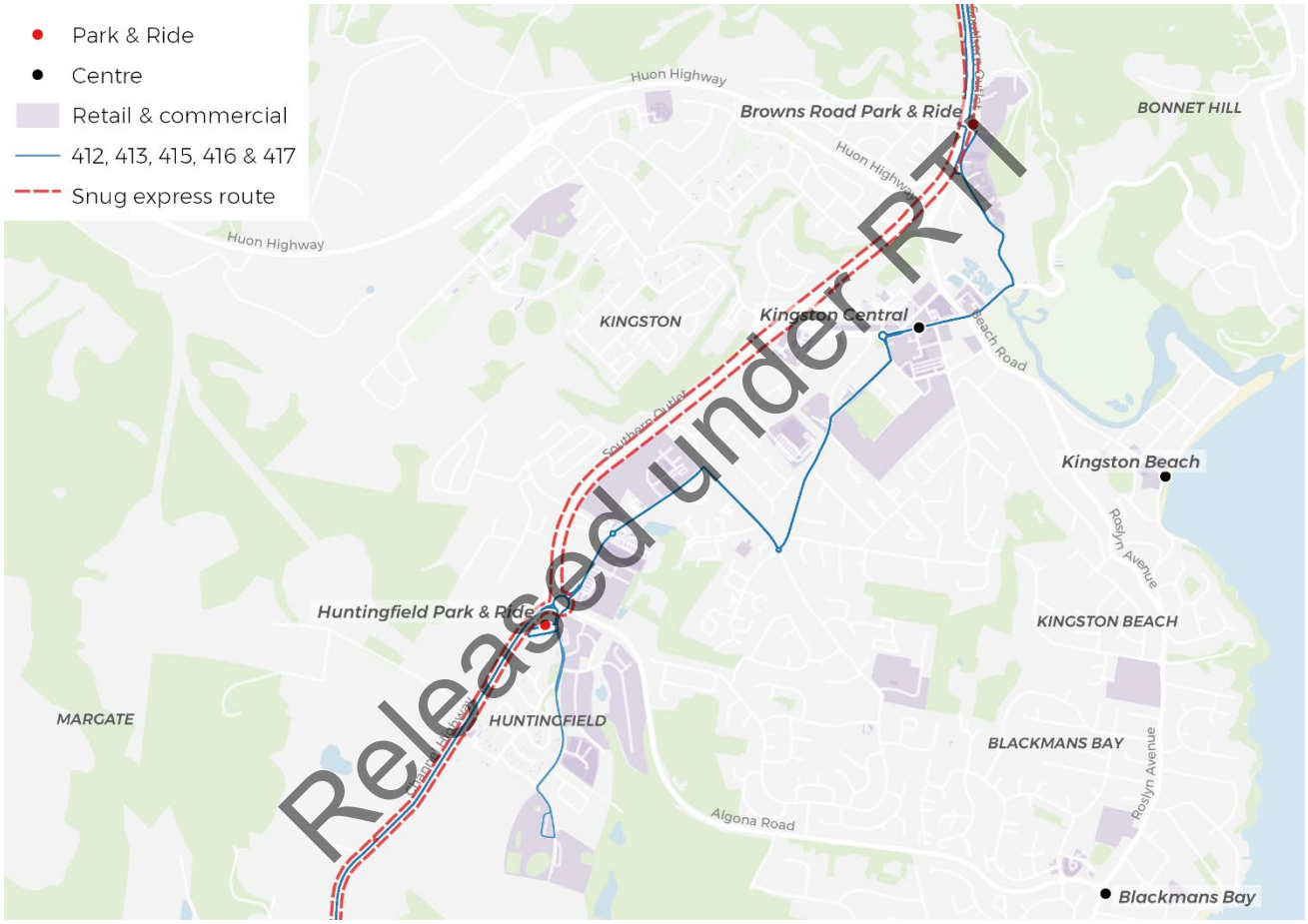

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Figure 3.19 Proposed Snug peak-only express route running via the Southern Outlet, bypassing Kingston Central and Browns Road (does not stop at Huntingfield or Browns Road Park-and-Ride)

Huonville express route

Tassielink services in the Huon Valley have the largest travel time penalty compared to driving to Hobart city centre. All Tassielink bus routes currently run via Summerleas Road, Kingston Central and Browns Road. A peak-only express service is proposed to operate from Huonville to Hobart CBD express via the Huon Highway and Southern Outlet, bypassing Kingston. This service would operate every 60 minutes in the peak direction only, supplementing existing services providing a faster alternative for bus customers from the Huon Valley. There is parking available at the Skinners Drive car park in Huonville. The route of the proposed service in the Kingston area is shown in Figure 3.20.

This route should have an express (X) designation to differentiate it from other services.

