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Developer-led buses – a solution for growth area transport needs?

Report for the Bus Association Victoria

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Executive summary

Strong population growth in Australia's large cities in recent years has largely been accommodated in new suburbs on the urban fringe. In many of these suburbs, infrastructure and services have been failing to keep pace with population growth, particularly in relation to social infrastructure and public transport services. The lack of public transport, or delays in its delivery in new suburbs, entails risks such as transport disadvantage, social exclusion and car dependency with their related economic, environmental and health issues. To overcome the deficiency of lagging public transport provision in growth suburbs, some developers have resorted to providing their own bus services. However, as these services are an unfunded expense for the developer, their long-term sustainability is questionable.

As developer-funded bus services are a relatively new phenomenon, their nature and extent are not well known. This report aims to fill this gap. It gives an overview of the current status of developer-funded buses, associated benefits and risks as well as strengths and weaknesses of the model and discusses how these services compare to public bus services. It draws on the findings of an online survey and interviews with developers and other stakeholders, feedback on a preliminary version of the conclusions and recommendations from the Greenfield Committee of the UDIA (Victoria), as well as a spatial and desktop analysis of developer-funded and state-funded bus services in growth suburbs with a particular focus on Melbourne.

For this report, developer-funded buses are defined as services that are fully or partly funded and coordinated by developers. It excludes bus services funded by development contributions, as these are usually implemented by state government. While developers are paying for those services via contributions, they are quite different to a developer-led bus service and are often not distinguishable from state-funded bus services as far as the public transport user is concerned.

Funding options for bus services in growth suburbs

In Australia, public transport is predominantly funded by state government and delivery of its infrastructure depends on the availability of overall funds. New public transport projects compete against other transport and non-transport projects. In Victoria, an additional funding opportunity for public transport provision in growth areas is the Growth Areas Infrastructure Contribution (GAIC) which is an infrastructure contribution that is used for *state-funded* infrastructure in Melbourne's growth areas. The GAIC allows for bus services in growth areas to be paid out of GAIC funds for the first five years of their implementation. Further alternative funding sources for public transport provision which would allow for increased spending on public transport include, for example, integrated transport pricing and a broad-based land tax.

State-funded bus services in growth suburbs

To understand the current provision of buses in growth areas, the report explores the timing, service hours, frequencies and destinations of state-funded buses in growth areas. The analysis shows that where a community was not built along an existing bus route in Melbourne's growth areas, it waited approximately four years on average for a state-funded bus route to be provided. It also shows that the existing bus routes in growth areas generally run seven days a week, until at least 9pm each evening, with frequencies between 20 and 60 minutes. All routes serve at least one railway station and around half the routes serve two or more stations.

Developer-led bus services

Overall, ten implemented developer-funded bus services were identified (seven in VIC, two in NSW, one in WA). The relatively low number shows that these services are not common. In general, the services were initiated by developers on a voluntary basis and most of them connected new residential communities on the urban fringe to the nearest train station and started between 2017 and 2021. Nearly all of the services were provided from Monday to Friday during the morning and afternoon peak with frequencies ranging from 20 to 60 minutes. The services ran on specified timetables, except for one on-demand service. Reasons given for the use of timetables were a limited number of buses and reliability for users. On-demand was seen as less suitable given the need to meet train arrival times which may be compromised if several stops are needed to pick up passengers. The number of stops ranged from two stops (i.e. a start and an end point) to eight stops while the on-demand service picked up from any point within the defined estate area.

Most services were free for users, with some services restricting the service to residents of the estate. A key reason given was that charging users would make the bus service less attractive and 'fair', as the public transport fare still needs to be paid when transferring to the public transport network, while the costs to the developer are unlikely to be recouped unless the fare is unmanageably high.

Two main models of provision were found: commissioning a bus company and provision through a not-for-profit organisation or social enterprise. A key advantage of hiring a bus company was perceived to be easier implementation, as bus companies understand the relevant regulations. The perceived advantages of engaging not-for-profit agencies, such as an RSL branch, were their lower price, and also the opportunity to connect to existing communities within the new area.

There seem to be two main premises for a developer-funded bus service being likely. The first is that the development is of a certain size and thus the developer is in the area for a longer time (e.g. about 10,000-20,000 residents with a time frame of about 10-20 years). A reason for this is likely to be that the longer time frame and the larger number of customers/residents make the investment more worthwhile and strategic, and that larger developers often aim at a price point that allows them to be more amenity- and community-focused. Smaller developer companies may not have the funds to invest in such a bus service and if their development is complete after a couple of years, the time and financial effort of establishing a service would not be efficient. The second premise is that the developer has some anticipation that a public bus service may arise at some point in the future that is not too far away. In support of this, the uncertainty about how long the service would be required until the state funded service would take over has been stated as a reason not to provide a service.

Motivations, risks, strengths and limitations of developer-led bus services

A number of reasons were given by developers for introducing their bus service: a lack of public transport and other services, the need to connect residents to the nearest train station, facilitating community development, influencing travel behaviour towards public transport, increasing the attractiveness of the estate for prospective residents, and demonstrating the need for a public transport service.

The main perceived risk of providing developer-led bus services was the risk that the state government would not provide public services at some point and that the developer may be stuck with an expensive service or have to decide to end it. Developers who have decided against providing a service have cited the high costs, regulatory difficulties and the uncertainty of how long it will take until a state-funded bus service is provided as reasons.

Perceived strengths and limitations of developer-led bus services are related to motivation and risks. Strengths are seen in the provision of a missing connection, provision of a bus service early in the lifetime of the estate, building community, responding to the needs of the community in line with

input from community surveys, and a marketing advantage for the developer. Perceived limitations of developer-led bus services included: the limited nature of the services as peak-hour shuttles, and the insecurity about the services, as they rely on the developer and may be discontinued at some point.

Developer-led and state-funded bus services in comparison

Key advantages of developer-funded buses include the provision of the most necessary connection to the development (peak hour station commuter shuttle) early in the lifetime of the suburb, the provision of a fast connection to the train station which is competitive to the car and an adaptability to community demand. The advantages of state-funded buses are that they generally provide a broader range of destinations and a larger number of bus stops, and a broader range of service hours and frequencies.

The differences can mostly be explained through the different intentions and target groups behind the service provision. Developers want to provide a basic service for residents in their estate which covers the times with the highest demand for travel because they see a gap in the current public transport network. The state's objective is to provide a service for everyone which covers most of the day, to the extent possible.

Conclusions and recommendations

In conclusion, developer-led buses achieve a positive outcome providing some of the benefits of public transport provision and responding to some of the negative consequences of deferring provision of public transport or not providing it at all. While the services are less comprehensive than public bus services, developer-funded buses may lead to residents developing the habit of using public transport in preference to the car. However, developers are under no obligation to provide them, and residents cannot assume that they will be provided.

Overall, a superior and more sustainable outcome would be the provision of state-funded public transport, which would depend at least to some extent on increased funding and could also be enabled through more sequenced development and coordinated planning. In the absence of an earlier and increased public transport provision, developer-led buses provide a useful and important addition to the transport choice of residents. There is the potential for improving their implementation by increased communication and coordination between developers, state government, bus operators and other relevant stakeholders. Additionally, these services could be used more strategically for testing and preparing future state-funded bus services.

The report concludes with the following recommendations for achieving an easier and more coordinated implementation of developer-led bus services:

- Improved coordination and communication between stakeholders
- Use of developer-led buses as a pathway to more comprehensive services
- Use of developer-led buses as trials for routes
- Improved integration of developer-led buses into the overall network
- Improved communication of public transport priorities
- Stronger sequencing of development
- Increased use of GAIC public transport funds for the *early* operation of bus services
- Use of section 173 agreements for developments outside of areas where the GAIC applies.

1. Introduction

Residents in new housing estates on the fringes of Melbourne frequently do not have access to any nearby public transport services. There is a multi-year lag between residents moving into a community and the commencement of state-funded public route bus services due to funding constraints. This has major impact on their lives as jobs and services may be located a considerable distance away.

To overcome this deficiency some developers have resorted to providing their own bus services. These are mostly running at limited times (mainly peak hours) to take residents to rail stations or large activity centres. These developer-funded bus services operate as private charter services and are mostly contracted by the developer to local bus operators, although other models also exist. However, the long-term sustainability of these services is questionable as they are an unfunded expense for the developer and there is no obligation on the state government to take them over. Furthermore, the services are limited and not necessarily connected into the existing public transport network. This reality raises social equity issues, as residents of new suburbs experience transport disadvantage.

As developer-funded bus services are a relatively new phenomenon the nature and extent of these services is not well known. While some of these services have been advertised broadly others are less prominent. How many developers have contemplated such services, how many have actually implemented them and for what reason has not previously been explored or documented.

This report aims to fill this gap. It gives an overview of the current status of developer-funded buses, associated benefits and risks as well as strengths and weaknesses of the model and discusses how these services compare to public bus services. It draws on the findings of a survey and interviews with developers and other stakeholders, and analysis of developer-funded buses in Australia, with a particular focus on Victoria. The current situation of recent developer-led and state funded bus services in outer suburbs is presented. The report concludes with recommendations for the implementation of developer-led bus services, how developer and state-funded bus services might complement each other, and suggestions on delivering better outcomes for residents, developers and the state in the provision of public transport in outer growth suburbs.

The remainder of this report is presented as follows:

- Section 2 describes the context of public transport provision in new suburbs.
- Section 3 presents the methods used to undertake the study.
- Section 4 outlines the current status of public buses in Melbourne's growth areas
- Section 5 specifies the current status of developer-led buses in Australia, with a focus on Melbourne.
- Section 6 discusses the experiences of developers and further stakeholders with developer-bus services.
- Section 7 provides a discussion on the differences between state-funded and developer-funded bus services.
- Section 8 concludes the report with recommendations for the implementation of developer-led bus services.

A Technical Appendix, as a separate document, sets out further details which supplement the material presented in the main sections of the report.

2. Context

2.1. Lagging public transport provision in Australia's growth areas

Strong population growth in Australia's large cities in recent years has largely been accommodated in new suburbs on the urban fringe. In many of these suburbs, infrastructure and services have been failing to keep pace with population growth, particularly in relation to social infrastructure and public transport services (Kroen et al. 2021; Davern et al. 2017). While population growth has recently subsided due to immigration restrictions adopted during the COVID-19 pandemic, infrastructure in new suburbs is still lagging from previous years of strong population growth. It is also likely that growth will return to some degree when borders are reopened.

