

Quantum  
Market  
Research

# Infrastructure Victoria Bus Reform Community Research

Full report – March 2023

Ref: INF22103QT

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# Executive summary



# Key survey results



## How and why people travel

Just over a quarter (27%) of respondents used metropolitan buses at least monthly, with 3% using them 5 or more days per week. A third (34%) of respondents never use the bus.

Personal vehicles (car or motorbike) were the most frequently used mode of transport, with 60% of respondents using those modes 5 or more days per week.

Metropolitan train was the most frequently used mode of public transport, with 46% using trains at least monthly, but just 6% using trains 5 or more days per week.

As it currently stands, three in five (63%) respondents prefer other modes of transport over buses.

Highlighting the lack of emotional connection to buses, just a quarter (24%) agreed that buses are for 'people like them'. In Manningham LGA where buses are the only mode of transport available, agreement is higher – 40% agreed buses are for 'people like them'.

In terms of reasons for travel, the majority of respondents travel for shopping/appointments/drop offs (89%), or for leisure/recreation/social outings (87%). Seven in ten (69%) travel for work and one in six (17%) travel for study.

## Attitudes towards transport

Perceived dependence on personal vehicles was strong; seven in ten (70%) agreed they couldn't survive without a car. This was higher among women, older people, and areas not serviced by trams.

One in four (25%) reported that they would like to get rid of their car but don't feel there is a viable alternative, indicating some underlying desire for public transport alternatives.

Almost three in five (57%) respondents felt positively towards public transport overall. Perceived safety of public transport, while not a concern for many during the daytime, would be a barrier when travelling after dark, with half (51%) of respondents disagreeing they feel/would feel safe waiting at public transport stations or stops after dark, and a similar proportion (50%) disagreeing they feel/would feel safe walking to/from public transport after dark. Again, women were disproportionately affected, with 68% of women feeling unsafe waiting at or walking to/from public transport after dark, compared to just 32-33% of men.



# Key survey results



## Acceptability of bus reform scenarios

More than a third (36%) of respondents rated converting one of the road lanes into a dedicated bus lane for a busy bus route as acceptable (rated 8-10 out of 10), and the same proportion rated removing bus routes on which very few people travel, supplemented with demand-responsive transport, as acceptable. Acceptance for removing bus routes on which very few people travel, without supplementing with demand-responsive transport, was acceptable to a lower proportion of respondents – 25%.

Although more direct routes with interchanges have strong potential to improve bus travel times, half (47%) said they avoid taking public transport if interchanges are required. This was more prevalent among women, those with children, and those who work full time, among other subgroups, suggesting that barriers to interchanging include safety, convenience when travelling with others, and relying on interchanges to align when travelling for time-critical reasons.

As might be expected, those who use buses more frequently were more likely to be supportive of converting one of the road lanes into a dedicated bus lane for a busy bus route (51% of those who use a bus at least weekly rated this as acceptable). By contrast, frequent car users were less inclined to feel this scenario was acceptable (just 33% of those who drive at least 3 days per week).



# Choice modelling key findings



## Relative importance of different aspects of bus transport

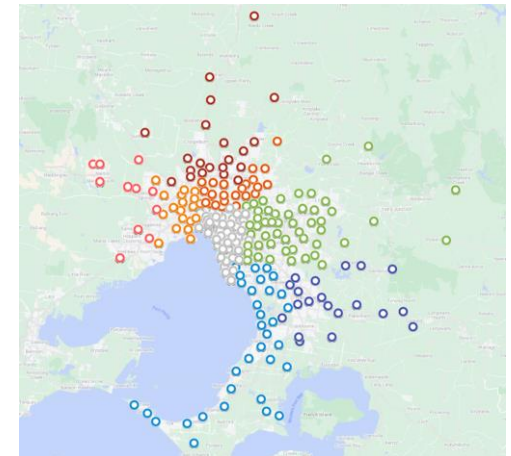
Overall, bus journey time and frequency of services were the most important aspects of bus services, after price. Prospective bus travellers indicated they were prepared to walk further to a bus stop in exchange for a shorter journey time; walking an additional five minutes to the bus stop tended to have to be offset by a shorter journey time of around 10%. While travellers could also be persuaded to walk further to a bus stop in exchange for more frequent bus services, their expectations in this regard were somewhat higher. Typically, services would need to increase frequency by up to 50% to make the longer walk worth it (for example, in exchange for an additional 5 minute walk (increase from 5 minutes to 10 minutes), people would expect a twice an hour bus service (i.e. every 30 minutes) to increase to three times an hour (i.e. every 20 minutes) on weekdays).

While not a focus of this work, we identified that lower prices could be a significant incentive for people to take the bus more frequently; at an overall level, we found that between \$1 and \$5 (one way), each additional dollar charged tended to decrease intended patronage across all destination types by around 14% - 19% (and conversely, every reduction by a dollar had the effect of increasing patronage by the same amount). At higher fare levels (\$8 - \$10), the decline flattened out slightly, with declines in intended patronage per additional dollar being around 7% - 11% of travellers.

## Differences by regions

Residents in the Western region were more likely to indicate a preparedness to use bus services compared to all other regions and were among the most sensitive to changes in frequency of bus services for getting to/from work on both weekdays and weekends. However, all regions tended to have similar patterns of preference across the bus elements tested; there was some divergence in preference for operating hours on both weekdays and weekends, however across all regions these aspects of bus services are relatively weak drivers of propensity to take a bus. In fact, there was very little preparedness to pay more for extended service hours (a maximum of 20 cents to expand hours from 7am to 7pm (least preferred option) to 6am to 9pm or 6am to 11pm (most preferred options).

- Inner
- Western
- Northern
- Eastern
- Southern
- Western Growth
- Northern Growth
- Southern Growth



# Choice modelling key findings



## Travellers are highly resistant to having to transfer between buses

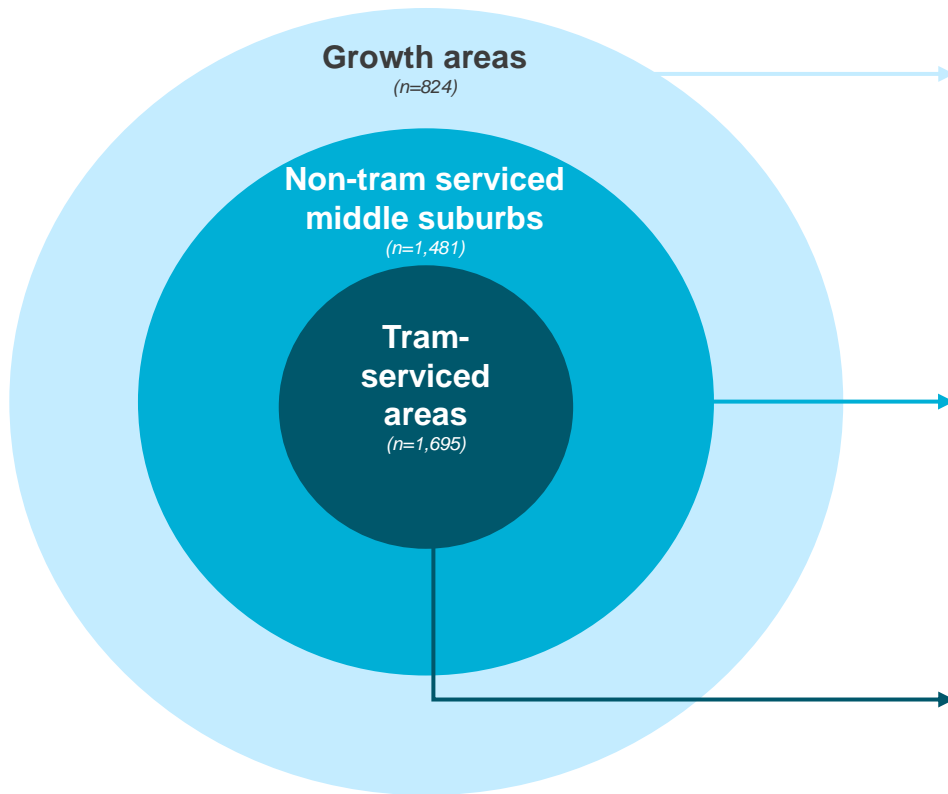
Prospective bus travellers were found to be strongly resistant to having to transfer between buses. In order to compensate for having to transfer between buses, travellers expected to have a significantly quicker journey time (around 35% - 38% quicker), or significantly increased frequency of services (for a service currently running every 30 minutes, travellers would want that service to run more often than every 5 minutes on weekdays; for a service currently running every 45 minutes, it was expected it would run every 6 – 10 minutes on weekdays and more often than every 5 minutes on weekends). The only exception was when travellers were taking a trip to or from study – in this case expectations were lower, though still relatively high (20% quicker journey time, or bus services every 12 minutes on weekdays instead of every 30 minutes, or every 10 minutes on weekends instead of every 45 minutes).

## Willingness to pay for service improvements

On average, travellers were most prepared to pay for shorter journey times and more frequent weekday services (e.g., around 60 to 80 cents to reduce journey times from 200% longer than usual to 100% longer than usual). There was also some preparedness to pay additional for greater reliability in services (e.g., around an extra 40 cents to change from average reliability of 5 – 10 minutes late/early to 1 – 4 minutes late/early) and for more frequent services on weekends (e.g., an extra 20 to 30 cents to have buses come every 20 minutes instead of every 30 on weekdays, and an extra 10 to 20 cents to achieve the same on weekends).



# Summary: Differences by area type



- More likely than average to use a **car/motorcycle** at least monthly (96%)
- Less likely than average to at least occasionally consider using a bus to get from A to B (28%)
- More likely than average to own their **own car** (91%) and to **hold a valid drivers license** (96%)
- More likely than average to feel **unsafe** waiting at public transport stops, walking to and catching public transport after dark
- More likely than average to agree that they **couldn't survive without a car** (78% agreed) and that they **couldn't imagine themselves** taking a bus (31% agreed)

- More likely than average to use a **car/motorcycle** at least monthly (97%)
- More likely than average to own their own car (88%)
- More likely than average to feel **unsafe** waiting at public transport stops, walking to and catching public transport after dark
- More likely than average to agree that they **couldn't survive without a car** (75%) and that they **avoid** taking public transport if it requires **changing** between different services (50%)
- More likely than average to agree that **buses are for people like them** (26%) and that buses are **comfortable** (37%)

#### Manningham LGA (only Melbourne municipality without a train or tram line) (n=98):

- All respondents residing in Manningham travel by **car/motorcycle** at least weekly (100%) and were more likely than average to **own a car** (93%) and **hold a valid drivers license** (99%)
- More likely than average to **use a bus** more often than once a year (59% vs. 44% of all respondents)
- More likely than average to agree that **buses are for people like them** (40% vs. 24% of all respondents) however, they were **less likely** than average to agree they **feel positively** towards public transport (46% agree vs. 57% of all respondents)

- Less likely than average to use a **car/motorcycle** at least monthly (89%), but more likely than average to use all other forms of transport at least monthly, including **train** (57%), **tram** (57%), Metropolitan **bus** (31%), **ride share/taxi** (39%) and **walking/bicycle** (85%)
- More likely than average to **at least occasionally consider using a bus** to get from A to B (37%)
- Less likely than average to own their **own car** (79%) or to hold a **valid drivers license** (92%)
- More likely than average to agree they are concerned about the **environmental impact** from cars (43% agreed) and that there's **no need to own a car** with the availability of taxis/rideshare (17% agreed)
- More likely than average to agree that overall, they **feel positively towards public transport** (62% agreed) but also that they **prefer other modes** of public transport to buses (68% agreed)
- More likely than average to be accepting of **removing bus routes** on which very few people travel (27% rated this as acceptable (8-10))





# About the research

# Background

Infrastructure Victoria is an independent advisory body whose aim is to take a long-term, evidence-based view of infrastructure planning and inform community discussion about infrastructure provision.

As part of Infrastructure Victoria's role in research on matters relating to infrastructure, Infrastructure Victoria is exploring the opportunities for reform to improve Greater Melbourne's bus system.

The Victorian Government has recognised the potential for a better bus system in Victoria. Victoria's Bus Plan signals a renewed interest in substantial bus reform for the first time in a decade.

Infrastructure Victoria's aim is to help inform the Victorian Government on how to improve Melbourne's bus services. Its broader research project will explore how bus reform can improve travel for people, how it can integrate with land use to support Melbourne's growth, as well as address social and environmental challenges.

**This research project was required to understand community attitudes towards bus reforms and the trade-offs involved, to inform Infrastructure Victoria's advice to government on designing and prioritising bus reform options.**

**The specific objectives of the project are to...**

- 1.** Establish how users and potential users trade-off and prioritise initiatives.
- 2.** Ascertain which bus reform initiatives will have the biggest impact on bus patronage.
- 3.** Determine which bus reform initiatives are most acceptable to the community.
- 4.** Understand the similarities and differences across different demographic, geographic and attitudinal groups and segments.



# Quantitative methodology



Quantitative survey was conducted of n=4,000 adults aged 18+ who reside in Greater Melbourne.



Fieldwork took place between 28<sup>th</sup> November & 16<sup>th</sup> December, 2022.



Average survey length was 23 minutes.



Quotas on gender and age were applied to ensure the sample was representative of the total population of Victoria.

## Total sample size, n=4,000

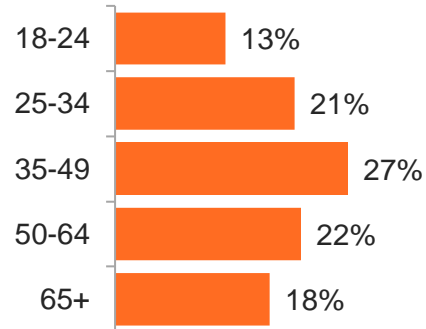
	Number of respondents n=	Proportion of sample (weighted) %
<b>Total</b>	<b>4,000</b>	<b>100%</b>
<b>Gender</b>		
Male	1,928	48%
Female	2,061	52%
Non-binary	11	<1%
<b>Age</b>		
18-24	511	13%
25-34	832	21%
35-49	1,079	27%
50-64	861	22%
65+	717	18%

- The maximum margin of error (at the 95% confidence interval) on the total sample size is +/- 2%.
- Where significance testing has been shown, results are significant at the 95% significance level.
- The project was carried out in line with the Market Research International Standard, AS ISO 20252.

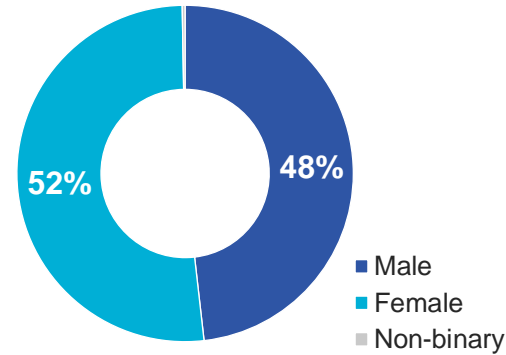
# Who we spoke to

Overall, the sample matched well to Greater Melbourne population statistics on age and gender. Each region was also well represented in the sample, although we had a higher proportion of inner city dwellers and a lower proportion of Growth regions represented. Household income and structure were also well represented, although there was an under-representation of very low (under \$25k p.a.) households. Comparisons between ABS data and our sample are provided in the Appendix.

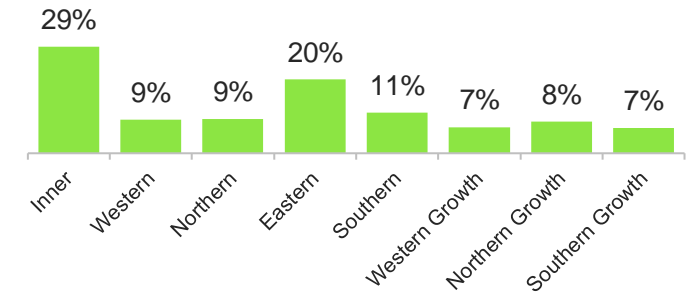
## Age



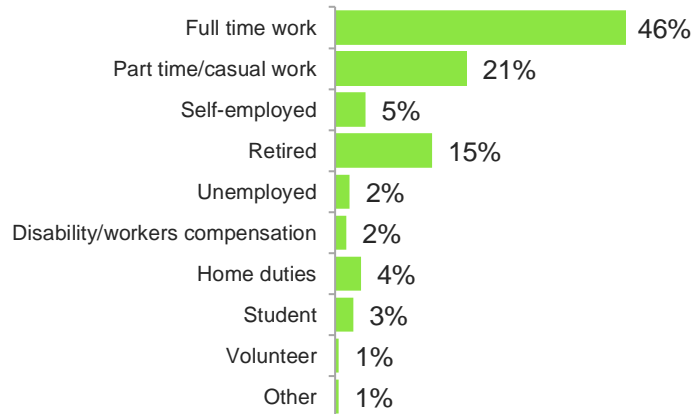
## Gender



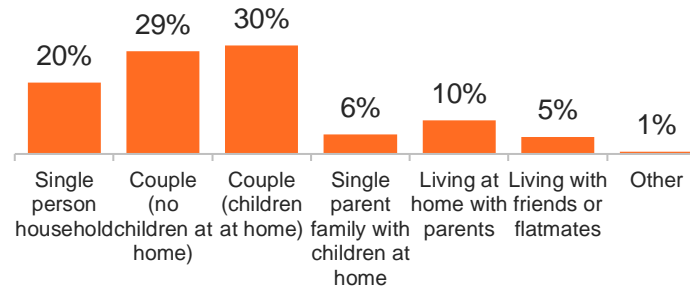
## Residing region



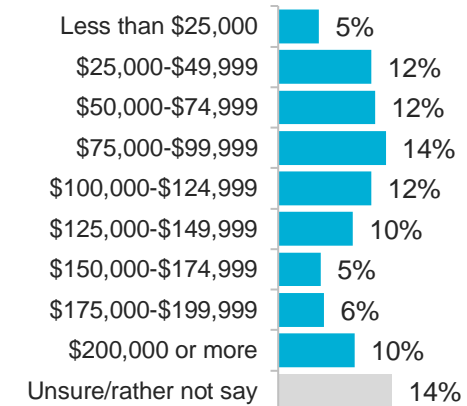
## Employment



## Household structure



## Annual household income

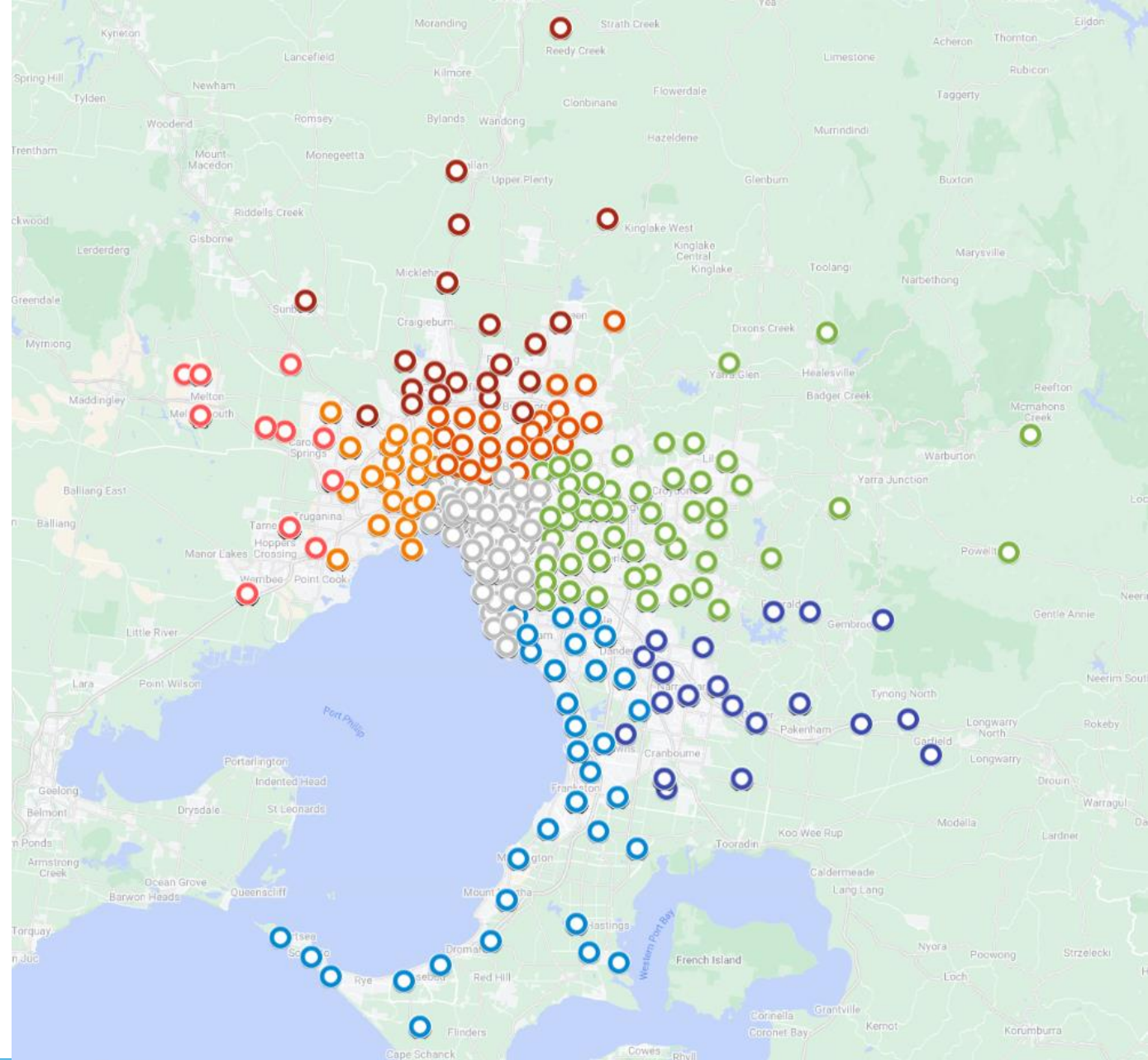




# Suburbs where respondents live

	Number of respondents n=	Proportion of sample %
<b>Total</b>	<b>4,000</b>	<b>100%</b>
<b>Region</b>		
○ Inner	1,148	29%
○ Western	363	9%
○ Northern	368	9%
○ Eastern	794	20%
○ Southern	435	11%
○ Western Growth	282	7%
○ Northern Growth	338	8%
○ Southern Growth	272	7%

*Dots indicate location of suburbs*





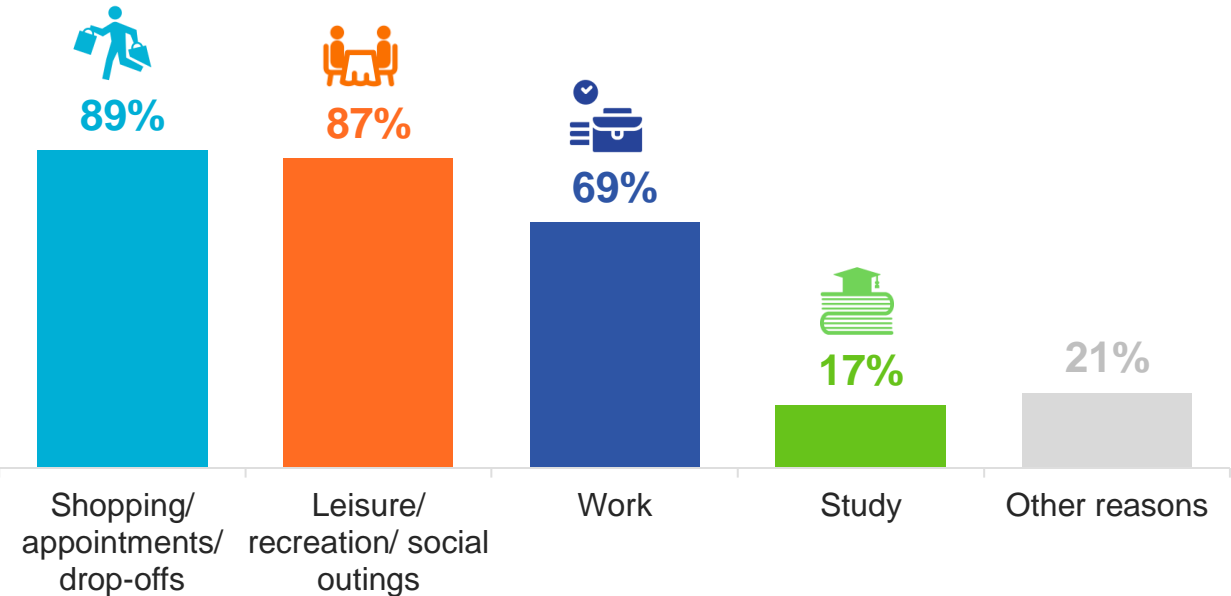
# Detailed findings



# The majority of respondents travel to run errands or for leisure, followed by seven in ten who travel for work and one in six for study

## Reasons for travel

Base: All respondents (n=4,000)



Those in the Eastern region were significantly more likely than average to travel for shopping/appointments/drop-offs (94%) and leisure/recreation/social outings (90%).

Those in Southern and Southern Growth areas were significantly less likely than average to travel for work (60%, 63% respectively) and study (12%, 12%), possibly due to respondents in these areas skewing older.

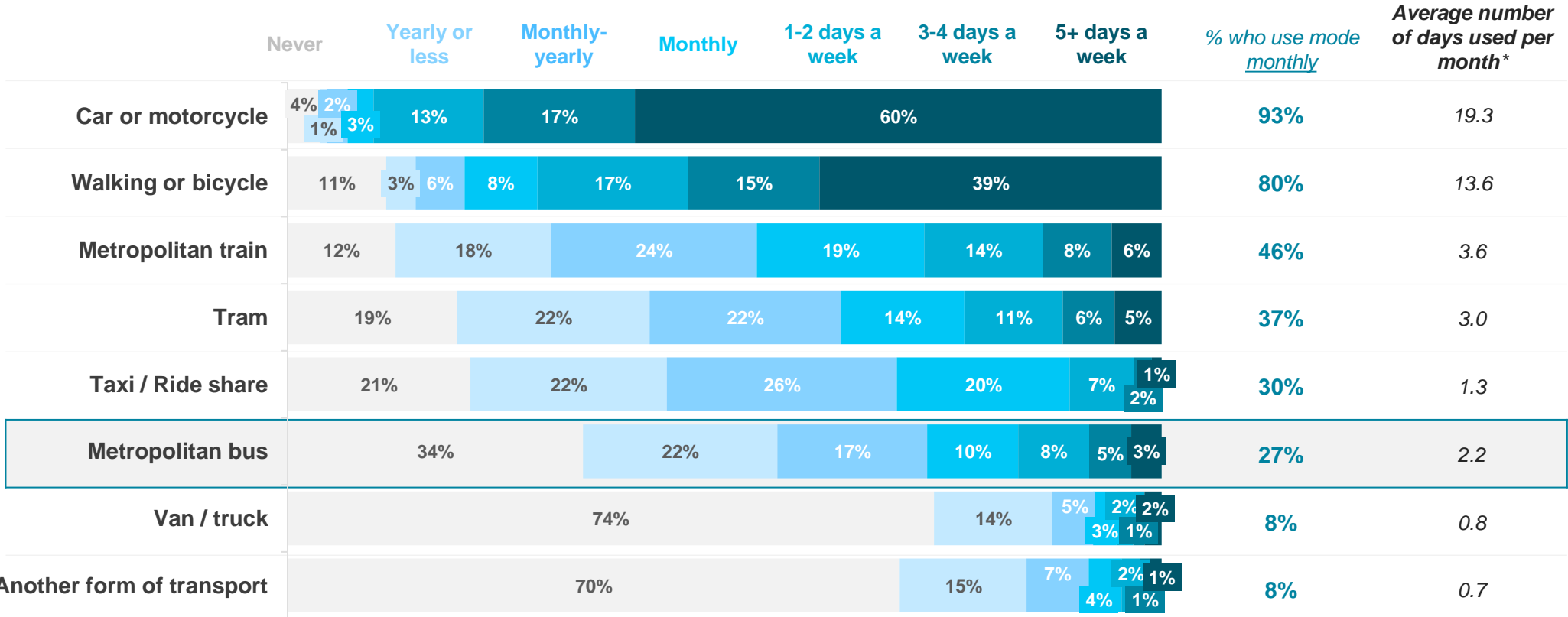
Those residing in tram-serviced areas were most inclined to travel for study (19%) than any other area, while non-tram serviced middle suburbs were most likely to travel for shopping/appointments/drop offs (92%) and leisure (89%).

Q.6. For which of the following reasons do you ever travel?

# Bus usage falls far behind car and active transport, where only two in three have previously used a metropolitan bus



## Frequency of using modes of transport



Q.5. How frequently do you usually travel by each of the following modes of transport? Base: All respondents (n=4,000)

\*Average number of days used per month is calculated based on: Never=0; Yearly or less=0.002; Monthly to yearly=0.16; Monthly=1; 1 to 2 days a week=6.4; 3 to 4 days a week=15; 5 days a week=21; 6 to 7 days a week=28.

# Profile of existing bus users and non-users

*Statistically significantly more likely than average to be:*



## Have ever used the bus (66%)

- Males (69% ever used a metro bus)
- Aged 18-34 (76%)
- Reside in Inner or Northern areas (70% and 74% respectively)
- Reside in a tram serviced area (71%)
- Those without access to their own car (85%)
- Those who live with parents or flatmates (79%)
- Have child(ren) under the age of 18 living with them (69%)
- Work part time/casually (71%)
- Students (83%)
- CALD (74%)



## Weekly bus users (16%)

- Males (21% at least weekly used a metro bus)
- Aged 18-34 (25%)
- Reside in Western or Northern areas (20% both)
- Reside in a tram-serviced area (19%)
- Those without access to their own car (36%)
- Have child(ren) under the age of 18 living with them (21%)
- Employed (19%)
- CALD (24%)



## Never use the bus (34%)

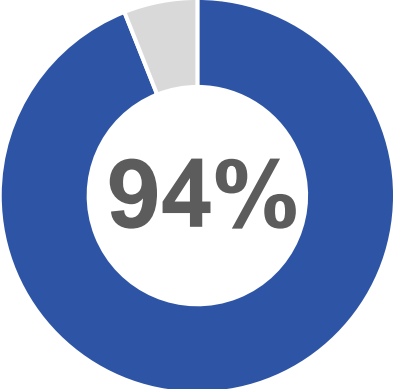
- Females (37% have never used a metro bus)
- Aged over 50 (43%)
- Reside in a growth area (42%)
- Reside in Sothern, Western Growth or Southern Growth areas (38%, 41% and 44% respectively)
- Those with their own car (37%)
- Couples with no children at home (41%)
- Retired (44%)
- Higher income households, earn over \$150k (37%)
- Non-CALD (36%)



# While 94% hold a valid driver's licence, only 85% have access to their own vehicle

## Drivers licence

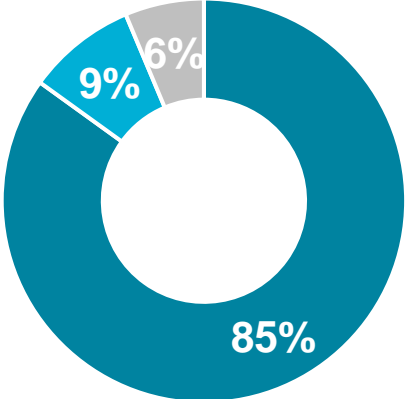
Base: All respondents (n=4,000)



of those residing in Greater Melbourne hold a driver's license

## Car access

Base: All respondents (n=4,000)



- Yes, own car
- Yes, someone else's car
- No

**Car ownership** was significantly higher than average in the Eastern (89%), Northern Growth (90%) and Southern Growth (93%) regions, and lower in Inner Melbourne (77%). Car ownership differed by age, with under 35s significantly less likely to own a car compared to over 35s (77%, vs. 89%). It was also lower among those who identify as having a disability (76%), households with income <\$50k (69%) and CALD respondents (80%). Similar patterns were seen for holding a valid driver's licence.

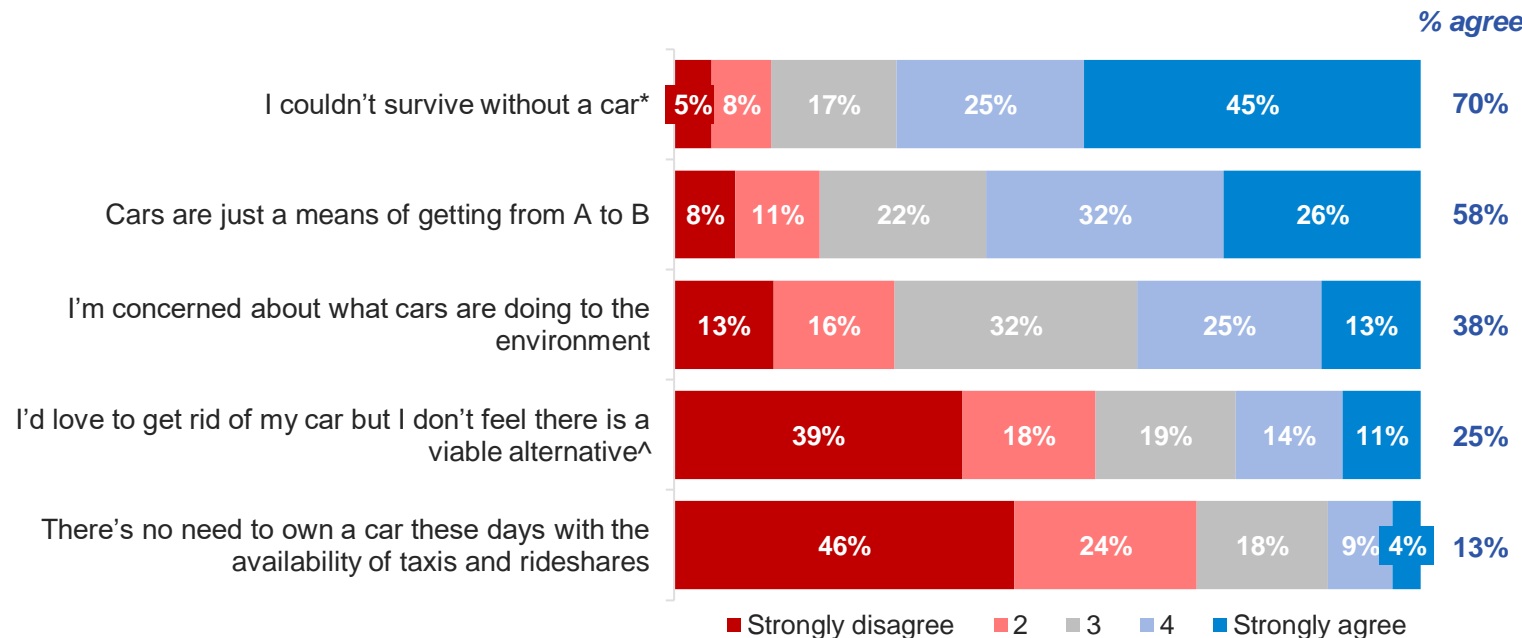
Q.28. Do you hold a valid drivers licence?