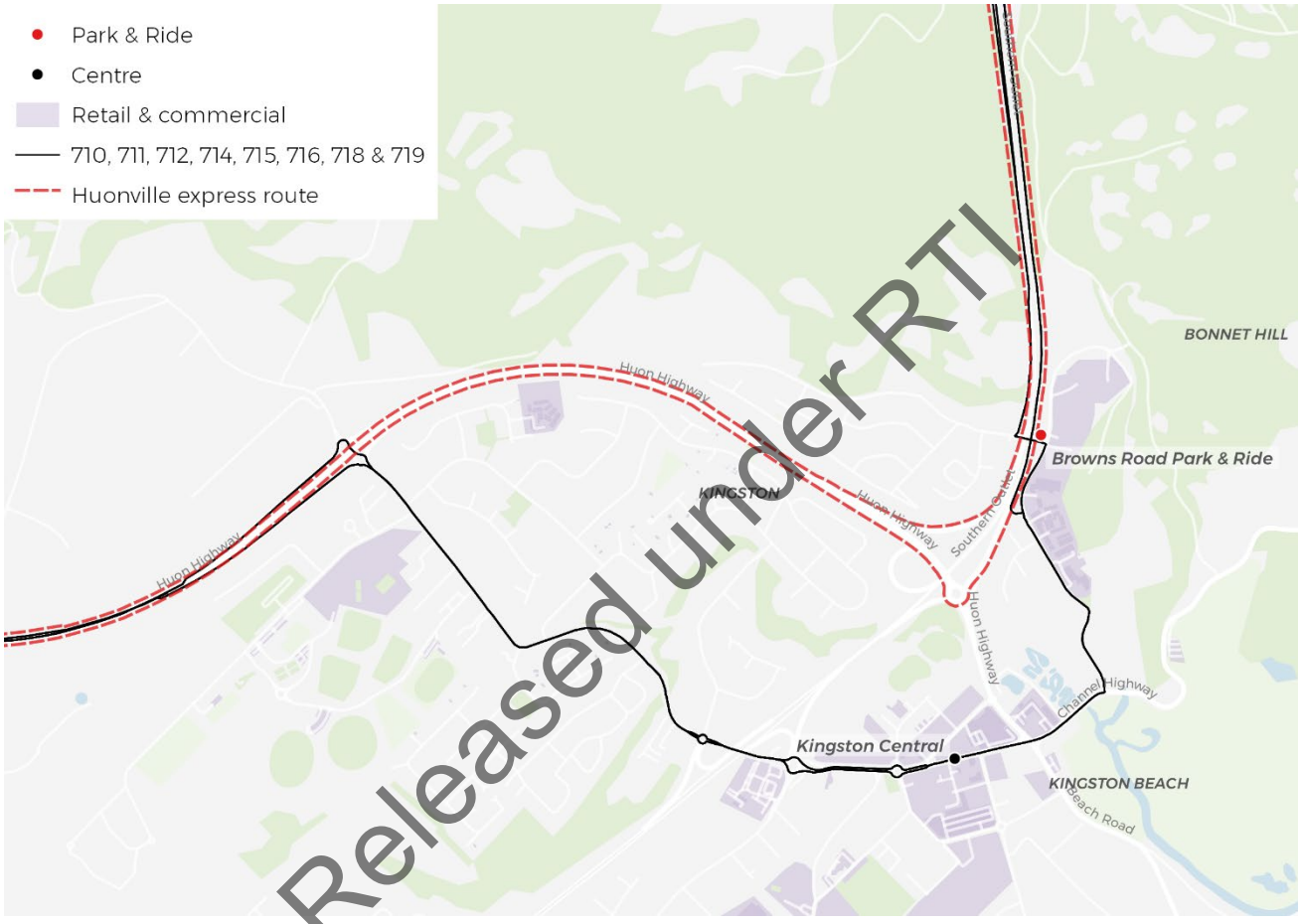

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Figure 3.20 Proposed Huonville peak-only express route running via the Southern Outlet, bypassing Summerleas, Kingston Central and Browns Road (does not stop at Browns Road Park-and-Ride)

3.4.3 OTHER NETWORK CHANGES

The bus network between Kingston and Blackmans Bay has limited coverage in some areas, with services concentrated on Roslyn Avenue (407, 409 and 411) and Redwood Road (408 and 500). There are limited opportunities to expand the coverage of the bus network in this area due to the curvilinear suburban street network with cul-de-sacs and poor permeability. There is also a large hill that influences the street network, with steep grades on some suburban streets that are not appropriate for bus routes.

Routes 408 and 500

Routes 408 and 500 share a common route between Kingston and Blackmans Bay following Redwood Road and Hawthorn Drive. The catchment could be increased by diverting route 500 at Redwood Drive thereby increasing the residential catchment (Figure 3.21). Route 408 operates at roughly an hourly frequency throughout the day however route 500 operates during peak periods only to Blackmans Bay.

Routes 407, 409 and 411

Routes 407, 409 and 411 operate on the Roslyn Avenue corridor. Route 407 and 411 operate via Kingston Beach, while route 409 run along Auburn Road to serve the residential catchment to the west of Roslyn Avenue. There are no parallel routes for the full length of Roslyn Avenue, however route 407 could be diverted via Opal Drive and Tingira Road to increase the catchment towards the west of Roslyn Avenue (Figure 3.21). Routes 407 and 409 operate at similar frequencies, however the 411 has fewer services.

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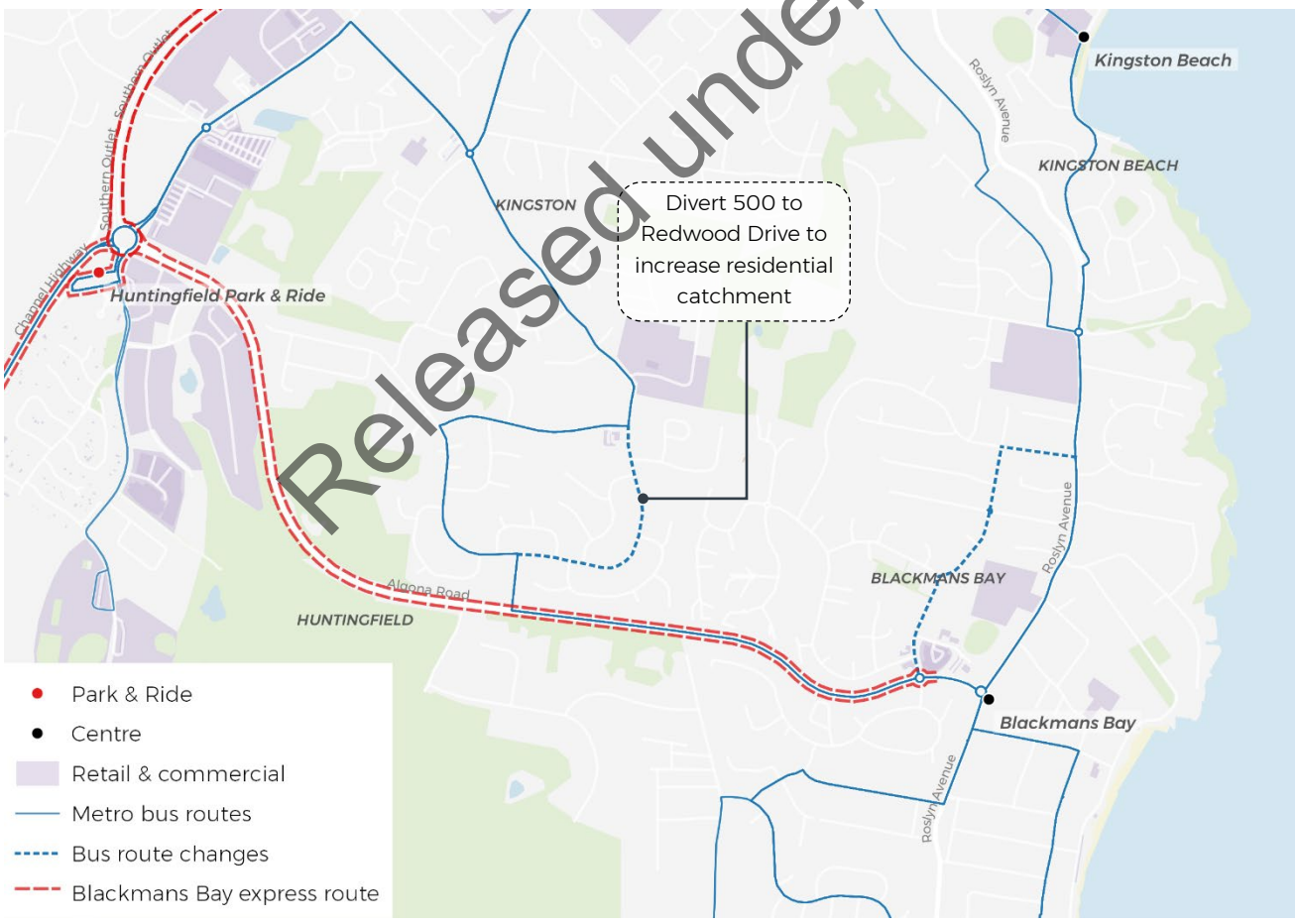