Lagging infrastructure has led to many residents in new housing estates in the outer suburbs not having sufficient access to public transport services, including a limited quality of public transport provision (Brain et al. 2019). Due to the quick pace of growth, limited sequencing of development, state funding constraints and competing priorities for government funding, there has generally been a multi-year lag between residents moving into a community and the commencement of state-funded public route bus services. While current planning policies such as *Plan Melbourne 2017-2050* aim to deliver transport choice in outer urban areas, it often takes years until a genuine choice is given with sufficient non-car transport infrastructure and services. This deferred provision of public transport can additionally lead to a lower likelihood of people using public transport, as the opportunity is lost to take advantage of a life course event such as residential relocation which can increase the likelihood of a behaviour change such as a switch to public transport use (Thomas et al. 2016; Pemberton et al. 2021).

This situation has contributed to car dependency in those outer suburbs as local employment opportunities and services such as shops, hospitals and leisure activities are often scarce and residents need to travel longer distances for many activities than residents in established suburbs, mostly using a car. Thus, transport inequities as well as health disparities increase across the metropolitan area. Further issues, inherent to car dependency include traffic congestion, environmental pollution, road trauma and impacts on public health, for example through contributing to sedentary lifestyles (Armstrong et al. 2015; OECD 2014).

2.2. Public transport provision in growth suburbs: benefits and risks

Public transport provision supports a number of social, economic and environmental benefits. The lack of these benefits can be translated into social, economic and environmental risks if public transport is not provided or only provided to a limited extent. This section describes different benefits of public transport provision that have been identified in academic literature and will conclude with the inherent risks of not providing public transport services in growth areas or of deferring their provision. It is noted that some benefits (e.g. environmental, health and economic benefits) depend on the extent of public transport use and how much car travel is replaced.

Social and economic participation

Public transport offers improved opportunities for mobility that can enable participation in higher education and training, access to health services, improved access to employment options, increased involvement in social activities and engagement with social networks (Awaworyi Churchill & Smyth 2019; Lucas et al. 2016; Mackett & Thoreau 2015; Van den Berg et al. 2016). Co-benefits of increased mobility include the potential for fewer acute and expensive medical problems as medical appointments can be kept, reduced welfare dependency due to improved access to jobs, fewer high-risk motorists on the road, and reduced care facility costs through an improved ability to live independently which in turn can reduce government costs (Litman 2020).

Health benefits

Public transport has health benefits associated with the physical activity component of walking or cycling to and from the public transport stop. For people who would otherwise not achieve their recommended daily physical activity level, this contributes to a decreased risk of diseases that are connected to low levels of physical activity, such as ischemic heart disease, diabetes type 2 and some cancers (Laird et al. 2018). Public transport also contributes to other less tangible health benefits, such as social cohesion and subjective wellbeing which in in turn impacts mental health. Social cohesion can for example be strengthened by people seeing, meeting and engaging with each another whilst out and about using public transport, or walking and cycling to a public transport stop (Kamruzzaman et al. 2016; Weijs-Perrée et al. 2015). Subjective wellbeing may also be improved through increased engagement in everyday activities (Ettema et al. 2010; Schwanen & Wang 2014; Ma et al. 2018).

Environmental benefits

Public transport can contribute to reduced transport emissions and congestion if public transport users would have used a car for their trip otherwise (Armstrong et al. 2015, OECD 2014). Additionally, public transport users use less road space, as generally no car parking is needed at the destination of the trip, and to some extent at the beginning of the trip.

Economic benefits

The positive impact on congestion levels also translates to economic benefits, as reduced congestion improves productivity through more reliable and shorter travel times (Infrastructure Australia 2019).

Lower transport costs for households

Public transport can lower overall transport costs for households. The highest saving can be achieved if public transport provision allows households to own fewer vehicles. For Melbourne, Gunn et al. (2021) estimate the annual household saving for owning one less car to be $3,377 (2020 $) – this takes into account the additional cost of public transport use, with savings on costs for insurance, registration and fuel.

Broadening transport choice

An additional benefit of public transport is that it provides a ‘fallback option’ for people who generally use a car but may not be able to use it for different reasons or select to use it on certain occasions. In this sense, public transport provides a mobility safety net. This is also referred to as option value, which is the value people place on the 'the fact that they have options to travel (or carry out activities) available, even if they do not use them' (van Wee 2016, p. 11). This benefit is similar to the social and economic participation benefits for non-car drivers but serves another population group who is less dependent on the offer of public transport.

The risks of not providing public transport services in growth areas

Not providing public transport in growth areas entails risks, which are mostly based on the benefits described earlier not being realised but are also related to the larger picture of transport equity in the metropolitan area. The timing of public transport provision also plays a role, which is considered in the next section.

A lack of public transport leads to an increased need for car travel, particularly when combined with a scarcity of local destinations, where active transport is also not a viable alternative. In growth suburbs, this car dependency combined with the need to travel long distances for work or other services, leads to residents often spending a large share of their income on transport (Dodson & Sipe 2008). For example, lower income households in outer Melbourne that have no or very low public transport service levels available to them have been found to spend as much as 50% or more of their total income operating two or more cars (Currie et al. 2009). The necessity of owning a car in such areas has been

termed 'forced car ownership' (Delbosc & Currie 2011) and is particularly problematic for households with a low income.

For growth area residents without access to a car, a lack of public transport can impede their ability to participate in the work force and social life (Currie et al. 2009). They are likely to experience 'transport disadvantage', which is the inability to travel when and where one needs without difficulty (Denmark 1998) and which is linked to a higher likelihood of experiencing social exclusion (Currie and Delbosc 2010) and further socioeconomic disadvantage.

The risks of providing public transport 'late' in the lifetime of a suburb

Studies have found that a change in travel behaviour is more likely during a key life course event, such as a residential relocation – although travel mode habits are generally persistent and also dependent on attitudes as well as other factors (Pemberton et al. 2021; Larouche 2020; Clark et al. 2016; Walker et al. 2015). Studies looking at the time frame of changes in travel patterns show that there is a window of opportunity of about 12 months from relocation (potentially up to 24 months), during which individuals are most likely to change their transport mode (Thomas et al. 2016; Jones & Ogilvie 2012; De Vos et al. 2018). While none of those studies quantify an increased likelihood for using public transport if it is already available when moving in, a review by Pemberton et al. (2021, p. 12) concluded that in the context of Melbourne's growth areas, "a 10% diversion rate for car drivers to public and active transport (…), if adequate public and active transport options were provided within 1 year (or possibly 2 years) of people relocating to growth areas", can be assumed.

In other words, if public transport is provided later in the lifetime of a new suburb, there is a reduced likelihood that residents will switch from car to public transport. While there are other factors at play, the timing of delivery plays a role in the switch from car to public transport.

2.3. Funding options and priorities for state-funded bus services to new suburbs

The following section provides a brief overview of the funding process for public transport provision in Victoria and describes other potential sources that could be used to fund public transport.

Brief overview of the funding process for public transport provision in Victoria

In Australia, public transport is mostly funded by state government with the Commonwealth government providing funding for some rail projects (BITRE 2020). The cost recovery of public transport in Melbourne is estimated to be about 22% (Infrastructure Australia 2016). Delivery of public transport infrastructure depends on the availability of overall funds (how much money is available) and on government funding priorities. Some commentators argue that public transport provision is unpopular with government finance departments as they involve long term commitment to recurrent funding.

New public transport projects, both infrastructure and services, need to be put in as a budget bid to the general budget, and compete against other transport projects as well as projects from other areas. Generally, public transport projects are assessed according to the highest need which mostly means that a high proportion of population will benefit from the project. This means that public transport in growth areas is often assessed as 'less urgent' because of low population numbers, although these can change rapidly. This makes provident planning and implementation for growth areas difficult. It can also lead to substantial backlogs in those areas that do not have the highest demand.

An additional funding opportunity for public transport provision in growth areas in Victoria is the Growth Areas Public Transport Fund (GAPTF) of the Growth Areas Infrastructure Contribution (GAIC). The GAIC is the state and regional infrastructure contribution for the growth areas in Melbourne which is used to fund *state* infrastructure in growth areas (Kroen & De Gruyter 2021). Contributions are

distributed equally between the GAPTF and the Building New Communities Fund (BNCF). Transport infrastructure and services that can be paid through the GAPTF include:

- capital works for state-funded public transport infrastructure,
- associated land and other infrastructure acquisition, and
- a maximum five years of recurrent operating costs.

This means that bus services in growth areas can be paid out of GAIC funds for the first five years of their implementation but will need to be paid out of the general budget after this initial period.

Alternative funding options for public transport provision

Kroen & Goodman (2020) have explored funding options that could be used to support the early delivery of active and public transport in growth suburbs in Melbourne. Their findings are summarised in Table 1. The authors conclude that transport pricing and a broad-based land tax are good and efficient solutions for funding and supporting public and active transport. Both of these options provide recurrent funds with a relatively stable and predictable revenue. They are also both horizontally equitable which means that people in similar economic circumstances are treated equally and costs are borne by those who benefit. Vertical equity, which means that people of different economic means and abilities are treated differently, would need to be improved which can for example be done through discounts for lower-income households. Transport pricing is additionally expected to support a move of trips from private vehicles to active and public transport (Infrastructure Victoria 2016). The principal issue with both of these funding options is that they cannot be implemented in the short-term as they warrant large reforms.

Other funding options for public transport provision include betterment levies, payroll tax and potentially a local increase in sales tax (GST). Betterment levies tax land value uplift and provide an adequate mechanism to capture value gain through planning decisions, particularly in the absence of a broad-based land tax. However, although there is some political support for the concept, they have not been a popular instrument, potentially because of vocal opposition by landowners, the large and visible amount of tax when large windfall gains occur and a sense of market interference (Kroen & Goodman 2020). The recently announced Windfall Gains Tax in Victoria which is planned to come into effect in July 2023 is a form of betterment levy (State Government Victoria 2021).

Changes to existing instruments are easiest to implement, as the mechanisms for collection already exist. In Melbourne, these could include existing parking charges and the Growth Areas Infrastructure Contribution (GAIC). Existing instruments that would be less effective as funding options are public transport fare increases, property development and a local fuel tax.

Existing parking charges, such as the parking levy in inner Melbourne and priced parking could be extended in scope and collect funds for active and public transport (Infrastructure Victoria 2020). This is an instrument that could be connected to an overall integrated transport network pricing or extended on its own before further pricing measures are introduced. However, parking charges are perceived as difficult to implement because of the contested and emotional debate around parking.

As explained previously, the GAIC is an infrastructure contribution for the growth areas in Melbourne which is used to fund *state* infrastructure in those areas (Kroen & De Gruyter 2021). The GAIC can already be used for five years of recurrent services. It could be especially used for the *early* delivery of bus services, as growth areas are likely to lose out when public transport services are distributed to areas with the greatest need and backlog. To what extent this could involve developer-funded buses is discussed in more detail later. However, the GAIC could be made more efficient and better coordinated, have a clear relationship to active and public transport, and potentially collect additional funding if feasible (Kroen & Goodman 2020).