Q.27. Do you have access to a car?

# Perceived dependence on personal vehicles was strong; seven in ten agreed they couldn't survive without a car, and one in four would like to forgo their car but felt they couldn't due to lack of alternatives

## Attitudes towards car ownership

Base: All respondents (n=4,000) / \* Those with access to a car (n=3,747) / ^ Those with their own car (n=3,398)



**Car dependency** significantly higher than average among women (74% agreed they couldn't survive without a car), 65+ age group (74%), those living in the Eastern (75%), Southern (78%), Northern Growth (78%) and Southern Growth (82%) regions.

**Environmental concerns** significantly higher than average among under 50s (42% agreed they're concerned about what cars are doing to the environment), and those living in Inner Melbourne (43%) and the Northern region (46%).

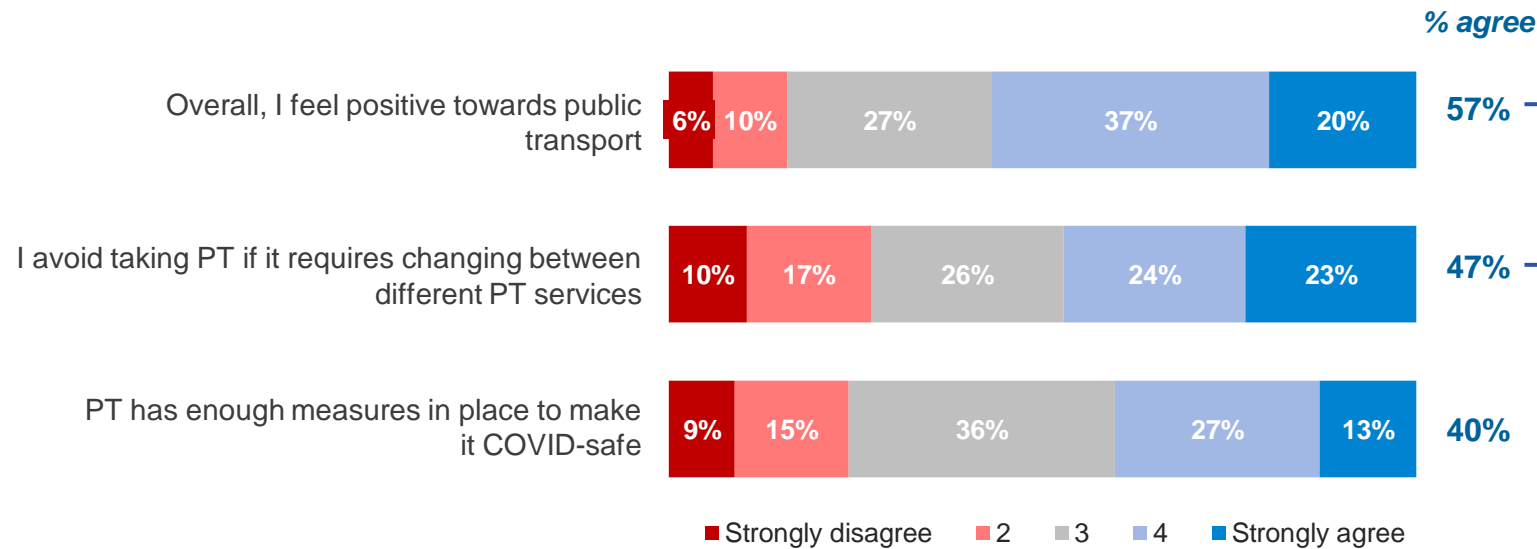
Those residing in tram-serviced areas were more inclined to agree they were concerned about what cars were doing to the **environment** (43%) and that there's **no need to own a car** with the availability of taxis/rideshare (17%). Those residing outside of those areas were more likely to agree that they **couldn't survive without a car** (76%).

Q.31. How strongly do you agree or disagree with each of the following statements about car ownership?

# Despite three in five feeling positively towards public transport, almost half would avoid it if changes were required, and only two in five felt enough COVID-19 safe measures were implemented

## Attitudes towards public transport

Base: All respondents (n=4,000)



**Positive sentiment towards public transport** was significantly higher than average among men (61% agreed they feel positively towards public transport), 18-24s (62%), those living in Inner Melbourne (63%) and the Northern region (63%), and those who do not own a car (68%).

**Interchanges** were significantly more likely than average to be off-putting among women (52% agreed they avoid taking public transport if it requires changing), 25-34s (56%), those living in the Southern Growth region (57%), those who own a car (50%), those with children (50%) and those who work full time (50%).

Those residing in tram-serviced areas felt more positively towards public transport (62%), while those residing in non-tram serviced areas were more likely to agree that they avoid taking public transport if changes were required (50%).

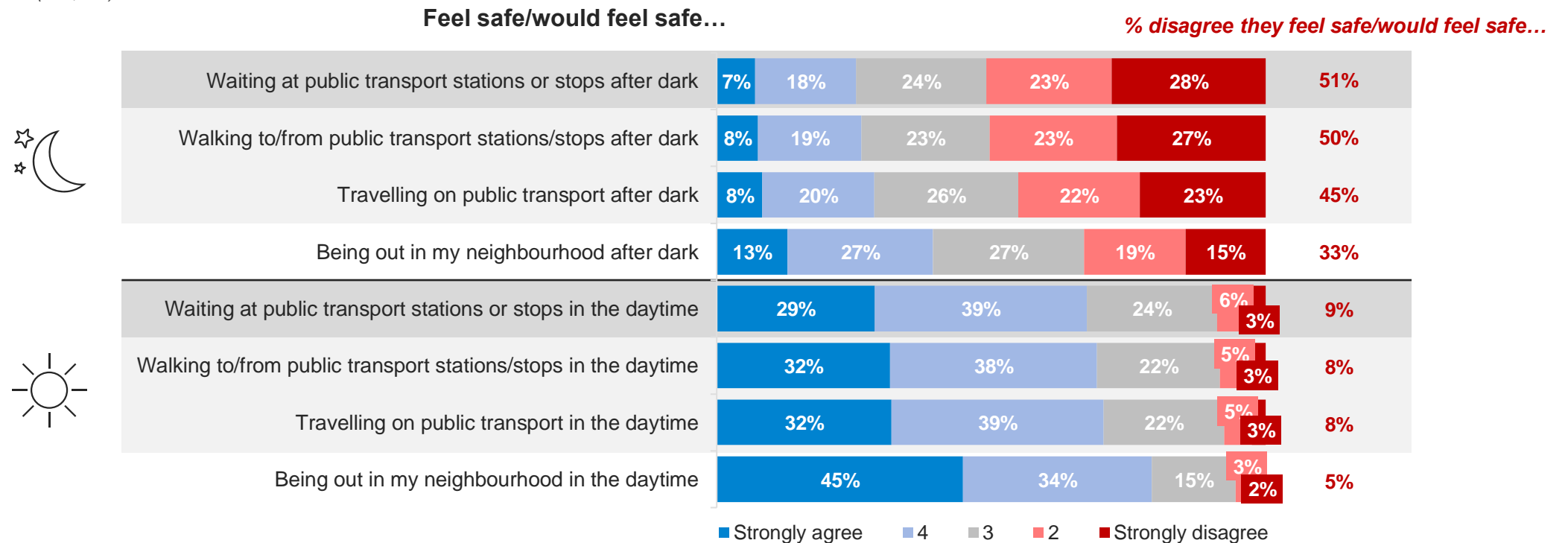
Q.29. How strongly do you agree or disagree with each of the following statements about public transport in general?



# Perceived safety of public transport at night could be a considerable barrier to use, as half would not feel safe waiting at or walking to public transport stops at night

## Attitudes towards safety when travelling

Base: All respondents (n=4,000)



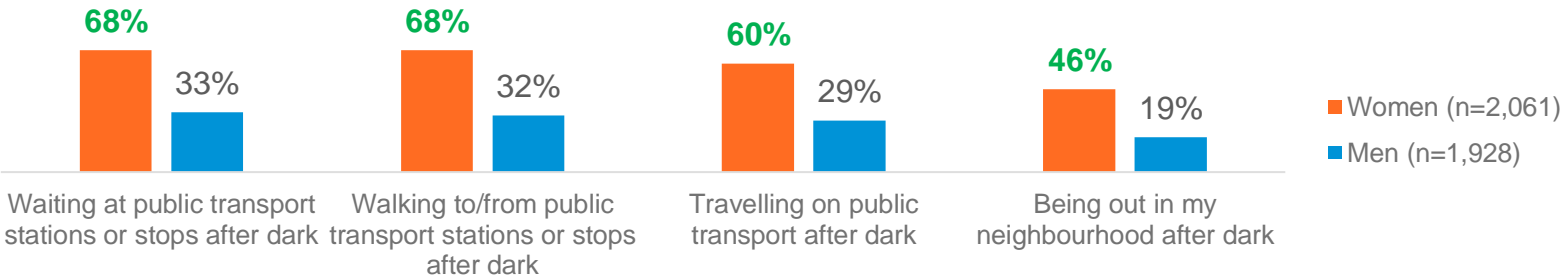
Q.32. How strongly do you agree or disagree with each of the following statements about safety when travelling?

# Women were significantly more likely to feel unsafe when travelling than men, at all times of day

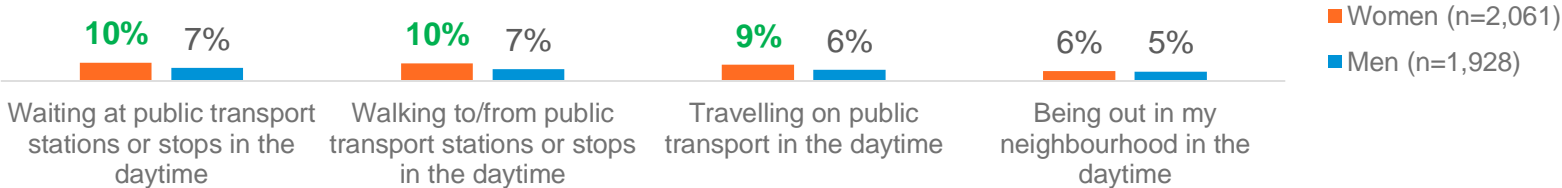
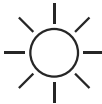
## Attitudes towards safety when travelling

Base: All respondents (see chart)

**% disagree they feel safe/would feel safe...**



Over 65s were also significantly more likely than average to feel more unsafe when travelling after dark, but this was not the case when travelling during the daytime.



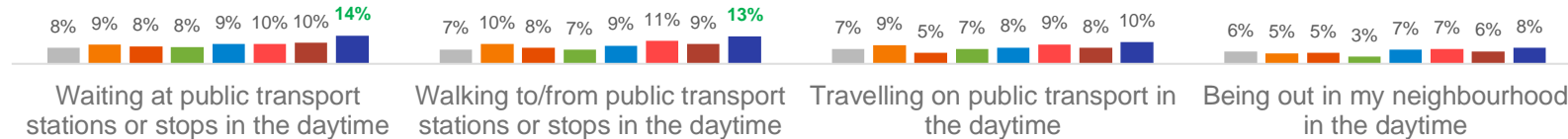
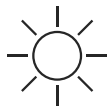
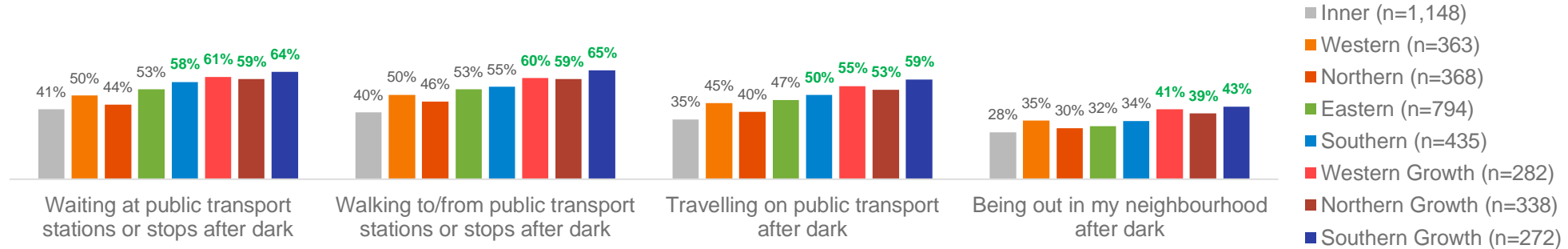
Q.32. How strongly do you agree or disagree with each of the following statements about safety when travelling?

# Those in growth regions were significantly more likely than average to feel unsafe doing all activities after dark; this was not the case during daytime

## Attitudes towards safety when travelling

Base: All respondents (see chart)

**% disagree they feel safe/would feel safe...**



Those residing in tram-serviced areas felt safer travelling on public transport, waiting at stops, walking to and catching public transport after dark.

Q.32. How strongly do you agree or disagree with each of the following statements about safety when travelling?

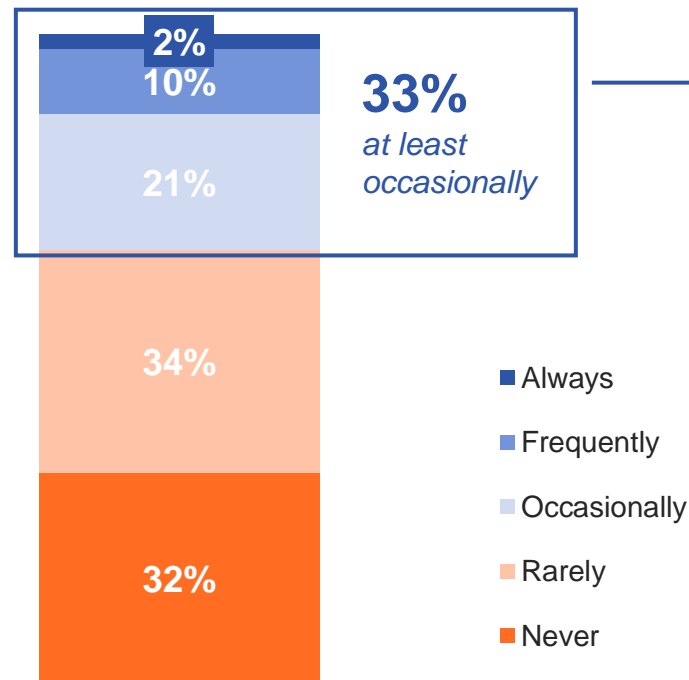




# One in three at least occasionally considered travelling by bus, but another third had never considered it

## Consideration of buses

Base: All respondents (n=4,000)



### Significantly more likely than average to consider buses:

- Men – 38%
- Under 35s – 41%
- Inner Melbourne – 37%
- Northern region – 39%
- Those residing in tram-serviced areas – 37%
- Those who do not own their own car – 60%
- Lower income households – 41% of those with a household income <\$50k
- CALD respondents – 46%

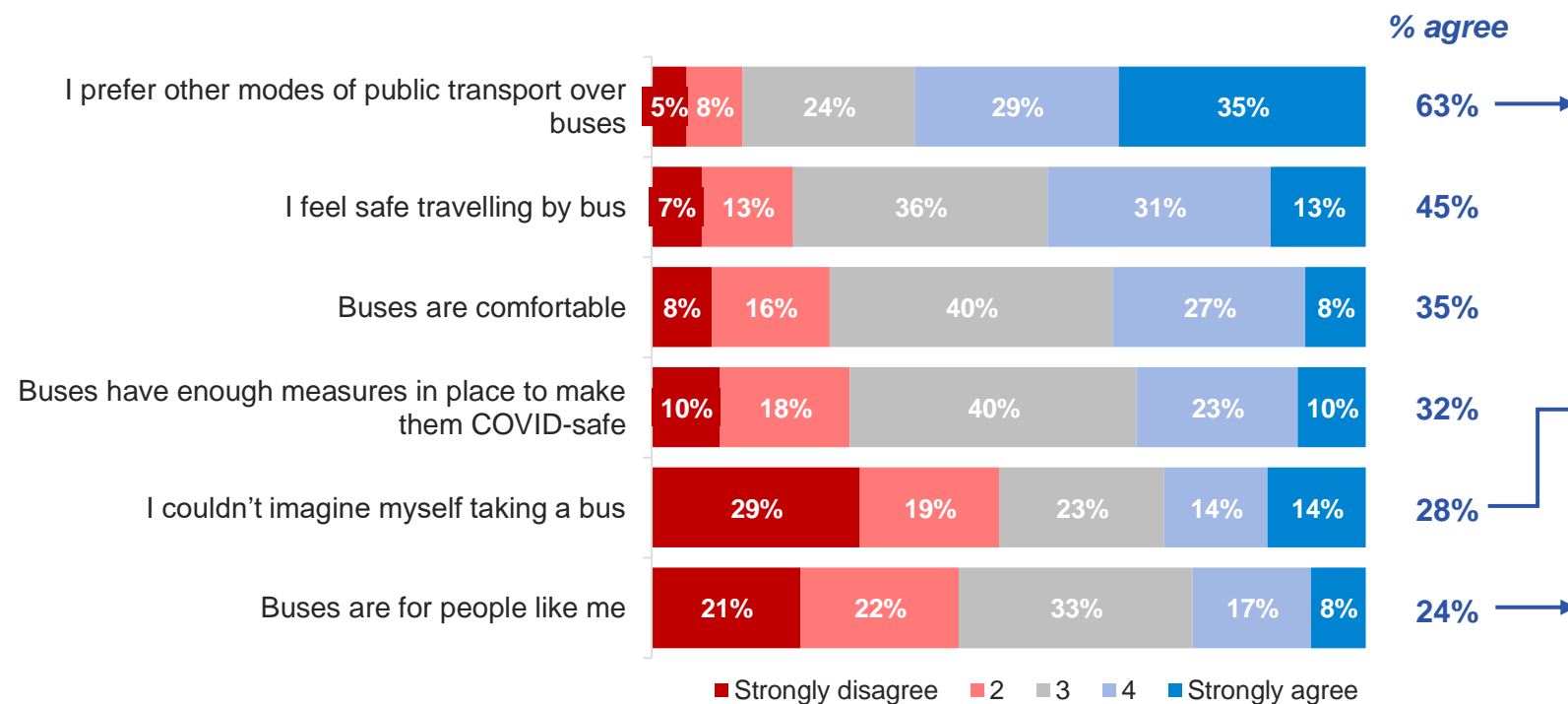
Those residing in growth areas were most likely to never consider catching the bus (40%).

Q.33. Thinking about all the journeys you make, how often do you consider using a bus to get from A to B?

# Barriers to bus use consist of preference for other transport types, followed by perceived safety, lack of comfort and adequate COVID-safe measures and a disassociation with buses

## Attitudes towards buses

Base: All respondents (n=4,000)



Perhaps reflecting the availability of other modes of public transport, people living in Inner Melbourne or tram-serviced areas were significantly more likely than average to agree they prefer other modes of public transport over buses (69% and 68% respectively agreed). There were no other differences by region.

Those residing in Growth areas were more likely to agree that they couldn't imagine taking the bus (31%).

People living in Northern (29%) and Southern (28%) regions were significantly more likely than average to agree with this statement. Those living in growth regions were least likely to agree (19% - 22%). More specifically, those who reside in Manningham (40%), Melbourne (30%) and Darebin (35%) LGAs had higher levels of agreement than average.

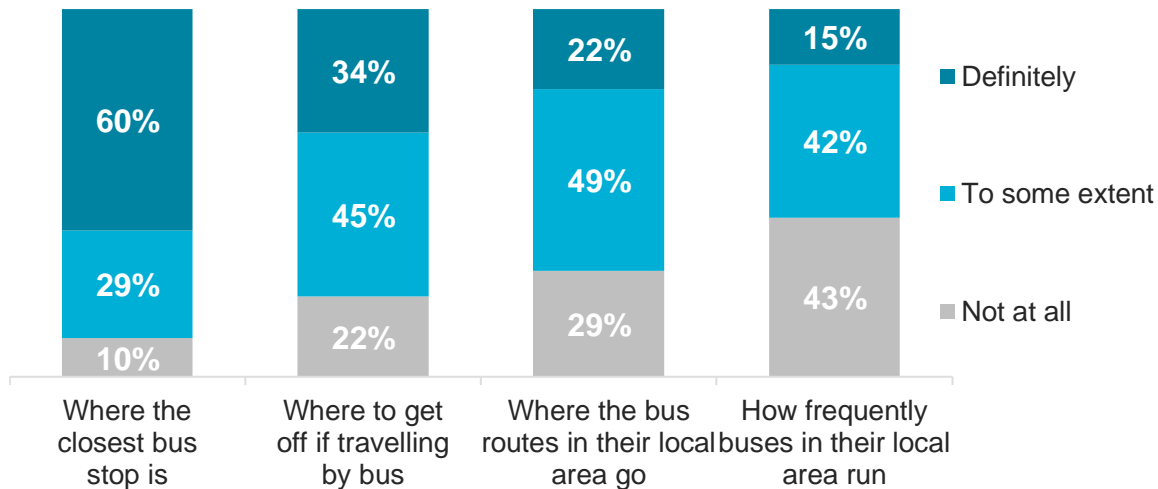
Q.30. How strongly do you agree or disagree with each of the following statements about buses?

# While three in five knew where their closest bus stop was located, only one in five knew where their local bus routes went

## Familiarity with local buses

Base: All respondents (n=4,000)

### Knowledge of...

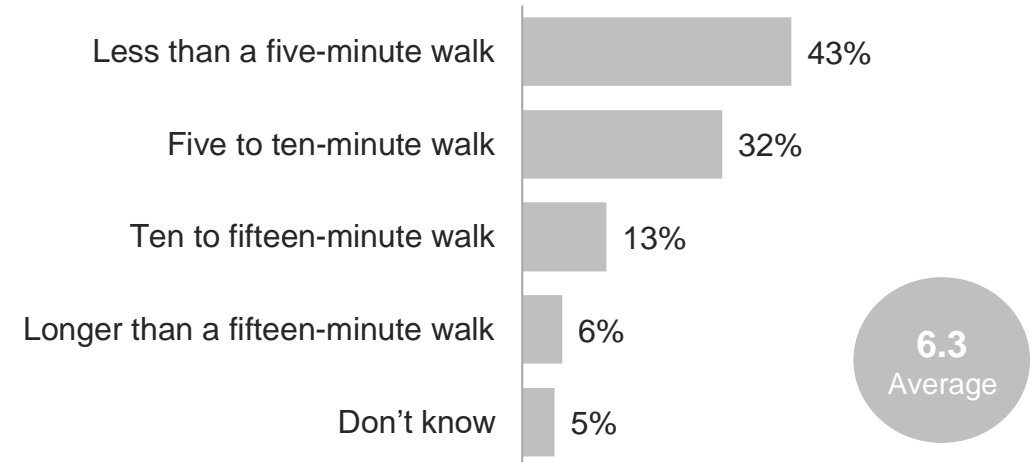


Definite knowledge of **where the closest bus stop is** was higher in established regions than in growth regions and Inner Melbourne, however, this didn't translate to knowledge about **where bus routes go** – those in established suburbs were on par with average results.

Q.35. Please indicate which statement best reflects your knowledge of buses in your area.

Base: All respondents (n=4,000)

### Average length of time to walk home from nearest bus stop...



Average length of time to walk home from nearest bus stop was lowest for those living in the Northern region (5.4 minutes on average) and highest for those living in the Western Growth areas (6.9 minutes on average).

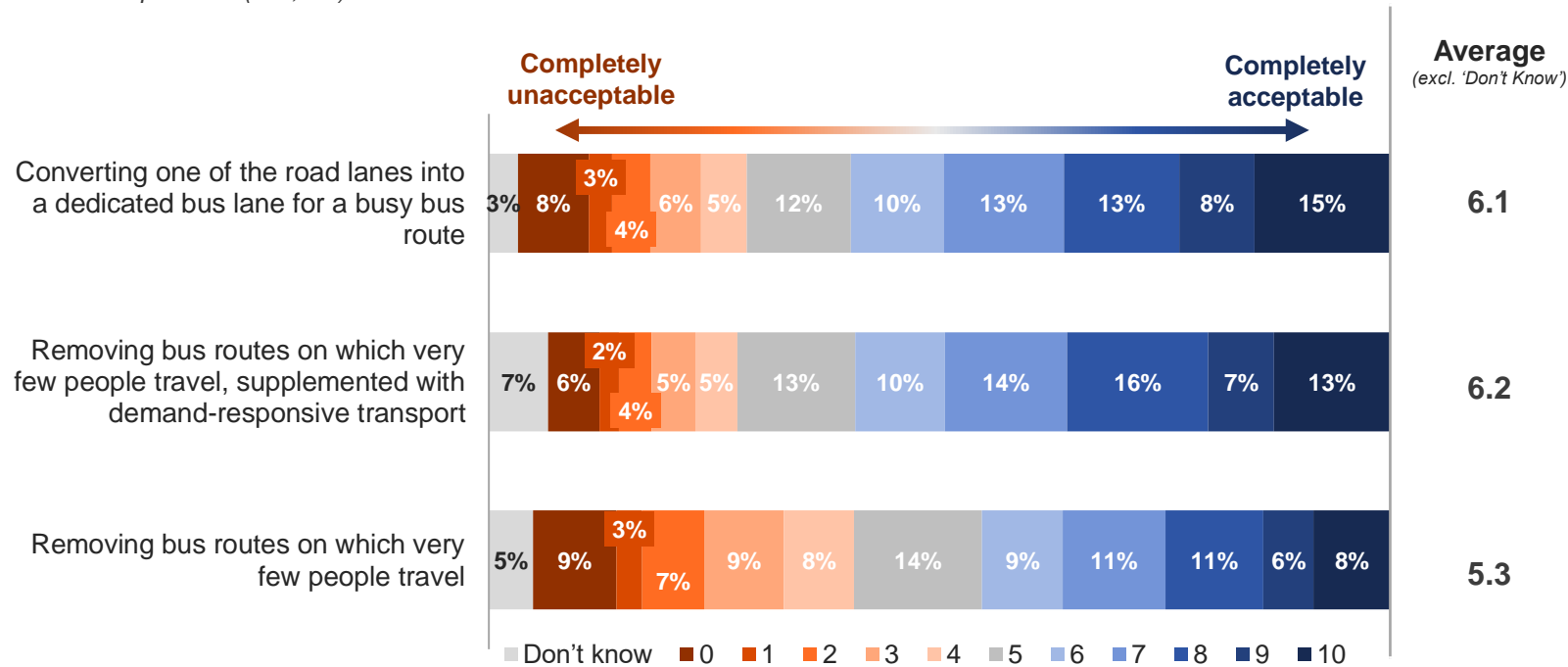
Q.34. At a comfortable walking pace, how long would it take you to walk from your home to your nearest bus stop?



# While there was more support for converting road lanes and removing bus routes to replace with demand responsive transport, there was less support for removing a route with no alternative

## Acceptability of bus reform scenarios

Base: All respondents (n=4,000)



Acceptability of removing bus routes (both supplemented with demand-responsive transport and not) was significantly higher than average among 25-49s, those who own a car, those with children, and full time workers.

Those residing in tram-serviced areas had higher levels of acceptance when it came to removing bus routes on which very few people travelled, without supplementation (27% rated 8-10), while those in growth areas had the lowest levels of acceptance (22%).

As frequency of bus use drops off, so does acceptance of converting a road lane into a dedicated bus lane for a busy route (51% of weekly bus users rated this as acceptable (8-10), dropping to 30% of those who use the bus yearly or less). Frequent car users were even less inclined to feel it is acceptable to do so (33% of those who drive at least 3 days a week).

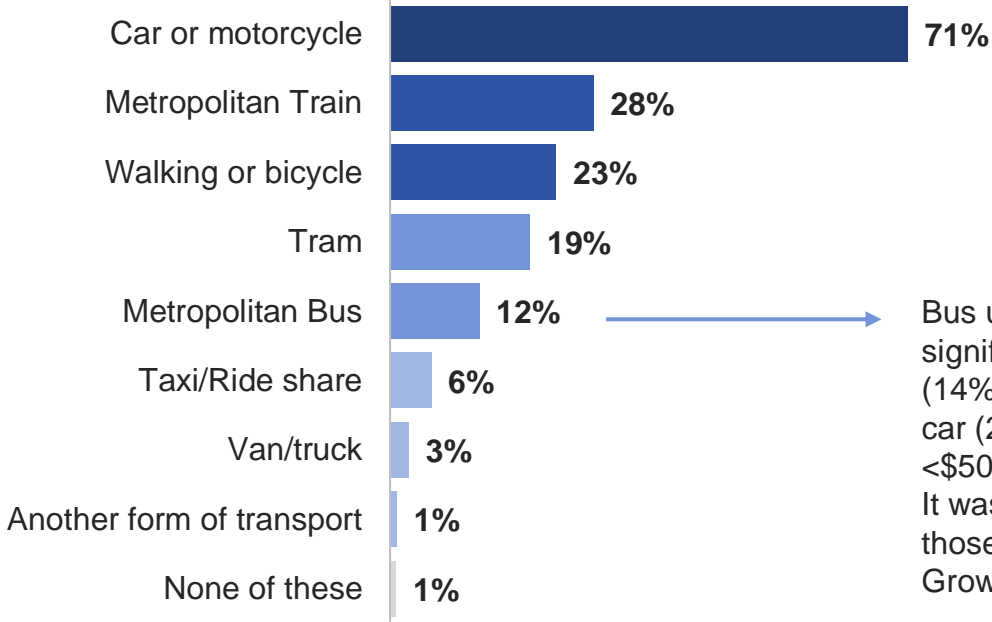
Q.36. To what extent do you think each of the following scenarios are acceptable?

# Travelling for work

# Private vehicles are the most dominant mode of transport to work for seven in ten, while only one in eight catch the bus

## Modes of transport used for travel to/from work in a typical week

Base: Those who travel for work (n=2,534).



Bus use for travelling to/from work was significantly higher than average among men (14%), under 35s (15%), those without their own car (28%), and those with a household income <\$50k (20%). It was significantly lower than average among those living in the Southern (7%) and Southern Growth (6%) regions.

Q.9. In a typical week, which of the following modes of transport do you use for getting to and from work?  
 Note: Multiple responses allowed.

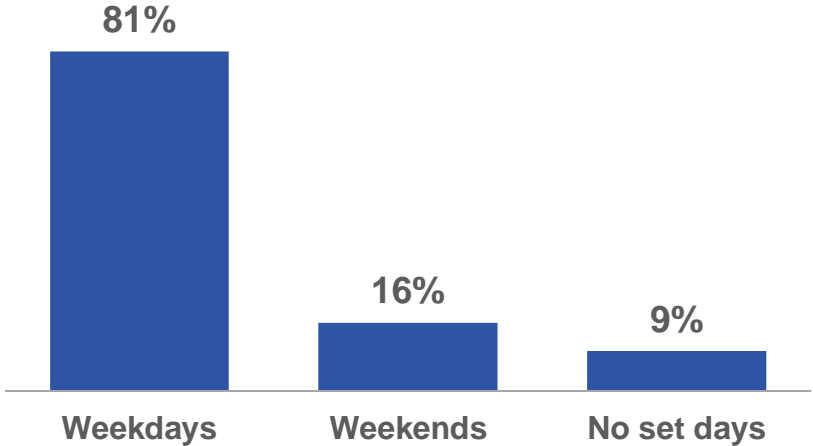




# Majority travel to work on weekdays, with travel peaking during morning and afternoon peak hours, in line with common work hours

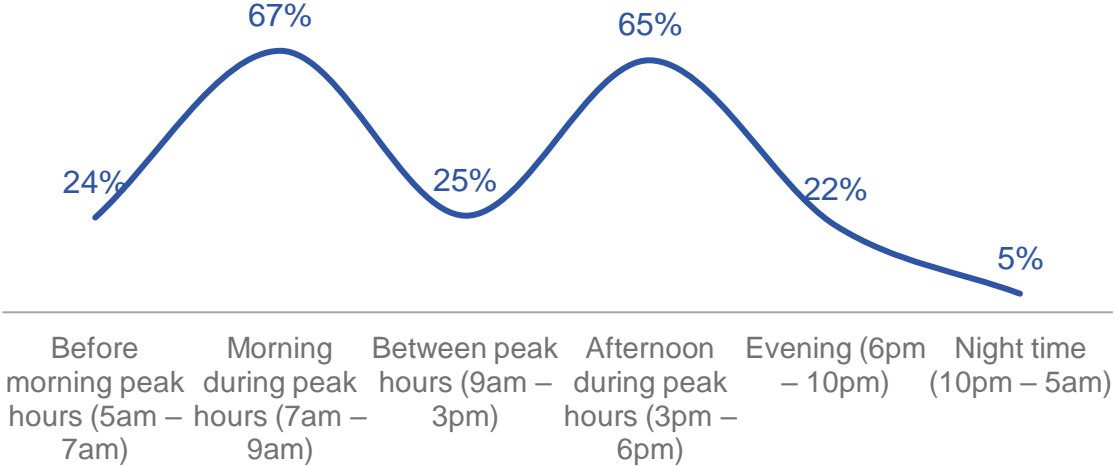
## Days of the week typically travel to work

Base: Those who travel for work (n=2,534)



Q.8. In a typical week, when do you travel to/from work?