Figure 3.21 Proposed changes to existing Metro bus routes

Routes 427 and 428 (Channel Highway via Taroona)

Routes 427 and 428 duplicate routes 407 and 408 respectively in Kingston and Blackmans Bay, however travel along the Channel Highway to Hobart via Taroona instead of the Southern Outlet. This longer travel time makes demand for these routes relatively low, however they do serve important destinations such as the University of Tasmania campus at Sandy Bay.

It is envisioned that the Hobart bus network will move from a one-seat to a two-seat model in the future, and it is proposed that routes 426, 427 and 428 may eventually be consolidated and truncated at Kingston Central. Customers would be required to change bus at Kingston Central for travel to Sandy Bay. These changes should be considered in the nearer term, with additional resources used for routes 407 and 408.

3.4.4 ON DEMAND SERVICES

On Demand services should also be considered for Kingston and Blackmans Bay. These services would have the benefit of providing greater accessibility to public transport for residential areas that cannot be serviced by buses. Figure 3.22 shows potential boundaries for two On Demand areas based on natural boundaries in the street network. The Kingston On Demand area encompasses the Summerleas area, Kingston Central and Kingston Beach. The Blackmans Bay On Demand area is larger, stretching from the new housing area near Huntingfield across to Blackmans Bay. On Demand services would pick up customers from near their house, and serve destinations including Park-and-rides, key bus stops and centres such as Kingston Central and Blackmans Bay.

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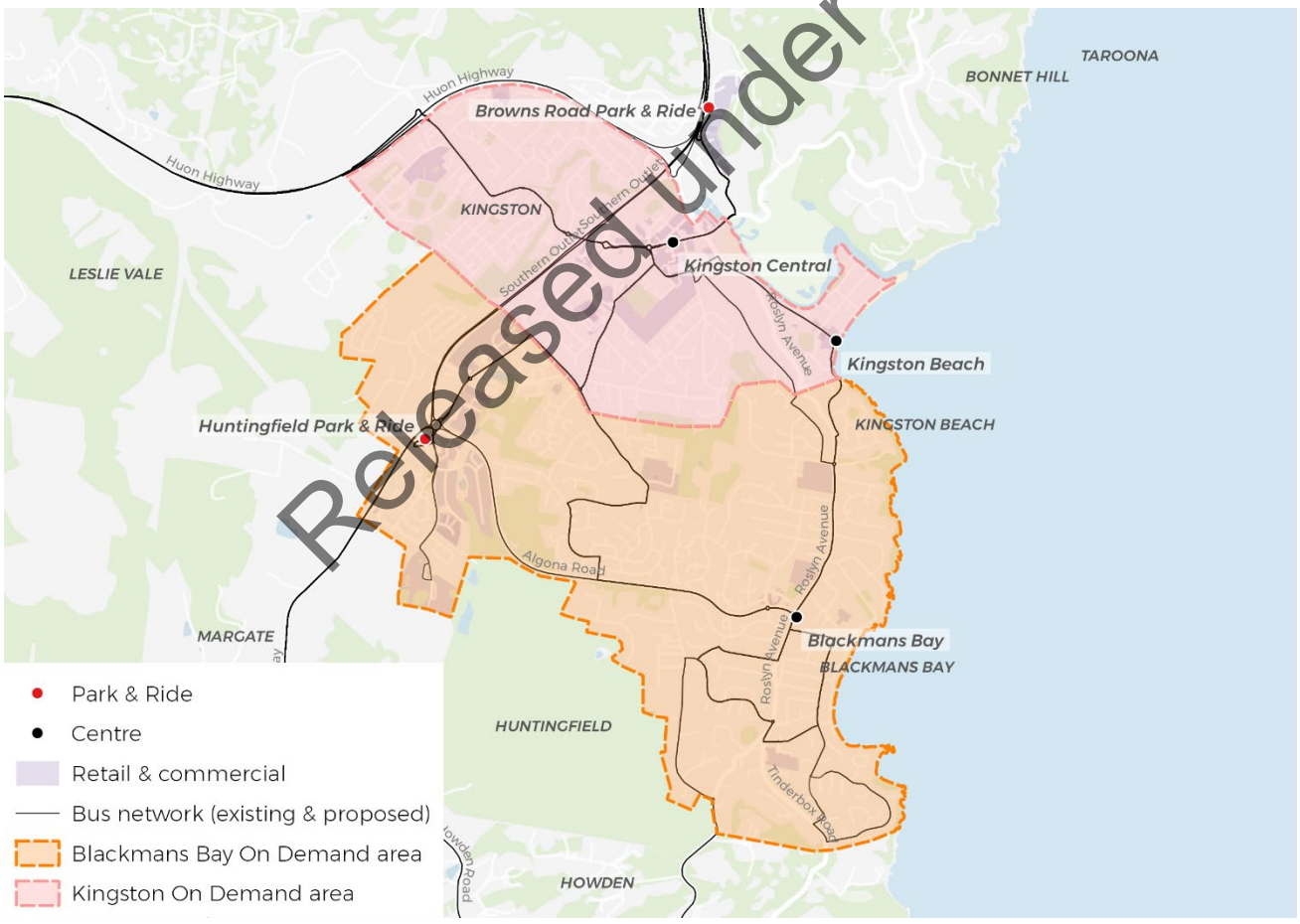

Figure 3.22 Potential On Demand service areas for Kingston and Blackmans Bay

3.5 PROPOSED SCHEDULES

Indicative schedules for each of the proposed routes are included in Table 3.8 to Table 3.14, reflecting the projected travel times, frequencies and spans discussed in previous sections of this report. Travel times assume implementation of bus priority measures on Macquarie/Davey Streets and the Southern Outlet.