Table 1: Assessment of funding options for public transport

Funding option	Description	Advantages	Disadvantages
Transport Pricing	Pricing of transport services	Is a user fee (i.e. horizontally equitable). More efficient use of transport infrastructure.	Significant restructure needed. Costly to implement. Is regressive (vertically inequitable).
Public transport fares	Increase fares	Already used. Is a user fee.	Potentially discourages public transport use. Is regressive.
Road Pricing	Tolls on (all or some) roads, including cordon charges	Is a user fee. More efficient use of transport infrastructure. Reduces traffic congestion.	Restructure needed. Costly to implement. Is regressive.
Distance-based charges	Distance-based fees on vehicles registered in the region.	Is a user fee. More efficient use of transport infrastructure. Reduces vehicle traffic.	Significant restructure needed. Costly to implement. Is regressive.
Parking charges	Special property tax on parking spaces. Increase when and where public parking is priced.	Is a user fee. Reduces car trips and highlights value of land. Already used.	Is regressive. Some implementation costs.
Betterment levy	Special taxes on property that benefit from planning changes.	Charges beneficiaries and captures value increase.	Not a recurrent funding stream. Could potentially influence urban development.
Local development contributions	A fee on new development to help finance local infrastructure.	Charges beneficiaries and future users. Already used.	Not a recurrent funding stream. Potential increase in house prices. Only for local transport.
State and regional infrastructure contribution	A fee on new development to help finance state infrastructure.	Charges beneficiaries. Already used.	Not a recurrent funding stream. Potential increase in house prices.
Property development	Collect rents from public transport property. Sell rights to build over stations.	Relatively easy implementation. Charges beneficiaries.	Limited potential for growth areas.
Property and Land Tax	Introduce broad-based land/ property tax	Efficient tax. Is considered progressive.	Significant restructure needed.
Sales Tax	A special local sales tax.	Enables public decision for (public) transport program.	New regulations needed. Difficult to implement in Australia. Is regressive.
Employment tax	A levy on employers in a designated area or jurisdiction (i.e. payroll tax). Special income tax for transit or transportation.	Charge for commuters. Progressive with respect to income. Already used.	Some new regulations needed. Proof of specific benefit of commuters needed. Income tax is collected on the Commonwealth level.
Fuel tax	An additional fuel tax in the region.	Reduces vehicle traffic and fuel use somewhat. Already used. Is a user fee to some extent.	Is regressive. Charges fuel use and not road use.

Source: Kroen & Goodman 2020

There is also potential for using *local* development contributions, however, funding public transport services is largely out of scope because of the high costs involved. Nevertheless, development contributions have been used in some cases in Queensland to fund the initial years of public transport provision in new estates.

With all funding options, a primary challenge is achieving a balance of both actual and perceived fairness. That means charging beneficiaries and users rather than the general public, not burdening lower-income and disadvantaged households disproportionately, and not over-charging beneficiaries and higher-income households. Explaining the reasoning behind funding options and the necessity for funding transport options and transitional arrangements are essential elements of introducing them. Bi-partisan support is another crucial element of the success of funding options. If individuals or businesses paying the charge know that it might be taken away again with the next government, they will delay triggers for paying the charge if possible.

3. Methods

This study was conducted using a mix of qualitative and quantitative methods. To gain an initial understanding of the current status of developer-led buses in Australia, a desktop analysis and online survey were conducted. The desktop analysis involved a Google search with the following search terms in different combinations: *developer-funded*, *developer-led*, *developer-financed*, *developer*, *bus*, *shuttle*, *public transport*, *public transit*, *estate bus*, *resident bus*, *estate shuttle*, *resident shuttle*, and *community shuttle*. The online survey included questions on whether developers had considered a bus service for any of their developments and if they had implemented it; reasons for the implementation or the decision against the bus service; some details on the bus service itself, such as timing and pricing structures; and whether respondents would be willing to participate in an interview. The online survey was disseminated via a newsletter and different committees of the Urban Development Institute of Australia (UDIA) (Victorian Division) as well as through snowballing. The survey was administered between August and October 2021. Overall, the survey received 12 responses.

To better understand the timing of public transport provision in growth areas and to be able to compare the offer of developer-funded bus services with public bus services, we explored the average time lag between new communities opening and new public bus routes commencing, as well as the service hours, frequencies and destinations of public buses in growth areas. This involved identifying relevant suburbs on Melbourne's growth fringe; new bus routes and route extensions in those areas including their service hours, frequencies and key destinations; identifying new communities served by those routes; and estimating when residents began moving into those communities. This analysis was based on information from Precinct Structure Plans, Census data, PTV timetables, and a spatial analysis based on Open Street Map, Metromap and Google Earth. Further details of the analysis can be found in the Technical Appendix.

To understand the current status of developer-funded buses in further detail, and the reasoning and experience of developers who have offered such services, we conducted seven semi-structured interviews with staff from four development companies/consultants, one bus operator, two transport planners at a local government, and two staff members at the Victorian Planning Authority. The interviews were undertaken online using MS Teams and took 43 minutes on average. Developers were asked about the reasons for providing a bus service, how their services were set up and funded, coordination with other stakeholders, and advantages/disadvantages and strength/weaknesses of developer-funded buses and their specific service. State and local government interviewees were asked about their experience with and assessment of developer-funded bus services, how they thought these services fit into current policies, strategies and regulations, and how these services can complement state-funded public transport.

Finally, we presented a preliminary version of our conclusions and recommendations to the Greenfield Committee of the UDIA on 16 November 2021 to receive feedback on our findings and further thoughts on potential recommendations.

4. Current status of public buses in Melbourne's growth areas

This section describes the current status of public bus services provided by Public Transport Victoria (PTV) in growth areas. The first part explores the average time lag between new communities opening and new public bus routes commencing, to understand how long the first residents moving into these communities had to wait for a bus service. The second part gives on overview of the service hours, frequencies and destinations of public buses in growth areas to understand key characteristics of these services, and to later use as a comparison to developer-funded bus services.

In summary, we found that:

- **Lag before opening**. Where a community was not built along an existing bus route, the community waited approximately 4 years on average for a bus route to be provided by PTV.
- **Service hours and frequencies**. Nearly all PTV routes in growth areas run 7 days a week, until at least 9pm each evening. Frequencies typically vary between 20 and 60 minutes. The most common frequency pattern is a 20-minute service in peak hours, and a 40-minute service at weekday interpeak and weekend daytimes, with often less frequent evening services.
- **Route length**. The average route length is approximately 13 km, with an average of 27 stops in each direction.
- **Railway stations**. All routes serve at least one railway station. Around half the routes serve two or more stations.
- **Other destinations**. Most routes serve at least one secondary school and at least one shopping centre.

4.1. Current timing of bus service provision in Melbourne's growth suburbs

To understand the current timing of bus service provision in Melbourne's growth suburbs we identified suburbs on Melbourne's fringe where growth had taken place over the past ten years and new bus routes and route extensions serving those areas. We estimated the timing when residents began moving into those communities and compared it to the start date of the bus routes and extensions. This analysis was based on information from Precinct Structure Plans, Census data, PTV timetables, and a spatial analysis based on Open Street Map, Metromap and Google Earth. Further details of the analysis can be found in the Technical Appendix.

From our analysis of 150 new communities served by 46 new and extended routes, we found that the interval between residents moving in and provision of a bus service ranged from -4.24 years to 14.24 years. The negative intervals (less than zero years) mean that a bus route was provided for a community before people began moving in. Where this occurs, it is almost always because a bus route was provided to serve some existing communities that have been waiting some time, and then further new communities are developed along the route. However, forward planning does occasionally occur where a number of routes in a local government area are reorganised together. For example, routes in Casey were reorganised in late 2016 with one new route and six extensions, which included the extension of route 897 to serve new estates just as they were opening or on the point of opening.

In other words, a negative interval means that there is no waiting time: a new community with an interval below zero is no better off than a community with zero wait. In Figure 1, we show the waiting times for all communities in our survey, with those that already had a bus service when the community opened treated as having a waiting time of zero. The average waiting time for all communities in our survey is 3.1 years. However, if communities opening along existing routes (where the interval is less than zero) are omitted, then the mean waiting time for communities that *are* required to wait is 3.9 years. There were several outliers where communities remained unserved for over 10 years, for

example in the City of Wyndham a section of the suburb of Truganina and the low-density suburb of Sanctuary Lakes.

Figure 1: Waiting times for provision of public bus services for residents moving into communities in Melbourne growth suburbs with new and extended services 2014-21