## Times of day usually travelling to/from work



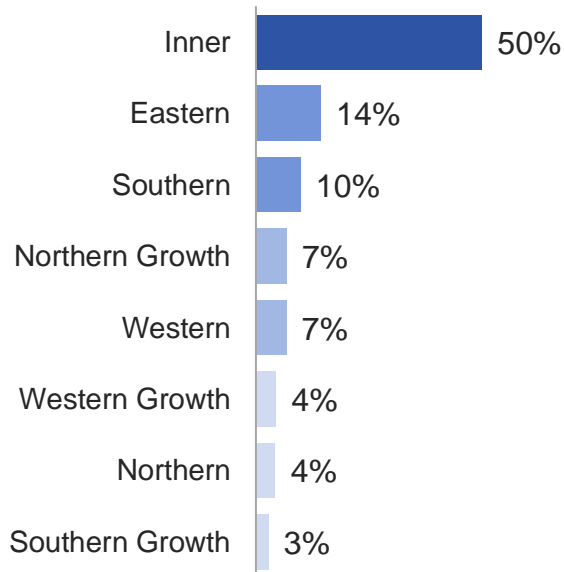
Q.10. Which of the following times of day do you usually travel to and from work?



# Half travel into the city for work, and the average journey time to work overall is around 35 minutes

## Region workplace is located

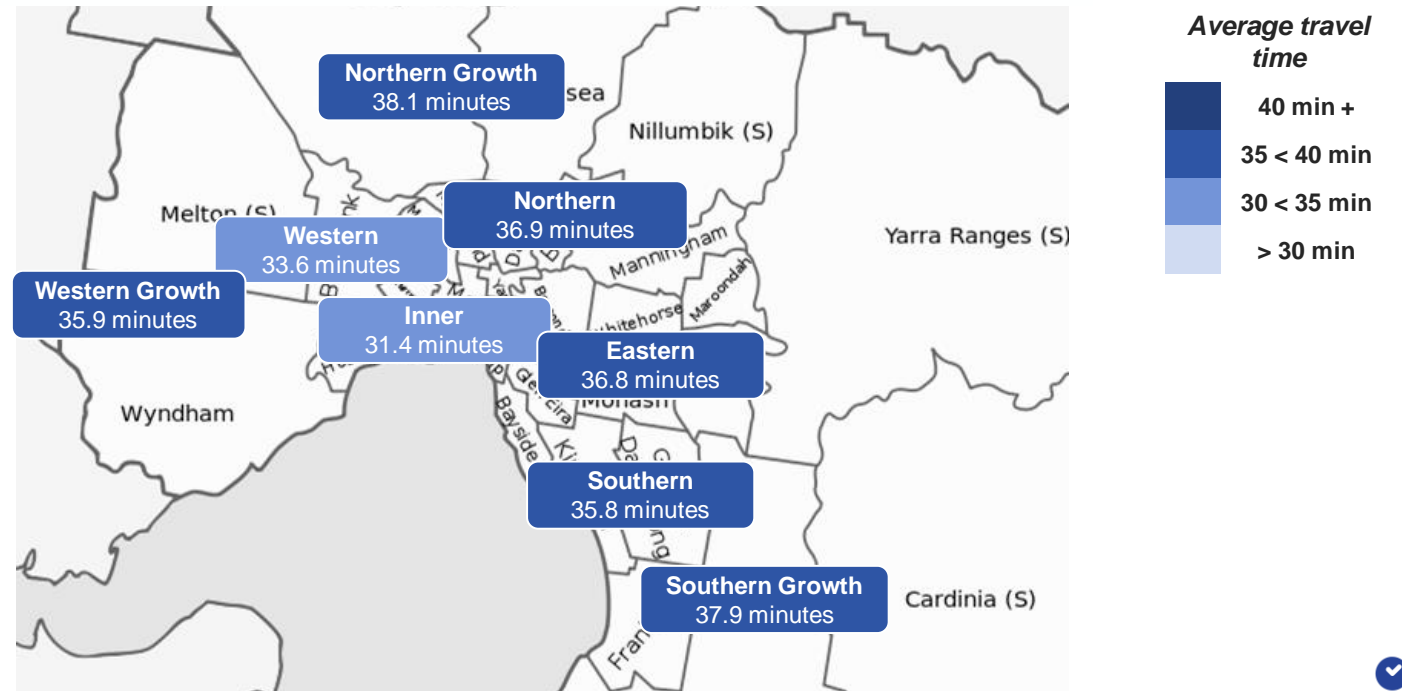
Base: Those who work (n=2,771). Note: Values <1% not shown



## Trip duration to workplace by region

Base: Those who travel for work in a fixed location (n=2,230). Only show locations where n≥30

### Average travel time to work, by residing region



Q.7. In which suburb is your workplace located? If you work across more than one location please enter the location you spend most time, excluding working from home.

Q.11. On average, how long does your journey between home and work take?



# Among those who work, travel location is predominantly within their residing region or Inner Melbourne

## Region workplace is located, by home location

Base: Those who work (n=2,771). Only showing working regions where n≥30

		Residing region							
		Inner (n=641)	Western (n=223)	Northern (n=214)	Eastern (n=450)	Southern (n=214)	Western Growth (n=157)	Northern Growth (n=201)	Southern Growth (n=130)
Working region	Inner	80%	48%	57%	40%	30%	28%	34%	18%
	Western	2%	32%	6%	1%	0%	20%	5%	1%
	Northern	2%	1%	19%	2%	1%	1%	13%	1%
	Eastern	7%	2%	6%	47%	10%	1%	1%	13%
	Southern	5%	0%	1%	6%	52%	0%	0%	35%
	Western Growth	1%	7%	0%	1%	0%	43%	1%	0%
	Northern Growth	2%	9%	8%	1%	0%	6%	43%	0%
	Southern Growth	0%	0%	0%	2%	5%	0%	0%	30%
	Work from home only	11%	6%	6%	8%	7%	11%	7%	9%
	No fixed location	11%	9%	10%	11%	12%	10%	12%	15%

Q.7. In which suburb is your workplace located? If you work across more than one location please enter the location you spend most time, excluding working from home.



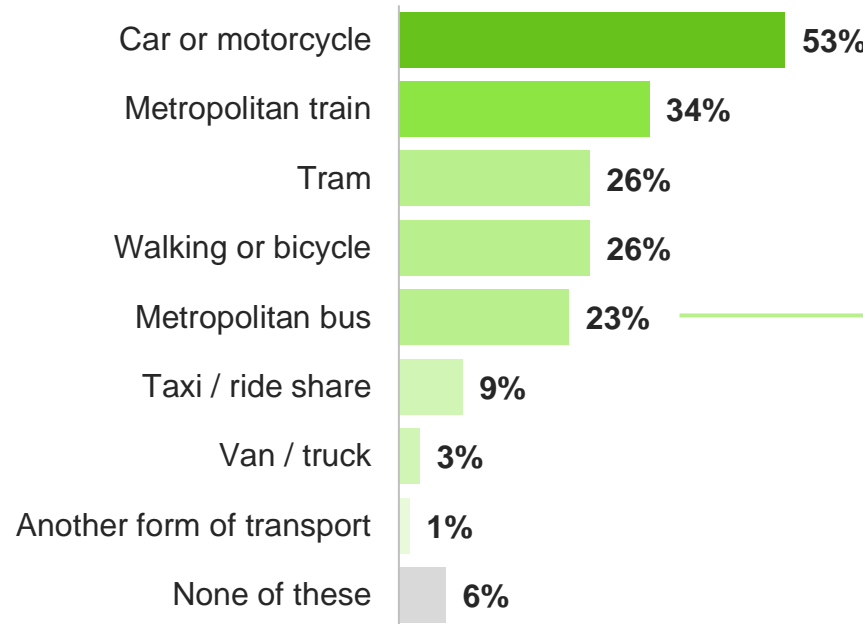
# Travelling for study



# Transport usage to/from study is more diverse, where half travel by private vehicle and around one in four catch the bus

## Modes of transport used for travel to/from study in a typical week

Base: Those who travel for study (n=562)



Bus use for travelling to/from study was significantly higher than average among under 35s (26%), those without their own car (37%), and those with a disability (36%). It was significantly lower than average among those living in Inner Melbourne.

Across other modes of transport, regional differences were less pronounced for travelling to/from study locations. Those living in Inner Melbourne were significantly more likely to use the tram and taxi/rideshare, while those living in the Western region were significantly more likely to use the train.

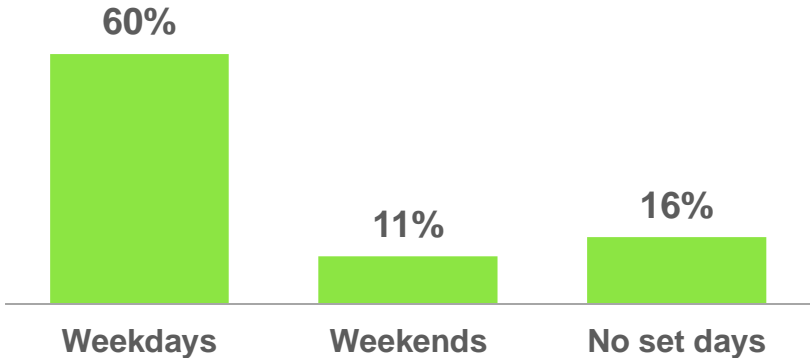
Q14. In a typical week, which modes of transport do you use for getting to and from your place of study?  
Note: Multiple responses allowed.



# Travel to/from study usually happens during weekdays, where typically around half travel between 7am – 6pm

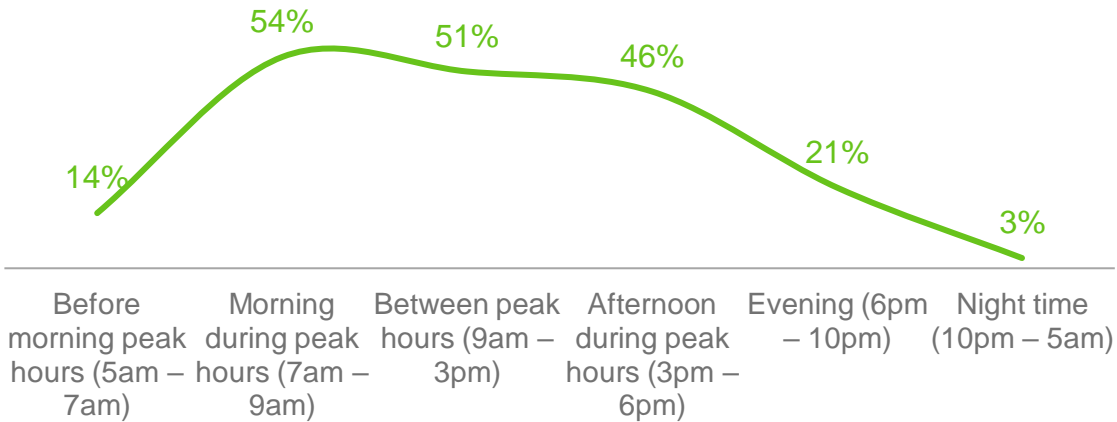
## Days of the week typically travel to study

Base: Those who travel for study (n=562)



Q13. In a typical week, when do you travel to/from your place of study?

## Times of day usually travelling to/from study



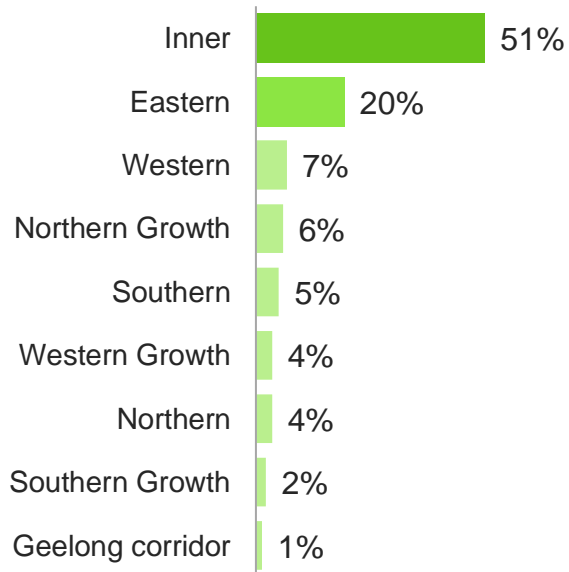
Q15. Which times of day do you usually travel to and from your place of study?



# The majority of students travel to Inner or Eastern Melbourne to study, where average journey time sat around 30 – 40 minutes

## Region study is located

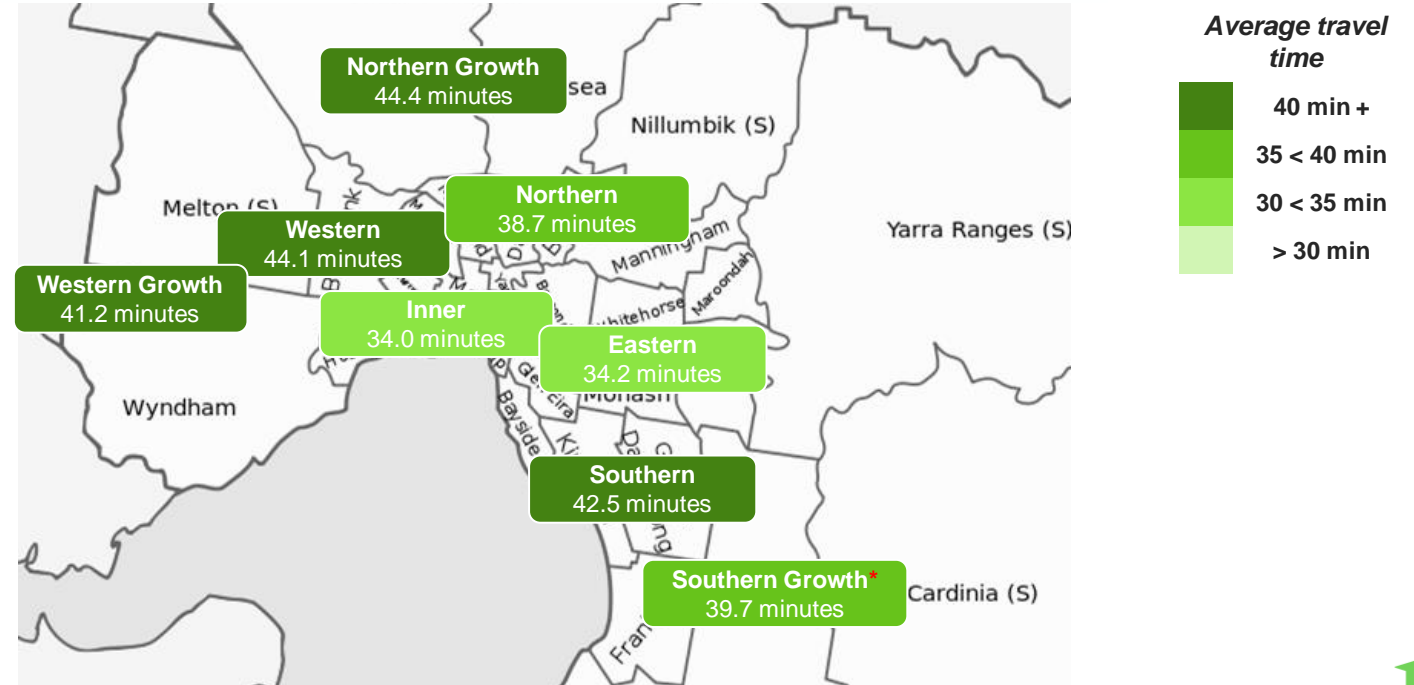
Base: Those who study (n=698). Note: Values <1% not shown



## Trip duration to study by region

Base: Those who travel for study in a fixed location (n=452). Only show locations where n≥20. \*Caution low base size n>30

### Average travel time to study, by residing region



Q12. In which suburb is your place of study located?

Q16. On average, how long does your journey between home and your place of study take?

# Consistent with work, majority of travel to study is within their same residing region or into Inner Melbourne, with one in five (19%) studying from home

## Region study is located, by home location

Base: Those who study (n= 698). Only show locations where n≥20. \*Caution low base size n>30

### Residing region

Study region	Residing region							
	Inner (n=137)	Western (n=47)	Northern (n=47)	Eastern (n=101)	Southern (n=35)	Western Growth (n=33)	Northern Growth (n=33)	Southern Growth (n=19)*
Inner	77%	45%	51%	37%	29%	33%	52%	26%
Western	4%	30%	4%	1%	0%	24%	0%	5%
Northern	1%	0%	23%	0%	0%	0%	9%	0%
Eastern	11%	4%	9%	55%	26%	0%	0%	16%
Southern	2%	2%	2%	2%	40%	0%	0%	11%
Western Growth	0%	6%	2%	1%	0%	33%	0%	0%
Northern Growth	4%	4%	9%	3%	0%	0%	39%	0%
Southern Growth	0%	0%	0%	1%	3%	0%	0%	42%
Study from home only	21%	33%	12%	16%	13%	14%	21%	24%
No fixed location	14%	5%	19%	16%	22%	20%	22%	18%

Q12. In which suburb is your place of study located?



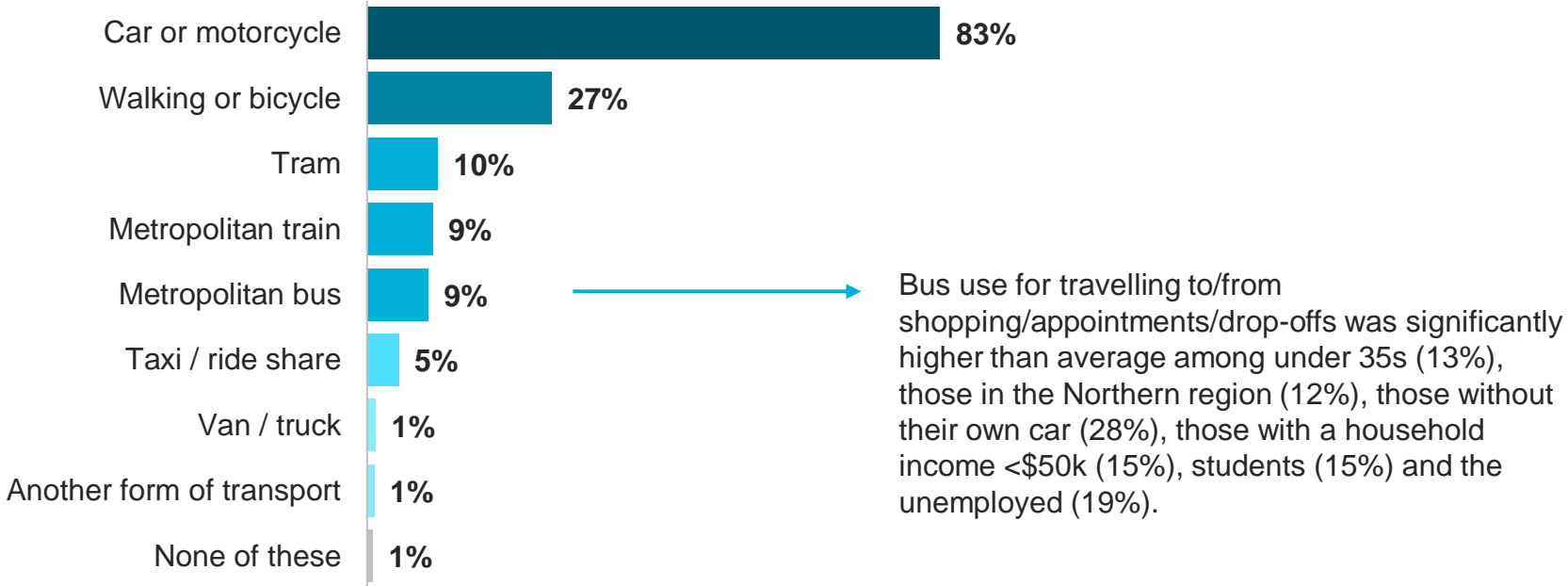


# Travelling for shopping, appointments, or drop-offs

# Personal vehicles, followed by active transport, were most commonly used to run errands; one in ten catch the bus

## Modes of transport used for travel to/from shopping/appointments/drop-offs in a typical week

Base: Those who travel for shopping/appointments/drop-offs (n=3,579)



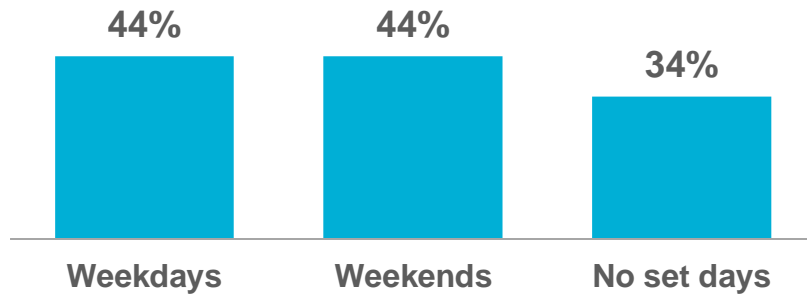
Q19. In a typical week, which modes of transport do you use to do shopping/ appointments/ drop-offs?  
 Note: Multiple responses allowed.



# Travel to/from errands occurred equally on weekdays and weekends, with the majority travelling between peak hours (9am – 3pm)

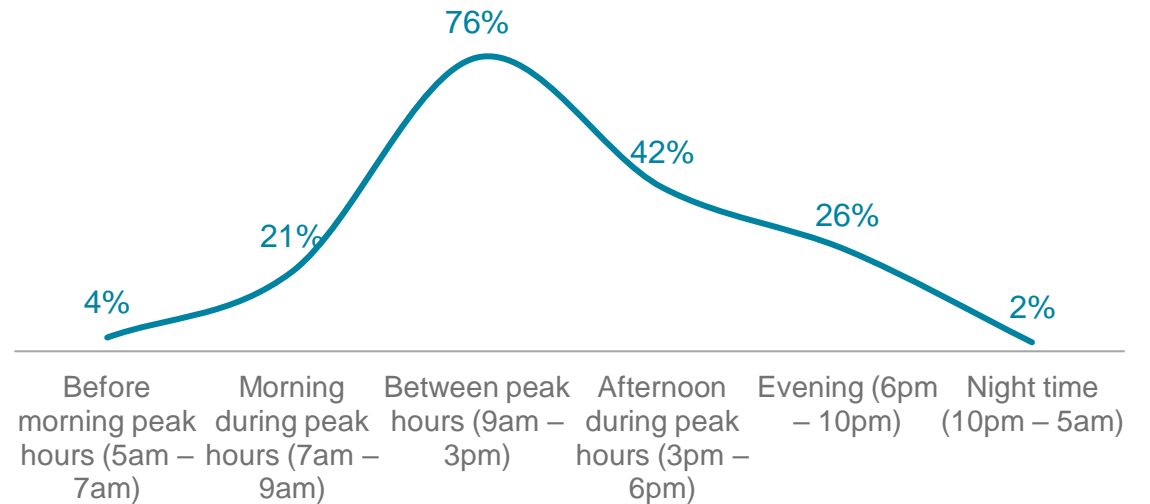
## Days of the week typically travel to shopping/appointments/drop-offs

Base: Those who travel for shopping/appointments/drop-offs (n=3,579)



Q18. In a typical week, when do you travel to do shopping/appointments/drop-offs?

## Times of day usually travelling to/from shopping/appointments/drop-offs



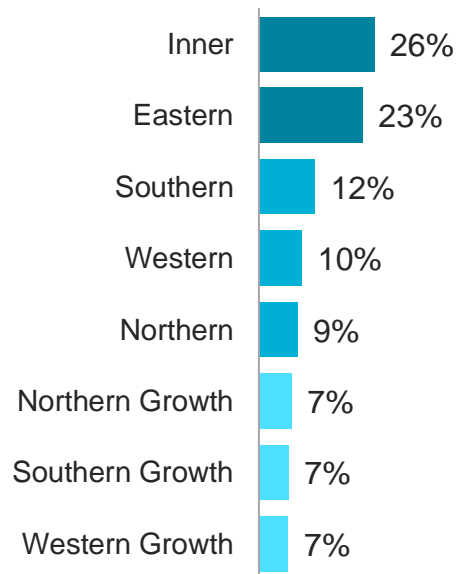
Q20. Which times of day do you usually travel to and from shopping/ appointments/ drop-offs?



# Average journey time to run errands was typically under 20 minutes, with less dispersed travel across regions

## Region shopping/appointments/drop-offs

Base: Those who travel for shopping/appointments/drop-offs (n=3,579).  
Note: Values <1% not shown

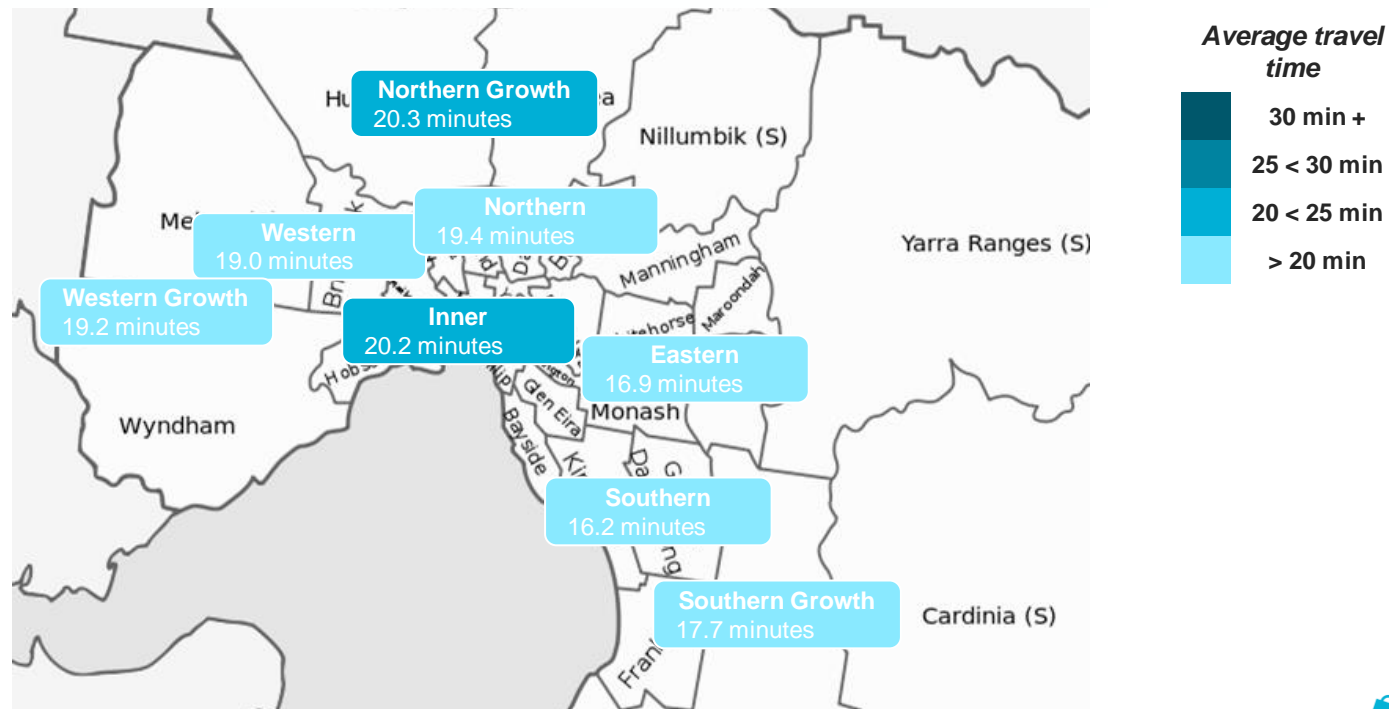


Q17. Thinking about a typical trip you make to do shopping/ appointments/ drop-offs, which suburb do you typically travel to?

## Trip duration to shopping/appointments/drop-offs by region

Base: Those who travel for shopping/appointments/drop-offs in a fixed location (n=2,930).

### Average travel time to shopping/appointments/drop-offs, by residing region



Q21. On average, how long does your journey between home and your typical place of shopping/ appointments/ drop-offs take?





# Reduced journey time for errands was largely due to a preference for closer travel within the same region in which people reside

## Region shopping/appointments/drop-offs is located, by home location

Base: Those who travel for shopping/appointments/drop-offs (n=3,579). Only showing shopping/appointment regions where n≥30

		Residing region							
		Inner (n=784)	Western (n=267)	Northern (n=267)	Eastern (n=613)	Southern (n=330)	Western Growth (n=209)	Northern Growth (n=255)	Southern Growth (n=205)
Shopping/appointments region	Inner	76%	13%	14%	6%	3%	12%	5%	1%
	Western	2%	81%	7%	0%	0%	5%	6%	0%
	Northern	3%	1%	73%	0%	0%	0%	11%	0%
	Eastern	10%	0%	2%	92%	8%	0%	1%	2%
	Southern	6%	0%	0%	1%	87%	0%	1%	9%
	Western Growth	1%	4%	0%	0%	0%	81%	1%	0%
	Northern Growth	1%	1%	4%	0%	0%	1%	75%	0%
	Southern Growth	1%	0%	0%	0%	2%	0%	0%	88%
	No fixed location	20%	18%	20%	18%	16%	15%	16%	17%

Q17. Thinking about a typical trip you make to do shopping/ appointments/ drop-offs , which suburb do you typically travel to?

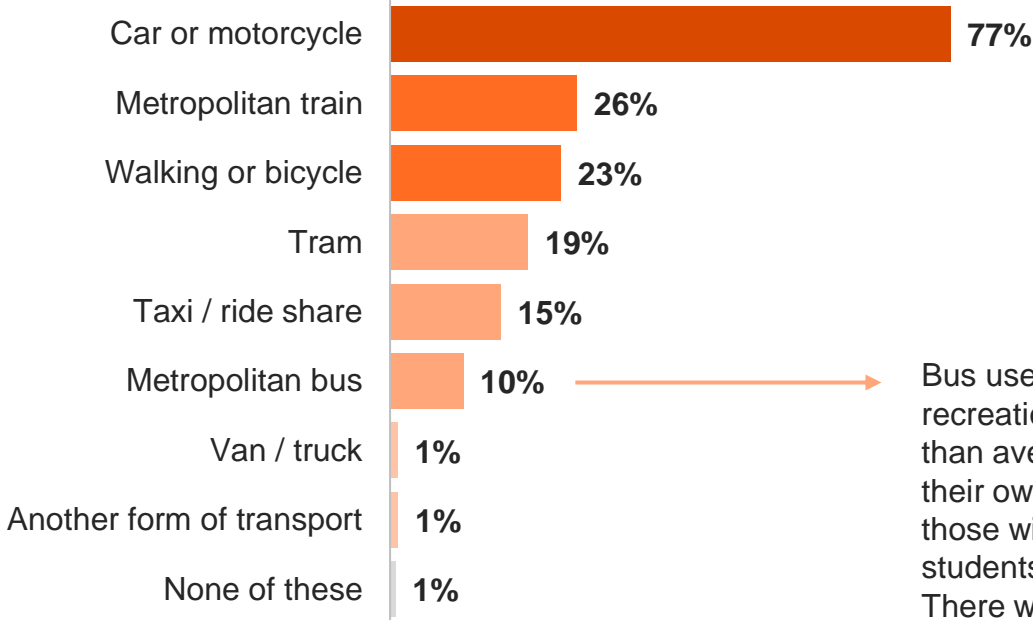


# Travelling for leisure, recreation, or social outings

# Consistently, car/motorcycle was more commonly used when travelling for leisure, and bus considerably less – by only one in ten

## Modes of transport used for travel to/from leisure/recreation/social outings in a typical week

Base: Those who travel for leisure/recreation/social outings (n=3,485)



Bus use for travelling to/from leisure/recreation/social outings was significantly higher than average among 18-24s (19%), those without their own car (29%), those with a disability (14%), those with a household income <\$50k (18%), students (20%) and the unemployed (32%). There were no significant differences between regions.

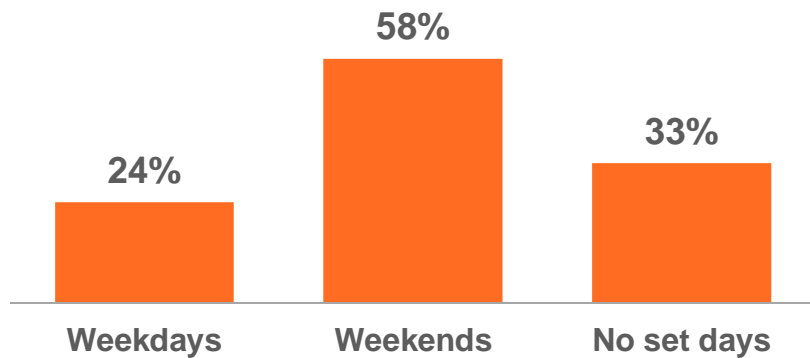
Q24. In a typical week, which modes of transport do you use for leisure/recreation/social outings?  
Note: Multiple responses allowed.