The Huntingfield Park-and-Ride route requires two buses to operate, with a travel time of 20 minutes in each direction, also allowing 5-minutes for set-down, layover and recovery in Hobart and 15-minutes in Huntingfield.

Table 3.8 Weekday schedule for the proposed Huntingfield Park-and-ride route (off-peak periods in blue)

	H1	H2	H1	H2	H1	H2	H1	H1	H1	H1	H1
Huntingfield	**6:00**	**6:30**	**7:00**	**7:30**	**8:00**	**8:30**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**
Travel time	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*
Hobart	**6:20**	**6:50**	**7:20**	**7:50**	**8:20**	**8:50**	**9:20**	**10:20**	**11:20**	**12:20**	**13:20**
Layover	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*
Hobart	**6:25**	**6:55**	**7:25**	**7:55**	**8:25**	**8:55**	**9:25**	**10:25**	**11:25**	**12:25**	**13:25**
Travel time	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*
Huntingfield	**6:45**	**7:15**	**7:45**	**8:15**	**8:45**	**9:15**	**9:45**	**10:45**	**11:45**	**12:45**	**13:45**
Layover	*0:15*	*0:15*	*0:15*	*0:15*	*0:15*	*Depot*	*0:15*	*0:15*	*0:15*	*0:15*	*0:15*

	H1	H1	H2	H1	H2	H1	H2	H1	H2	H2	H2
Huntingfield	**14:00**	**15:00**	**15:35**	**16:05**	**16:35**	**17:05**	**17:35**	**18:05**	**18:35**	**19:35**	**20:35**
Travel time	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*
Hobart	**14:20**	**15:20**	**15:55**	**16:25**	**16:55**	**17:25**	**17:55**	**18:25**	**18:55**	**19:55**	**20:55**
Layover	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*	*0:05*
Hobart	**14:25**	**15:25**	**16:00**	**16:30**	**17:00**	**17:30**	**18:00**	**18:30**	**19:00**	**20:00**	**21:00**
Travel time	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*
Huntingfield	**14:45**	**15:45**	**16:20**	**16:50**	**17:20**	**17:50**	**18:20**	**18:50**	**19:20**	**20:20**	**21:20**
Layover	*0:15*	*0:20*	*0:15*	*0:15*	*0:15*	*0:15*	*0:15*	*Depot*	*0:15*	*0:15*	*Depot*

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The Blackmans Bay express route has an expected travel time of 28 minutes, including 8 minutes along Algona Road and 20 minutes via the Southern Outlet to Hobart. The route does not stop at Huntingfield. The schedule requires two buses to operate and allows for a 3-minute set-down and recovery period in the Hobart CBD and 9-minute layover and positioning period in Blackmans Bay.

Table 3.9 AM peak schedule for the proposed Blackmans Bay express route

	B1	B2	B1	B2	B1	B2	B1
Blackmans Bay	**6:02**	**6:32**	**7:02**	**7:32**	**8:02**	**8:32**	**9:02**
Travel time	*0:08*	*0:08*	*0:08*	*0:08*	*0:08*	*0:08*	*0:08*
(Huntingfield)	*6:10*	*6:40*	*7:10*	*7:40*	*8:10*	*8:40*	*9:10*
Travel time	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*
Hobart	**6:30**	**7:00**	**7:30**	**8:00**	**8:30**	**9:00**	**9:30**
Set-down/layover	*0:03*	*0:03*	*0:03*	*0:03*	*0:03*	*Depot*	*Depot*
(Hobart)	*6:33*	*7:03*	*7:33*	*8:03*	*8:33*		
Special	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*		
(Blackmans Bay)	*6:53*	*7:23*	*7:53*	*8:23*	*8:53*		
Layover/positioning	*0:09*	*0:09*	*0:09*	*0:09*	*0:09*		

Table 3.10 PM peak schedule for the proposed Blackmans Bay express route

	B1	B2	B1	B2	B1	B2	B1
Hobart	**16:00**	**16:30**	**17:00**	**17:30**	**18:00**	**18:30**	**19:00**
Travel time	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*
(Huntingfield)	*16:20*	*16:50*	*17:20*	*17:50*	*18:20*	*18:50*	*19:20*
Travel time	*0:08*	*0:08*	*0:08*	*0:08*	*0:08*	*0:08*	*0:08*
Blackmans Bay	**16:28**	**16:58**	**17:28**	**17:58**	**18:28**	**18:58**	**19:28**
Set-down/layover	*0:09*	*0:09*	*0:09*	*0:09*	*0:09*	*Depot*	*Depot*
(Blackmans Bay)	*16:37*	*17:07*	*17:37*	*18:07*	*18:37*		
Special	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*		
(Hobart)	*16:57*	*17:27*	*17:57*	*18:27*	*18:57*		
Layover/positioning	*0:03*	*0:03*	*0:03*	*0:03*	*0:03*		

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The Snug express route has an expected travel time of 37 minutes, including 17 minutes from Snug to Huntingfield and 20 minutes to Hobart via the Southern Outlet. The route does not stop at Huntingfield. This route requires three buses to operate, allowing a 3-minute period for set-down, layover and positioning in the Hobart CBD and 20-minute period in Snug.