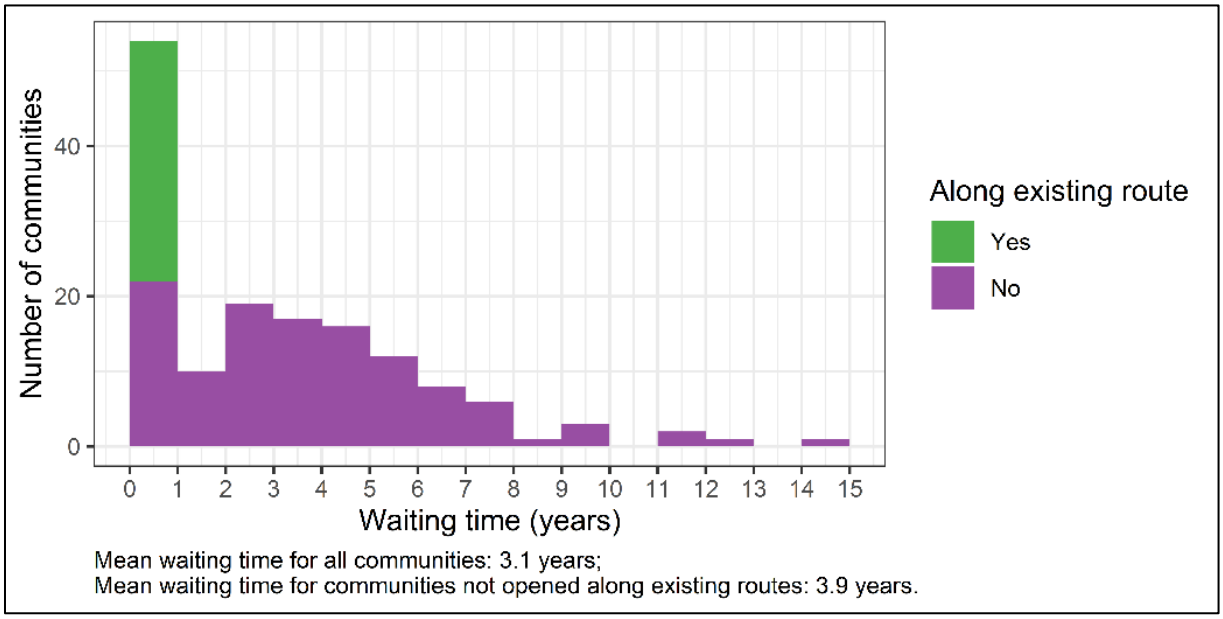
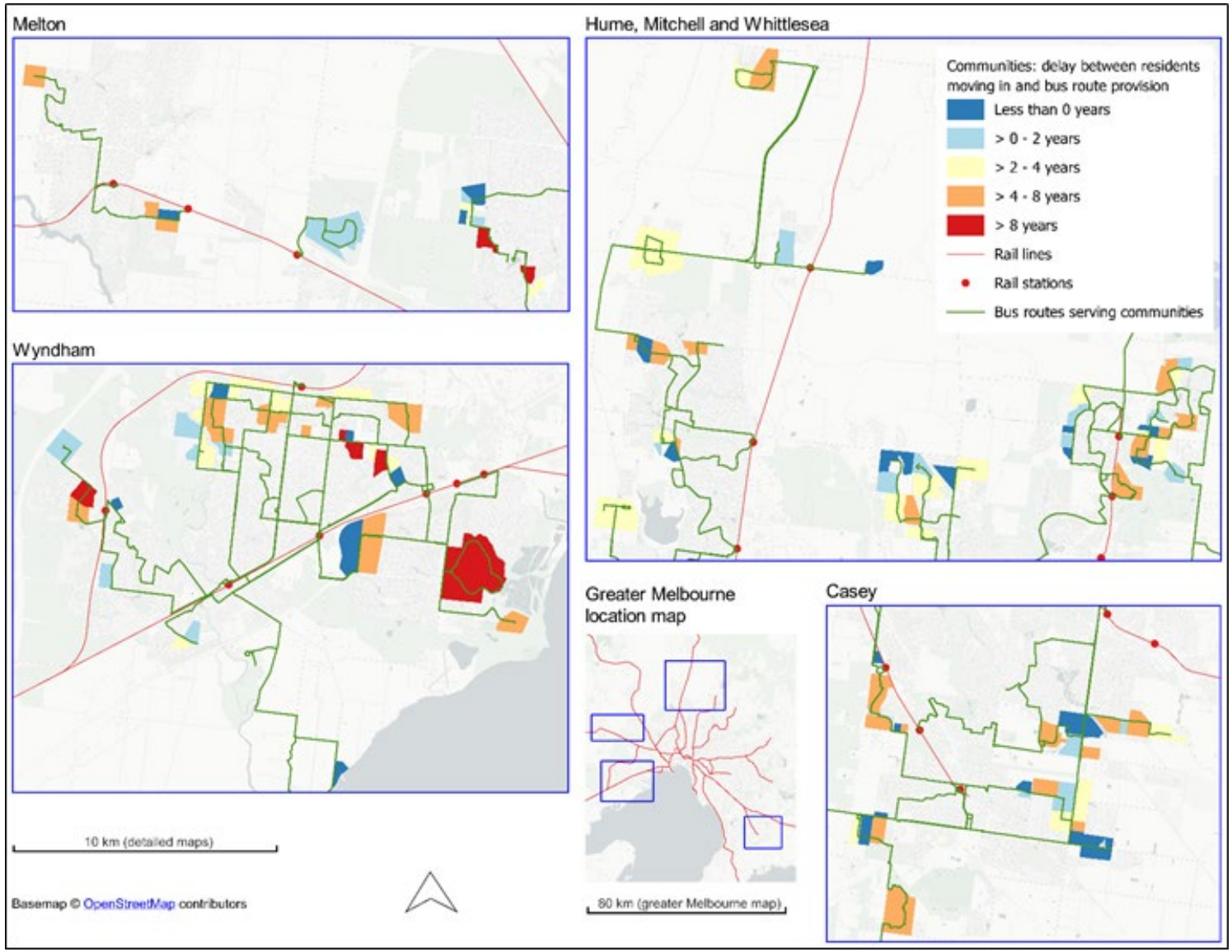


Figure 2 shows the routes and communities on a map, depicting the intervals between a community opening and the provision of a public bus service. Each local government area has a similar range of short and long waiting times. Full details for each individual community are provided in the Technical Appendix.

Figure 2: Map showing communities in Melbourne growth suburbs receiving new and extended public bus services 2014-21



4.2. Frequencies, service hours and destinations

To understand the key characteristics of the public bus services in new communities and to be able to compare these to developer-funded bus services, we looked at service hours, frequencies and key destinations. This analysis was based on PTV timetables and the following spatial data: GTFS[1] data (Mobility Data IO 2021); school locations from the Victorian Department of Education and Training (Department of Education and Training 2021); and the Property Council of Australia's online database of shopping centres (Property Council of Australia 2021). Further details of the analysis and results can be found in the Technical Appendix.

Service hours

Almost all the 46 routes analysed have service hours meeting the following standards set out in *Meeting our Transport Challenges* (State of Victoria 2006):

- weekdays – at least 6am to 9pm
- Saturdays – at least 8am to 9pm
- Sundays – at least 9am to 9pm.

The main exceptions are a single route connecting Mandalay and Olivine estates to Donnybrook stations that only operates in weekday peak periods (route 511), and three routes in Wyndham that end at 7pm or 8pm each day (routes 439, 441 and 496).

Service frequencies

On weekdays, most of the routes (32 out of 46) run at 40-minute frequencies during the interpeak period, while around half (24 out of 46) run at approximately 20-minute frequencies at peak times. On weekends, more than half of the routes (25 out of 46) operate at 40-minute frequencies, though only around one third (14 out of 46) operate hourly. Table 2 shows details of the services frequencies.

Table 2: Frequencies of public buses serving growth areas

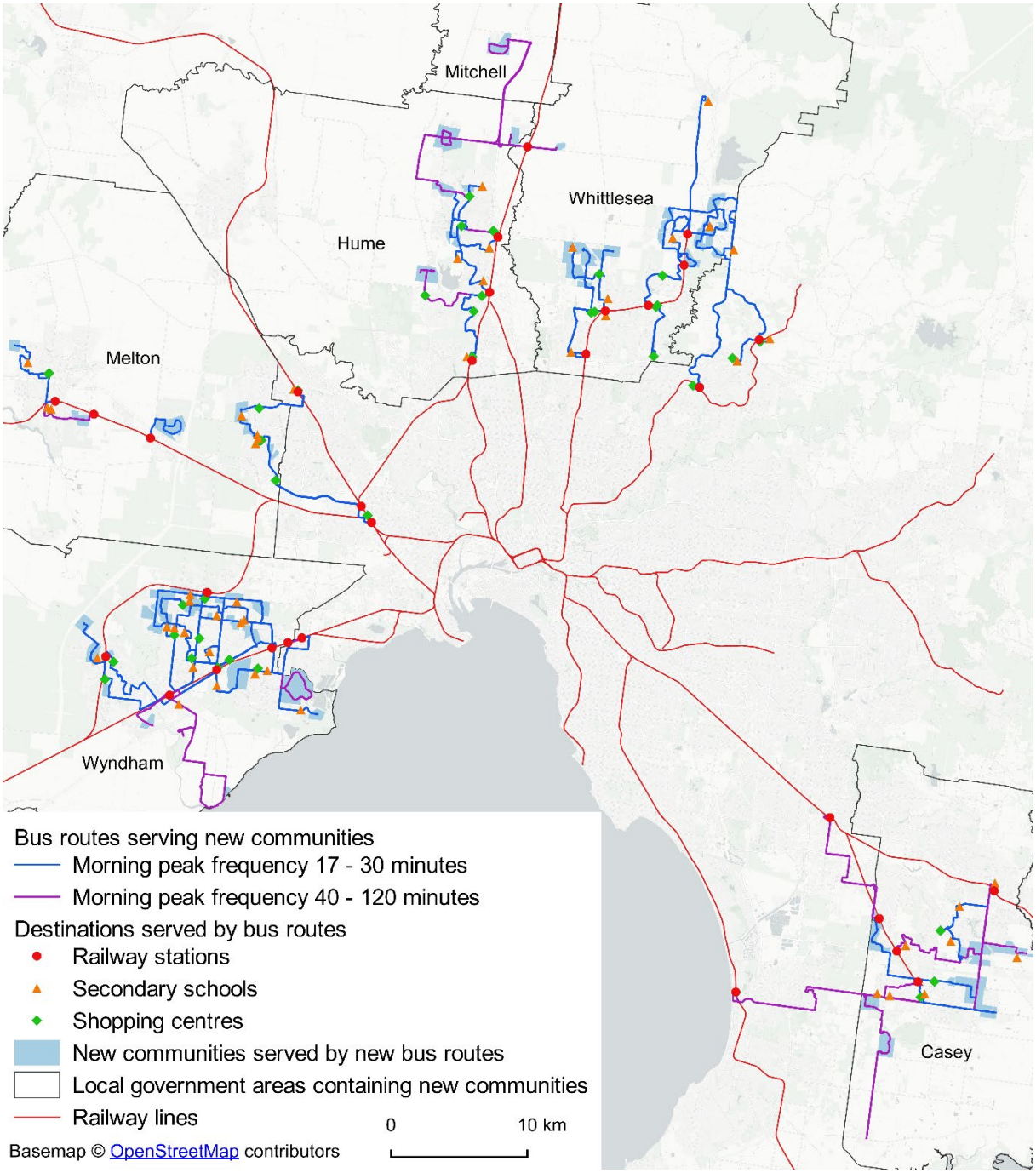
Frequency (minutes)	Number of services			
	Weekday AM peak	Weekday interpeak	Weekday PM peak	Weekend daytime
20 (approx.)*	24	5	24	4
30	8	2	10	1
40	11	32	9	25
60 or more	3	6	3	14
not running	-	1	-	2

Notes: '20 (approx.)' means 20-minute frequencies for weekday interpeak and weekend daytime; between 15 to 24 minute-frequencies for weekday peak periods. Saturday and Sunday frequencies are the same for each route.

Figure 3 shows the morning peak frequencies for each route. The improved peak frequency pattern is particularly evident in Whittlesea, where all routes operate at approximately 20-minute frequencies.

[1] GTFS (General Transit Feed Specification) data comprises stop, route and other timetable data, made publicly available as comma-delimited text files in a format specified by Google and used by many transit authorities (Google 2020).

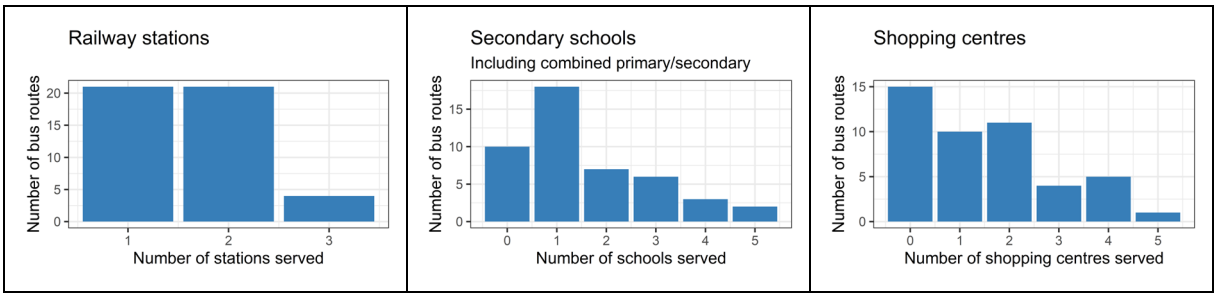
Figure 3: Map of public bus routes in growth areas and destinations served by them



Destinations

Figure 4 shows the numbers of railway stations, secondary schools and shopping centres served by the routes.