# Travel for leisure, recreation and social outings typically happens on weekends between 9am – 10pm

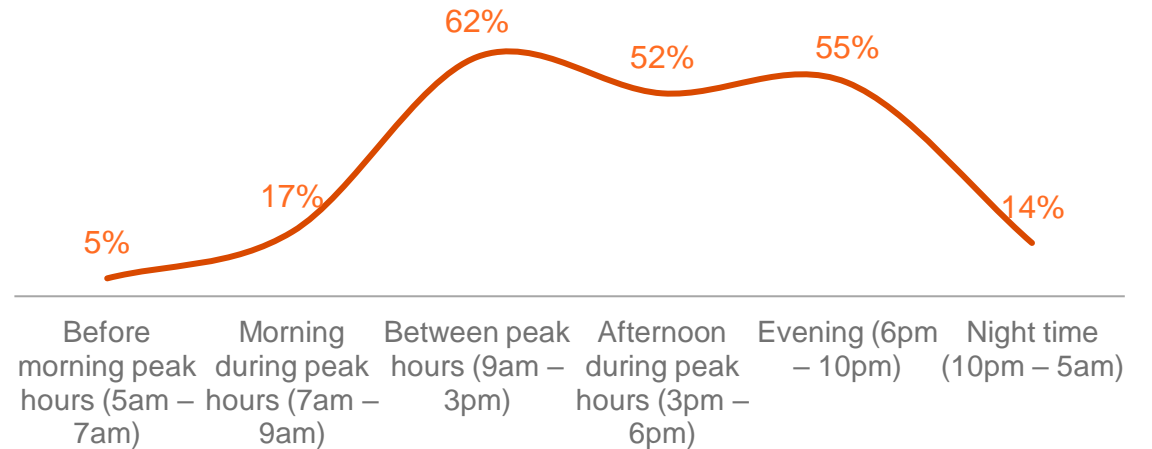
## Days of the week typically travel to leisure/recreation/social outings

Base: Those who travel for leisure/recreation/social outings (n=3,485)



Q23. In a typical week, when do you travel for leisure/recreation/social outings?

## Times of day usually travelling to/from leisure/recreation/social outings



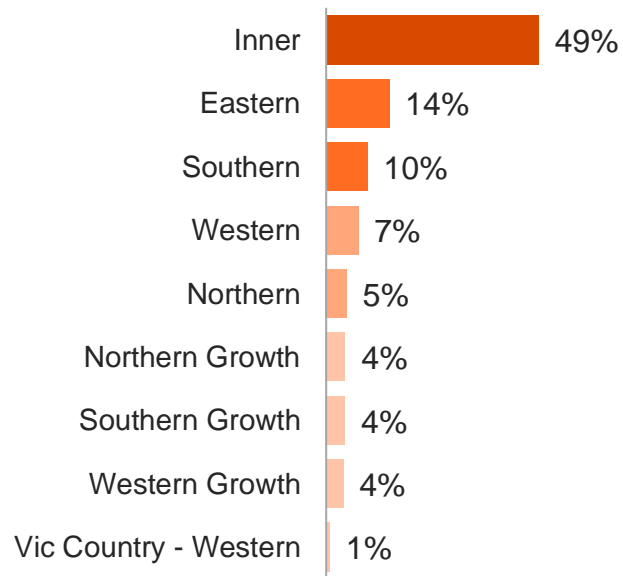
Q25. Which times of day do you usually travel to and from leisure/recreation/social outings?



# Half who travel for leisure travelled to Inner Melbourne, where journey time increased the further individuals resided from the city

## Region leisure/recreation/social outings

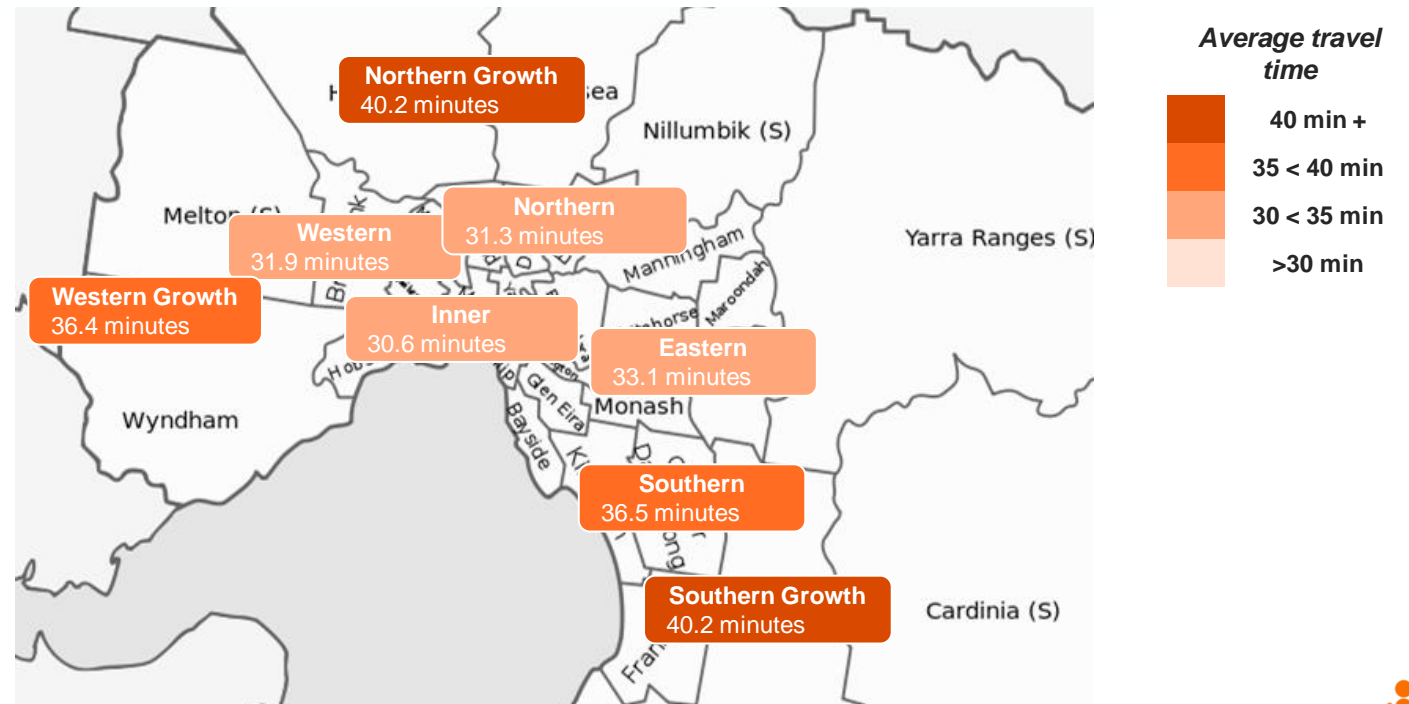
Base: Those who travel for leisure/recreation/social outings (n=3,485)  
 Note: Values <1% not shown



## Trip duration to leisure/recreation/social outings by region

Base: Those who travel for leisure/recreation/social outings in a fixed location (n=2,122). Only show locations where n≥30

### Average travel time to leisure/recreation/social outings, by residing region



Q22. Thinking about a typical trip you make for leisure / recreation/ social outings , which suburb do you typically travel to?

Q26. On average, how long does your journey between home and your typical place of leisure / recreation/ social outings take?





# While two in five have no fixed location for leisure, the majority split between travelling within their region or heading to Inner Melbourne

## Region leisure/recreation/social outings is located, by home location

Base: Those who travel for leisure/recreation/social outings (n=3,485). Only showing Leisure/recreation/social regions where n≥30

		Residing region							
		Inner (n=633)	Western (n=203)	Northern (n=198)	Eastern (n=390)	Southern (n=242)	Western Growth (n=148)	Northern Growth (n=165)	Southern Growth (n=143)
Leisure/recreation/social region	Inner	81%	39%	46%	36%	27%	32%	35%	25%
	Western	3%	47%	4%	1%	1%	14%	6%	1%
	Northern	2%	1%	33%	1%	0%	0%	9%	1%
	Eastern	6%	1%	6%	53%	9%	1%	2%	13%
	Southern	5%	1%	2%	4%	55%	0%	1%	9%
	Western Growth	0%	5%	1%	1%	0%	45%	1%	1%
	Northern Growth	1%	1%	6%	1%	0%	1%	41%	0%
	Southern Growth	0%	0%	1%	2%	5%	1%	1%	46%
	No fixed location	36%	36%	40%	45%	36%	36%	42%	40%

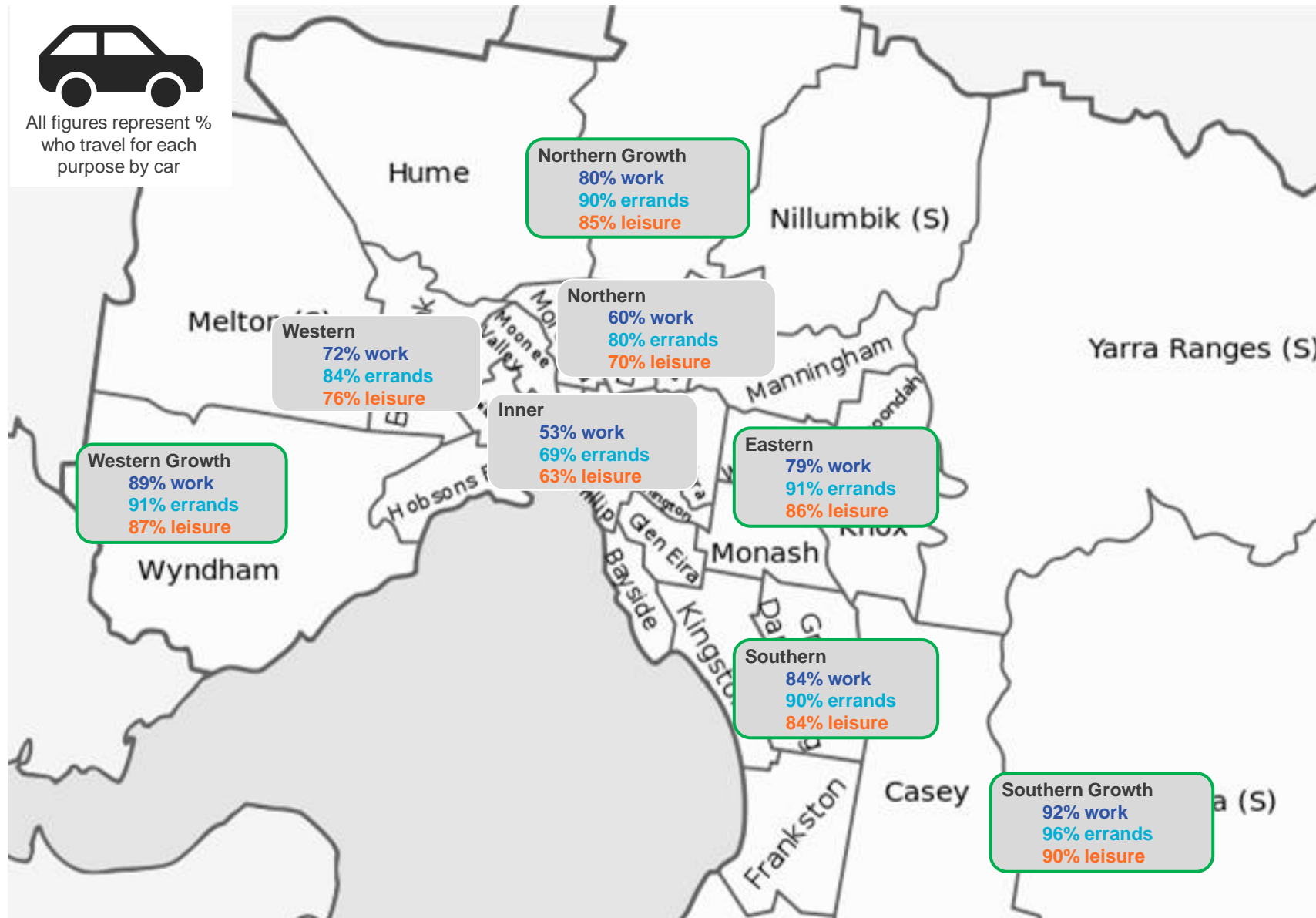
Q22. Thinking about a typical trip you make for leisure / recreation/ social outings , which suburb do you typically travel to?



# Car use was significantly higher in Eastern, Southern and all three growth regions, for all activities except study



All figures represent % who travel for each purpose by car



## Trip purpose



work



shopping/  
appointments/  
drop-offs



leisure/  
recreation/social  
outings

For these three trip purposes, use of **active transport** (walking or bicycle), **train** and **tram** was significantly higher than average in **Inner Melbourne**.



# Choice modelling results














# Explanation of ACBC

- Discrete choice modelling (Adaptive Choice Based Conjoint, or ACBC, in this instance) is used to understand how people make choices between different products or services.
- Respondents are presented with a number of product choices in which they are asked to choose their preferred product. By repeating this over a number of scenarios with slightly different product configurations we can then determine the relative value that different product attributes have to respondents and what the relative importance of different product features are.
- ACBC analysis is an extremely powerful way of determining what really drives customers to choose one product over another. It also mimics the way people make decisions in the 'real world': in reality, we don't rate all of the features of a product and then choose the one with the best total score, we just mentally evaluate the options given to us (largely subconsciously) and choose the product or service mix with the greatest value (or utility) to us. ACBC is also more natural in that it places more focus on features the respondent values, adapting the products it shows the respondent as it learns their preferences.
- For this particular model, we had a total of 13 attributes, which we judged to be an overwhelming number for respondents, and would not fit easily onto a screen for those completing via a mobile device. We therefore asked respondents to select the five most important considerations when choosing whether to take the bus, and only piped these, plus destination (whichever destinations they currently travel to) and fare. There was considerable diversity in the attributes each respondent chose, but all attributes had good coverage with a minimum of 30% of the sample selecting each attribute for inclusion.

- ACBC analysis produces three key outputs:
  - **Importance values** – these tell us how much impact a change in each of the product attributes potentially has. Importance values are calculated by subtracting the highest possible utility level from the lowest for any one attribute. Importance values are useful indicators of importance, but it should be noted that **they are impacted by the number of levels and range of values included in the model**. In addition, the two variables that were consistently shown to all respondents (trip destination and fare) may have inflated the importances of these variables in comparison to other attributes in the model. This is due to the fact that the raw utility of attributes excluded from the model for any one respondent are set to zero, when in fact they may still have some utility to respondents (though likely very small).
  - **Utility values** – these are calculated for each of the levels of an attribute and reflect the relative appeal of different levels. The greater the utility the higher the level of appeal. Note that it is the difference in utility values between different levels that is important, not the utility value itself.
  - **Market simulations** – used to understand actual choice behaviour. Using simulations, we are able to assess the tipping point at which travellers are prepared to trade one bus service characteristic for another, assess likelihood to use a bus service under different scenarios, and estimate how pricing and other characteristics impact preference to use the bus rather than an alternative.

# Choice model design

Note that respondents had to choose which five attributes (other than destination type, which was determined by which destination types they actually take, and fare, which was included for all models) were of most importance to them prior to generating the model.

 <b>Trip destination</b> <ul style="list-style-type: none"> <li>Work</li> <li>Study</li> <li>Shopping/appointments</li> <li>Leisure/recreation</li> </ul>	 <b>Fare (one-way)</b> <ul style="list-style-type: none"> <li>\$1</li> <li>\$3</li> <li>\$5</li> <li>\$8</li> <li>\$10</li> </ul>	 <b>Time needed to walk to bus stop</b> <ul style="list-style-type: none"> <li>2 minutes</li> <li>5 minutes</li> <li>10 minutes</li> <li>15 minutes</li> <li>20 minutes</li> </ul>	 <b>Bus stop facilities</b> <ul style="list-style-type: none"> <li>No seating, lighting or shelter provided</li> <li>Seating only provided</li> <li>Lighting only provided</li> <li>Shelter and seating provided</li> <li>Lighting, shelter and seating provided</li> </ul>	 <b>Level of crowding</b> <ul style="list-style-type: none"> <li>Can always get a seat</li> <li>May have to stand 50% of the time</li> <li>May have to stand 75% of the time</li> </ul>
 <b>Real-time bus location information</b> <ul style="list-style-type: none"> <li>Not available</li> <li>Displayed on the bus</li> <li>Displayed at the bus stop</li> <li>Available through a phone app</li> <li>Displayed on bus, at bus stop, and through phone app</li> </ul>	 <b>Frequency of services on weekdays</b> <ul style="list-style-type: none"> <li>Every 5 minutes</li> <li>Every 10 minutes</li> <li>Every 20 minutes</li> <li>Every 30 minutes</li> <li>Every 60 minutes</li> </ul>	 <b>Operating hours on weekdays</b> <ul style="list-style-type: none"> <li>5am to 1am</li> <li>6am to 11pm</li> <li>6am to 9pm</li> <li>7am to 7pm</li> <li>7am to 6pm</li> </ul>	 <b>Frequency of services on weekends</b> <ul style="list-style-type: none"> <li>Every 5 minutes</li> <li>Every 10 minutes</li> <li>Every 20 minutes</li> <li>Every 30 minutes</li> <li>Every 60 minutes</li> </ul>	 <b>Operating hours on weekends</b> <ul style="list-style-type: none"> <li>5am to 1am</li> <li>6am to 11pm</li> <li>6am to 9pm</li> <li>7am to 7pm</li> <li>7am to 6pm</li> </ul>
 <b>Reliability of bus service</b> <ul style="list-style-type: none"> <li>Always on time</li> <li>Typically 1-4 minutes late or early</li> <li>Typically 5-10 minutes late or early</li> </ul>	 <b>Need to take a connecting bus</b> <ul style="list-style-type: none"> <li>Required</li> <li>Not required</li> </ul>	 <b>Journey time on bus (whole trip)</b> <ul style="list-style-type: none"> <li>25% longer than currently</li> <li>50% longer than currently</li> <li>100% longer than currently</li> <li>150% longer than currently</li> <li>200% longer than currently</li> </ul>	<p>Note that journey time was presented to respondents as an actual number of minutes, based on their usual travel time to the destination shown in each scenario.</p>	



# How the ACBC worked

ACBC is an adaptive version of choice modelling. By being adaptive, it tailors the bus service profiles it shows to respondents based on the decisions they have made previously. This results in a more efficient design and focuses on the elements that are of most importance to them, rather than simply showing them a set of bus service choices that may or may not be relevant to them.

The ACBC consisted of the following modules (examples are shown on the following slides):

**Screeners:** 12 tasks, each showing four bus service profiles, were shown to respondents at a time. For each task, they were asked to indicate for each bus service profile whether it 'Will meet my needs (even if not very well)' under that scenario or if it 'Won't work for me – I would not take the bus'.

**Choice tournament:** The results of the first module then fed into a second module, where respondents were presented with up to ten sets of three bus service profiles each, all of which were profiles the respondent had indicated they would consider. In each of these tasks, the respondent was asked to choose the bus service profile they most preferred.

**Calibration:** In the final module, respondents were asked six calibration questions. Each calibration question presented the respondent with one of the bus service profiles they had already rated (from the previous module) and asked the respondent to indicate how likely they would actually be to actually use this bus service if the associated bus service profile was in place.

# Task examples

## Example screener task

Here are a few different ways your local bus service could be configured. For each one, assuming the destination indicated, please indicate whether this would meet your needs (even if not very well) or not (you would choose not to use the bus).

(1 of 12)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
<b>Trip destination</b>	Work in South Yarra	Work in South Yarra	Leisure / recreation in Melbourne	Leisure / recreation in Melbourne
<b>Frequency of services on weekends</b>	Every 5 minutes	Every 60 minutes	Every 20 minutes	Every 30 minutes
<b>Time needed to walk to bus stop</b>	20 minutes	2 minutes	5 minutes	10 minutes
<b>Need to take a connecting bus</b>	Not required	Required	Not required	Required
<b>Level of crowding</b>	Have to stand 50% of the time	Have to stand 50% of the time	Have to stand 75% of the time	Can always get a seat
<b>Journey time on bus for whole trip</b>	100 minutes	125 minutes	90 minutes	180 minutes
<b>Fare (one way)</b>	\$1	\$10	\$3	\$10
	<input type="radio"/> Will meet my needs (even if not very well) <input type="radio"/> Won't work for me - I would not take the bus	<input type="radio"/> Will meet my needs (even if not very well) <input type="radio"/> Won't work for me - I would not take the bus	<input type="radio"/> Will meet my needs (even if not very well) <input type="radio"/> Won't work for me - I would not take the bus	<input type="radio"/> Will meet my needs (even if not very well) <input type="radio"/> Won't work for me - I would not take the bus

→

0%  100%

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## Example of a choice tournament task

Among these three, given the destinations indicated, if you had to take a bus trip somewhere, which trip would you be most likely to take? (I've grayed out any features that are the same, so you can just focus on the differences.)

(5 of 10)

	Option 1	Option 2	Option 3
<b>Trip destination</b>	Leisure / recreation in Melbourne	Leisure / recreation in Melbourne	Work in South Yarra
<b>Frequency of services on weekends</b>	Every 5 minutes	Every 60 minutes	Every 10 minutes
<b>Time needed to walk to bus stop</b>	15 minutes	20 minutes	15 minutes
<b>Need to take a connecting bus</b>	Not required	Not required	Not required
<b>Level of crowding</b>	Have to stand 50% of the time	Have to stand 75% of the time	Have to stand 50% of the time
<b>Journey time on bus for whole trip</b>	120 minutes	75 minutes	150 minutes
<b>Fare (one way)</b>	\$8	\$3	\$5

○                      ○                      ○

→

0%  100%

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## Example of a calibration task

How likely would you be to actually use the bus if your bus service was like this?

(1 of 6)

<b>Trip destination</b>	Work in South Yarra
<b>Frequency of services on weekends</b>	Every 60 minutes
<b>Time needed to walk to bus stop</b>	2 minutes
<b>Need to take a connecting bus</b>	Required
<b>Level of crowding</b>	Have to stand 50% of the time
<b>Journey time on bus for whole trip</b>	125 minutes
<b>Fare (one way)</b>	\$10

Definitely Would    Probably Would    Might or Might Not    Probably Would Not    Definitely Would Not

○                      ○                      ○                      ○                      ○

→

0%  100%

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# Caveats of choice modelling

It is important to keep the following caveats in mind when interpreting choice modelling results:

The model assumes 100% awareness of bus services and their features

In the choice model, all respondents were informed about the characteristics of different bus services. In the real world, people may have incomplete knowledge (e.g. about ticket price, bus frequency, bus routes, etc).

There may be additional factors that impact choice

The model was only able to cover a limited set of factors that could impact willingness to travel by bus. Additional factors could include the comfort level of the seating, whether the bus has heating / air conditioning, the weather, positive or negative media or word of mouth in relation to buses and other types of transport.

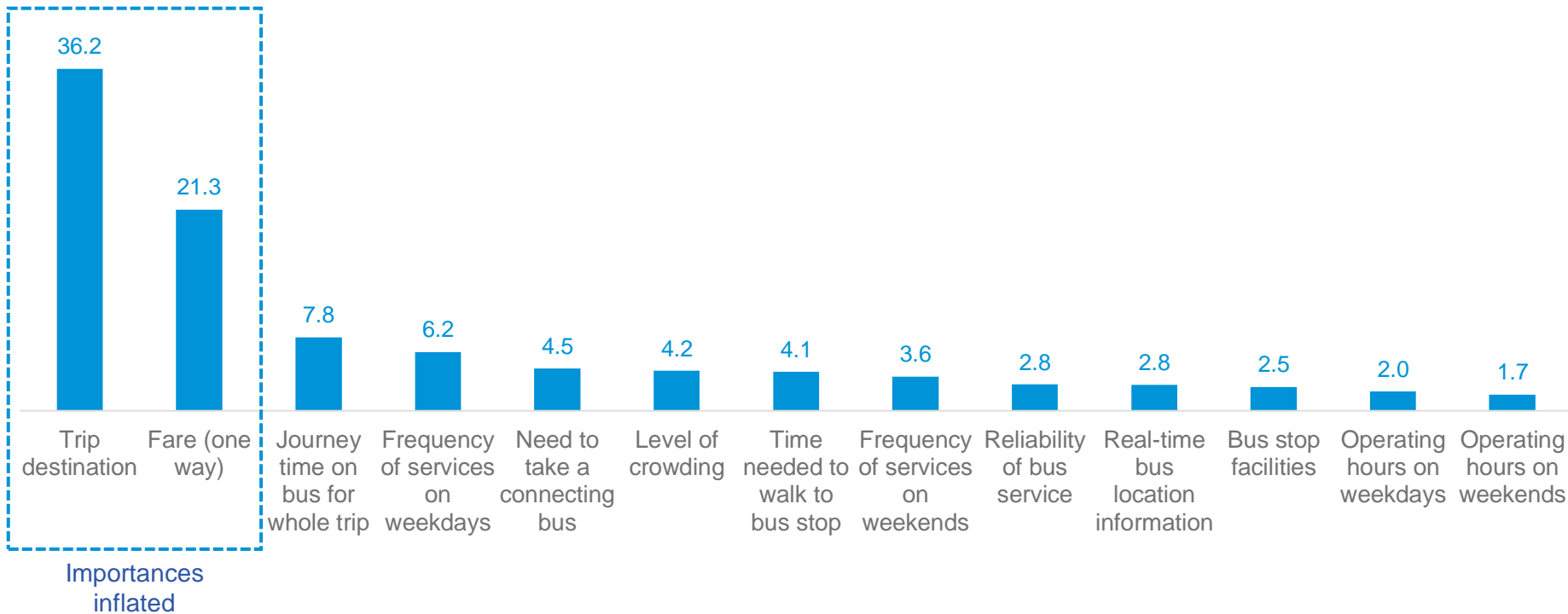
The model only focuses on people living in Melbourne

The results are specific to those living in Greater Melbourne, and while they may be of interest for other cities, cannot necessarily be extrapolated to them.

# Aside from trip destination and fares, journey time and weekday service frequency were the most important considerations

## Overall relative importance of attributes in the ACBC model

Base: All respondents who travel, n=3582



Trip destination and fare were the only two attributes that were ALWAYS shown to all respondents, so their high importance scores are somewhat artificially inflated (as is the fact that some people had no utility for certain trip destinations).

Beyond this, the attributes that tended to play the largest role in preferences were journey time and frequency of services on weekdays, followed by the need to take a connecting bus, level of crowding, and time to walk to the bus stop.

# Travellers in the Northern Growth and Southern Growth corridors place less importance on fares

## Overall relative importance of attributes in the ACBC model by region

Base: All respondents who travel, n=3582

	Total (n=3582)	Inner (n=1004)	Western (n=333)	Northern (n=330)	Eastern (n=717)	Southern (n=392)	Northern Growth (n=305)	Western Growth (n=257)	Southern Growth (n=244)
Trip destination	36.2	35.6	35.6	35.7	35.7	37.4	38.0	36.0	38.5
Fare (one way)	21.3	22.6	22.0	22.0	21.4	20.4	18.5	22.0	18.3
Journey time on bus for whole trip	7.8	7.9	8.2	8.3	7.6	7.6	7.4	6.6	8.9
Frequency of services on weekdays	6.2	6.5	6.2	6.8	6.5	5.5	5.9	5.7	5.9
Need to take a connecting bus	4.5	4.3	3.5	4.8	4.5	4.7	4.8	4.9	5.0
Level of crowding	4.2	3.8	4.3	3.5	4.4	5.3	4.3	4.6	4.3
Time needed to walk to bus stop	4.1	4.1	4.0	3.8	4.6	4.2	4.2	3.8	4.0
Frequency of services on weekends	3.6	3.8	3.9	3.7	3.7	3.4	3.1	3.6	3.3
Reliability of bus service	2.8	2.8	2.6	2.8	2.9	2.7	3.4	2.6	2.5
Real-time bus location information	2.8	3.0	2.8	2.5	2.7	2.4	3.2	2.3	3.0
Bus stop facilities	2.5	2.1	2.8	2.4	2.3	2.8	3.0	3.6	2.9
Operating hours on weekdays	2.0	1.8	2.4	2.1	2.1	2.0	2.4	2.5	1.7
Operating hours on weekends	1.7	1.8	1.6	1.8	1.7	1.6	1.9	2.0	1.7

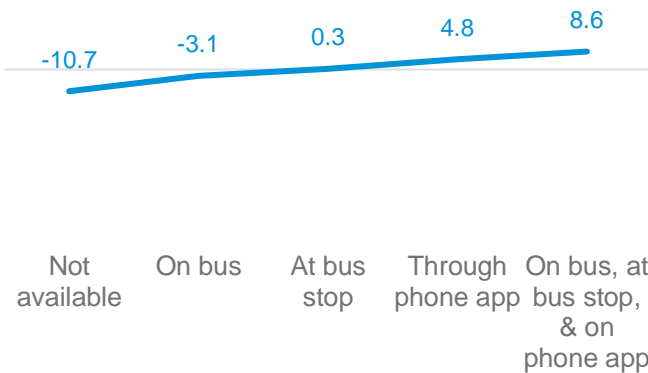
Travellers in Northern Growth and Southern Growth corridors placed less importance on fares than those living in other regions, although fares were still by far the second most important consideration for them when choosing a bus service.

Those in the Western region placed less importance on the need to take a connecting bus compared to the rest of Melbourne, while those in the Southern region were more sensitive than others to level of crowding on the bus.

Those in the Eastern region tended to place more importance on time required to walk to a bus stop than other regions, while those in the Western Growth region tended to place more importance on bus stop facilities than those living elsewhere.

# Understanding utility values

Real time bus information – utilities



The utility values are calculated for each of the levels of an attribute and reflect the relative appeal of different levels.

The greater the utility the higher the level of appeal.

**It is the *difference* in utility values between different levels that is important, not the utility value itself.** Utility values are interval values, not ratio, so a utility of 20 is NOT twice as good as a utility of 10. Utilities can be compared within an attribute, but not across attributes (e.g. fare vs. journey time).

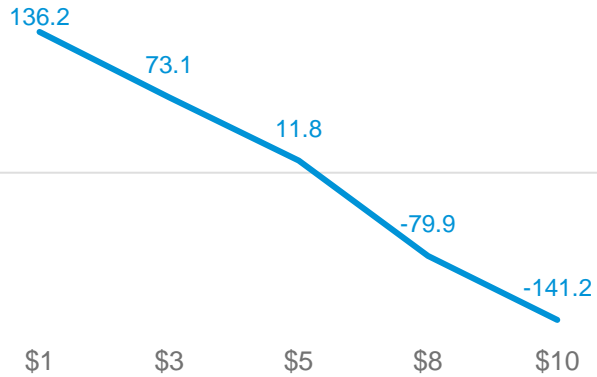
In this example, we can see that not having real-time information has the lowest utility (-10.7), while having real-time information on the bus, at the bus stop, and on an app has the highest utility (8.6). We can also see that if real-time information is only available via one channel, overall travellers would most prefer to have access via a phone app (4.8), and least prefer to have it on the bus itself (-3.1) – although having it on the bus is still better than having no real-time information at all.

It is important to note that negative values do not imply negative appeal – all values are normalised around a zero utility. Negative utilities are less valued than positive utilities, but the sign on the utilities do not imply a positive or negative absolute value – it is only the differences between values that are meaningful.