Table 3.11 AM peak schedule for the proposed Snug express route

	S1	S2	S3	S1	S2	S3	S1
Snug	**6:03**	**6:33**	**7:03**	**7:33**	**8:03**	**8:33**	**9:03**
Travel time	*0:17*	*0:17*	*0:17*	*0:17*	*0:17*	*0:17*	*0:17*
(Huntingfield)	*6:20*	*6:50*	*7:20*	*7:50*	*8:20*	*8:50*	*9:20*
Travel time	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*
Hobart	**6:40**	**7:10**	**7:40**	**8:10**	**8:40**	**9:10**	**9:40**
Set-down/layover	*0:03*	*0:03*	*0:03*	*0:03*	*Depot*	*Depot*	*Depot*
(Hobart)	*6:43*	*7:13*	*7:43*	*8:13*			
Special	*0:30*	*0:30*	*0:30*	*0:30*			
(Snug)	*7:13*	*7:43*	*8:13*	*8:43*			
Layover/positioning	*0:20*	*0:20*	*0:20*	*0:20*			

Table 3.12 PM peak schedule for the proposed Snug express route

	S1	S2	S3	S1	S2	S3	S1
Hobart	**16:10**	**16:40**	**17:10**	**17:40**	**18:10**	**18:40**	**19:10**
Travel time	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*	*0:20*
(Huntingfield)	*16:30*	*17:00*	*17:30*	*18:00*	*18:30*	*19:00*	*19:30*
Travel time	*0:17*	*0:17*	*0:17*	*0:17*	*0:17*	*0:17*	*0:17*
Snug	**16:47**	**17:17**	**17:47**	**18:17**	**18:47**	**19:17**	**19:47**
Set-down/layover	*0:20*	*0:20*	*0:20*	*0:20*	*Depot*	*Depot*	*Depot*
(Snug)	*17:07*	*17:37*	*18:07*	*18:37*			
Special	*0:30*	*0:30*	*0:30*	*0:30*			
(Hobart)	*17:37*	*18:07*	*18:37*	*19:07*			
Layover/positioning	*0:03*	*0:03*	*0:03*	*0:03*			

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The Huonville express route has an expected travel time of 41 minutes and does not travel via Kingston Town Centre or Browns Road. The route requires two buses to operate at a 60-minute frequency, allowing a 3-minute period for set-down, layover and recovery in Hobart and a 36-minute period in Huonville.

Table 3.13 AM peak schedule for the proposed Huonville express route

	H1	H2	H1	H2
Huonville	**6:04**	**7:04**	**8:04**	**9:04**
Travel time	*0:25*	*0:25*	*0:25*	*0:25*
(Browns Road)	*6:29*	*7:29*	*8:29*	*9:29*
Travel time	*0:16*	*0:16*	*0:16*	*0:16*
Hobart	**6:45**	**7:45**	**8:45**	**9:45**
Set-down/layover	*0:03*	*0:03*	*Depot*	*Depot*
(Hobart)	*6:48*	*7:48*		
Special	*0:40*	*0:40*		
(Huonville)	*7:28*	*8:28*		
Layover/positioning	*0:36*	*0:36*		

Table 3.14 AM peak schedule for the proposed Huonville express route

	H1	H2	H1	H2
Hobart	**16:15**	**17:15**	**18:15**	**19:15**
Travel time	*0:16*	*0:16*	*0:16*	*0:16*
(Browns Road)	*16:31*	*17:31*	*18:31*	*19:31*
Travel time	*0:25*	*0:25*	*0:25*	*0:25*
Huonville	**16:56**	**17:56**	**18:56**	**19:56**
Set-down/layover	*0:36*	*0:36*	*Depot*	*Depot*
(Huonville)	*17:32*	*18:32*		
Special	*0:40*	*0:40*		
(Hobart)	*18:12*	*19:12*		
Layover/positioning	*0:03*	*0:03*		

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3.6 PARK-AND-RIDE SITE AND TERMINAL FUNCTIONAL NEEDS

An additional bus stop would be required within the Hobart city centre bus station to maximise legibility, particularly for new public transport users. Based on suggested service levels, one bus space each would be sufficient for arriving and departing services. The bus would need to take scheduled recovery time at the bus station, but city-end recovery time is assumed to be minimised, with more layover time at the Huntingfield terminus.

At Huntingfield Park-and-Ride site, one bus space would be adequate for the service level required to support a 200-space car park. At least one additional space would be required to accommodate existing bus services at the site, as well as the potential for other proposed express services to call at the park-and-ride (this is not proposed in this report). One layover space would be adequate for the level of service envisaged – a total of 2-3 bus spaces, plus at least one layover space should be provided.

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4 COST ESTIMATES

4.1 FLEET COSTS

Based on the indicative schedules outlined above, the park-and-ride and supplementary services proposed here, the Huntingfield Park-and-Ride service would require two buses to operate at peak times.

The other proposed express services would require an additional seven buses to operate (though there may be some scope for schedule interworking to reduce this fleet requirement.

4.2 OPERATIONAL COSTS

Table 4.1 summarises the expected operating costs of the four proposed routes with the assumed rates of $48.50 per hour and $1.08 per kilometre (note, these rates to be reviewed with the Department of State Growth). Service hours include all in-service, special running and layover time from each vehicle's first trip to the final trip before returning to depot. Hours and kilometres to and from depot and mealing breaks are not included in these calculations. The calculations also assume a dedicated bus fleet for the proposed routes and cost savings could be realised if interworking is introduced with other Metro Tas and Tassielink routes.

Table 4.1 Summary of operating costs for proposed routes

	Huntingfield Park-and-Ride	Blackmans Bay Express	Snug Express	Huonville Express
Inbound route km's	*16.9*	*26.2*	*38*	*13.8*
Inbound trips (daily)	*22*	*7*	*7*	*4*
Outbound route km's	*16.8*	*26.2*	*38.2*	*14*
Outbound trips (daily)	*22*	*5*	*4*	*2*
Route km's (daily)	*741.4*	*314.4*	*418.8*	*83.2*
$/km	*$1.08*	*$1.08*	*$1.08*	*$1.08*
Distance cost (daily)	$800.71	$339.55	$452.30	$89.86
Operating hours (daily)	*21:20*	*11:52*	*15:42*	*11:52*
$/hr	*$48.50*	*$48.50*	*$48.50*	*$48.50*
Time cost (daily)	$1,034.67	$575.53	$761.45	$575.53
Operating cost (daily)	**$1,835.38**	**$915.09**	**$1,213.75**	**$665.39**
Operating cost (weekly)	**$9,176.89**	**$4,575.43**	**$6,068.77**	**$3,326.95**
Operating cost (annual)	**$468,021.56**	**$233,346.76**	**$309,507.27**	**$169,674.28**

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5 CONCLUSION AND NEXT STEPS

The Bus Service Plan is a critical element of the Southern Transport vision, supporting planned investment in park-and-ride to help reduce congestion on the Southern Outlet.