Figure 4: Destinations served by buses in growth areas



All surveyed routes serve at least one railway station, with around half (25 out of 46) serving two or three. Where multiple stations are served, they are usually on the same line. The exceptions are 10 routes in Wyndham that connect to both the Werribee and Regional Rail line, 2 routes in Whittlesea that connect to both the Mernda and Hurstbridge lines, and 1 route in Casey that connects to both the Cranbourne and Frankston lines. That is, the general pattern is for routes to operate as shuttles between residential areas and railway stations, though the exceptions help provide some of the connectivity needed to create an interconnected network.

Around three quarters of routes (36 out of 46) serve at least one secondary school, and around two-thirds (31 out of 46) serve at least one shopping centre. In many cases, shopping centres are served because they are located near railway stations or along main roads, but in some cases (for example in Cranbourne and Melton) shopping centres are also independent destinations.

The routes have an average length of 13km and an average of 27 stops per route. These comparatively long routes and high stop numbers help provide a diversity of destinations served by the routes.

5. Current status of developer-led buses in Australia

This section provides an overview of the current status of developer-funded bus services in Australia. As indicated in Section 3, this was informed by a Google search, document analysis, online survey, communication with Melbourne's growth area councils, and snowballing in interviews. While our overall search looked at the whole of Australia, the online survey was distributed in Victoria only and our communication with local government was focused on growth area councils in Melbourne only.

We defined developer-funded buses as services that are fully or partly funded and also coordinated by developers. This excludes bus services funded by development contributions, as these are usually implemented by state government. While developers are paying for those services via contributions, these services are quite different to a developer-led bus service and are often not distinguishable from state-funded bus services for the public transport user.

Overall, we found ten implemented developer-funded bus services. These services are summarised in Table 3, with the exception of two bus services which were introduced in 1996 (Ellenbrook, WA) and 2005 (Laurimar, VIC) respectively on which we found only limited information. These two services are also excluded from most of the further analysis due to lack of detailed information. Route diagrams are depicted in Figure 5 (where known). The relatively low number shows that developer-funded bus services are not common. It is noted that there are possibly other developer-funded buses which we did not find, as not all of the buses were widely advertised. It is also noted that the COVID-19 pandemic and associated lockdowns has impacted the services, with those that were still operating during this time being suspended during lockdowns.

5.1. Location

Most of the services (8 out of 10) connected new residential communities on the urban fringe to the nearest train station, some directly, others with stops in the estate or in-between. There were two exceptions which are not located on the urban fringe: Essendon Fields (Victoria) which is located about 11 km northwest of Melbourne's CBD, close to the airport; and Wentworth Point (NSW) with the Baylink Shuttle located about 13 km west of Sydney's CBD.

5.2. Initiation

In general, the services were initiated by the developers on a voluntary basis, the only exception being the bus service for the Eynesbury Estate in Melton (Victoria) which is required through a section 173 agreement until a PTV service is implemented[2].

[2] A section 173 agreement is based on section 173 of the Planning and Environment Act 1987 which provides the ability to impose permit conditions. The responsible authority can negotiate an agreement with an owner of land to set out conditions or restrictions on the use or development of the land, or to achieve other planning objectives in relation to the land.

Table 3: Overview of developer-funded buses

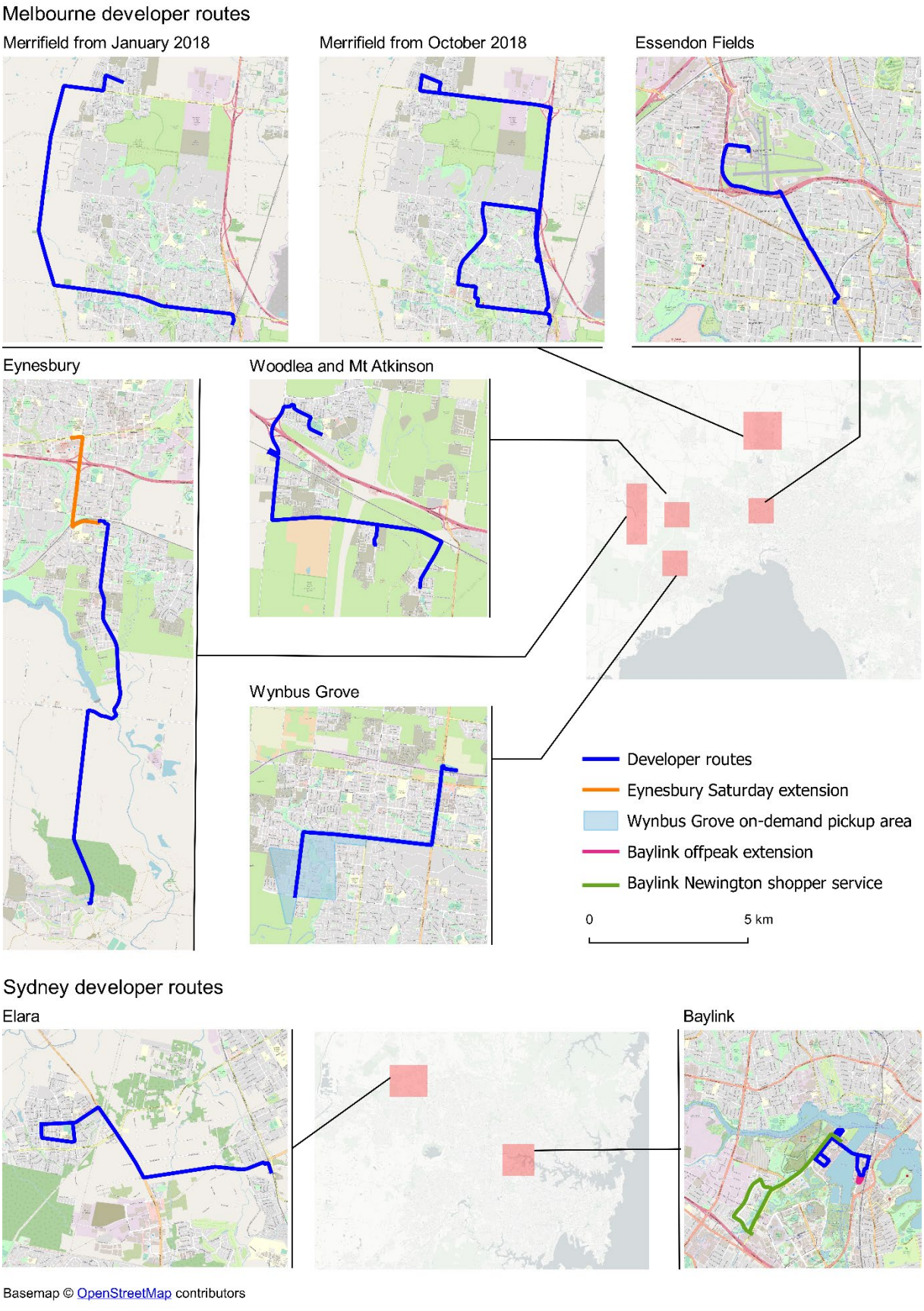
Name and location Provider and operating period	**Route details**	**Operating hours and frequency**	**Fares**	**Replaced by**
Merrifield Connect (Merrifield Estate, Mickleham, Vic) Funded by MAB Corporation and Gibson Property Corporation (developers) Commenced 30 Jan 2018 Expanded service from Oct 2018 Replaced by PTV route 525, 22 Dec 2019	Merrifield to Craigieburn station Initially, 15 km, 5 stops, via Mickleham Rd Expanded service from Oct 2018, 25 km, 6 stops, via Hume Fwy and with school and shopping loop in Craigieburn	Initially, Mon-Fri – ▪ morning peak (7am-9am): 3 services (hourly) ▪ afternoon peak (4pm-6pm): 3 services (hourly) Expanded service from Oct 2018, Mon-Fri – ▪ morning peak (7am-9am): 4 services (approx. 40-min frequency) ▪ afternoon peak (4pm-7pm): 4 services (approx. hourly)	$20 annual fee for purchase of Access Card, which allows unlimited travel within the calendar year Access Card (and therefore service) only available to people who live or have purchased in Merrifield	Route 525 to Craigieburn and Donnybrook stations, commenced 22 Dec 2019, approx. hourly service, 7 days, to 8pm
Wynbus Grove Estate (Grove Estate, Tarneit, Vic) Provided by Fraser Property (developer – funding), Wynbus Inc (community organisation), The Routing Company (contracted to provide routing software, and in-kind support) and Local Transit Co (contracted to provide vehicles and drivers) Trial: 6-week trial initially scheduled 19 Apr 2021 – 28 May 2021, but postponed to begin on 24 May (and then interrupted by COVID-19 lockdown)	The Grove to Tarneit station Pick up and drop off on demand within defined estate service area, and shuttle to Tarneit station, typical trip 7 km	Mon-Fri – on demand, 7am-9am and 5pm-7pm	$2.20 per trip, via Ride Pingo app	Route 182 to Tarneit and Werribee stations, commenced 20 May 2021, approximately 40-minute service (with extra peak services), 7 days, to 9pm