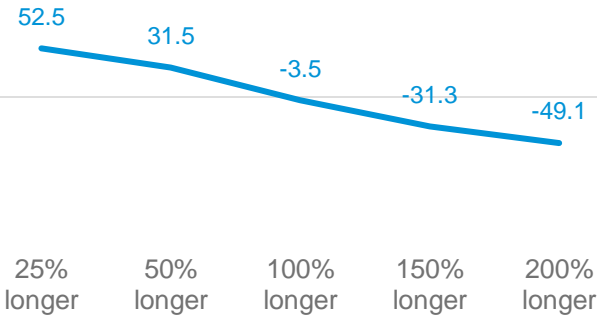


# Overall utilities – most important attributes

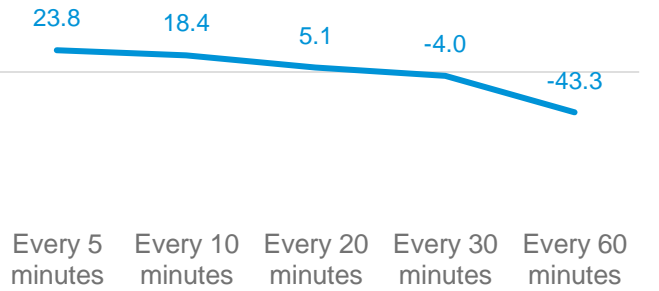
Fare (one-way)



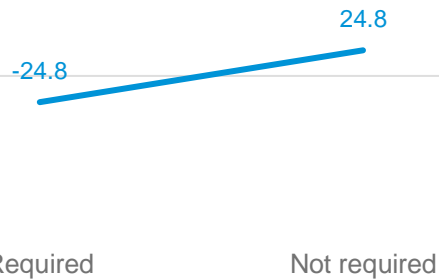
Journey time on bus (whole trip)



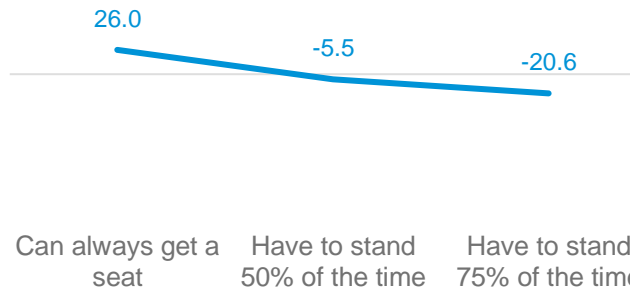
Frequency of services - weekdays



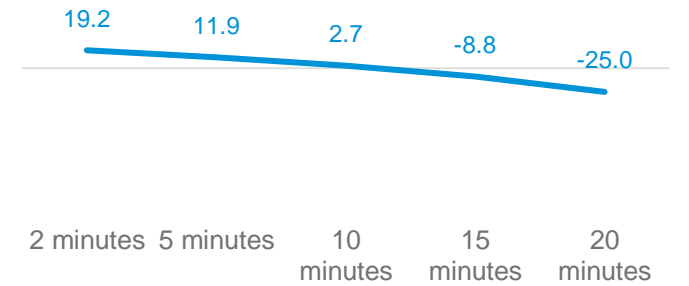
Need to take a connecting bus



Level of crowding

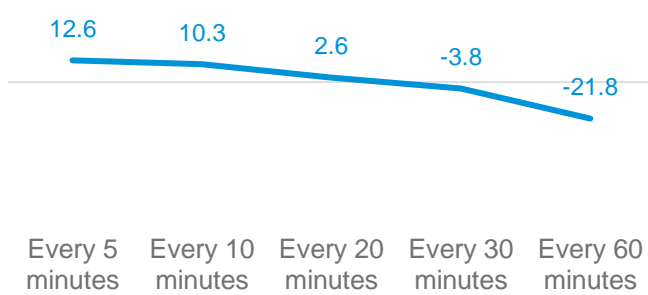


Time needed to walk to bus stop

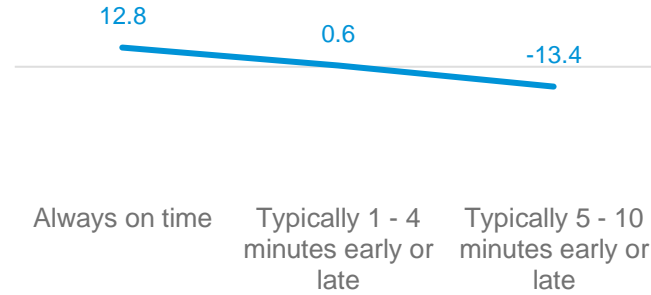


# Overall utilities – less important attributes

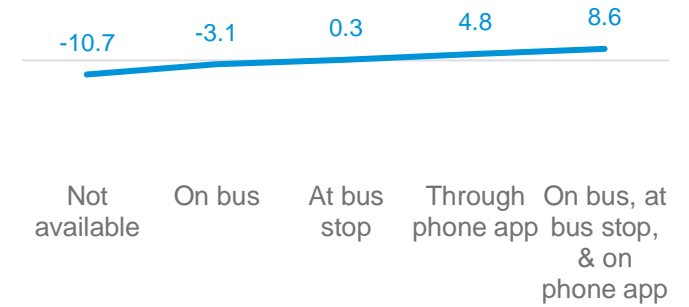
## Frequency of services – weekends



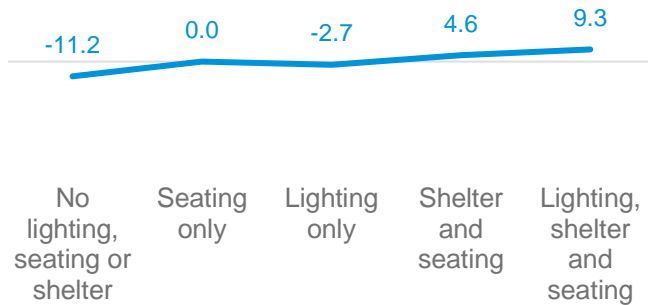
## Reliability of bus service



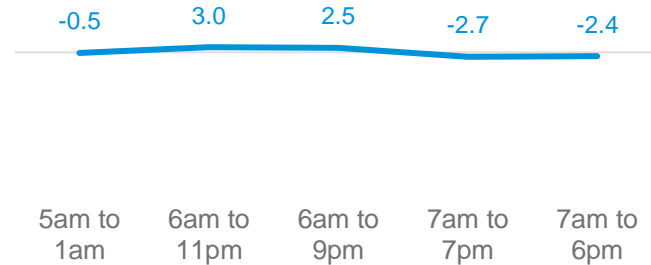
## Real-time bus location information



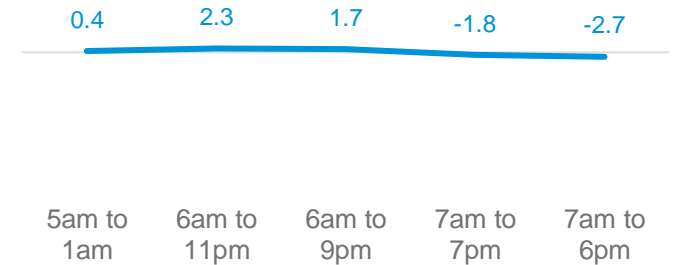
## Bus stop facilities



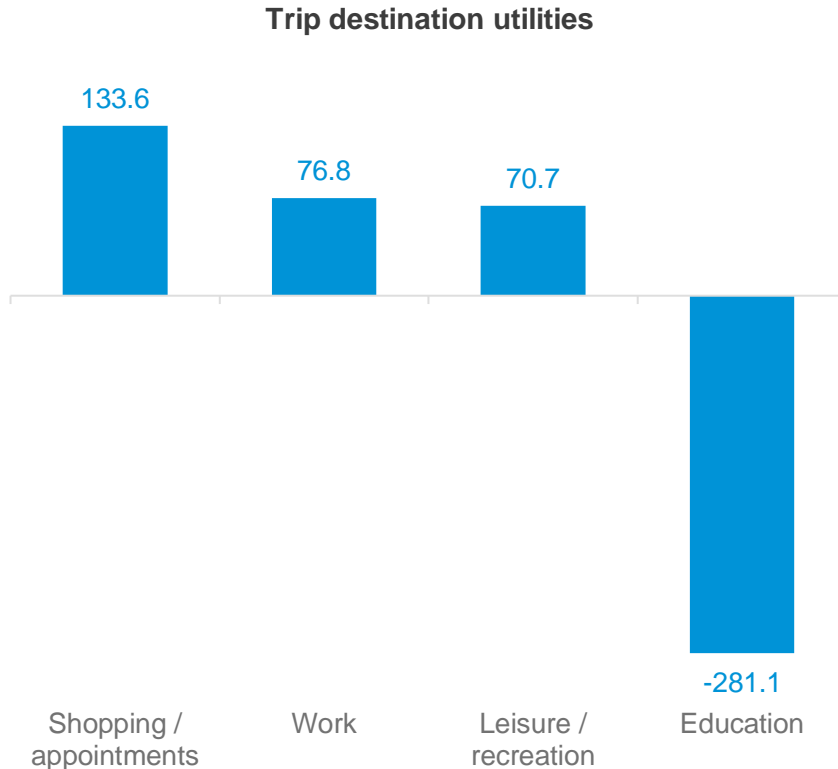
## Operating hours – weekdays



## Operating hours – weekends



# The curious case of trip destination



In addition to the other variables in the model, trip destination was also included. This was considered to be critical because travellers' needs vary according to the type of destination they are travelling to, and so needed to feature in the model.

In addition, each respondent's choice model only featured destinations they actually currently travel to, so that destinations they do not currently travel to were excluded from the model. Thus, with only 13% of respondents indicating they travelled for study purposes, only 13% saw this in their model, and for all other respondents this was considered to have no utility.

The actual utility values assigned to each of the trip destinations therefore reflects not only the sorts of trips for which respondents would consider travelling to by bus, but also the proportion of respondents who actually make trips to each of these destinations. As a result, education had a relatively low utility as it is a trip type taken by only a small proportion of the population, whereas shopping/appointments, work, and leisure/recreation were taken by a much larger proportion of the population.

The trip destination variable had the largest relative importance, but this is likely due to the fact that some people make all of these trip types while others make only a subset.

These results are presented for completeness only, and should not be used to infer that buses are seen to be more appropriate for some trip types than others.

# Simulation results

The following charts are all based on market simulations. In each simulation, all of the variables were held constant at the below levels with the exception of those variables being investigated (which is specified for each simulation).

Each simulation held the following constant (except where noted), so they had no impact on the simulations:

- Bus service every 30 minutes on weekdays
- Bus service every 45 minutes on weekends
- Operating hours 6am – 9pm weekdays and weekends
- 10 minute walk to the bus stop
- Bus typically 1 – 4 minutes late/early
- Seating only provided at bus stops (no lighting or shelter)
- No connecting bus required (a single bus takes you to your destination)
- Can always get a seat on the bus
- Journey time set to 100% longer than usual (i.e. twice the usual travelling time for that journey type for that respondent)
- No real-time bus information available
- \$5 fare one-way

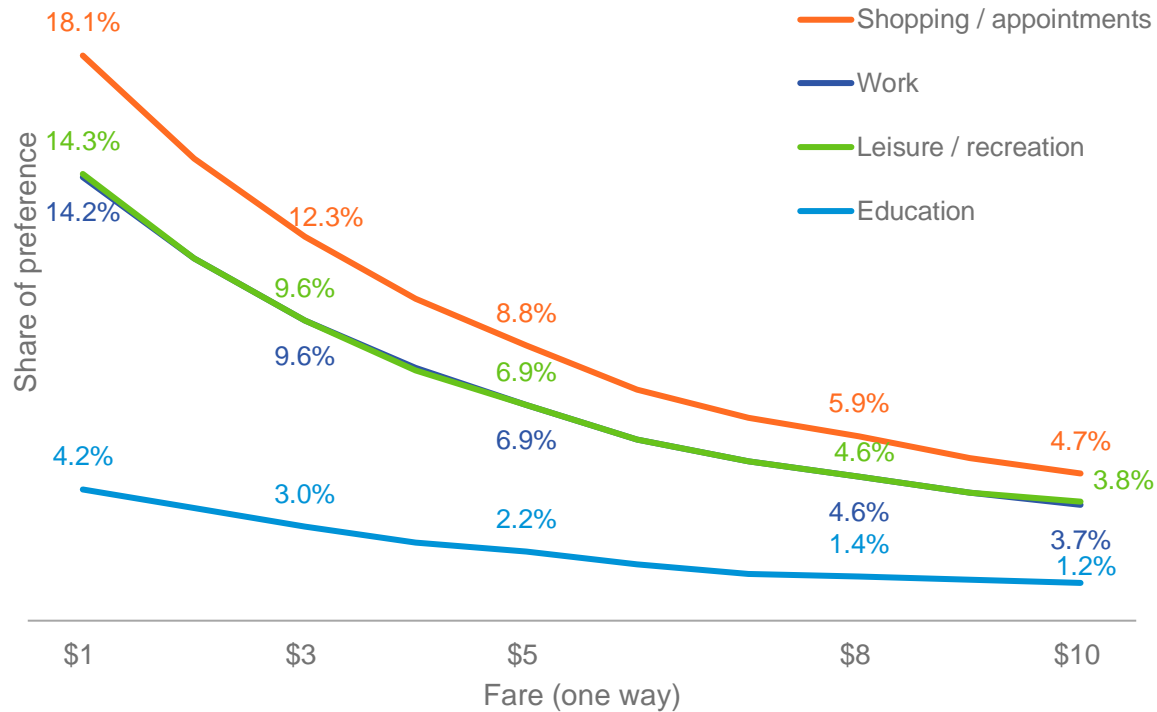


The following charts show ‘share of preference’ – this indicates what proportion of travellers indicated they would probably / definitely use the bus service as configured.

Share of preference can be roughly considered to approximate likely patronage under ideal circumstances (e.g. perfect awareness of the features of the bus service, no external factors impacting choice such as a severe storm). In reality, actual patronage is likely to be lower as perfect knowledge of the system by all potential users is unattainable.

# Price sensitivity tended to be greatest between \$1 and \$5, but was consistent across destinations

## Impact of fares on intended patronage



Price sensitivity tended to be consistent across destination types, but was less pronounced at higher prices.

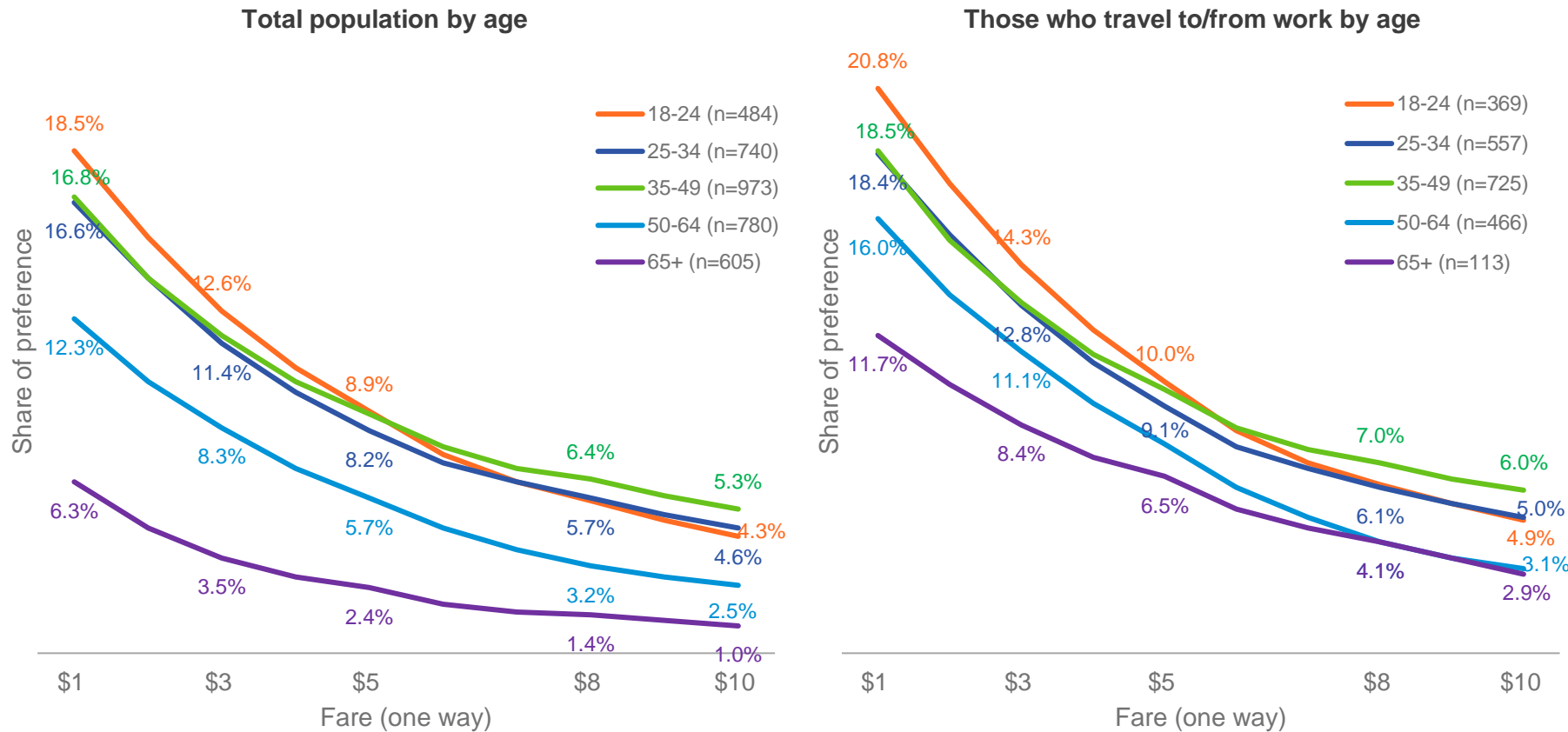
Between \$1 and \$5 (one way), each additional dollar charged tended to decrease intended patronage across all destination types by around 14% - 19%. At higher fare levels (\$8 - \$10), the decline flattens out slightly, with declines in intended patronage per additional dollar being around 7% - 11% of travellers.

Irrespective of price, travellers are most likely to consider the bus network for shopping/appointments, and least likely to consider it to travel to/from education. This is NOT a function of fewer people travelling for education, as each price sensitivity curve reflects ONLY those people who already travel for that purpose.

All attributes other than destination type and fare were kept constant

# Age differences in share of preference and price sensitivity by age were reduced when filtering only to those who actually travel to/from work

## Impact of fares on intended patronage when travelling for work – by age



The first chart shows what proportion of each age group would consider travelling by bus at each fare level; this is influenced both by preparedness to travel by bus at a particular fare, and by whether people in this group are actually working.

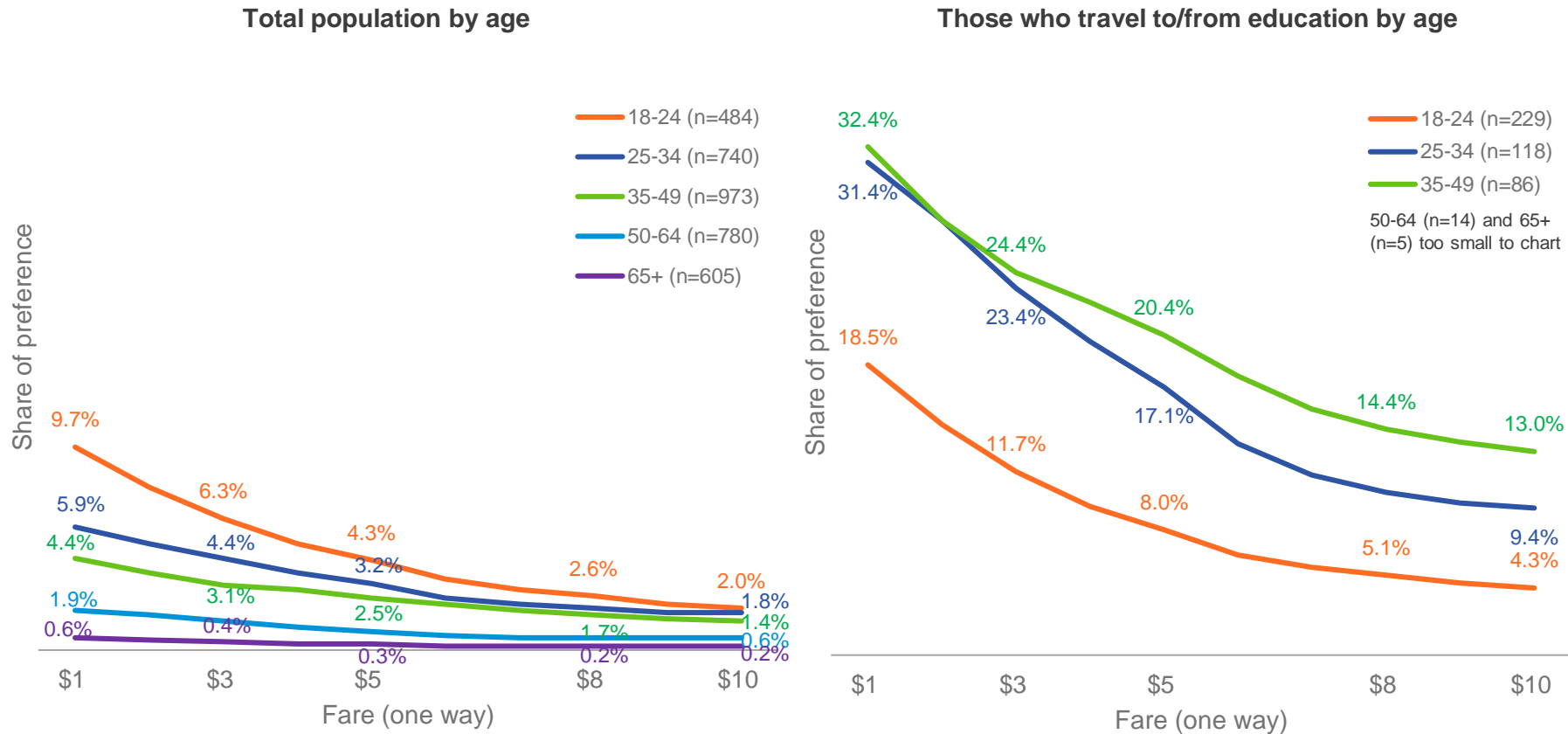
The second chart filters only to those who actually do travel to work. The five age groups move closer together on the price sensitivity curve, but remain in the same relative positions with younger people (18-24) most likely to consider taking the bus and older people (65+) least likely.

**All attributes other than destination type and fare were kept constant**



# Among those who travel to study, those aged over 24 were the most likely to consider taking the bus

## Impact of fares on intended patronage when travelling for study – by age



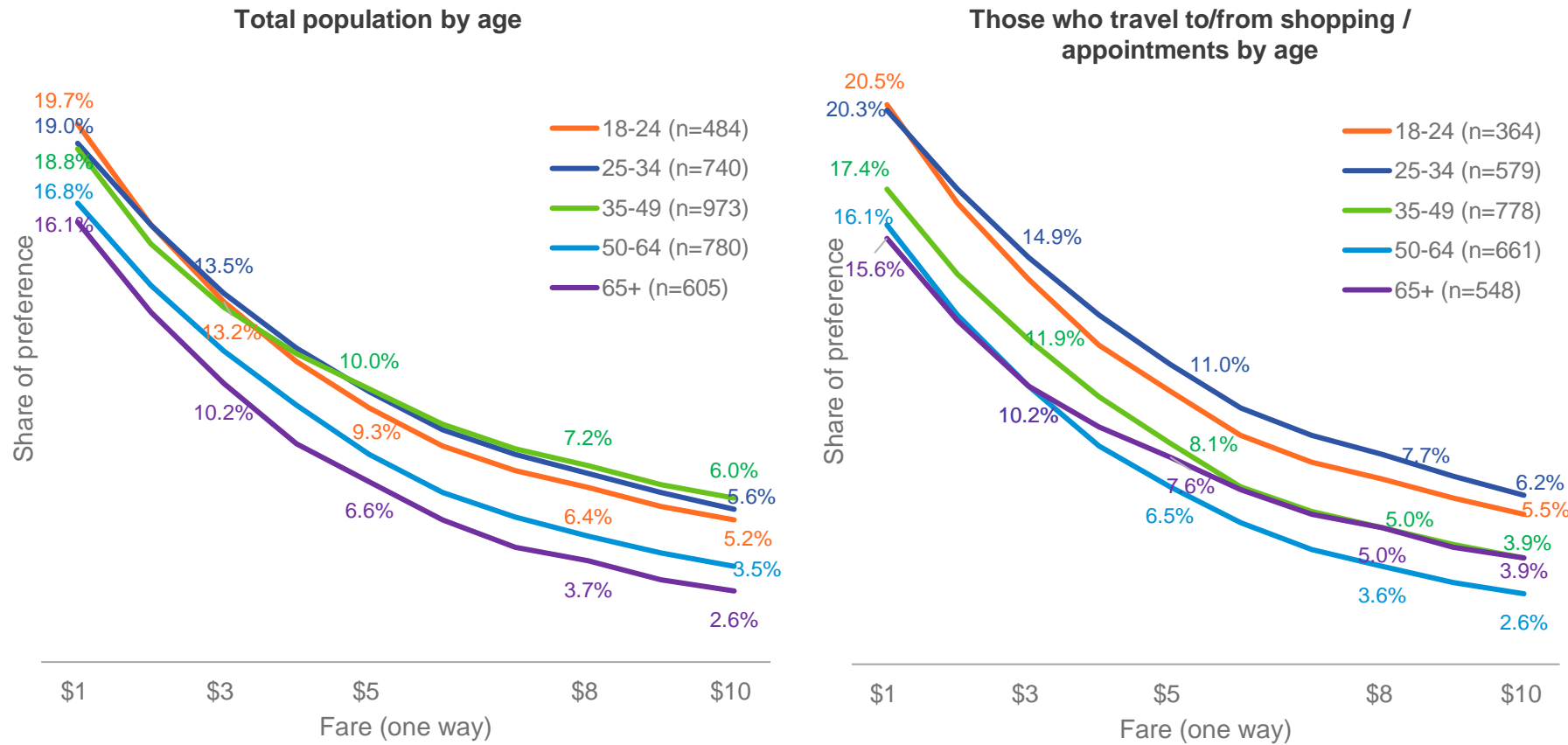
While young people (aged 18-24) had significantly higher propensity to travel to study by bus compared to other age groups (left hand chart); this is largely because they are the most likely to be studying.

The second chart filters only to those who actually do travel to education, showing that amongst those studying, those aged over 24 are the most likely to consider taking the bus to study. The sample sizes for older cohorts (50-64 and 65+) were too small to report reliable choice modelling results.

**All attributes other than destination type and fare were kept constant**

# Older people (aged 50+ years) were least likely to consider taking the bus to shopping or appointments

## Impact of fares on intended patronage when travelling for shopping / appointments – by age



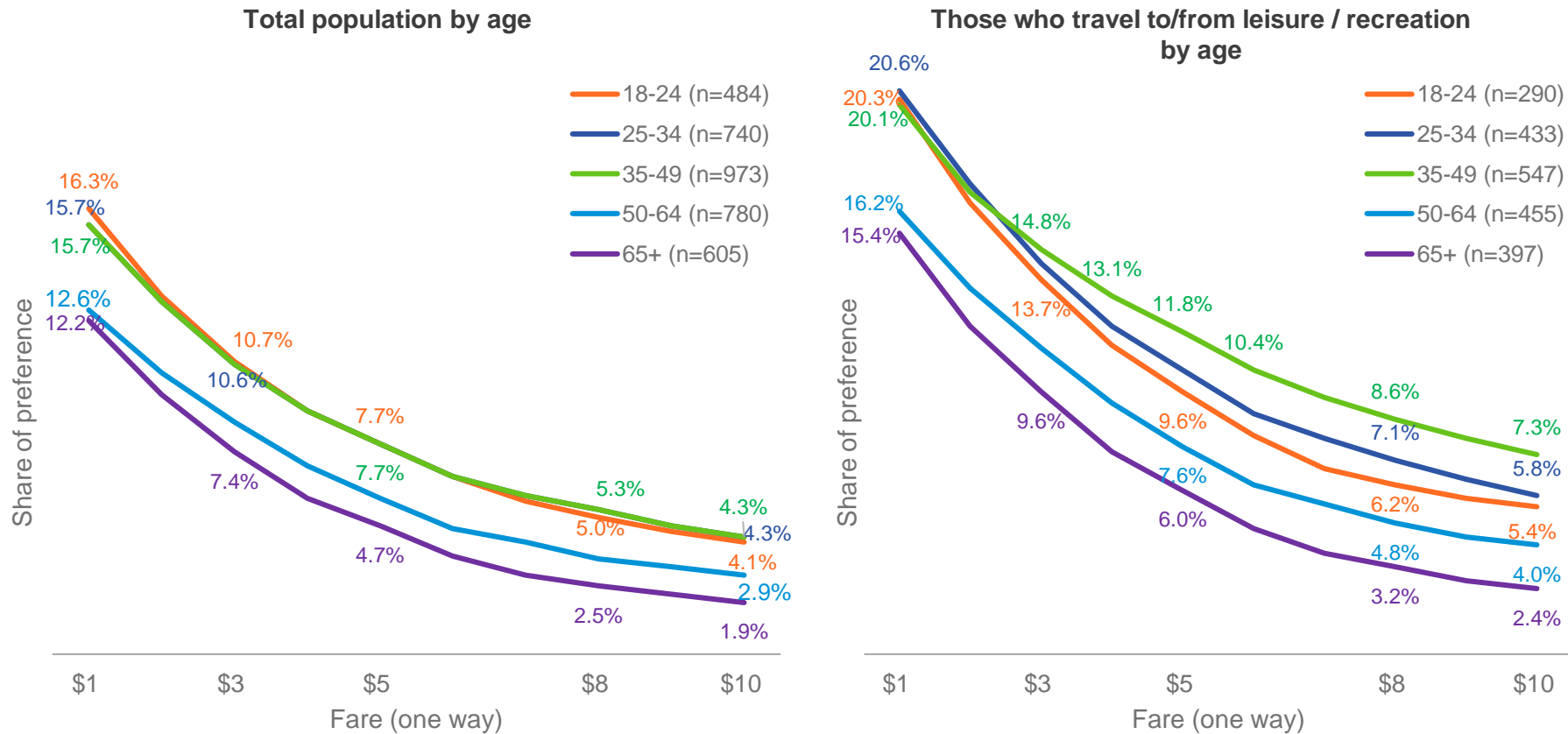
Overall, older people (aged 50+) have lower propensity to travel to shopping or appointments by bus compared to younger age groups (left hand chart).

The second chart filters only to those who actually do travel to shopping / appointments, and shows that even in this group older people are the least likely to be inclined to catch the bus for shopping / appointments. However, it also sees the share of preference for 25-34 year olds increase slightly.

**All attributes other than destination type and fare were kept constant**

# People under 50 were most likely to consider the bus for leisure / recreation, and of these, those aged 35-49 years were least price sensitive

## Impact of fares on intended patronage when travelling for leisure / recreation – by age



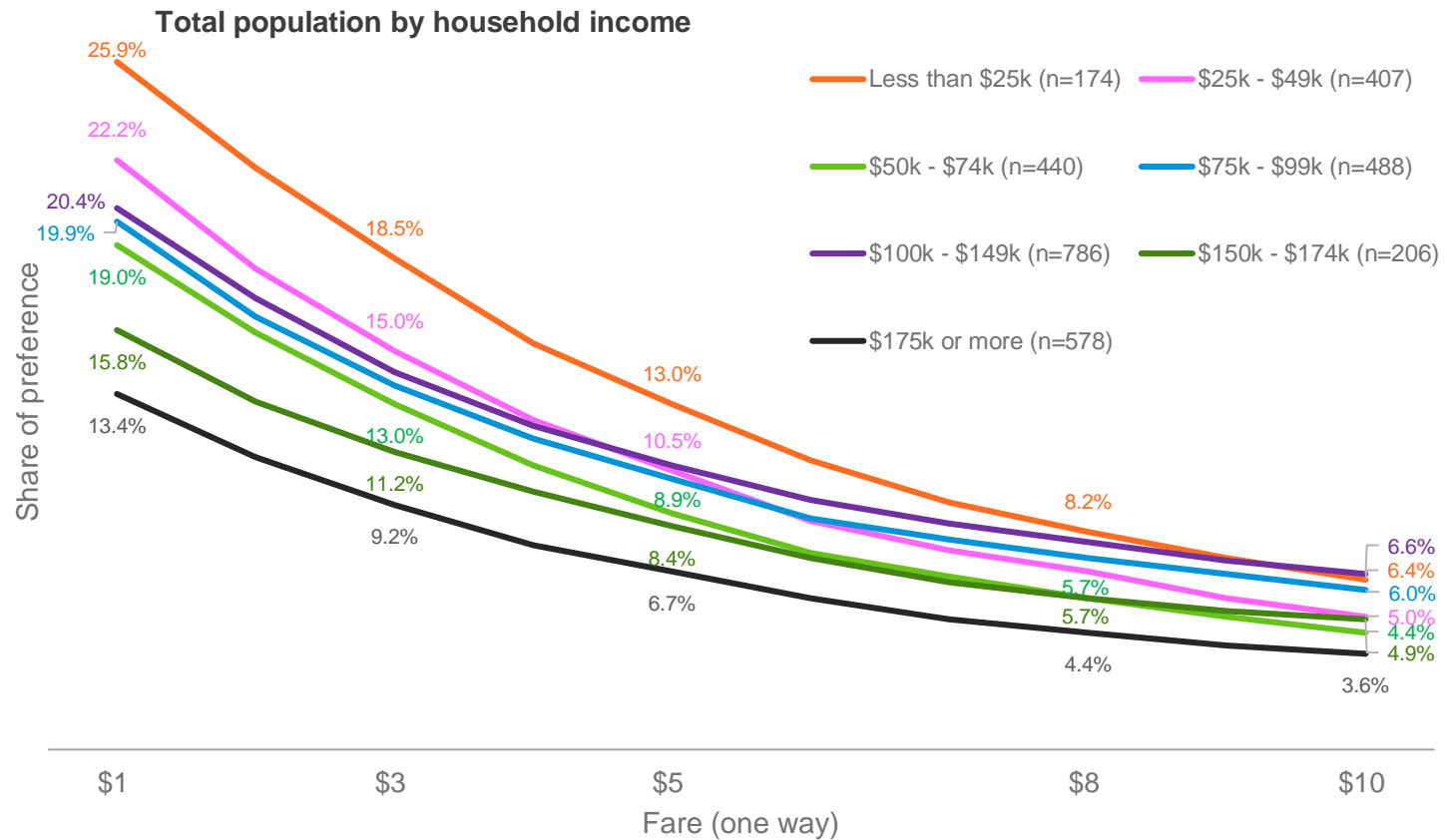
Overall, younger people (aged under 50) had higher propensity to travel for leisure / recreation purposes by bus compared to older age groups (left hand chart).

The second chart filters only to those who actually do travel to leisure / recreation, and shows that while this principle still holds, at fares above \$3 one-way, those aged 35-49 were more likely to consider travelling by bus compared to those aged 18-34, indicating less price sensitivity in this age group.

**All attributes other than destination type and fare were kept constant**

# Lower income households were more likely to use the bus system for shopping / appointments, and were most price sensitive

## Impact of fares on intended patronage when travelling for shopping / appointments – by household income



Households with income under \$75,000 per annum were the most price sensitive

All attributes other than household income and fare were kept constant

# A bus stop further away was acceptable in exchange for a shorter journey time

Value of distance to bus stop – values indicate how much shorter the bus journey needs to be to offset greater distance to walk

**When travelling to work**

		Current distance walked			
Proposed distance to walk	Minutes	2	5	10	15
	2				
	5	8%			
	10	19%	9%		
	15	27%	18%	10%	
	20	40%	31%	23%	11%

**When travelling for shopping / appointments**

		Current distance walked			
Proposed distance to walk	Minutes	2	5	10	15
	2				
	5	9%			
	10	18%	9%		
	15	27%	18%	10%	
	20	42%	32%	23%	12%

**When travelling to study**

		Current distance walked			
Proposed distance to walk	Minutes	2	5	10	15
	2				
	5	9%			
	10	15%	5%		
	15	21%	12%	8%	
	20	33%	24%	19%	9%

**When travelling for leisure / recreation**

		Current distance walked			
Proposed distance to walk	Minutes	2	5	10	15
	2				
	5	10%			
	10	20%	9%		
	15	31%	20%	11%	
	20	45%	34%	25%	13%

Typically, travellers were prepared to walk a little further (5 minutes instead of 2) to the bus stop in exchange for a bus journey that is around 10% quicker. To increase their walk from 5 to 10 minutes to the bus stop, they expected a journey time up to 9% quicker.