Key markets for park-and-ride in the south include residents of communities along the Huon Highway and Channel Highway, as well as the Kingston/Blackman's Bay area. Bus services on the Channel Highway and Huon Highway south of Huntingfield are urban fringe services and operate at low frequency. Bus services at Huntingfield and north (including Blackman's Bay, Kingston etc.) are urban services and operate with more frequent services.

While existing bus routes serve the identified park-and-ride sites for the project – Browns Road Firthside and Huntingfield – low bus service frequency, the location of outbound bus stops at Browns Road and long and indirect bus routes at Huntingfield, act as constraints to park-and-ride use.

While the focus of the Southern Transport Vision is to improve bus links to Hobart city centre to encourage a shift from private vehicles to buses on the Southern Outlet, analysis of customer boardings at bus stops shows that there is strong demand from bus passengers for access to Kingston, as well as Hobart city centre.

In addition, surveys of the use of the Browns Road Firthside and Huntingfield park-and-ride sites found that the number of customers who walked to the stops, or were dropped off, exceeded the number of park-and-ride customers.

In addition to ensuring the bus service plan improves bus access to the Hobart city centre, the plan should also recognise the need to continue to offer bus links from the south (both Channel Highway and Huon Highway) to Kingston town centre. As well, facilities at the park-and-ride sites should also accommodate demand for walking, cycle and kiss-and-ride access.

The park-and-ride bus service plan should aim to intercept private vehicle trips as far as possible. To attract existing private vehicle users to shift to park-and-ride for trips to the Hobart city centre, there should be improvements to bus services that:

- Provide bus services direct to the Hobart city centre on the Channel Highway, Huon Highway and the Kingston/ Blackman's Bay urban area
- Reduce bus travel times to the Hobart city centre
- Are more frequent and reliable
- Are safe and comfortable
- Are easy to understand and are supported by quality infrastructure and information.

To avoid attracting existing bus users to use park-and-ride (reducing patronage on urban fringe services and potentially increasing car travel in the south), there should be improvements to bus links to Hobart CBD on the Channel Highway, Huon Highway, and around Blackman's Bay.

Following a review of the two candidate park-and-ride sites, it was agreed with StateGrowth that the bus service plan would focus on providing improved bus services to the Huntingfield Park-and-Ride site; and that improvements at Browns Road Firthside would focus on formalising the car park, improving pedestrian access to existing bus stops and improving customer facilities.

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The recommended park-and-ride bus service plan is for:

- A new dedicated park-and-ride bus service, operating as a part of the Metro bus network, with two buses per hour commencing from the Huntingfield site and operating direct to Hobart city centre via the Southern Outlet. By making use of planned bus priority measures on the Southern Outlet, this service would provide attractive travel time to Hobart CBD – a saving of some 22 minutes on the current bus travel time via Kingston town centre and approaching travel times by private car. This service would provide capacity for some 100 trips per hour at peak times, delivering a noticeable reduction in private vehicle flows on the Southern Outlet, assuming all users shift from private vehicles and additional capacity is not taken up by new private vehicle commuters. The new park-and-ride bus service would operate all day on weekdays to allow for varying customer access needs.
- The introduction of Hobart city centre express bus services from:
  - Blackman's Bay (via Algona Road and Southern Outlet at Huntingfield)
  - Snug via Southern Outlet
  - Huonville via Southern Outlet.
- These bus services would provide similar travel time savings for existing bus customers, reducing the potential for improved park-and-ride bus services to attract existing bus customers, but would operate at peak times only.

These proposed new routes would require an additional 7 buses to operate at peak times, at an estimated annual cost of $1,696,674.30 [*Rates to be adjusted on advice from the Department of State Growth*] assuming weekday services only. These costs exclude capital costs of buses required to operate them – there may be some opportunities for schedule rationalisation and interworking to reduce bus costs.

In addition to the identified park-and-ride bus service and supporting improved bus routes, we have identified some opportunities for improving bus services in the established urban areas of Kingston/Blackman's Bay area (generally to the east of the Southern Outlet), comprising some minor route diversions and establishment of some demand-responsive bus areas, to improve public transport access to Kingston town centre and reinforce its establishment as a transit hub.

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APPENDIX A

END-TO-END TRAVEL TIME COMPARISONS

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A1 END-TO-END TRAVEL TIME COMPARISONS

Table A.1 End-to-end travel time from bus stops in the Kingston/Blackmans Bay area to Hobart CBD by bus, car and park-and-ride

#	Name	Inbound (mins)				Outbound (mins)			
		Bus	Car	P&R existing	P&R priority	Bus	Car	P&R existing	P&R priority
L	Kingston Central, Channel Highway	24	28	29	23	19	28	22	20
K	Maranoa Road/Redwood Road	29	30	34	28	22	30	24	22
J	Hawthorn Drive, Kingston Fire Station	32	35	37	31	25	35	27	25
I	Algona Road/Opal Drive	38	35	37	31	30	35	30	28
H	Woodlands Drive/Edison Avenue	40	35	39	33	33	35	31	29
G	Auburn Road/Heath Court	31	30	32	26	25	30	34	32
F	Kingston Beach, Beach Road	29	30	33	27	24	30	28	26
E	Roslyn Avenue/Algona Road	36	35	36	30	30	35	28	26
D	Blackmans Bay, Illawarra Road	42	35	39	33	36	35	30	28
C	Wells Parade/Kulgoa Place	40	35	39	33	33	35	32	30
A/B	Wells Parade/Clearwater Court/Suncoast Drive	43	35	39	33	38	35	34	32