Name and location Provider and operating period	Route details	Operating hours and frequency	Fares	Replaced by
Eynesbury Bus (Eynesbury, Vic) Funded by Resimax Group (developer since 2019) Commenced 19 Apr 2021	Eynesbury to Melton station, with extension to Woodgrove shopping centre on Sat Weekday service: 11 km, 2 stops; Sat service: 14 km, 3 stops	Mon-Fri – ▪ morning peak (5.30am-7.30am) – 3 services (hourly) ▪ afternoon peak (5pm-7pm) – 3 services (approx. hourly) Sat: 1 morning/1 afternoon service	Free	
Woodlea Shuttle (Woodlea Estate, Aintree, Vic) Provided by Victoria Investments and Properties (VIP) and Mirvac (developers) and Caroline Springs RSL Commenced June 2018, initially for trial period to 31 Aug 2018, but apparently continued until replaced by route 444	Woodlea to Rockbank station 3km, 4 stops	Mon-Fri – ▪ morning peak (6am-7.30am): 4 services (approx. 40-minute frequency) ▪ afternoon peak (5pm-7pm): 3 services (approx. 40-minute frequency)	Free, book via Eventbrite	Route 444 to Rockbank station, commenced 2 Dec 2019, approx. 40-minute service 7 days to 9pm
Mt Atkinson & Grandview Community Bus (Mt Atkinson & Grandview Estates, Truganina, Vic) Provided by Stockland (developer), Edmund Rice Services Mt Atkinson and Caroline Springs RSL Commenced 12 July 2021 (though suspended during COVID lockdown periods July and Aug-Oct 2021, resumed 18 Oct 2021)	Mt Atkinson and Grandview to Rockbank station 9km, 3 stops	Mon-Fri – ▪ morning peak (6am-8am): 3 services (approx. 40-minute frequency) ▪ afternoon peak (5pm-6.30pm): 3 services (approx. 50-minute frequency)	Free, book via Eventbrite	
Essendon Fields station shuttle (Essendon Fields (business district), Vic) Funded by Essendon Fields airport Commenced 2017; Suspended during 2020 for COVID reasons, then replaced by PTV route 477, 14 Jun 2020	Essendon Fields to Essendon station 5 km, no intermediate stop	Mon-Fri – ▪ morning peak (7.15am-9.30am): 30-minute frequency ▪ afternoon peak (4.15pm-6.30pm): 30-minute frequency	Free	Route 477 to Essendon and Broadmeadows stations extended to Essendon Fields 14 Jun 2020, weekday daytime: approx. 20-min service; evening: 30-min, weekend: daytime 40-min; evening 60-min, to 9pm

Name and location Provider and operating period	Route details	Operating hours and frequency	Fares	Replaced by
Elara Community Shuttle Bus (Elara Estate, Marsden Park, NSW) Funded by Stockland (developer) Commenced Nov 2018 Ended 30 June 2021	Elara to Schofield station 9 km, 6 stops	Mon-Fri – ▪ morning peak (6am-9am): 6 services (approx. 40-minute frequency) ▪ afternoon peak (4pm-8pm): 6 services (approx. 40-minute frequency)	Free	Route 747 to Riverstone, Rouse Hill and Mt Druitt stations, commenced 18 Apr 2021, 30 minutes (weekdays) and 60 minutes (weekends) to Riverstone and Rouse Hill, 60 minutes (weekdays) and 120 minutes (weekends) to Mt Druitt
Baylink Shuttle (Wentworth Point, NSW) Funded by Billbergia (developer) Commenced Jan 2018 Trial of additional Newington Shopper service between Wentworth Point and Newington commenced 15 Apr 2019, ended 2 Dec 2019	Wentworth Point to Rhodes station 6 km loop route, 8 stops (an additional off-peak Rhodes Waterside shopping centre stop operated initially, but was removed 15 Apr 2019) Newington Shopper trial: Newington to Marina Square shopping centre, 5 km, 5 stops	Initially, Mon-Fri – ▪ 6.30am-9.15am: 10-min freq. ▪ 9.30am-2.15pm: 15-minute frequency ▪ 2.30pm-7pm: 10-minute frequency ▪ with additional 10-minute express service for some stops 6.35am-9.15am and 3pm-7pm From 23 Aug 2021, Mon- Fri, reduced (due to COVID) – ▪ 6.30am-9.30am, 20-minute frequency ▪ 9.30am-3pm: 30-minute frequency ▪ 3pm-7pm: 20-minute frequency ▪ 7pm-8pm: 30-minute frequency, ▪ and express service suspended Newington Shopper trial, Mon-Fri – ▪ 10am-2pm, 20-minute frequency	Free	

Sources: www.merrifieldmelbourne.com.au, www.mab.com.au, www.wynbus.com.au, www.eynesbury.com.au, www.woodlea.com.au, www.stockland.com.au, www.ef.com.au, www.baylinkshuttle.com.au, along with former versions of those sites available via www.web.archive.org, Facebook pages of developers and other providers, press reports, and other information provided by developers

Figure 5: Route maps for developer-funded buses



5.3. Operating period

All of the services started between 2017 and 2021, with the exception of the two services mentioned previously that started in 1996 and 2005. The services that have ended have all been replaced by a state-funded bus service. Apart from the Wynbus service that had been planned as a 6-week trial, the replacements occurred after services had been running for approximately 1.5 to 2.5 years. The longest-running ongoing service we reviewed has now been running for almost 4 years, with other ongoing services having been introduced more recently.

5.4. The routes

The route length of the services varied between 3 km (Woodlea Shuttle, Victoria) and 25 km (Merrifield Connect, Victoria), while the number of stops ranged from 2 stops (i.e. a start and an end point) (Essendon Fields, Victoria) to 8 stops (Baylink Shuttle, NSW). Additionally, the WynBus Grove Estate service (Victoria) picked up from any point within the defined estate area.

Nearly all of the services were provided from Monday to Friday during the morning and afternoon peak with frequencies ranging from 20 to 60 minutes. The exception is the Baylink Shuttle (NSW) which also offers off-peak services between 9.30am and 3pm (every 30 minutes). This service also runs at higher frequencies in comparison to other developer-funded buses with 10-minute frequencies initially during peak hours which have since been reduced to 20-minute frequencies due to COVID. One reason for the higher frequencies might be that this development is not located on the fringe, but in an established area between the Sydney CBD and Parramatta. Another exception is Eynesbury, where an additional bus service is offered on Saturday which extends beyond the weekday train station terminus to serve a shopping centre. However, only one service operates in the morning and afternoon.

All of the services run on specified timetables, except for the Wynbus trial which was an on-demand service which could be booked through an app. Some other services also needed to be booked in advance, like the Essendon Fields service, the Woodlea bus and the Mount Atkinson/Grandview bus. However, we were informed in the interviews that this booking service was not always handled very strictly.

5.5. Fares

Most services (6 out of 8) were free for users, with some services restricting the service to residents of the estate. For the bus service in Merrifield (Victoria), an access card had to be purchased for a fee of $20 per year. This was also introduced to ensure that only Merrifield residents would use the service. For the Wynbus trial in the Grove estate in Tarneit (Victoria), there was a cost of $2.20 per trip.

5.6. Models of provision

There are two main models for providing a developer-funded bus service. The first involves commissioning a bus company, while the second involves provision through a not-for-profit organisation or social enterprise (e.g. RSL for Woodlea Shuttle and Mount Atkinson/Grandview bus, Local Transit Co for Wynbus Grove Estate). This is discussed further in the next section. As noted in Section 2, there is also the model of funding buses through development contributions. In Queensland, this seems to occur through contributions that are directly hypothecated to funding the bus service (interview bus operator), while in Victoria, GAIC funding can be used for funding bus services (for up to 5 years), but the GAIC contribution paid by the developer is not directly hypothecated for this use and can also be spent on other public transport projects.

6. Experiences with developer-led bus services

This section details experiences with developer-led bus services, based on the interviews with developers, bus companies, local and state government, and responses to the online survey. It covers motivations, strengths and limitations, operational models, stakeholders, premises, cooperation with other developers, and difficulties and risks associated with developer-led bus services.

6.1. Motivations for introducing developer-led bus services

Reasons given for introducing a developer-funded bus service included:

- Lack of public transport and other services (e.g. retail or health) in the area
- The need to connect residents to the nearest train station (typically between 3.5 and 14 km away)
- Improving the experience for residents and facilitating community development, early amenity provision and influencing travel behaviour towards public transport
- Increasing the attractiveness of the estate for prospective residents
- Demonstrating the need for a public transport service
- Requirement through a section 173 agreement.

Demonstrating the need for a public transport service was the main motivation for the Merrifield bus. The developer (MAB) collected data on the use of its service to demonstrate that the service was required. Their numbers showed that in the nearly two years that the service was provided, it had 30,000 user trips and 400 residents were using it. We did not hear about other developers taking the same approach. Developers who provide a limited amount of service, for example because they only use one minibus, may have difficulties to demonstrate the need for their service because of the low carrying capacity.

Eynesbury was an example for where the developer is legally required to offer a bus service through a section 173 agreement. However, the current developer is also motivated to provide a connecting service for their residents due to the current lack of services in their community.

6.2. Strengths and limitations of developer-led bus services

Perceived strengths of developer-led bus services included:

- Providing a missing connection, particularly for people who do not have access to a car
- Providing a bus service early in the lifetime of the estate
- Building community (particularly with the RSL model, discussed below)
- Responding to the needs of the community, in line with input from community surveys
- A marketing advantage for the developer.

These strengths were highlighted by interviewees:

> "We kind of just looked at it that it will be mainly people going to the train station, for work, not having to drive, not having to park. (…) But yeah, those other elements came out, and the high school students seem to be using it more than anybody else. The retirees or people that have a disability and can't drive." (Developer)

> "The (…) advantage in terms of the sense of community that it constructs is when you have this regular driver." (Developer)

Anecdotally, some of the state-funded buses that were introduced in areas where a developer-funded bus service had been running have a higher patronage compared to other state-funded bus services that had been introduced in growth areas, so developer-led buses might help to support travel behaviour change towards public transport (interviews with developers).

Perceived limitations of developer-led bus services included:

- The limited nature of the services as they generally only run to the nearest train station and only during peak hours
- Insecurity about the services, as they rely on the developer and may be discontinued at some point – an example of this could be seen during the recent COVID lockdowns where some of services were suspended.

Insecurity about the services was highlighted by a developer:

> "It requires the ongoing generosity of the developer to do that and that will be inextricably linked to their market performance at the time. So if the market goes backwards that's probably one of the first thing that's going to get cut." (Developer)

6.3. Operational models

As indicated in Section 5, there are two main models for the provision of developer-funded buses: engaging a bus company or engaging a not-for profit organisation like an RSL branch. Other models that developers had looked into was paying PTV to fast-track a service or buying a bus and hiring a bus driver. However, these two options were seen as too expensive, lowering the 'pressure' for the state to provide a service and also too demanding from a practical and legal point of view.

A key advantage of hiring a bus company was perceived to be easier implementation, as bus companies understand the regulations and rules. They are also equipped to respond to the legislative requirements, such as having an accredited driver. Another perceived advantage was bus companies knowing the area, the network and also having connections to the public transport provider. However, hiring a bus company is more expensive than using a not-for-profit agency, so this is one reason why some developers decided against this option.

The perceived advantages of engaging not-for-profit agencies, such as an RSL branch, were their lower price, but also the opportunity to connect to existing communities within the new area and build a sense of community through local drivers. Furthermore, it means that existing resources (i.e. the minibus) are better utilised. However, the difficulty of this model is finding a suitable organisation within the area, as most of the developments are in newly established areas. Some of the social enterprises may also still be too costly for some developers. Furthermore, using minibuses also means that there is only a limited carrying capacity.