A 20 minute walk to the bus stop required a 33% (students) to 45% (leisure travellers) quicker route compared to a bus stop 2 minutes away.

These figures suggest that quicker journey times can offset having to walk further to a bus stop.

While patterns were similar across all four destination types, it should be noted that those travelling for education tended to be prepared to walk further to the bus stop with lower expectations of journey time savings.

These simulations are based on the assumption that that the base journey time (against which we are comparing) is 100% longer than usual journey time.

**All attributes other than distance to walk to the bus stop and journey time were kept constant**

# A bus stop further away was acceptable in exchange for more frequent weekday services

Value of change in weekday service frequency – if the current status quo is a service every 30 minutes, figures in cells reflect how frequently the bus would need to run to offset a further walk to the bus stop in minutes (e.g., “20” indicates a service every 20 minutes)

When travelling to work

		Current distance walked				
		Minutes	2	5	10	15
Proposed distance to walk	Minutes	2				
	2					
	5	20				
	10	13	20			
	15	8	13	20		
20	<5	6	12	19		

When travelling for shopping / appointments

		Current distance walked				
		Minutes	2	5	10	15
Proposed distance to walk	Minutes	2				
	2					
	5	20				
	10	14	20			
	15	7	12	19		
20	<5	<5	10	18		

When travelling to study

		Current distance walked				
		Minutes	2	5	10	15
Proposed distance to walk	Minutes	2				
	2					
	5	22				
	10	20	24			
	15	12	16	22		
20	6	12	18	24		

When travelling for leisure / recreation

		Current distance walked				
		Minutes	2	5	10	15
Proposed distance to walk	Minutes	2				
	2					
	5	21				
	10	14	21			
	15	7	13	19		
20	<5	5	10	19		

Moving a bus stop further away was considered an acceptable trade-off for a more frequent service on weekdays, although even a shift from a 2 minute walk to a 5 minute walk to the bus stop was associated with a need for the bus frequency to change from a bus every 30 minutes to a bus every 20 – 22 minutes.

Note that these analyses indicate trade-offs between distance walked to the bus stop and frequency of bus services, under the assumption that bus services currently run at 30 minutes. If the assumption is that current services run more or less frequently, the acceptable trade-off will also change.

Once again, patterns were similar across all four destination types, but those travelling for education tended to have slightly lower expectations of improved frequency in exchange for having a longer walk to the bus stop.

These simulations are based on the assumption that the base weekday bus service frequency (against which we are comparing) is once every 30 minutes.

All attributes other than distance to walk to the bus stop and weekday bus service frequency were kept constant



# A bus stop further away was acceptable in exchange for more frequent weekend services

Value of change in weekend service frequency – if the current status quo is a service every 45 minutes, figures in cells reflect how frequently the bus would need to run to offset a further walk to the bus stop in minutes (e.g., “20” indicates a service every 20 minutes)

When travelling to work

		Current distance walked				
		Minutes	2	5	10	15
Proposed distance to walk	Minutes	2				
	2					
	5	31				
	10	17	31			
	15	<5	15	30		
	20	<5	<5	13	25	

When travelling for shopping / appointments

		Current distance walked				
		Minutes	2	5	10	15
Proposed distance to walk	Minutes	2				
	2					
	5	31				
	10	18	32			
	15	<5	15	28		
	20	<5	<5	11	24	

When travelling to study

		Current distance walked				
		Minutes	2	5	10	15
Proposed distance to walk	Minutes	2				
	2					
	5	30				
	10	22	30			
	15	16	19	38		
	20	<5	12	18	32	

When travelling for leisure / recreation

		Current distance walked				
		Minutes	2	5	10	15
Proposed distance to walk	Minutes	2				
	2					
	5	31				
	10	16	32			
	15	<5	13	29		
	20	<5	<5	8	22	

Moving a bus stop further away was considered an acceptable trade-off for a more frequent service on weekends, although even a shift from a 2 minute walk to a 5 minute walk to the bus stop is associated with a need for the bus frequency to change from a bus every 45 minutes to a bus every 30-31 minutes. However, there was less tolerance for longer walks to the bus stop on weekends compared to weekdays.

Note that these analyses indicate trade-offs between distance walked to the bus stop and frequency of bus services, under the assumption that bus services currently run at 45 minutes. If the assumption is that current services run more or less frequently, the acceptable trade-off will also change.

Once again, those travelling for education tended to have slightly lower expectations of improved frequency in exchange for having a longer walk to the bus stop.

These simulations are based on the assumption that the base weekend bus service frequency (against which we are comparing) is once every 45 minutes.

All attributes other than distance to walk to the bus stop and weekend bus service frequency were kept constant

# Those with disabilities required greater concessions in order to consider walking further to a bus stop

## Cost of increasing distance to bus stop in terms of quicker or more frequent bus journeys by subgroups

**Value of distance to bus stop – values indicate how much shorter the bus journey needs to be to offset increasing the walk to the bus stop from 5 minutes to 10 minutes**

Subgroup	How much shorter bus journey needs to be
All adult travellers (n=3582)	9%
People with any disability (n=477)	14%
People with a mobility disability (n=220)	14%
Non-English Speakers (n=676)	10%
Under \$25k pa household income (n=174)	5%
Under \$50k pa household income (n=581)	12%
Under \$75k pa household income (n=1021)	11%
Women (n=1836)	10%
People 65+ years of age (n=605)	12%
Households with children under 18 (n=969)	10%
Households with children under 5 (n=388)	9%

**Value of change in weekday service – values indicate how much shorter the bus journey needs to be to offset increasing the walk to the bus stop from 5 minutes to 10 minutes**

Subgroup	Frequency required if current bus runs every 30 minutes
All adult travellers (n=3582)	Every 20 minutes
People with any disability (n=477)	Every 15 minutes
People with a mobility disability (n=220)	Every 15 minutes
Non-English Speakers (n=676)	Every 21 minutes
Under \$25k pa household income (n=174)	Every 26 minutes
Under \$50k pa household income (n=581)	Every 21 minutes
Under \$75k pa household income (n=1021)	Every 20 minutes
Women (n=1836)	Every 20 minutes
People 65+ years of age (n=605)	Every 20 minutes
Households with children under 18 (n=969)	Every 20 minutes
Households with children under 5 (n=388)	Every 16 minutes

The tables to the left show the degree to which journey times would need to be shorter or how frequently bus services would need to run (compared to a bus every 30 minutes) in order for travellers to consider an extension of their walk to the bus stop from 5 to 10 minutes.

Those with any type of disability had the highest expectations in terms of faster bus times / more frequent services. Households with children under 5 years expected the journey to be faster by the same amount as the general population, but had higher expectations of bus frequency in exchange for a longer walk.

**All attributes other than distance to walk to the bus stop and journey time or frequency were kept constant**

# Impact of frequency of services for work purposes – weekdays and weekends

The charts on the next slides show share of preference by frequency of bus services (service comes every 5 minutes, 10 minutes, 15 minutes, etc), and by region, for those travelling to work on weekday and weekend bus services respectively.

Naturally, share of preference declines for all regions as frequency declines (i.e. number of minutes between services increases).

Some regions are more sensitive to changes in frequency than others. This can be calculated by looking at the difference between the minimum and maximum share of preference for each region across the range of bus service frequency measured. These results are shown to the right for convenience. The greater the difference between the minimum and maximum values, the greater overall impact that changing service frequency has.

For weekday services, there was higher sensitivity in the Western (3.3%), Northern (3.2%) and Northern Growth (3.0%) regions, while on weekends sensitivity is highest for the Western (2.6%) and Eastern (2.0%) regions.

## Sensitivity of different regions to changes in bus service frequency (work travel)

### Share of preference by frequency of weekday services

Region	Maximum share of preference	Minimum share of preference	Difference between maximum and minimum
Inner	10.9%	8.0%	2.9%
Western	12.6%	9.3%	3.3%
Northern	10.3%	7.1%	3.2%
Eastern	8.2%	5.5%	2.7%
Southern	7.5%	5.2%	2.3%
Northern Growth	11.0%	8.0%	3.0%
Western Growth	9.2%	6.8%	2.4%
Southern Growth	8.0%	5.9%	2.1%

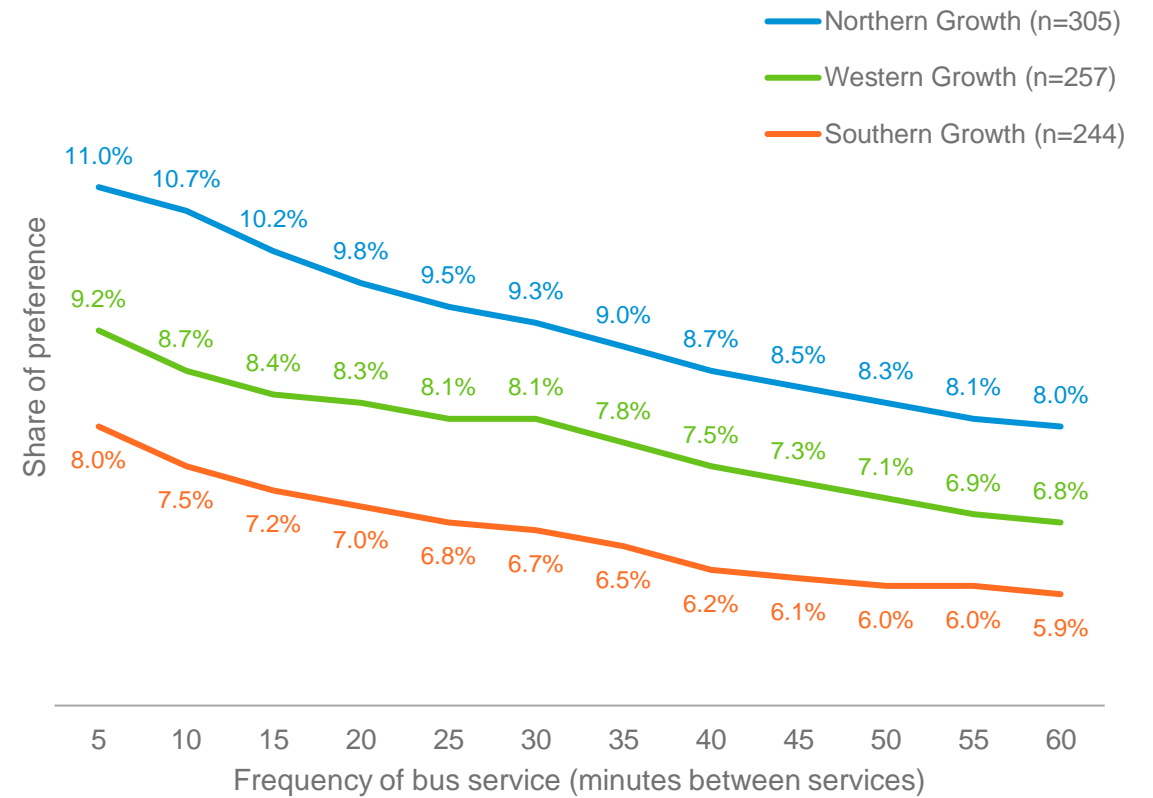
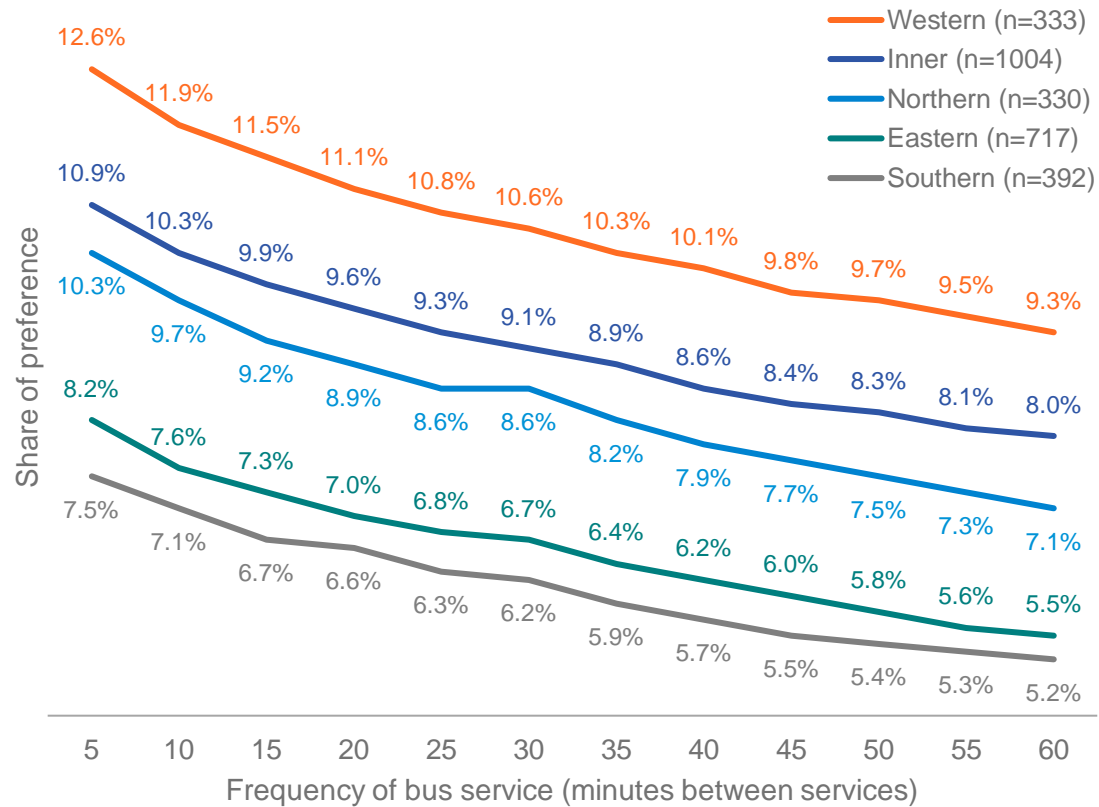
### Share of preference by frequency of weekend services

Region	Maximum share of preference	Minimum share of preference	Difference between maximum and minimum
Inner	10.3%	8.8%	1.5%
Western	12.7%	10.1%	2.6%
Northern	9.7%	8.4%	1.3%
Eastern	8.2%	6.2%	2.0%
Southern	7.1%	6.0%	1.1%
Northern Growth	10.2%	9.0%	1.2%
Western Growth	9.2%	7.5%	1.7%
Southern Growth	7.5%	6.4%	1.1%

All attributes other than weekday and weekend bus service frequency respectively were kept constant.

# The Western, Northern, and Northern Growth regions were most sensitive to changes in frequency of bus services for work on weekdays

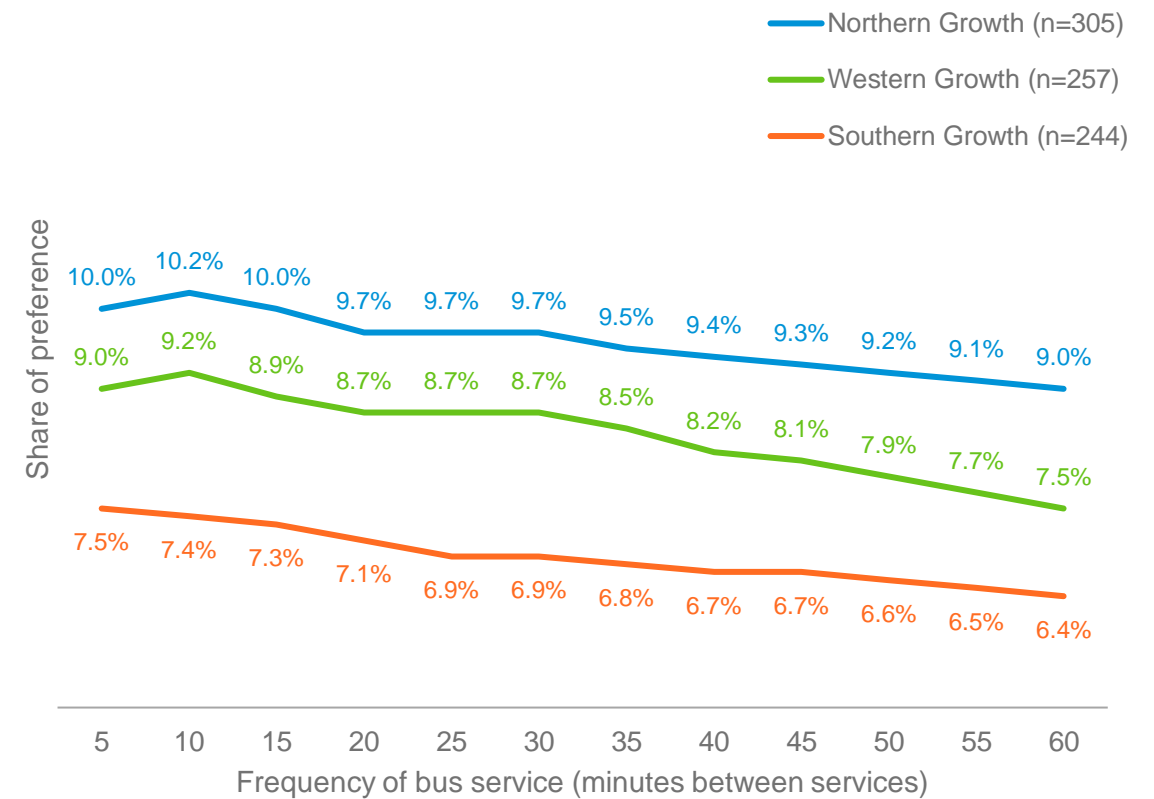
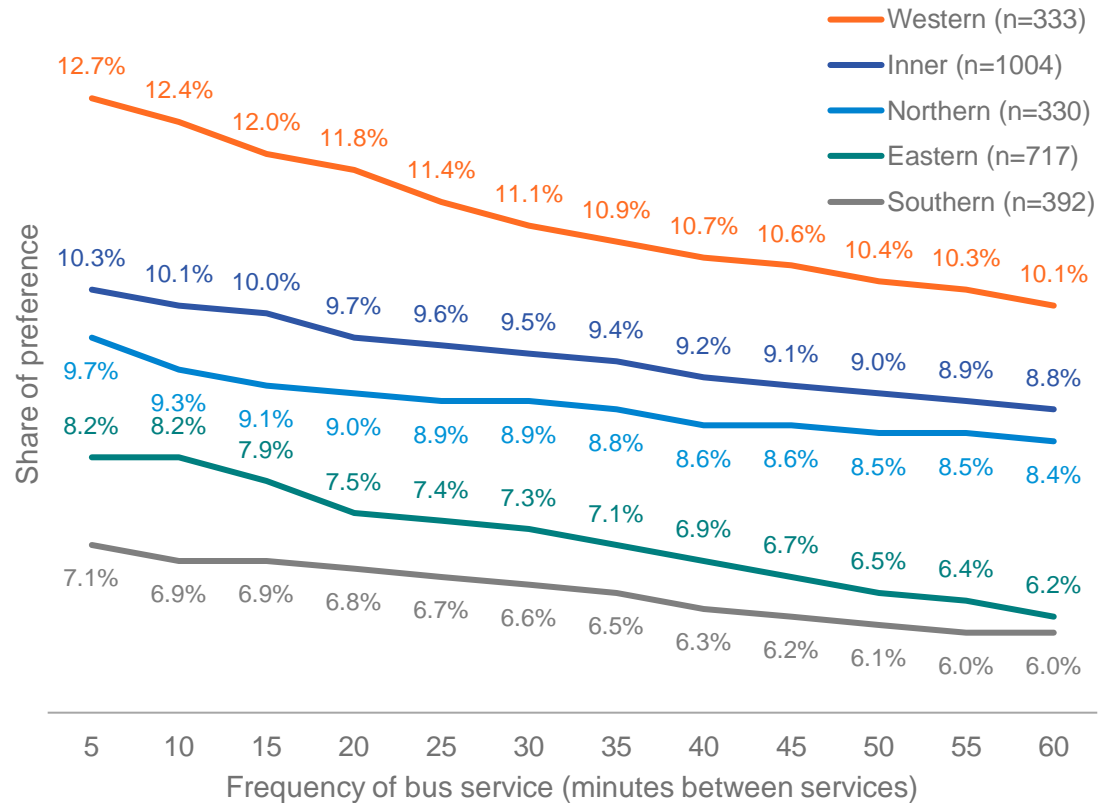
Appeal of frequency by region – weekdays



All attributes other than weekday bus service frequency were kept constant.

# The Western and Eastern regions were the most sensitive to changes in frequency of bus services for work on the weekends

## Appeal of frequency by region – weekends



All attributes other than weekend bus service frequency were kept constant.

# Impact of bus service operating hours for work purposes – weekdays and weekends

## Sensitivity of different regions to changes in bus service operating hours (work travel)

The charts on the next slides show share of preference by different operating hours for bus services and by region, for those travelling to work on weekday and weekend bus services respectively.

Changes in operating hours have much less impact on traveller preferences than do frequency of bus services. The range of operating hours we considered only make a maximum of 0.7% to share of preference (in the Western region on weekdays).

While there are few clear differences between regions, it is evident that those living in Inner Melbourne were the least likely to be impacted by changes to bus operating hours (a difference of only 0.2% for both weekdays and weekends).

### Share of preference by weekday operating hours

Region	Maximum share of preference	Minimum share of preference	Difference between maximum and minimum
Inner	9.2%	9.0%	0.2%
Western	10.8%	10.1%	0.7%
Northern	8.6%	8.1%	0.5%
Eastern	6.7%	6.3%	0.4%
Southern	6.4%	5.9%	0.5%
Northern Growth	9.3%	8.9%	0.4%
Western Growth	8.1%	7.5%	0.6%
Southern Growth	6.9%	6.3%	0.6%

### Share of preference by weekend operating hours

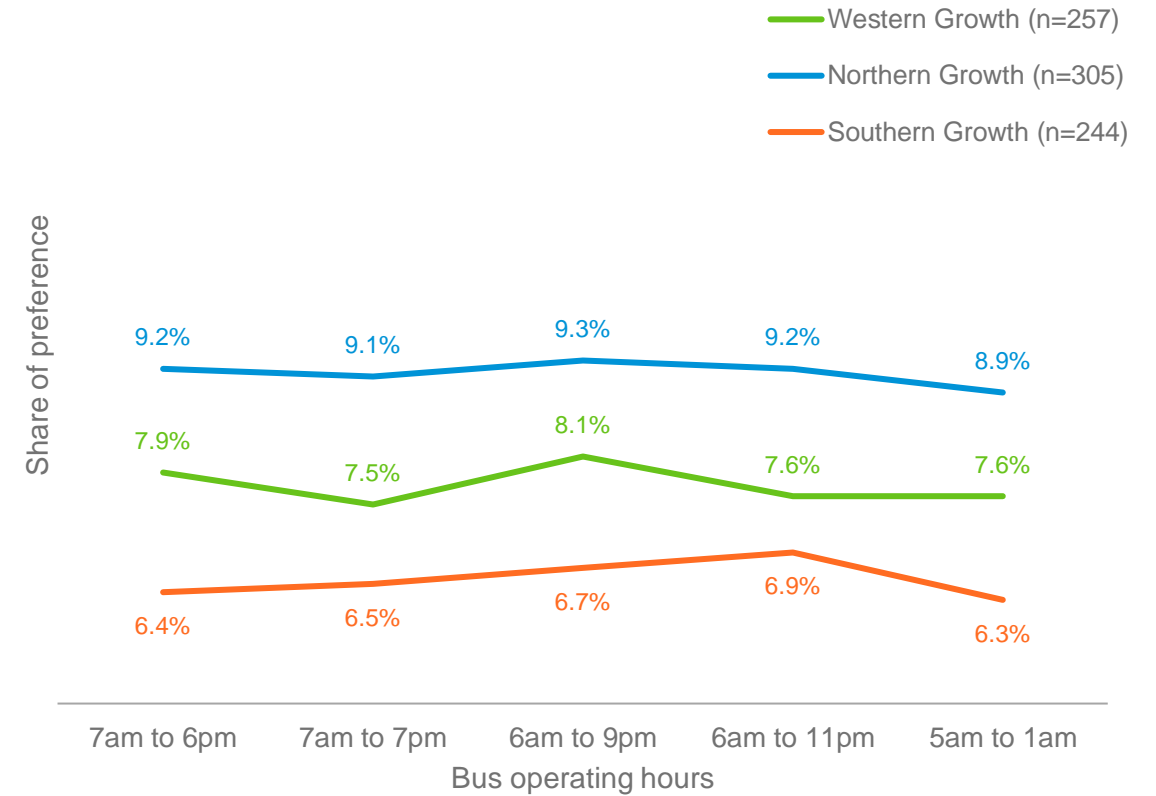
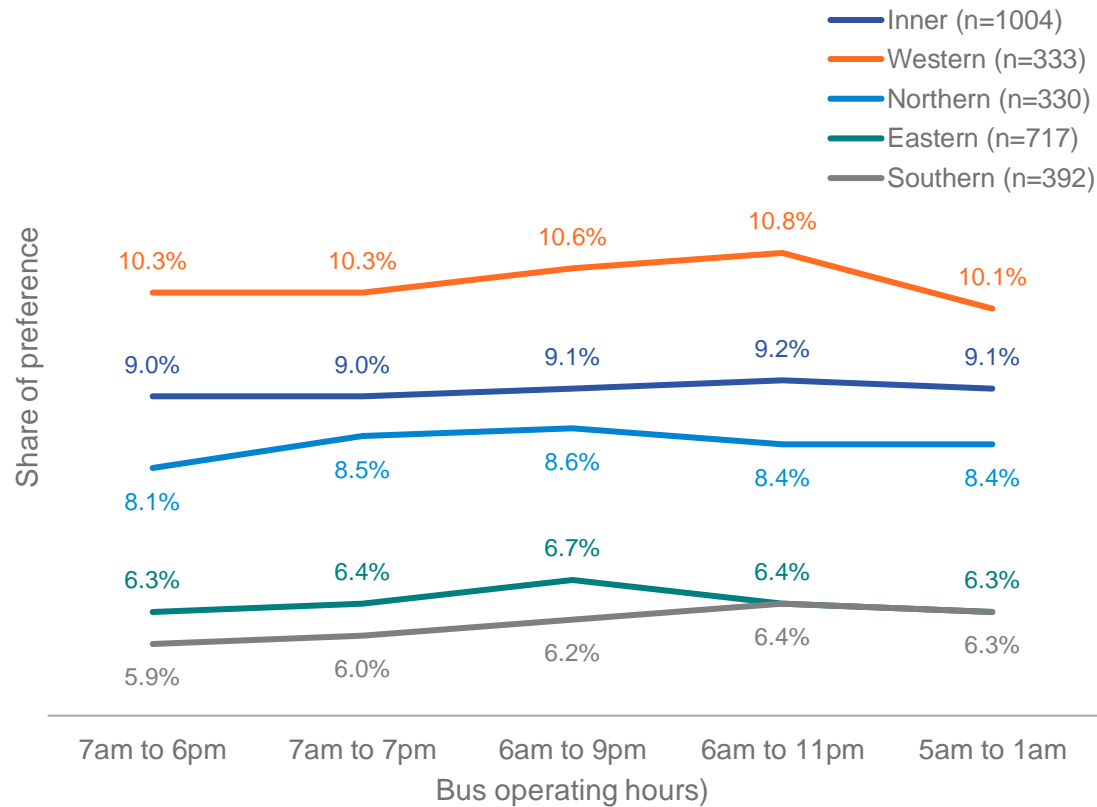
Region	Maximum share of preference	Minimum share of preference	Difference between maximum and minimum
Inner	9.1%	8.9%	0.2%
Western	10.6%	10.1%	0.5%
Northern	8.6%	8.1%	0.5%
Eastern	6.8%	6.5%	0.3%
Southern	6.3%	5.7%	0.6%
Northern Growth	9.7%	9.1%	0.6%
Western Growth	8.2%	7.8%	0.4%
Southern Growth	7.1%	6.7%	0.4%

All attributes other than weekday and weekend bus service operating hours were kept constant.



# Inner Melbourne work commuters were the least sensitive to bus service operating hour changes on weekdays

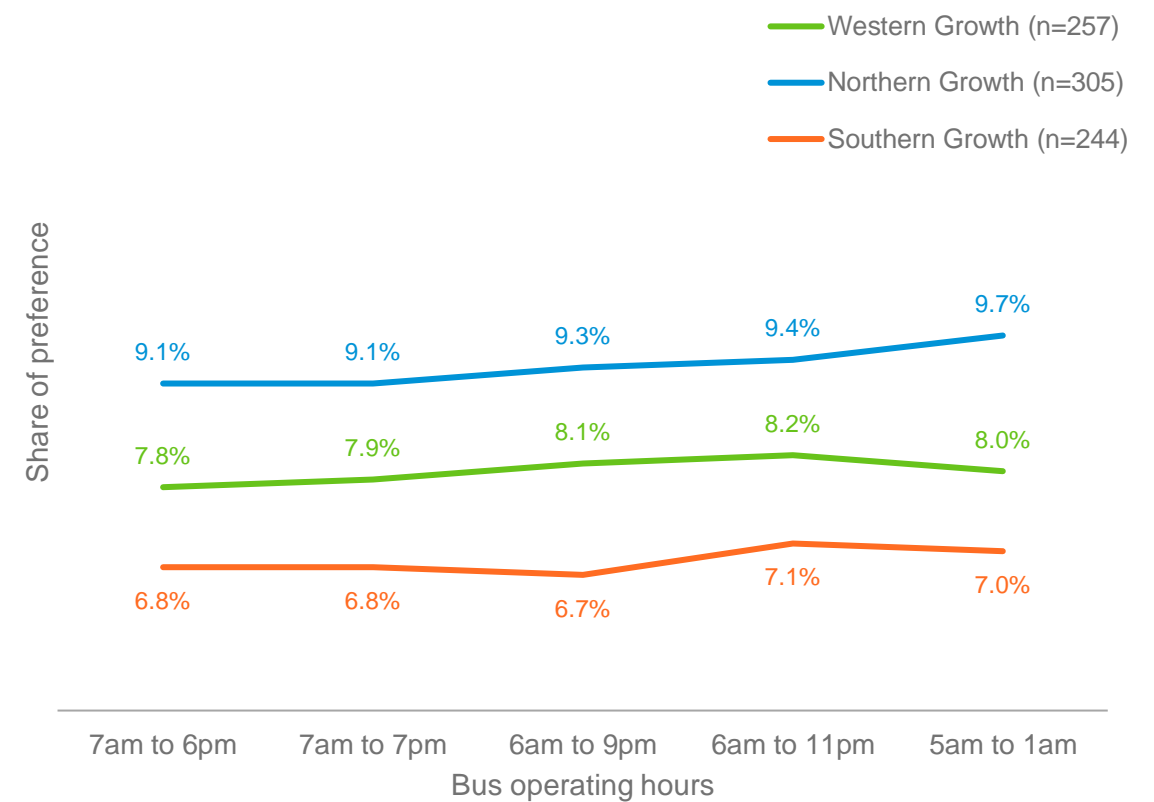
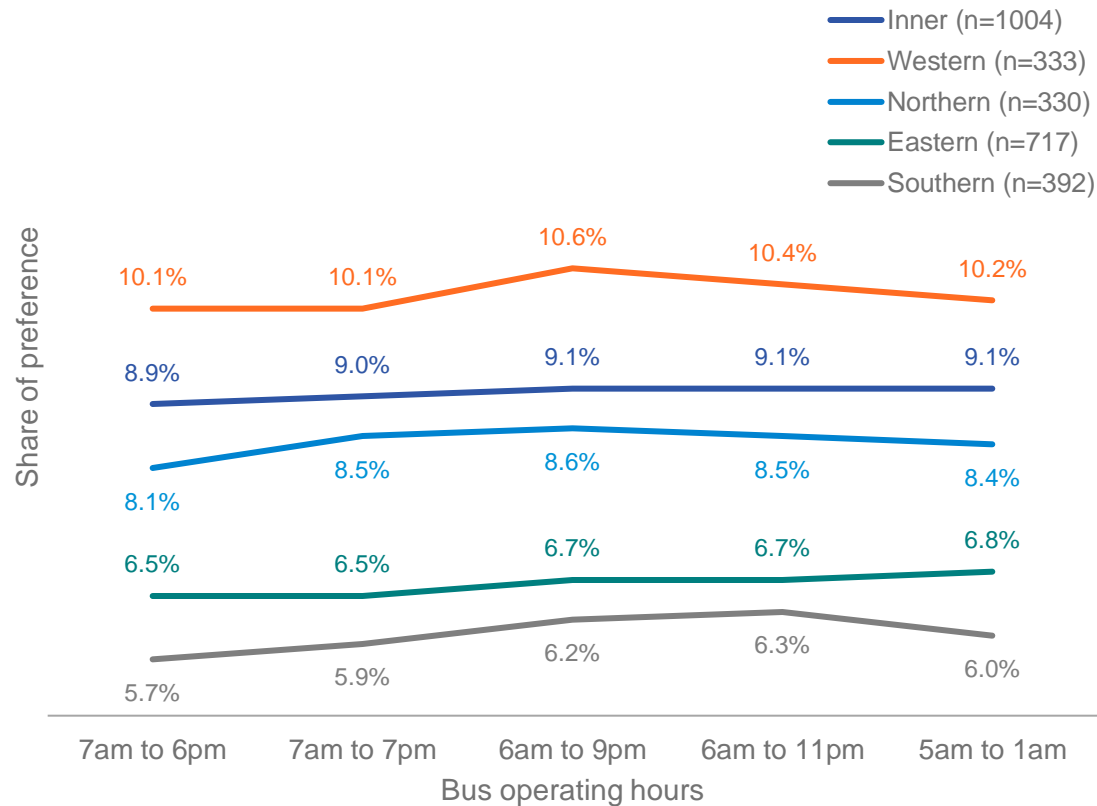
## Appeal of operating hours by region – weekdays



All attributes other than weekday bus service operating hours were kept constant.