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BUS ROUTE MAP

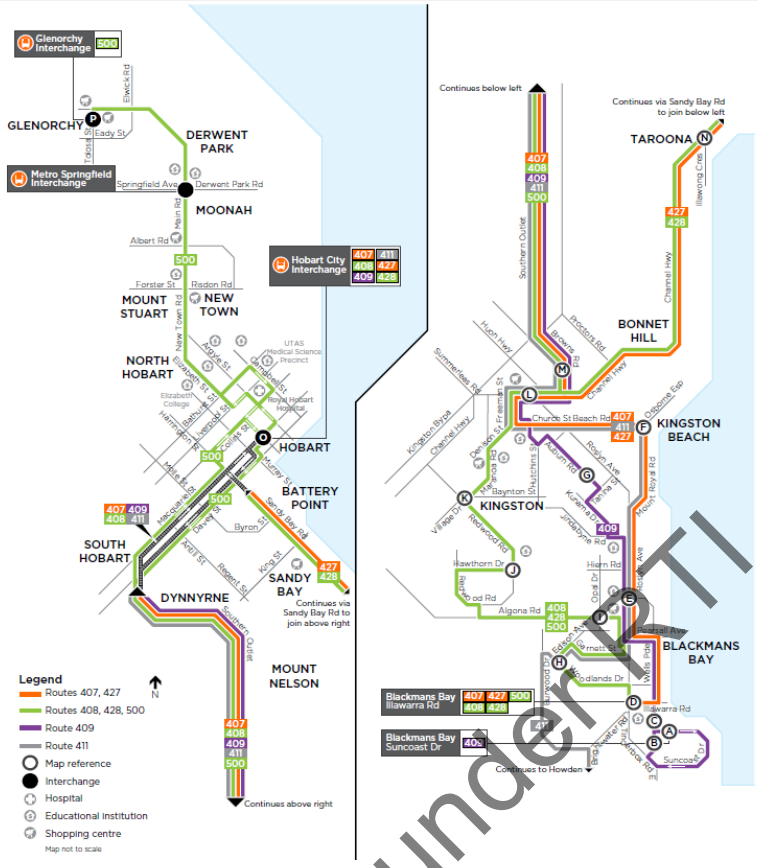

Figure A.1 Bus network map with stop references for the Kingston/Blackmans Bay area

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Table A.2 End-to-end travel time from bus stops in the Huon Valley to Hobart CBD by bus, car and park-and-ride

#	Name	Inbound (mins)				Outbound (mins)			
		Bus	Car	P&R Existing	P&R Priority	Bus	Car	P&R Existing	P&R Priority
M	Kingston Central, Channel Highway	29	28	30	24	25	28	25	23
J	Sandfly, Huon Highway/Sandfly Road	43	28	41	35	36	35	36	34
I	Lower Longley, Huon Highway/Huon Road	48	30	43	37	41	40	40	38
H	Grove, Huon Highway/Mountain River Road	55	35	47	41	47	45	44	42
G	Huonville, Bus Station, Skinner Drive	63	45	55	49	55	50	52	50
F	Ranelagh, Marguerite Street	64	40	53	47	54	50	48	46
E	Franklin, Huon Highway near Old Road	79	50	62	56	63	60	57	55
D	Geeveston, Honeywood Lane	93	65	77	71	77	70	72	70
C	Dover, Huon Highway near Station Road	120	80	92	86	102	85	87	85
B	Cradoc, Channel Highway/Cradoc Park	68	55	67	61	59	60	62	60
A	Cygnet, Esplanade Road/Channel Highway	79	60	72	66	69	65	62	60

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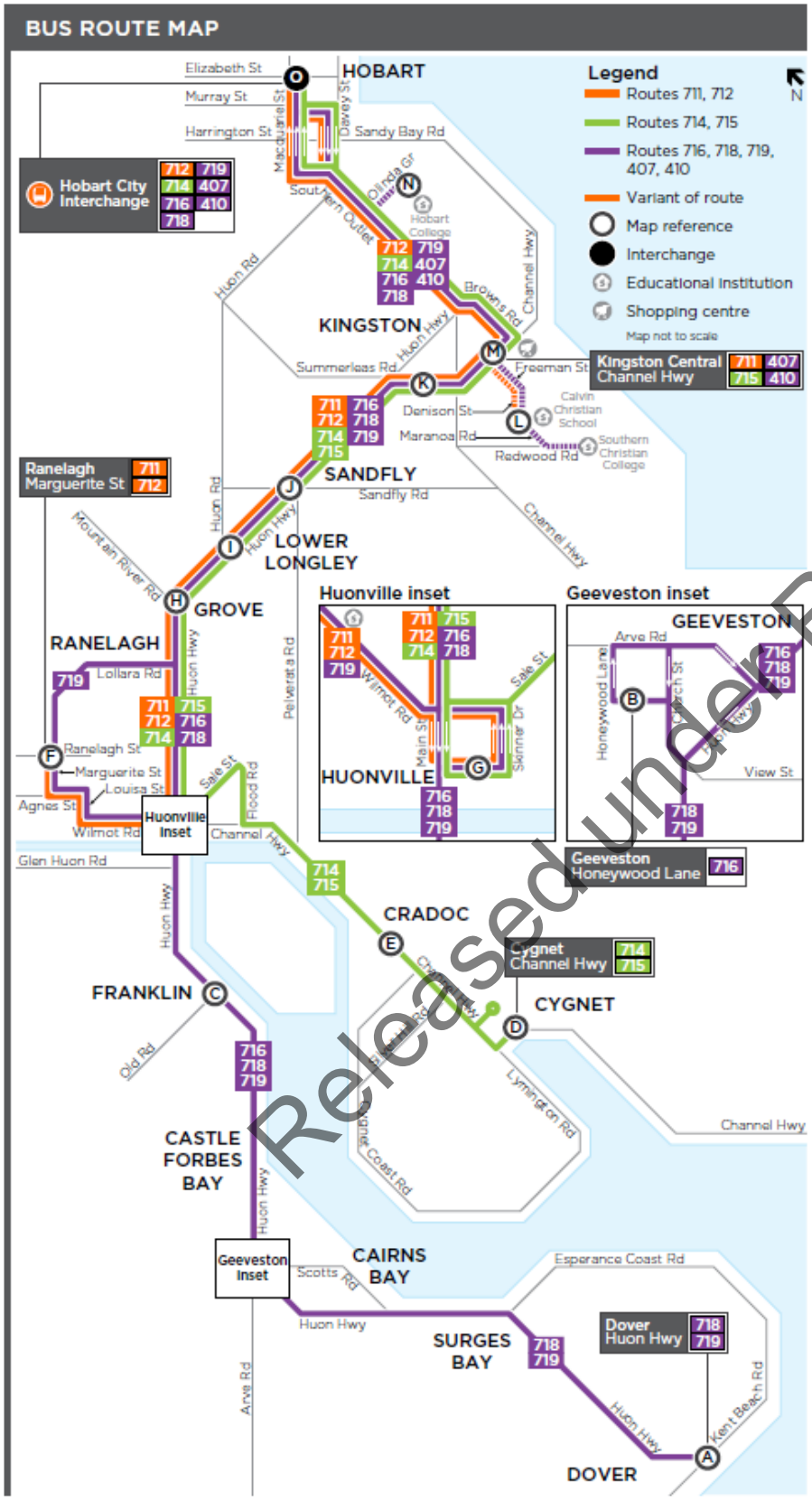