Key comments given by interviewees in relation to operational models included:

> "We also did a lot of research around different models, so we looked at either running it ourselves, so either purchasing the bus, employing our own driver, which was actually probably going to be one of the cheaper ways to do it. But you know, I wasn't going to be sitting there and managing it all on a day-to-day basis." (Developer)

> "Part of it was us having the Intel and that really strong partnership with the bus company because they were having conversations in at PTV as well. So it was kind of like having them on board we believe was what kind of got it across the line sooner." (Developer)

> "But the notion of actually utilising underutilised minibus resources from whichever agency obviously has a lot of merit." (Developer)

> "We engaged a bus company to do it rather than to do it ourselves. You know there's a lot of hoops to go through to do it yourself." (Developer)

> "Dealing with [our bus provider], it's a breeze. It is so easy to deal with them, they know what they're doing. They've been doing it for years." (Developer)

> "We sort of got to the point where we quoted it for the developer. And some of the things that were cost prohibitive where, you know, having to buy a brand-new fleet for those made it very expensive." (Bus operator)

As noted earlier, developer-led bus services are typically provided during peak times in the morning and afternoon. The reasons for this are cost implications and the focus on catering to the highest passenger demand. Generally, the developers undertake a resident survey before implementing a service to understand the community need:

> "We did have a few requests for during the day, but it just wasn't feasible for us to run the bus during the day." (Developer)

Developer-led bus services are mostly shuttle services to the nearest train station (and sometimes additional shopping and school destinations) which run according to timetables. Reasons given for the use of timetables were the necessity because of a limited number of actual buses, but also the reliability for users. On-demand was seen as less suitable given the need to meet train arrival times which may be compromised if several stops are needed to pick up passengers. However, one developer considered an on-demand service to connect to the local shopping centre and the Wynbus trial in Tarneit was an on-demand service that operates during the morning and afternoon peak. This service used a booking system (via an app), but there were also other services with booking systems. However, interviewees commented that some of them do not insist on a booking:

> "There's a booking system online and… It's fair to say that it was rarely subscribed to. It got to the point where (…) the regulars just turned up at the bus stop at a given time and jumped on." (Developer)

> "How do you run a reliable timetable? You can't because (an on-demand service is) demand driven, it moves within certain time parameters depending on who calls. You can't establish a reliable framework to service peak hour commuters, which was our primary concern. So, there's some way to go I think on getting that concept happening on the fringes." (Developer)

Most developers reported that their bus service was provided free for passengers. A key reason was that charging users would make the bus service less attractive and 'fair', as the public transport fare still needs to be paid when transferring to the public transport network, while the costs to the developer are unlikely to be recouped, unless the fare would be comparatively high.

A further model for the provision of developer-funded buses are development contributions, which in Victoria can mean the funding of a bus through the Growth Areas Infrastructure Contribution (GAIC), or as it is implemented in Queensland, a direct financial developer contribution for a bus. For the GAIC, the bus can either be provided by PTV with GAIC funding paying for the costs of delivery or the developer could provide it as work-in-kind, i.e. run their own bus and offset part or all of their GAIC liability through this. It seems that so far, no bus service has been provided as work-in-kind, even though the option has been discussed (interview VPA; VPA 2020) – although information on this was not entirely explicit. But developer-funded bus services, such as the Merrifield bus and the Woodlea bus, have been 'replaced' by a bus service that is paid for by GAIC funding.

6.4. Additional stakeholders relevant to developer-led bus services

Two additional major stakeholders were mentioned in the interviews: state government (e.g. PTV) and local members of State Parliament. Local government was seen as a further stakeholder but was perceived to have limited capability to influence service provision.

With regard to the state government as a public transport provider, it was mentioned that it was difficult to get an understanding of when a bus could be expected in the relevant area, although

generally it was clear that it would take a few years, as there was no current need and the provision in other areas was more urgent:

> "It was very difficult to get straight answers out of PTV when it comes to funding allocations, because they're inevitably tied to the political process. But we had a very clear indication that they would take some time until they were convinced that there was a need for the bus there. (…) So we decided to go it alone with that local partnership." (Developer)

Another developer mentioned that they tried to get in contact with the Department of Transport to understand how they could provide a bus service but were not able to get an appointment.

Local members of State Parliament can play an important advocacy role for achieving the provision of a state-funded bus, and are seen as important stakeholders by developers:

> "And that's the reality in terms of trying to win resources for the fringe. You'd have to build those relationships with your local members." (Developer)

> "And then maybe the local MPs. There's certainly a detachment between MPs and Translink, even though they're both state government. You know the MPs… really don't perhaps see the bigger picture of the competing priorities. Like (they) have people in their area whinging to them about not having bus services and they make a bit of noise and that's generally how some things get done." (Bus operator)

6.5. Premises for developer-led bus services

There seem to be two main premises for a developer-funded bus service being likely: the development is of a certain size and thus the developer is in the area for a longer time (e.g. about 10,000-20,000 residents with a time frame of about 10-20 years), and the developer has some anticipation that a public bus service may arise at some point in the future that is not too far away. Conversely, the uncertainty about how long the service would be required until the state funded service would take over has been stated as a reason not to provide a service. These issues were highlighted by interviewees:

> "So for us, really, if it meant in 2-3 years' time, our community would have a public transport option, then that was money well worth it from our perspective." (Developer)

> "So if there was able to be a clear line that said you are getting a PTV service after two years and you know we're at month three in our development, then I would imagine there being far greater appetite within development lobby to say, 'Yep we know what the worst-case scenario is for us even at full commercial rates'." (Developer)

> "It's not something that we would be able to do forever. And there's pros and cons to both sides, but eventually it is something that is for the now, and it's not forever." (Developer)

6.6. Cooperation with other developers

While there is a motivation for developers to provide their estate with an early option of public transport, there are also financial and marketing considerations for the developer. This can lead to a reduced willingness for cooperation with other developers. In addition, if there is already an existing public transport service operating in the area, even if the quality is not high, developers may not see the need to introduce a further complementary service Furthermore, the marketing opportunity of having a branded bus would be less attractive with other developers also being branded on the bus.

> "Now we had some discussion with both of those (developers) at the outset about their interest in participating in a shared trial. But where it fell was around scheduling, because (…) it got down to well which estate is going to have to compromise the most in terms of the

reliability and efficiency of this service. So those practical considerations just cruelled any aspiration in that part, unfortunately. (…) And the other thing is of course it becomes a badging opportunity for them on the bus (…) and they aren't about to have their logos in in conjunction with someone else's on there." (Developer)

"So, I would argue that there's still a compelling argument for both Mirvac and MAB and others along that section to have a supplementary minibus service that it operates to give people full, … full access to a range of timetables. But the (…) the economic and political and marketing reality is they are now saying no, that problem…. that hole has been plugged. We have a PTV service there. It's a good look. We don't need to find anything else." (Developer)

6.7. Difficulties and risks associated with developer-led bus services

The main perceived risk of providing developer-led services is that the state government does not provide public services at some point and that either the developer is stuck with an expensive service or has to decide to end that service. However, there was also a possibility seen that if a service ended, there would be a need for the state to step in. Nevertheless, as this is not a clear outcome, there is an inherent risk for the developer to make a bad impression:

"You know there was a risk that government would have said, well, we don't need to step in, they've got it. Yeah, they're providing it. So there is a risk that we could have been stuck with funding that service and the government not stepping up. But as I said before, we were prepared to do it as long as it took. But I mean you know in saying that, probably after five or six years we may have gone well, no hold on this isn't our place to keep doing these, so there is that risk." (Developer)

"…at some stage you're going to pull the pin and you're going to disappoint your flock terribly or you're going to have a dirty great big bill." (Developer)

Another risk or difficulty that was mentioned was that there is a reputational risk if residents are not happy with the service you are providing and leave bad reviews on social media:

"It can make you a bit of a target. (…) It's your contact information out there. So, you know, if there's any issues or somebody wants a certain pick up point you are the contact person. And if you can't give them what they want it does create a bit of a negative stance if they then go and put things on, you know social media.".

7. Comparison of state-funded and developer-led buses

This section reviews the main differences between state-funded and developer-led buses in growth areas. This is not to say that one is better than the other, but to give an overview of the main differences and also to understand how developer-led buses may be able to complement the public transport network. Table 4 summarises the typical differences in relation to service provision between the analysed routes.

The differences can mostly be explained through the different intentions and target groups behind the service provision. Developers want to provide a basic service for the residents in their estate which covers the times with the highest demand for travel and mostly have a train station as the destination to link into the overall public transport network. They offer their service because they see a gap in the current public transport network. The state's objective is to provide a service for everyone which covers most of the day – although this is not completely achievable due to high costs. However, it is noted that with more funding available to public transport in a growing city some of the risks of social exclusion or isolation could be reduced. Due to these different objectives developer-led buses are mostly weekday peak services to train stations, while public bus services operate weekdays and weekends, generally from 6am to 9pm during the week, and have more stops.

Expectations towards developer-funded buses are also different to public bus services. Developer-led buses are considered a positive extra offer which is likely to end at some point. As such they are also considered more flexible and route changes are not strongly contested. Public bus services are considered as a standard service which, once provided, will – more or less – keep running. This also means that implementing changes to public services can sometimes be difficult.

What developer-funded buses do 'better' than the state-funded buses is in general:

- Provision of the most immediately necessary connection to the development (peak hour station commuter shuttle) early in the lifetime of the suburb
- Provision of a fast connection to the train station which is competitive to the car
- Quicker adaptability to community demand.

What state-funded buses do 'better' than the developer-led buses is that they generally provide

- A broader range of destinations and a larger number of bus stops and
- A broader range of service hours and frequencies.

One of the main advantages of the developer shuttles from the perspective of bus users that want to go to the train station is that they are direct shuttles and therefore provide a fast service to the station. It is possible that some users might divert back to the car if a public bus service is introduced which stops more often and covers a broader area and therefore takes longer to the station. However, for other users who do not travel during peak hours or want to go to other destinations than the train station, the public bus provides the better service or a service at all.

Table 4: Comparison of selected characteristics of state-funded and developer-funded buses

Characteristics	Developer-funded buses	State-funded buses
Service characteristics of analysed routes		
Service hours	Generally Mon-Fri peak periods only	Generally at least: • weekdays 6am to 9pm • Saturdays 8am to 9pm Sundays 9am to 9pm
Service frequency	Generally 40–60-minute frequency Mon-Fri peak periods only	Generally at least 40-minute frequency at all times Over 50% have 20-minute frequency Mon-Fri peak periods
Destinations	One railway station A minority also serve schools and shopping centres	At least one railway station; over 50% serve two or three Most serve at least one secondary school and at least one shopping centre
Route length	5 km – 25 km (average 10km)[1]	5 km – 32 km (average 13 km)
Number of stops served	2 – 8 (average 4)[1]	11 – 57 (average 27)
Fares	Usually free	Standard fares In Melbourne, zone fare structure generally means using a bus to connect to a train is effectively free
Booking	May be required, generally via app	Not required (unless on-demand service)
Available to	Usually everyone, but sometimes estate residents only, also mostly not stopping at other estates on the way to the station	Everyone
General characteristics		
Barriers to provision, alteration or removal	May be able to be established, altered or withdrawn more quickly and flexibly	Must satisfy standard public transport agency provisions for establishment Generally considered difficult to withdraw or reduce any public transport service, once provided
Integration with network	Connection to train service, but less likely to be integrated with other bus services	Likely to be better integrated with more train and other bus services (though often, in growth areas, shuttle to railway station is the primary purpose)
Consistency of service experience for user	Buses and stops likely to be different branding from state-funded network Likely to be different ticketing and pricing system from state-funded network (but this is irrelevant if free)	Branding and appearance of buses and stops generally consistent across network Consistent ticketing and pricing system across network (in Melbourne)

Note 1: the 'average' calculations for developer-funded routes treat each configuration of a route as a separate route. For example the Merrifield Connect original and expanded services are treated as two separate routes.