# Inner city commuters were also the least sensitive to changes in bus operating hours for work travel on weekends

## Appeal of operating hours by region – weekends



All attributes other than weekend bus service operating hours were kept constant.

# Impact of frequency of services for study purposes – weekdays and weekends

The charts on the next slides show share of preference by frequency of bus services (service comes every 5 minutes, 10 minutes, 15 minutes, etc), and by region, for those travelling for education on weekday and weekend bus services respectively.

Naturally, share of preference declines for all regions as frequency declines (i.e. number of minutes between services increases).

There is very low sensitivity to changes in frequency of services among students, with less than 1% difference in share of preference across all regions across all frequency options.

The key standout was for students in the Western region, who tended to be more sensitive to changes in bus service frequency on weekends – although even here the change in share of preference between buses running every 5 minutes and every hour was only 0.8%.

## Sensitivity of different regions to changed in bus service frequency (study travel)

### Share of preference by frequency of weekday services

Region	Maximum share of preference	Minimum share of preference	Difference between maximum and minimum
Inner	3.3%	2.5%	0.8%
Western	4.9%	4.4%	0.5%
Northern	3.0%	2.2%	0.8%
Eastern	2.3%	1.7%	0.6%
Southern	2.1%	1.5%	0.6%
Northern Growth	2.3%	2.0%	0.3%
Western Growth	2.0%	1.7%	0.3%
Southern Growth	2.5%	1.9%	0.6%

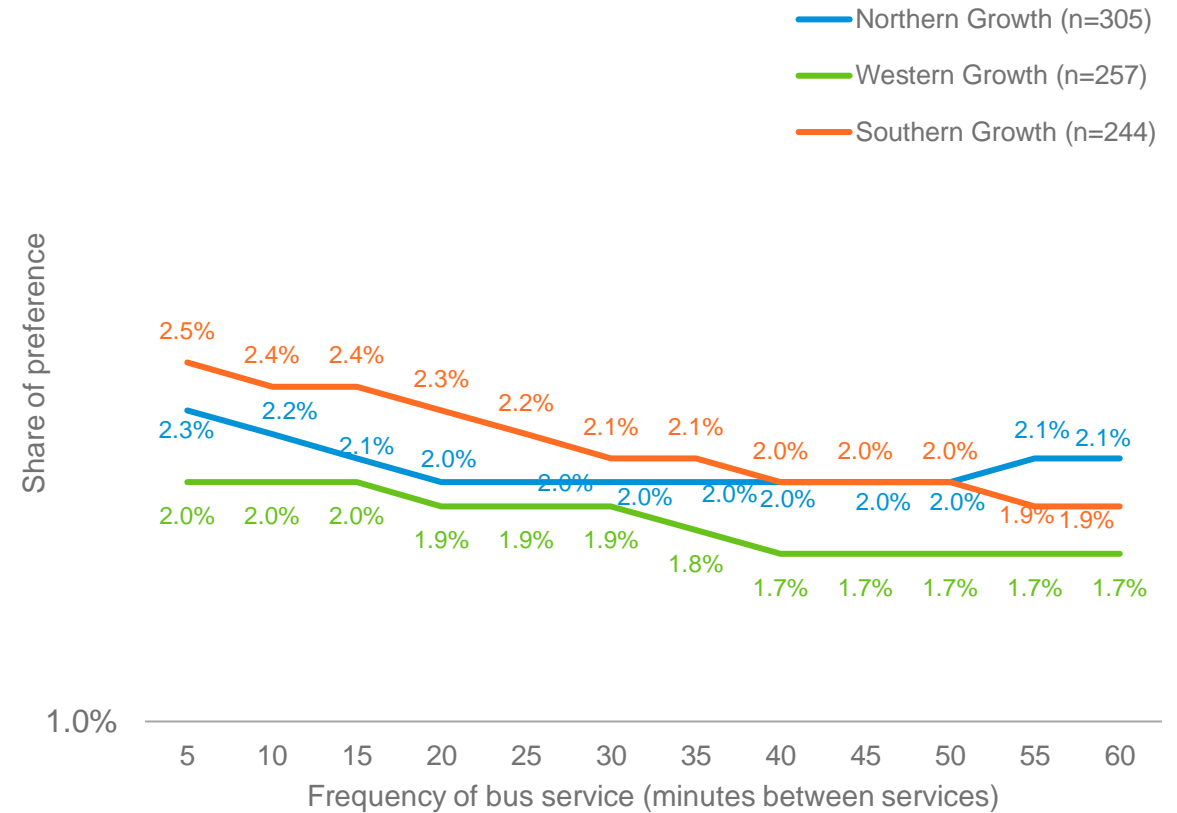
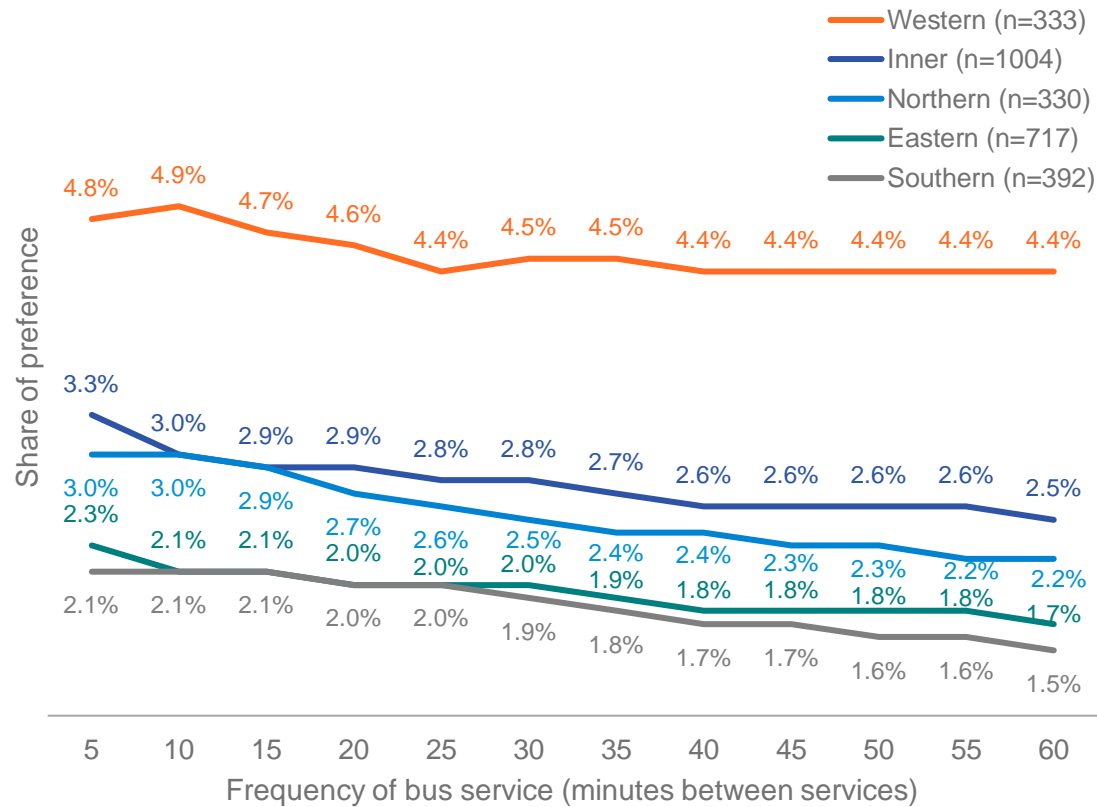
### Share of preference by frequency of weekend services

Region	Maximum share of preference	Minimum share of preference	Difference between maximum and minimum
Inner	3.0%	2.7%	0.3%
Western	5.1%	4.3%	0.8%
Northern	2.6%	2.5%	0.1%
Eastern	2.3%	1.9%	0.4%
Southern	2.2%	1.8%	0.4%
Northern Growth	2.2%	2.0%	0.2%
Western Growth	2.1%	1.9%	0.2%
Southern Growth	2.6%	2.1%	0.5%

All attributes other than weekday and weekend bus service frequency respectively were kept constant.

# While there was preference for more frequent services, share of preference among students for bus services was only minimally impacted by frequency

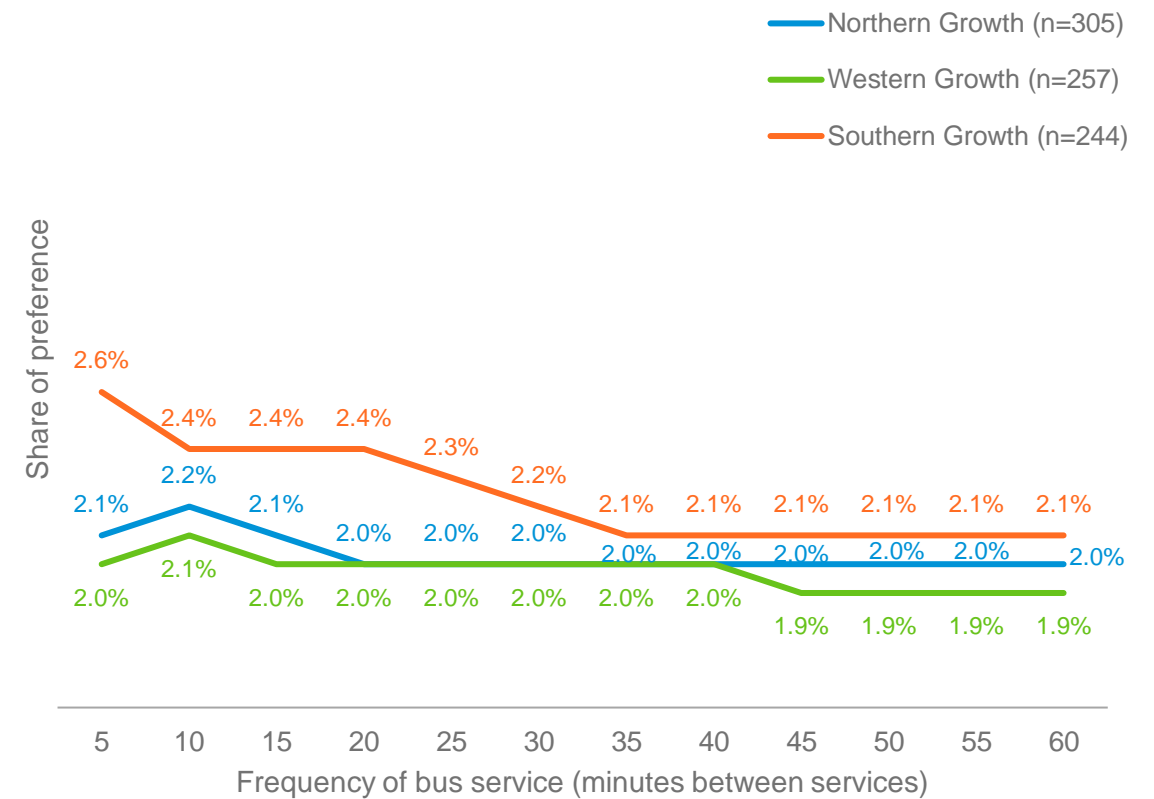
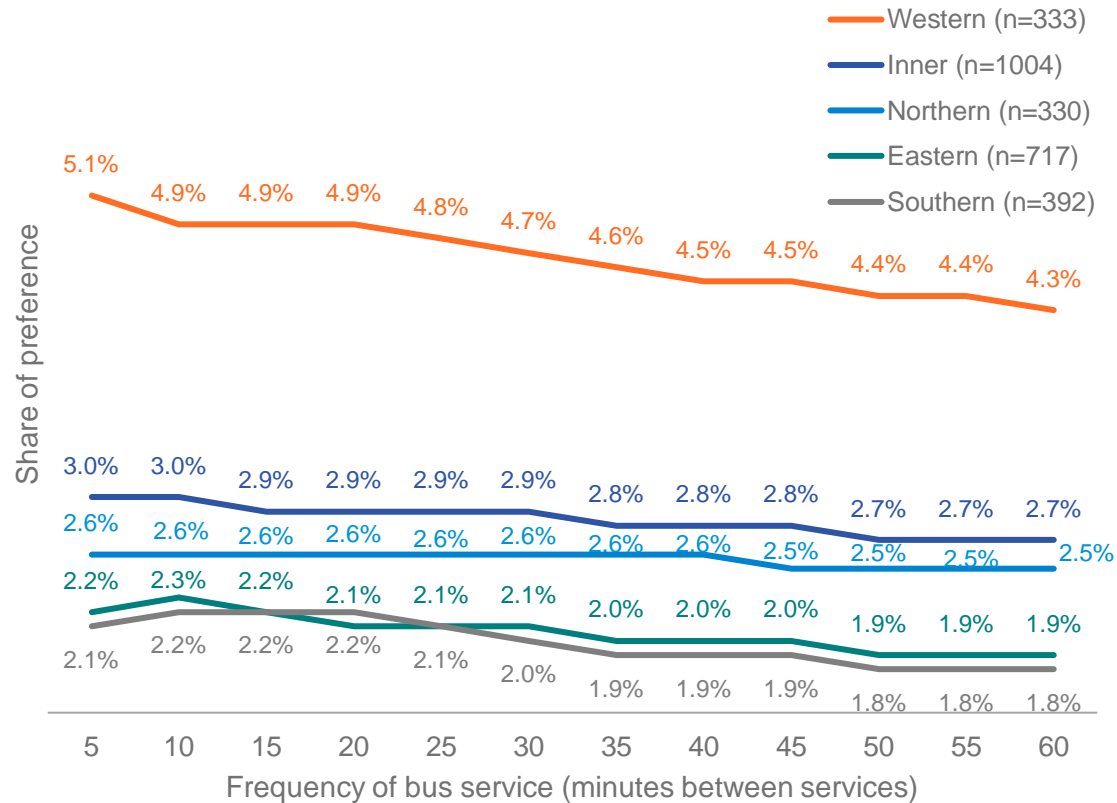
Appeal of frequency by region – weekdays



All attributes other than weekday bus service frequency were kept constant.

# Students in the Western region were most sensitive to changes in bus service frequency on weekends

## Appeal of frequency by region – weekends



All attributes other than weekend bus service frequency were kept constant.

# Impact of bus service operating hours for study purposes – weekdays and weekends

## Sensitivity of different regions to changed in bus service operating hours (study travel)

The charts on the next slides show share of preference by different operating hours for bus services and by region, for those travelling to education on weekday and weekend bus services respectively.

Changes in operating hours have much less impact on traveller preferences than do frequency of bus services. The range of operating hours we considered only make a maximum of 0.3% to share of preference (in the Southern Growth region on weekdays and the Western Growth region on weekends).

### Share of preference by weekday operating hours

Region	Maximum share of preference	Minimum share of preference	Difference between maximum and minimum
Inner	2.8%	2.7%	0.1%
Western	4.5%	4.4%	0.1%
Northern	2.5%	2.4%	0.1%
Eastern	2.0%	1.9%	0.1%
Southern	1.9%	1.8%	0.1%
Northern Growth	2.1%	1.9%	0.2%
Western Growth	1.9%	1.7%	0.2%
Southern Growth	2.3%	2.0%	0.3%

### Share of preference by weekend operating hours

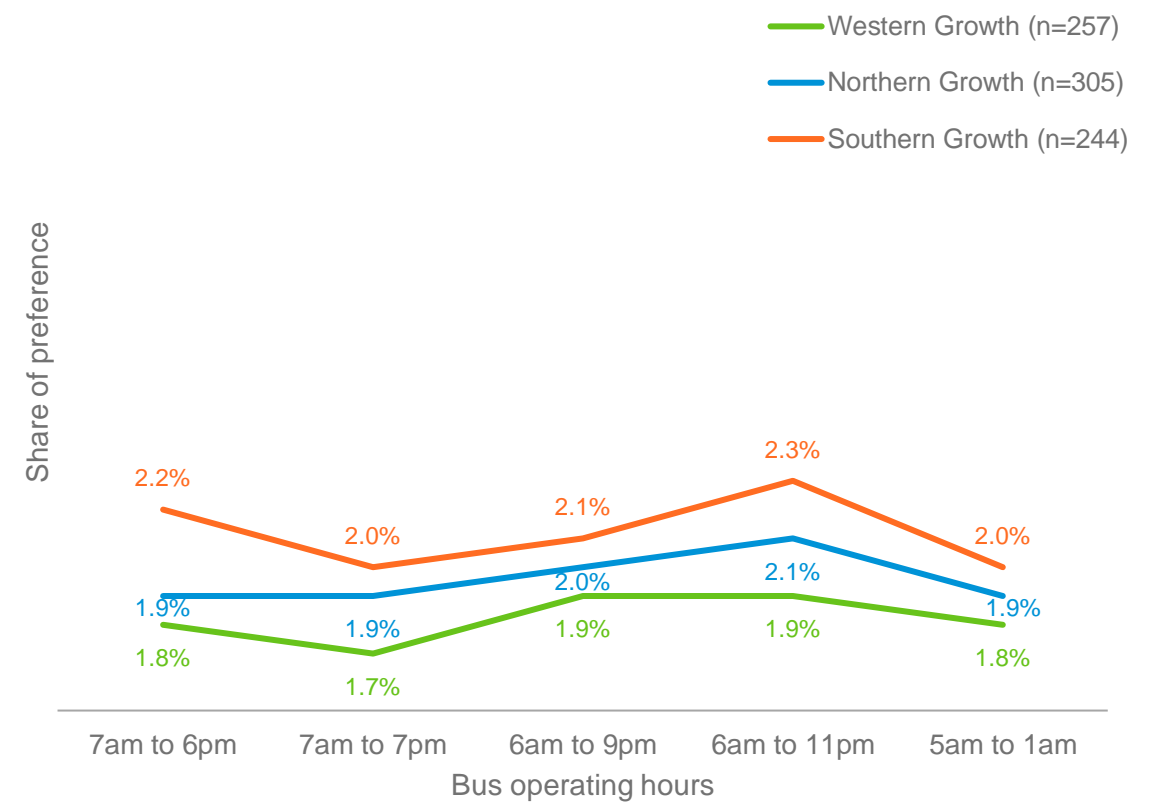
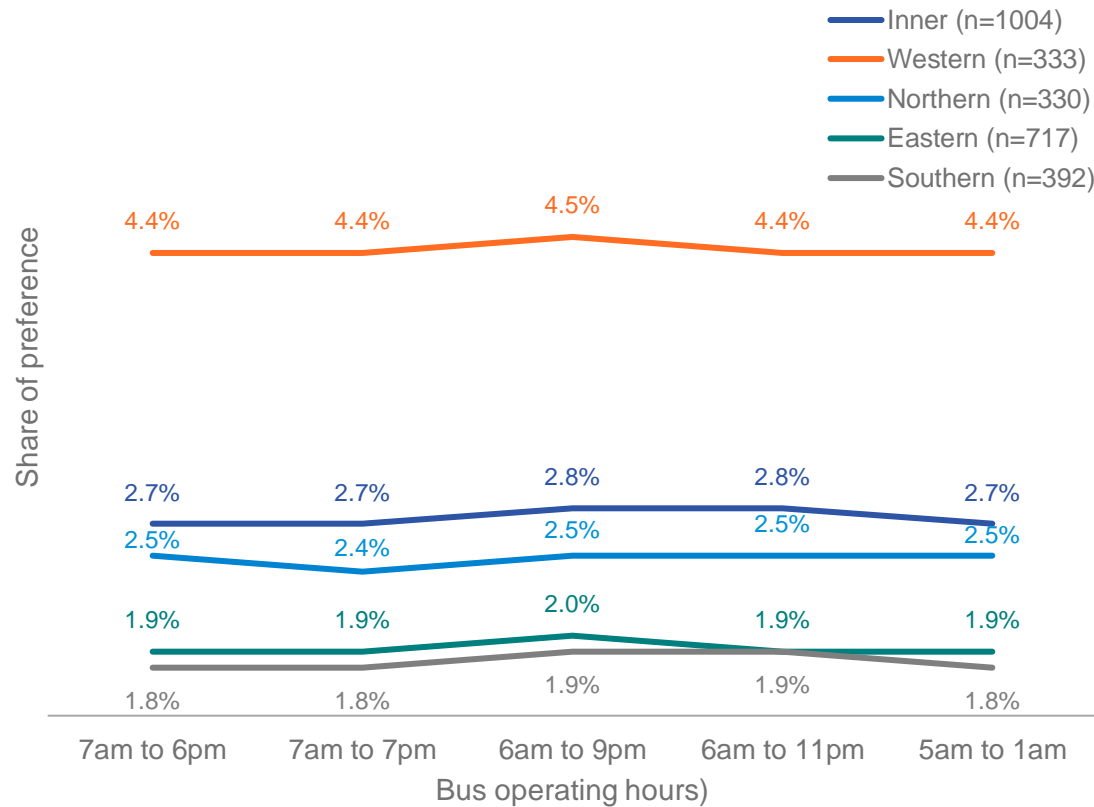
Region	Maximum share of preference	Minimum share of preference	Difference between maximum and minimum
Inner	2.8%	2.6%	0.2%
Western	4.5%	4.3%	0.2%
Northern	2.5%	2.3%	0.2%
Eastern	2.0%	1.9%	0.1%
Southern	1.9%	1.7%	0.2%
Northern Growth	2.1%	2.0%	0.1%
Western Growth	2.2%	1.9%	0.3%
Southern Growth	2.2%	2.0%	0.2%

All attributes other than weekday and weekend bus service operating hours were kept constant.



# Students in growth suburbs tended to prefer 6am to 11pm operating hours, though only marginally

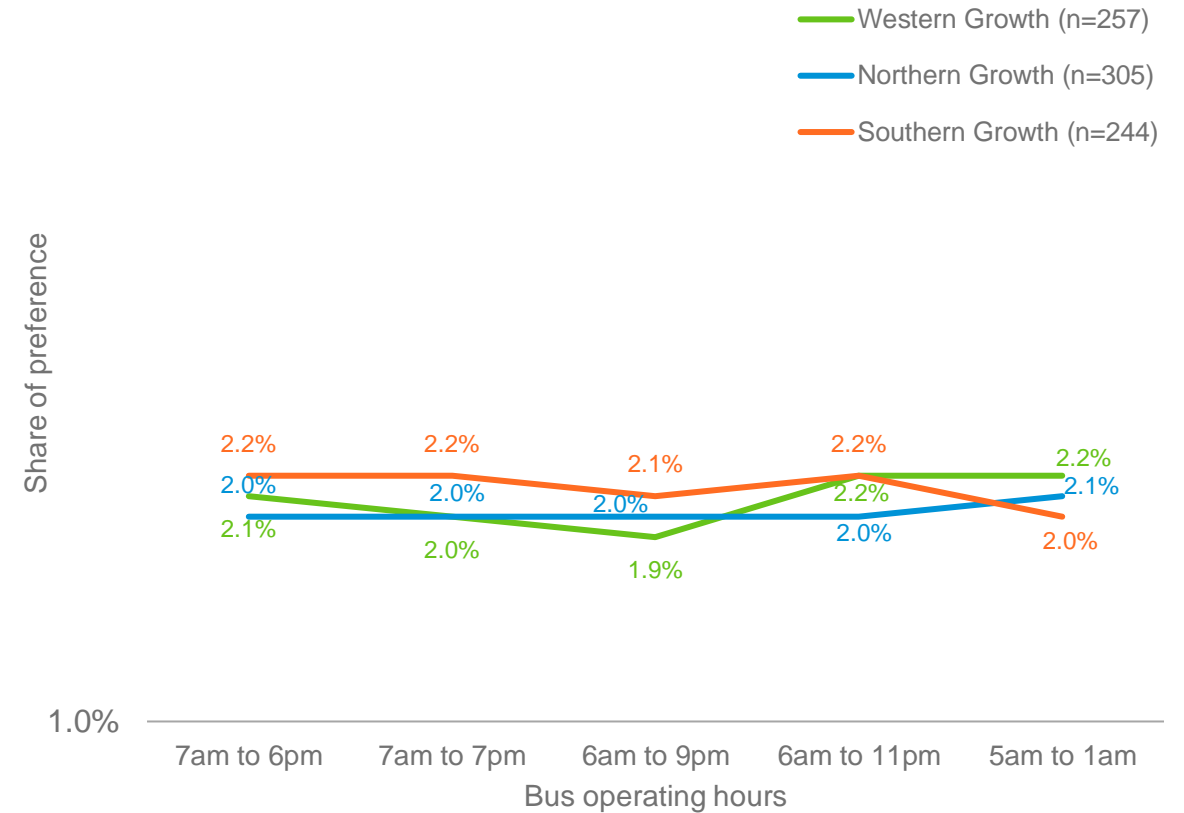
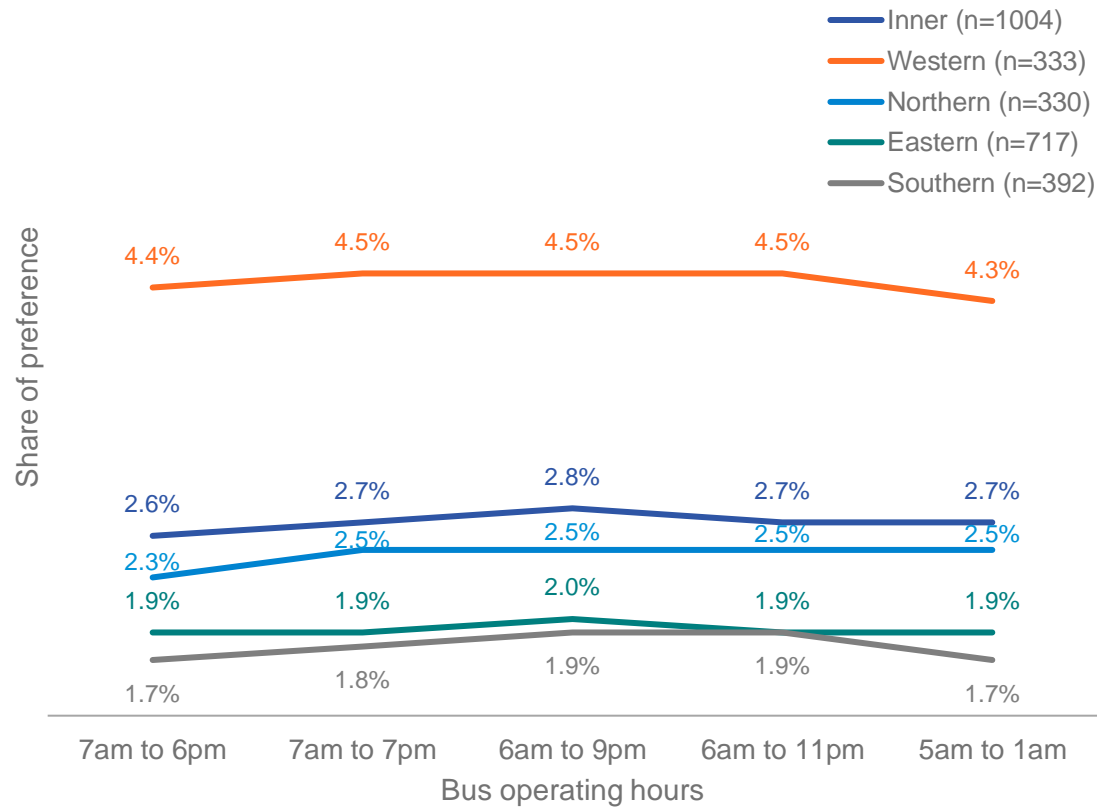
## Appeal of operating hours by region – weekdays



All attributes other than weekday bus service operating hours were kept constant.

# There was little differentiation between different bus operating hours for students across all regions

## Appeal of operating hours by region – weekends



All attributes other than weekend bus service operating hours were kept constant.

# Strong concessions would have to be made to encourage travellers to transfer between buses

## Degree to which journey time would need to be shortened to offset having to transfer between buses

Destination type	Efficiency in journey time required (assumes regular journey time is 2 times as long as current)
Work	>38%
Education	20%
Shopping / appointments	35%
Leisure / recreation	35%

Destination type	Efficiency in journey time required (assumes regular journey time is 2.5 times as long as current)
Work	36%
Education	20%
Shopping / appointments	38%
Leisure / recreation	38%

## Degree to which weekday bus service frequency would have to be increased to offset having to transfer between buses

Destination type	Frequency of services required (assumes current frequency is every 30 minutes)
Work	< every 5 mins
Education	Every 12 mins
Shopping / appointments	< every 5 mins
Leisure / recreation	< every 5 mins

Destination type	Frequency of services required (assumes current frequency is every 45 minutes)
Work	Every 10 mins
Education	Every 17 mins
Shopping / appointments	Every 6 mins
Leisure / recreation	Every 7 mins

## Degree to which weekend bus service frequency would have to be increased to offset having to transfer between buses

Destination type	Frequency of services required (assumes current frequency is every 45 minutes)
Work	< every 5 mins
Education	Every 10 mins
Shopping / appointments	< every 5 mins
Leisure / recreation	< every 5 mins

Destination type	Frequency of services required (assumes current frequency is every 60 minutes)
Work	< every 5 mins
Education	Every 16 mins
Shopping / appointments	< every 5 mins
Leisure / recreation	< every 5 mins

Travellers were reluctant to take connecting services between buses, to the extent that:

- Those travelling for purposes other than education expected at least a 35% reduction in journey time to consider doing so. Among students a 20% reduction in journey time is needed.
- A weekday bus service running every 30 minutes would need to run more frequently than every 5 minutes to compensate for having to transfer (with the exception of students who would require the service to run every 12 minutes).
- A weekend bus service running every 60 minutes would need to run more frequently than every 5 minutes to compensate for having to transfer (with the exception of students who would require the service to run every 16 minutes).

All attributes other than the variables in each table above (i.e. journey time, weekday bus service frequency, and weekend bus service frequency) were kept constant.

# Willingness to pay

## Calculating willingness to pay

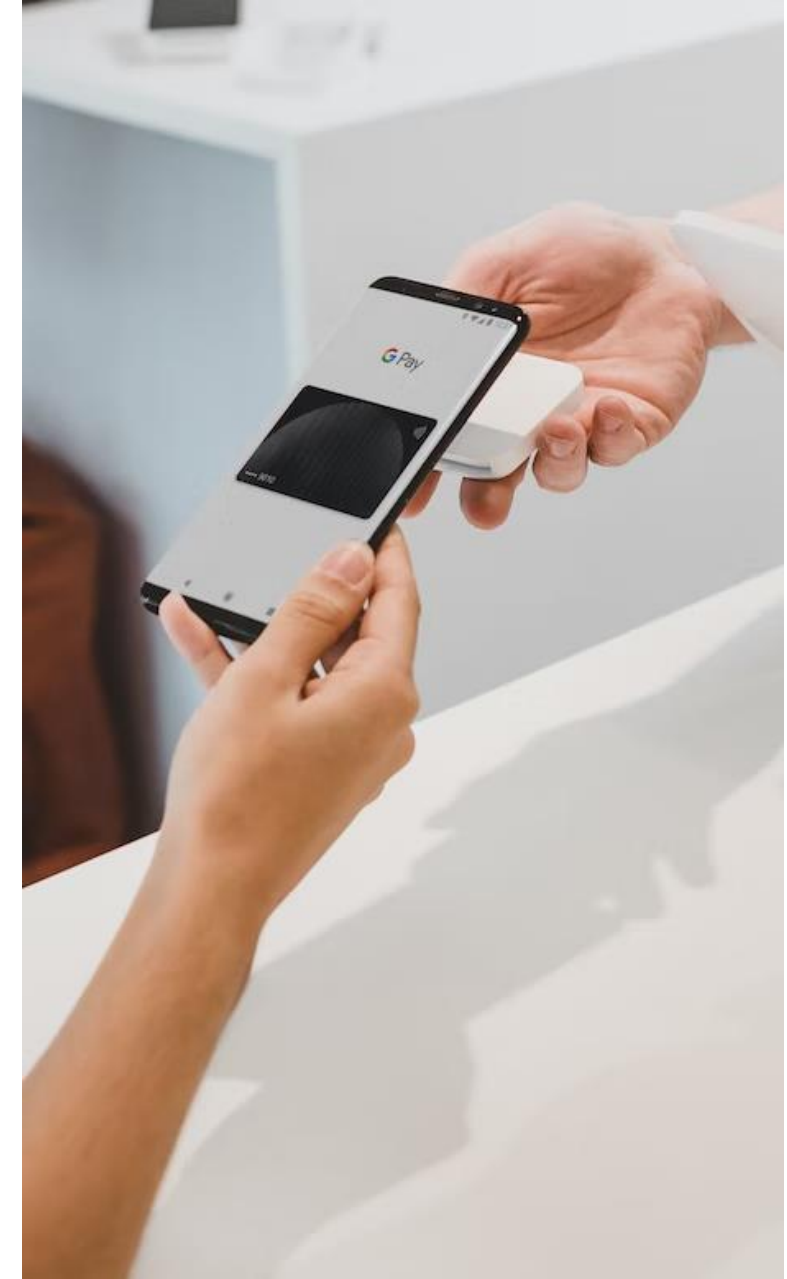
Willingness to pay (WTP) was calculated using the Generalised WTP method available in Sawtooth Lighthouse. This approach assumes:

- The reference level for the attribute that WTP is being calculated for is set at the least preferred attribute (for example, when estimating WTP for frequency of bus services, the least appealing frequency was a bus every 60 minutes, so this was set as the reference point). All WTP to pay estimates are in relation to that reference level.
- It was calculated assuming three hypothetical competitors, across 1,000 random draws of competitor product attribute specifications.
- Separate WTP estimates were calculated for the different destination types (work, education, shopping/appointments, and leisure/recreation).