Figure A.2 Bus network map with stop references for the Huon Valley

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Table A.3 End-to-end travel time from bus stops along the Channel Highway to Hobart CBD by bus, car and park-and-ride

Map ref	Bus stop name	Inbound (mins)						Outbound (mins)					
		Bus	Car	P&R via Kingston (No Priority)	P&R via Kingston (With Priority)	P&R express (No Priority)	P&R express (With Priority)	Bus	Car	P&R via Kingston (No Priority)	P&R via Kingston (With Priority)	P&R express (No Priority)	P&R express (With Priority)
I	Margate Central, Channel Highway	50	35	56	50	40	34	39	35	44	42	34	32
H	Margate, Incana Road/ Brigalow Street	54	35	59	53	43	37	42	35	47	45	37	35
G	Snug Central, Channel Highway	59	40	63	57	47	41	48	40	50	48	40	38
F	Snug, Charlton Street/ Cutana Parade	63	40	63	57	47	41	51	40	52	50	42	40
E	Kettering Cemetery, Channel Highway	73	45	69	63	53	47	59	45	56	54	46	44
D	Kettering, Ferry Terminal	76	50	71	65	55	49	61	50	58	56	48	46
C	Woodbridge, Channel Highway/ Thomas Road	84	55	75	69	59	53	69	55	62	60	52	50
B	Middleton, Channel Highway/ Beach Road	94	60	82	76	66	60	77	60	73	71	63	61
A	Gordon, Channel Highway	99	65	87	81	71	65	76	65	78	76	68	66

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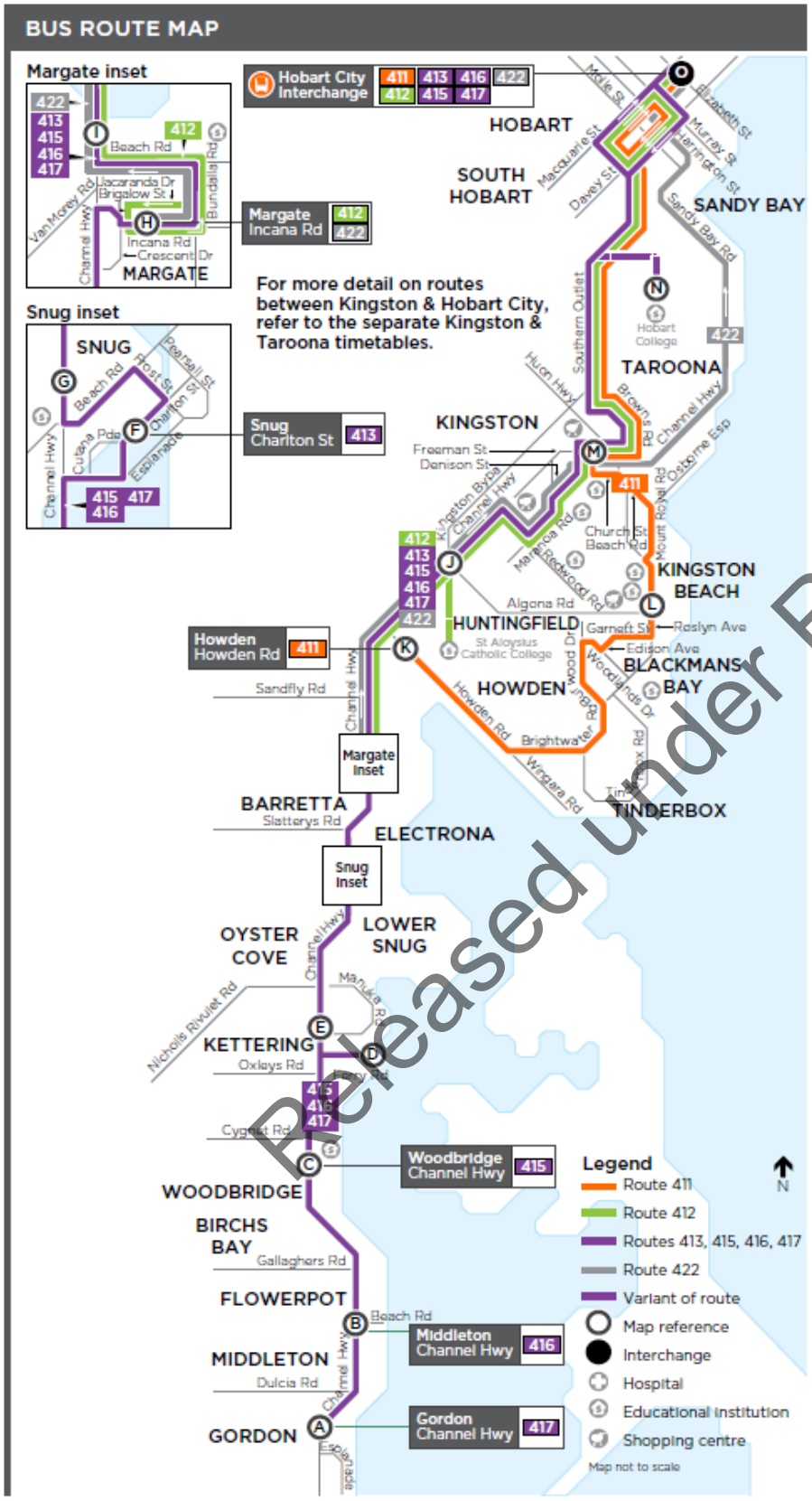

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Figure A.3 Bus network map with stop references for the Huon Valley