8. Conclusions and recommendations

New suburbs generally do not have high demand for public transport early on in their development, and public transport typically competes with the car as a transport mode. However, there are residents living in those suburbs who may be unable to travel in the absence of a public transport service or who would prefer using public transport over driving. If a full public transport offer cannot be provided, it makes sense to start with a few strategic bus routes that directly service key destinations. In some estates, developer-funded bus services provide this offer. These typically take the form of shuttle bus services from an estate to the nearest train station which operate during peak hours in the morning and afternoon. There are different operational models for developer-funded bus services with the two most common being hiring a bus operator or provision through a not-for-profit organisation like a RSL branch. Most of the shuttles run to a fixed timetable.

Developer-funded buses can provide some of the benefits of public transport provision and respond to some of the risks of deferring provision of public transport or not providing it at all. While the offer is less comprehensive than public bus services, developer-funded buses can still enable improvement of social and economic participation, health benefits, environmental benefits, economic benefits, broader transport choice and to some extent lower transport costs for households. They may also lead to residents developing the habit of using public transport, as these bus services provide an early travel alternative to the car for important destinations. Anecdotally, the use of public bus services is higher in growth areas where a developer-led bus had been provided earlier in comparison to other growth areas.

Nevertheless, it is also clear that these kinds of services are only a temporary solution, as they do not provide the full public transport offer. Yet, if they keep operating after the more comprehensive public transport offer has arrived, they could still complement the public bus service, which may take a longer and less direct route to important destinations. This complementary bus service could also be implemented as an on-demand service. However, provision of an ongoing developer-funded service is unlikely, as these shuttle services are of high cost to developers and are really only a service that fills an apparent gap until that gap is closed.

Developers fund these bus services because they see the need to connect their residents to the nearest larger public transport stop on the network, and want to provide amenity and increase the attractiveness of the estate, but also because they want to influence travel behaviour and demonstrate the need for a state-funded bus service. Mostly, developer-led bus services are introduced for larger developments where the developer will build for 10 to 20 years. Reasons for this are that the longer time frame and larger number of customers/residents make the investment more worthwhile and strategic, and that larger developers often aim at a price point which allows them to be more amenity- and community-focused. Smaller developer companies may not have the resources to invest in such a bus service, and if their development is complete after a couple of years, the time and financial effort of establishing a service is unlikely to be worthwhile.

Developers who have decided against providing a service have cited high costs, regulatory difficulties and uncertainty of how long it will take until a state-funded bus service is provided. This uncertainty has also been highlighted by developers who implemented a bus service. If more certainty could be given as to the timing of the establishment of public bus services in growth areas, there might be more developers willing to fund services as they can be certain that it will be for a limited time only. A transport plan from the state government which is integrated with land use planning and development would assist in this.

Another option to improve the early provision of public transport to new suburbs includes sequencing of development. If estates in the same area are built around the same time, a public transport service serves more people and is thus more viable, and the larger overall population means that the case to the state government for providing the service is more convincing. For example, the Merrifield bus in Mickleham has demonstrated the need for public transport for the estate, but as other estates were located in proximity, the residents of these estates now also received a bus service comparatively early in their development. We appreciate that there are circumstances that make the most efficient sequencing of estate development from

an infrastructure perspective difficult, and that developers take a number of other aspects into account when deciding for when to build, such as for example, the most appropriate point in time to release land from a market perspective. Developers might also prefer not to build too close to competitors. Nevertheless, this would be an option to enable earlier provision of a public transport service in their estate.

The alternative funding options (see Section 2) would provide more funding for public transport in general, so could assist in achieving public transport services earlier in new suburbs. The increased funding could also reduce the competition between new suburbs for public transport services. However, most of the funding options will take time to be implemented.

In Victoria, one opportunity for the early provision of a bus service is the Growth Areas Infrastructure Contribution (GAIC). This is a development contribution collected in Melbourne's growth areas which funds infrastructure and services that are usually funded by the state, such as public transport infrastructure, libraries, ambulance stations or justice facilities. Importantly, for this report, it also funds "a maximum five years of recurrent operating costs", i.e. up to five years of a bus service. This could be implemented as a PTV service funded by GAIC or as work-in-kind. However, while several bus services funded by GAIC exist, to our knowledge no work-in-kind service provision has occurred yet.

From our interviews and the survey it did not become clear to what extent developers are aware of this possibility and do attempt to achieve a public transport provision through GAIC or providing their service as a GAIC work-in-kind. While developers are clearly aware of the GAIC, it seems that they are not necessarily aware of its option to fund bus services, and particularly not of the work-in-kind option. However, a GAIC application for a bus service might also be considered as too onerous or as not likely to be successful if resident numbers are still low in the estate. If a developer wanted to suggest a GAIC bus service for their estate, they would need to suggest it to the relevant departments and state agencies, e.g. the Department Transport or the Victorian Planning Authority, as they cannot apply for funds themselves. The departments or agencies would then apply for projects to be funded through GAIC funds with an inter-departmental panel assessing applications and final decisions be made by the minister. With this being the case, some developers might still see the need for providing a bus service themselves. Nevertheless, the GAIC is an important opportunity in Victoria for the early provision of bus services in growth areas, and three of the developer-funded buses have been replaced by bus services funded through GAIC.

While we did not look in detail into development contributions in other states, it seems that at least in Queensland development contributions are collected in some estates specifically for providing early bus services to new suburbs. One advantage of this approach is to provide an opportunity for smaller developments to receive an early bus provision if the contributions of several smaller developments are bundled together. However, it seems that at least in Queensland these contributions are also mostly negotiated for large estates. In comparison to bus services funded directly by the developer, there is no developer branding, and for the user the bus is like other state-funded buses in being integrated into the network and using the standard ticketing system. An advantage of this approach is the removal of the uncertainty of when a state-funded bus service will arrive. However these services are not always provided, and so a self-funded bus might be the faster option for a developer – though this option is difficult in Queensland due to regulations. Furthermore, the requirement to pay an additional contribution may be unattractive to developers and does not have the voluntary nature of a developer-led service. When looking at Victoria, this pathway would be quite challenging, as the GAIC already exists and an additional developer contribution would be difficult to reconcile with it.

Recommendations for implementing developer-led bus services

Based on our analysis, we have derived the following recommendations for achieving an easier and more coordinated implementation of developer-led bus services, which in turn will improve the transport experience of residents in new growth suburbs on the urban fringe.

Improved coordination and communication between stakeholders

To integrate developer-led bus services better into the existing and future transport network, improved coordination and communication is necessary between stakeholders, particularly the developers, Department of Transport/Public Transport Victoria and the Victorian Planning Authority. **Developers** should aim for increased communication with DOT and the VPA to understand and discuss if funding a bus through GAIC would be a possibility, if a bus could be provided as GAIC work-in-kind, if DOT would be interested in trialling certain services and when a public bus service is likely to be implemented. Likewise **state government** should increase coordination and communication with developers regarding when a public bus service in a certain area is likely to be expected, if there is a possibility for funding a service through GAIC, and if a bus service could be supported to some extent. **Local government** can facilitate cooperation between state and developers if possible.

Bus operators can offer services and advice to developers, including proposing services linking multiple developments with different developers (if allowable under Bus Services Act). They could potentially develop a special 'developer shuttle offer'. Bus operators can also offer advice to DOT, given their knowledge of public transport needs and requirements. Developers can also ask bus operators about the potential for certain services.

Coordination between developers, **community transport providers and not-for-profit organisations** (e.g. RSL, Rotary) could also be increased, either by developers reaching out to those groups, or by facilitation through local government or state government. This could include a database of community vehicles that could potentially be used as developer-funded shuttles.

Use of developer-led buses as a pathway to more comprehensive services

With improved coordination, developer-led bus services could be a clear pathway to a state-funded service. Without that coordination, they can still provide a pathway to a state-funded service, but with more effort and uncertainty.

Use of developer-led buses as trials for routes

As developer-led bus services are somewhat more flexible in testing out new routes, they could be used as trials for future bus routes.

Improved integration of developer-led buses into the overall network

Bus operators can organise and support the integration of developer-led services into the overall public transport network. This integration will provide an improved outcome for residents. This is again based on communication and coordination between bus operators, developers and state government (DOT/PTV).

Improved communication of public transport priorities

While it is important to provide early bus services to as many people and suburbs as possible, there is still the need for prioritisation if there are not enough funds to provide bus services in all areas. Therefore, it is important that priorities are transparent so that developers know when a public bus service might be provided. Likewise, it is important that state government does not get locked into the provision of services which are not of a high priority due to developers building up pressure with the provision of their buses. To support this outcome, **state government** should develop an integrated transport plan which shows planned routes for growth areas, ideally with some timelines. This transport plan needs to be integrated with land use planning and actual urban development. **Developers** can support the outcome by providing patronage

data of developer-led bus services to state government to improve knowledge about the need for transport services.

Stronger sequencing of development

Public transport priorities in growth areas are easier to identify and can be implemented earlier if development is sequenced so that areas are developed consecutively. **State government** can encourage sequencing of development more clearly and make it easier by sequencing its infrastructure development and communication about its sequencing, e.g. through a public plan. **Developers** can develop close to existing and anticipated bus routes, support sequencing of urban development by developing in areas where other development also takes place, and by building local roads that are relevant to the public transport network on a local level as early as possible.

Increased use of GAIC public transport funds for the early operation of bus services

While GAIC funds are limited, the state government should aim to increase the use of the public transport fund of the GAIC and use it specifically for the *early* operation of bus services to support residents in new suburbs. The GAIC is specifically for growth areas and should not be used to fill other backlogs or support projects that would have been funded through the general budget.

Use of section 173 agreements for developments outside of areas where the GAIC applies

Section 173 agreements can contain the requirement of providing a bus service for residents until a state-funded bus service is available. This is reasonable for developments that are outside the existing urban area and therefore have a need to be connected to the public transport network. However, most if not all growth suburbs in Victoria will be located within an area where the GAIC applies, so the use of section 173 agreements is unlikely to play a major role. Nevertheless, they are still useful for avoiding leapfrogging developments that do not have any bus services at all.

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