All other attributes (i.e. those other than destination, fare, and the attribute for which WTP was being modelled) were set at the standard simulation settings:

- Bus service every 30 minutes on weekdays
- Bus service every 45 minutes on weekends
- Operating hours 6am – 9pm weekdays and weekends
- 10 minute walk to the bus stop
- No connecting bus required (a single bus takes you to your destination)
- Seating only provided at bus stops (no lighting or shelter)
- Can always get a seat on the bus
- Journey time set to 100% longer than usual
- No real-time bus information available
- Bus typically 1-4 minutes late/early

Note that **willingness to pay estimates are NOT additive** – if a traveller is prepared to pay an additional \$1 for one feature and an additional \$1 for another feature, this does not imply they would be prepared to pay an additional \$2 for both features. If WTP is desired for a combination of features, this need to be estimated in a simulation that takes both features into account.



# WTP for shorter journey times and greater reliability

Overall, travellers were most prepared to pay for shorter journey times and more frequent weekday services (see next page). There was also some preparedness to pay additional for greater reliability in services and for more frequent services on weekends (see next page) and to avoid taking a connecting bus (page 89).

Preparedness to pay for bus stop facilities or real-time bus information was more modest although

There was very little preparedness to pay more for extended service hours with a maximum of 20 cents to expand hours from 7am to 7pm (least preferred option) to 6am to 9pm or 6am to 11pm (most preferred options).

Note that for educational purposes, the WTP analysis suggests students would be prepared to pay 10 cents extra for the privilege of reducing operating hours from 7am to 7pm to 7am to 6pm. Due to the low incidence of take-up of this option (only 2.2% of the sample), it is likely that this is simply due to the margin of error, and that the true value is likely to be zero.

## Willingness to pay for shorter journey times\*

Region	Work	Education	Shopping / appointments	Leisure / recreation
25% longer	\$2.90	\$2.10	\$3.10	\$2.80
50% longer	\$1.80	\$1.30	\$2.00	\$1.90
100% longer	\$0.70	\$0.60	\$0.80	\$0.80
150% longer	\$0.20	\$0.10	\$0.30	\$0.30
200% longer	N/A (Reference Level)			

\*Note: Journey times were presented as all being longer than the current typical journey time for that destination type, and all WTP are calculated in relation to a 200% longer journey time, so this indicates willingness to avoid longer journey times rather than a reduction in journey time

## Willingness to pay for greater reliability

Region	Work	Education	Shopping / appointments	Leisure / recreation
Always on time	\$1.00	\$0.90	\$1.10	\$1.00
Typically 1-4 minutes late or early	\$0.40	\$0.40	\$0.40	\$0.40
Typically 5-10 minutes late or early	N/A (Reference Level)			

# WTP for extended service hours and more frequent services

## Willingness to pay for extended service hours

### Weekdays

Service hours	Work	Education	Shopping / appointments	Leisure / recreation
7am – 6pm	\$0.00	\$0.10	\$0.00	\$0.00
6am – 9pm	\$0.10	\$0.20	\$0.10	\$0.10
6am – 11pm	\$0.10	\$0.20	\$0.20	\$0.20
5am – 1am	\$0.10	\$0.20	\$0.00	\$0.10
7am – 7pm	N/A (reference level)			

### Weekends

Service hours	Work	Education	Shopping / appointments	Leisure / recreation
7am – 6pm	\$0.00	\$0.10	\$0.00	\$0.00
6am – 9pm	\$0.20	\$0.20	\$0.10	\$0.20
6am – 11pm	\$0.20	\$0.20	\$0.20	\$0.20
5am – 1am	\$0.10	\$0.10	\$0.10	\$0.10
7am – 7pm	N/A (reference level)			

## Willingness to pay for more frequent services

### Weekdays

Frequency	Work	Education	Shopping / appointments	Leisure / recreation
Every 5 minutes	\$2.00	\$1.40	\$2.20	\$2.00
Every 10 minutes	\$1.60	\$1.10	\$1.80	\$1.60
Every 20 minutes	\$1.00	\$0.60	\$1.20	\$1.10
Every 30 minutes	\$0.80	\$0.40	\$0.90	\$0.80
Every 60 minutes	N/A (reference level)			

### Weekends

Frequency	Work	Education	Shopping / appointments	Leisure / recreation
Every 5 minutes	\$1.00	\$0.80	\$1.00	\$1.00
Every 10 minutes	\$0.90	\$0.70	\$0.90	\$0.90
Every 20 minutes	\$0.60	\$0.40	\$0.60	\$0.60
Every 30 minutes	\$0.40	\$0.30	\$0.50	\$0.40
Every 60 minutes	N/A (reference level)			



# WTP for having to take a connecting bus, real-time bus information, bus stop facilities, and less crowded buses

## Willingness to pay for taking a connecting bus

Region	Work	Education	Shopping / appointments	Leisure / recreation
Not required	\$1.20	\$0.50	\$1.50	\$1.30
Required	N/A (reference level)			

## Willingness to pay for bus stop facilities

Region	Work	Education	Shopping / appointments	Leisure / recreation
Lighting only provided	\$0.30	\$0.30	\$0.30	\$0.20
Seating only provided	\$0.30	\$0.40	\$0.40	\$0.30
Shelter and seating provided	\$0.50	\$0.50	\$0.70	\$0.60
Lighting, shelter and seating provided	\$0.80	\$0.70	\$0.90	\$0.80
No lighting, seating or shelter provided	N/A (reference level)			

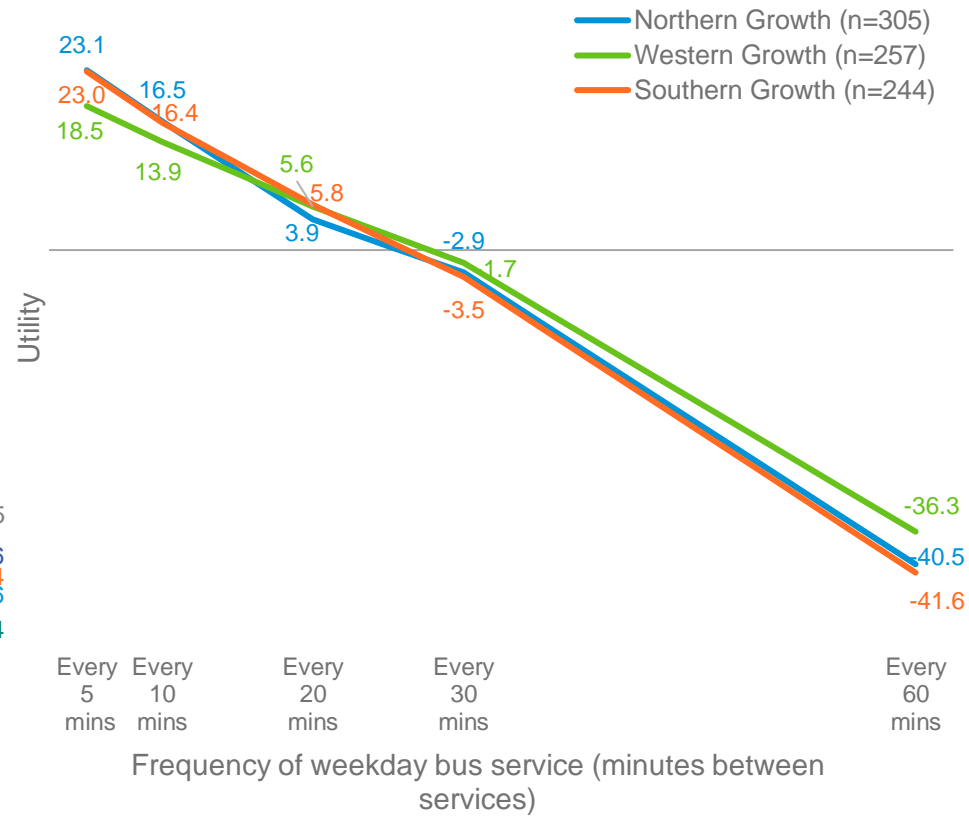
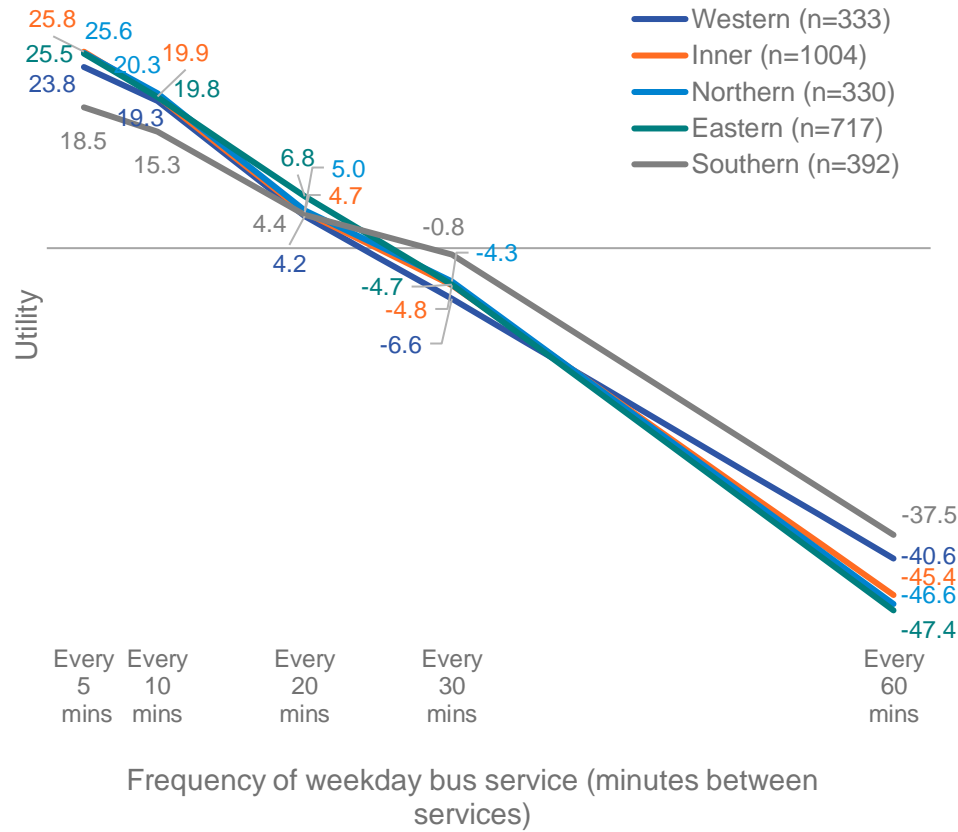
## Willingness to pay for real-time bus information

Region	Work	Education	Shopping / appointments	Leisure / recreation
Displayed on the bus	\$0.30	\$0.30	\$0.30	\$0.20
Displayed at the bus stop	\$0.40	\$0.20	\$0.40	\$0.40
Available through a phone app	\$0.60	\$0.50	\$0.60	\$0.60
Available on the bus, at the bus stop, and on a phone app	\$0.70	\$0.50	\$0.80	\$0.70
Not available	N/A (reference level)			

# Utilities by region

# Utility of weekday frequency of bus services dropped considerably between 10 to 20 minutes

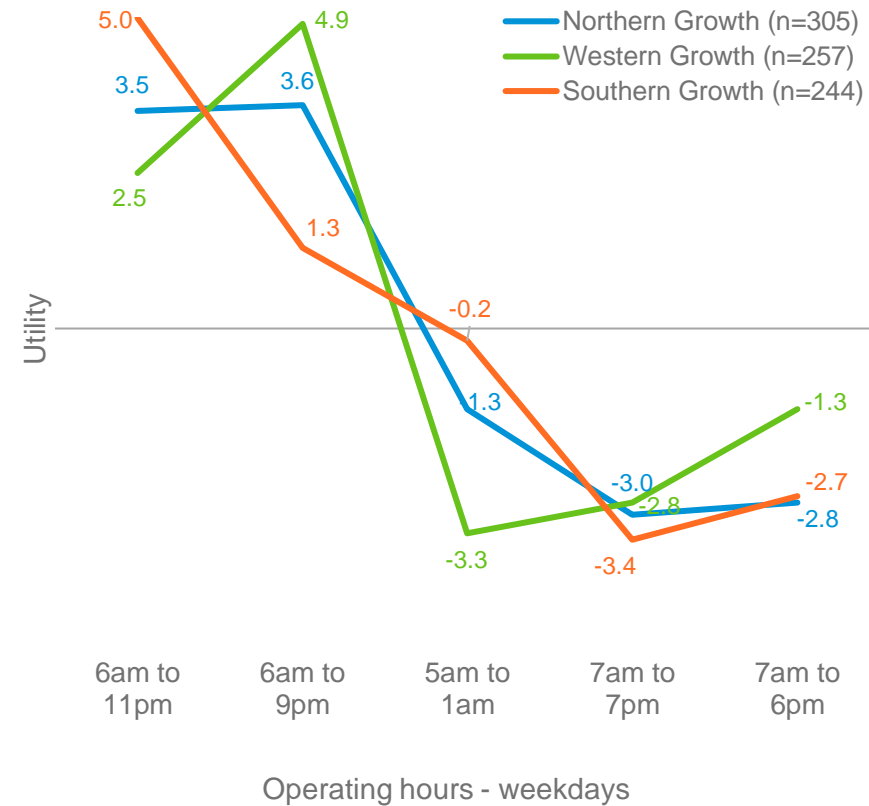
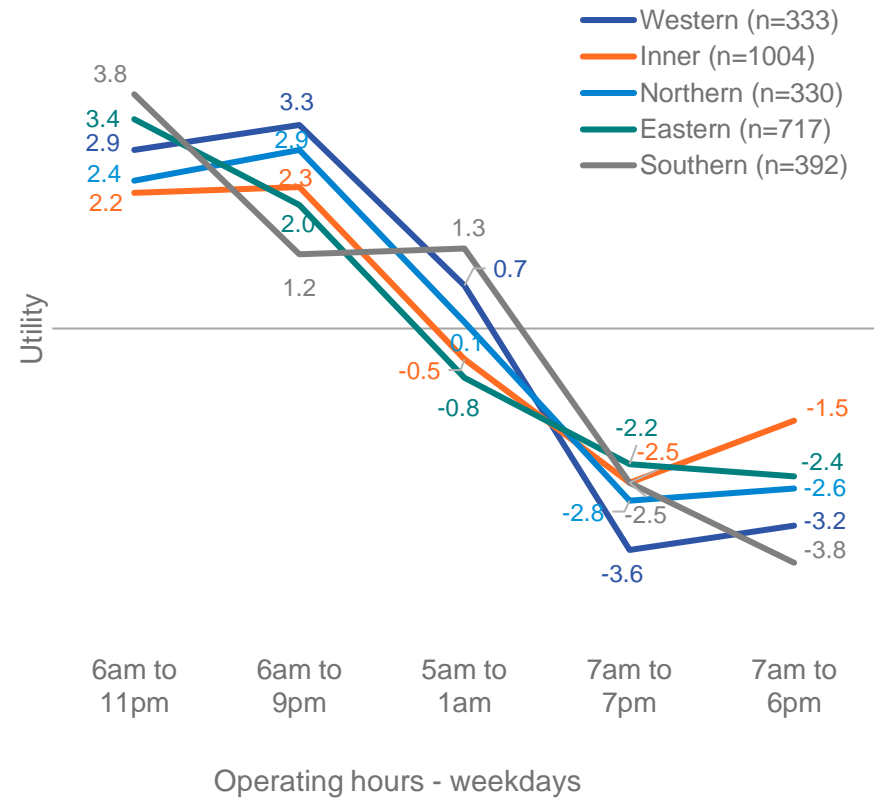
## Utility of frequency of services on weekdays



Utilities for weekday frequency of bus services tended to follow similar patterns across all regions.

# Utility of weekday operating hours highest for 6am to 9pm or 11pm – longer operating hours (e.g., 5am to 1am) do not necessarily enhance utility

## Utility of operating hours on weekdays

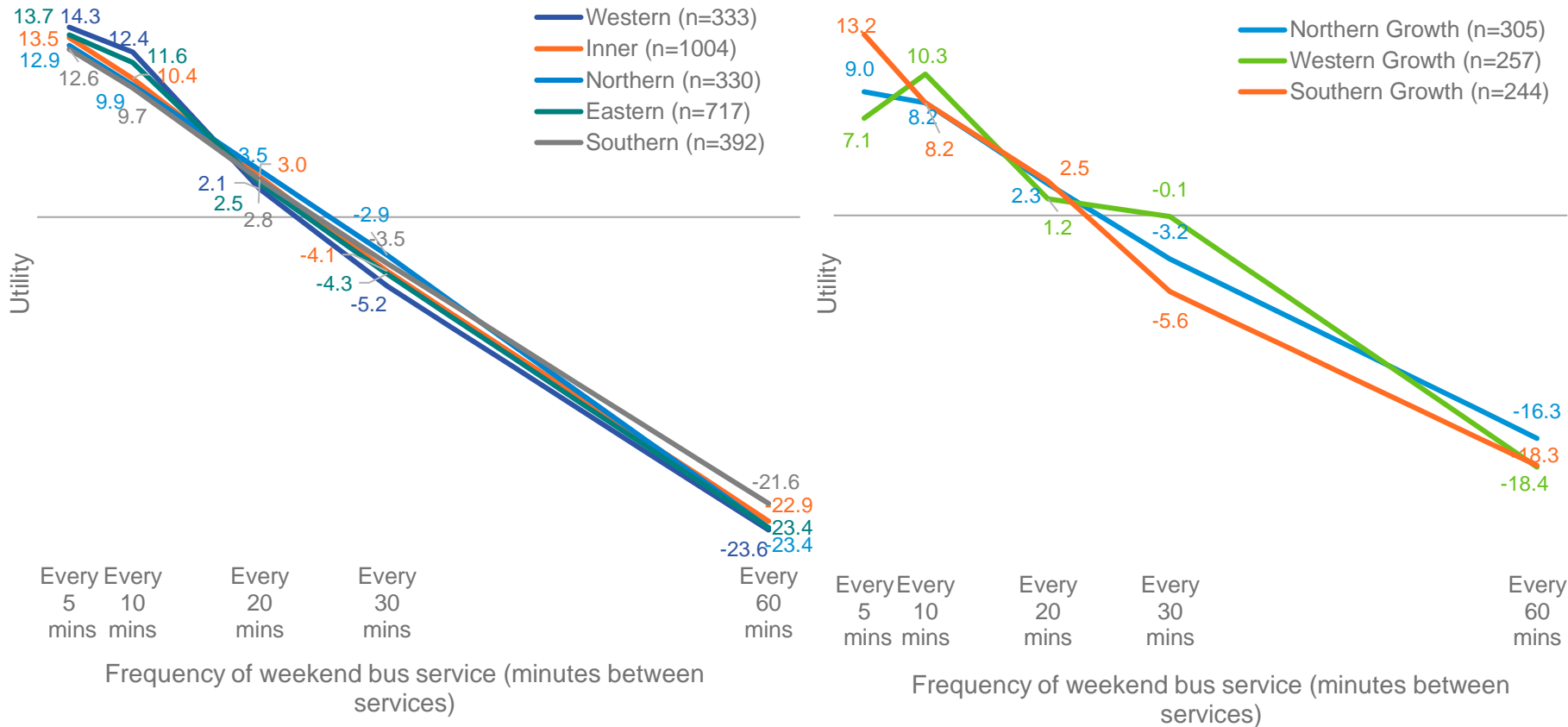


Utilities for weekday operating hours differed somewhat by region, particularly between the three growth regions. Those in the Western Growth region preferred 6am – 9pm operating hours to 6am – 11pm, whereas the reverse was observed in Southern Growth, and there was little difference in utility between the two for Western Growth.

The Western and Northern regions also preferred 6am – 9pm operating hours over 6am – 11pm, while Southern and Eastern regions held the opposite preference, and Inner showed little discrimination between the two.

# Utility of weekend frequency of bus services dropped between 10 to 20 minutes, and 20 to 30 minutes

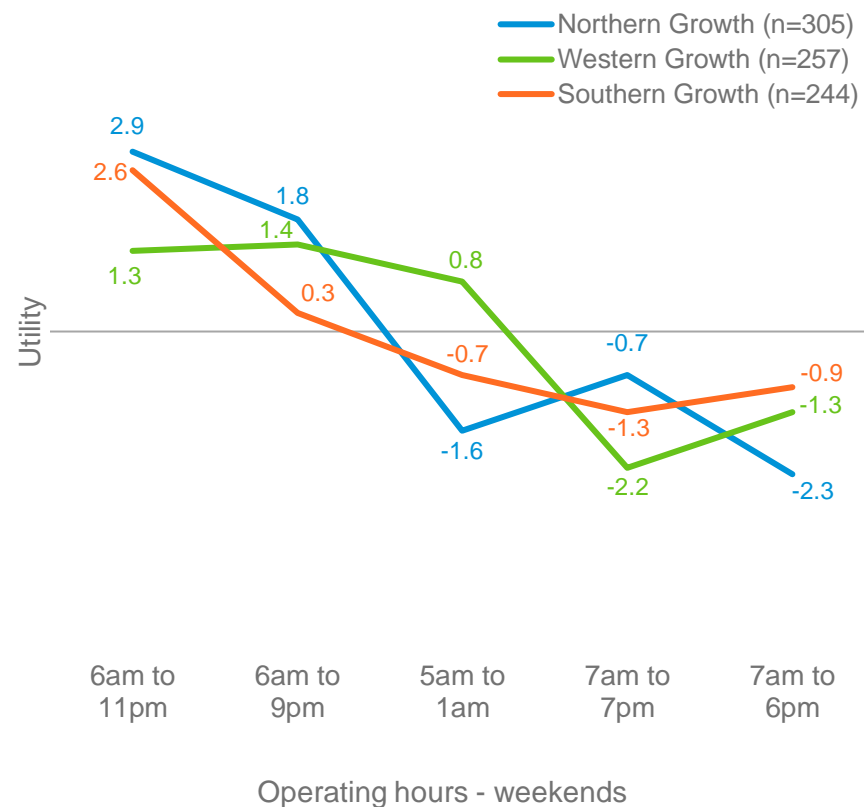
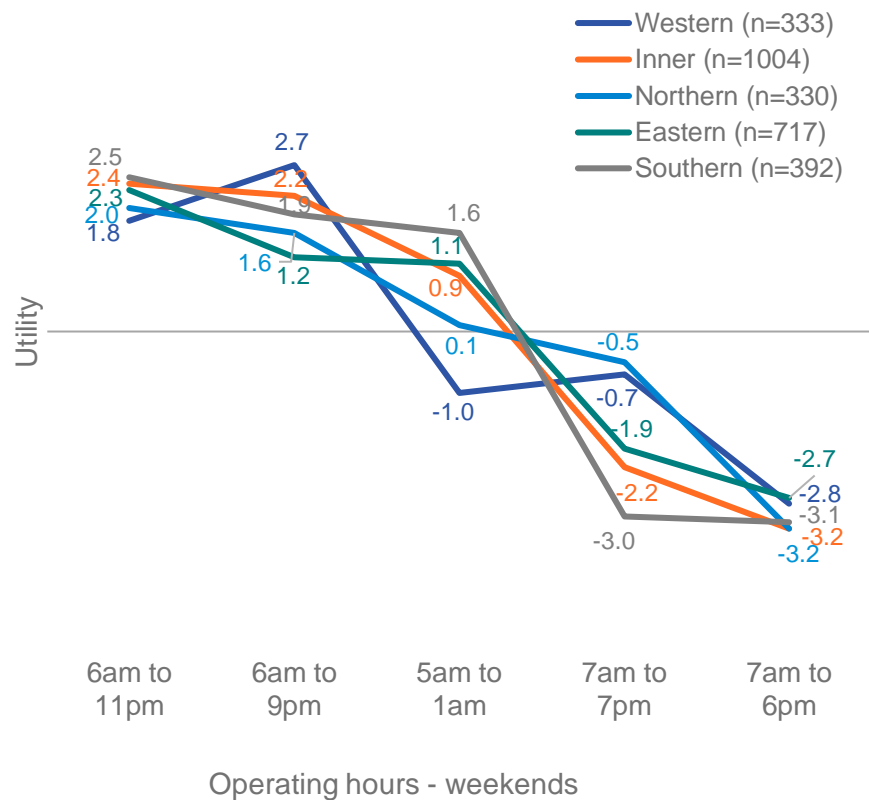
## Utility of frequency of services on weekends



Patterns of preference tended to be similar across regions with respect to frequency of bus services, with the exception of Western Growth, where a frequency of 10 minute services was somewhat preferred over services every 5 minutes.

# Utility of weekend operating hours was highest for 6am to 9pm or 11pm

## Utility of operating hours on weekends

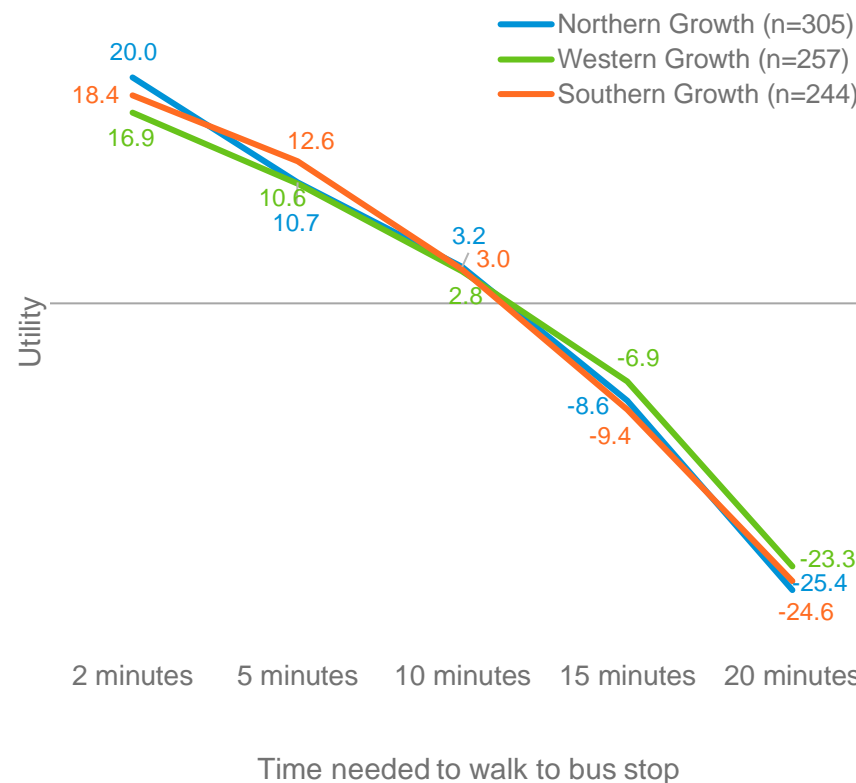
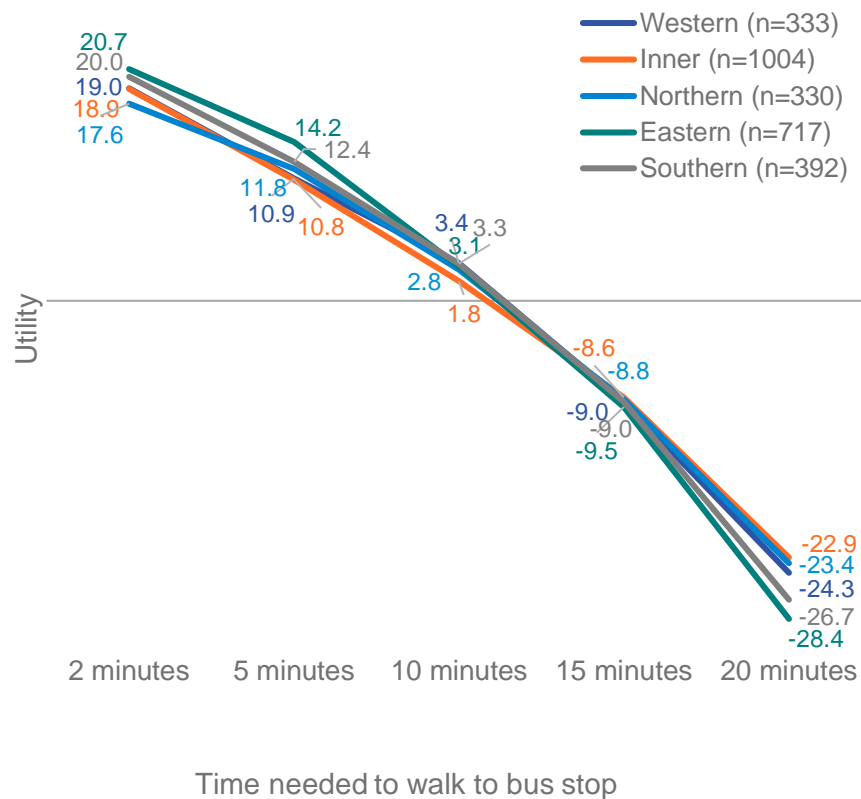


Western and Northern Growth regions both preferred 7am – 7pm weekend operating hours over 5am – 1am hours, while all other regions held the opposite preference. Western and Western Growth were also the only regions not to prefer 6am – 11pm operating hours over 6am – 9pm.



# Utility of walk time to the bus stop dropped gradually as it increases, with the biggest drop above 15 minutes

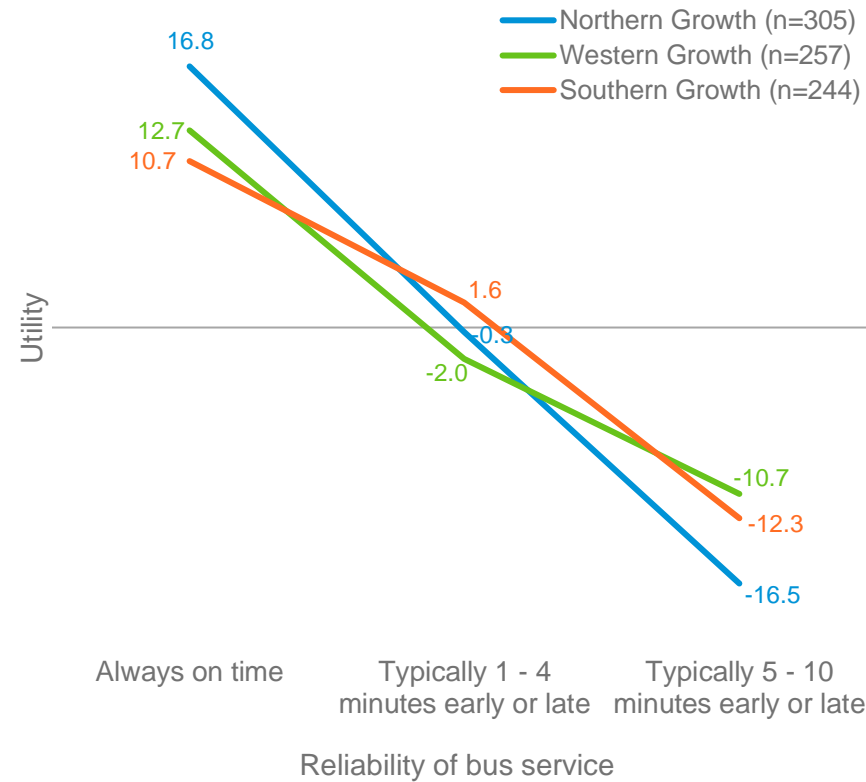
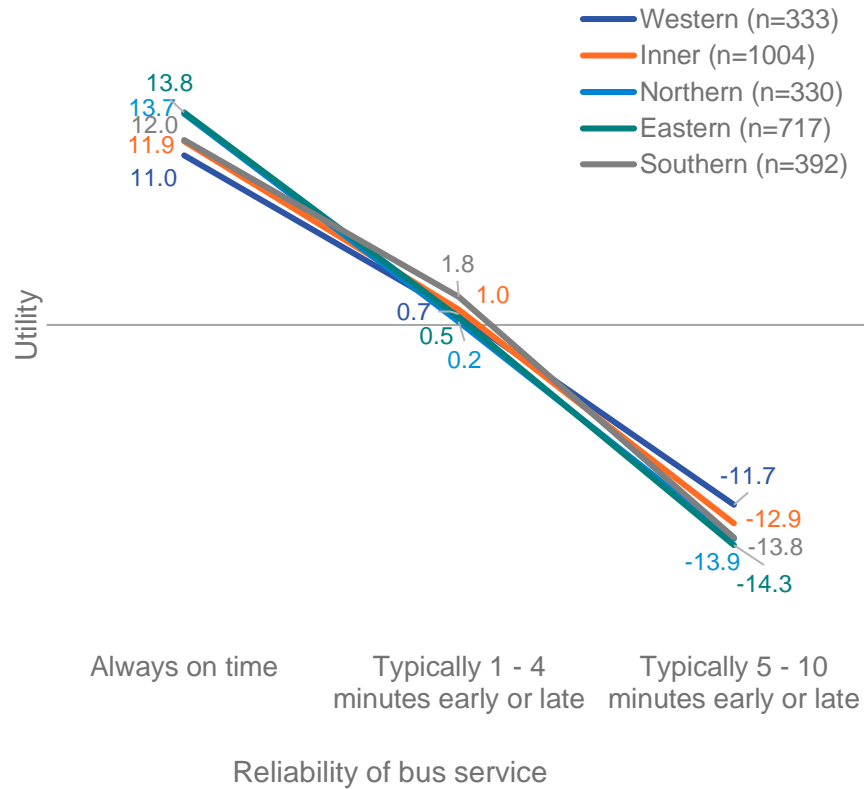
## Utility of time needed to walk to bus stop



Patterns of preference tended to be similar across regions with respect to the utilities related to time to walk to the bus stop.

# The utility of bus service reliability dropped considerably at 1-4 minutes early or late; and at a similar rate if 5-10 mins early/late

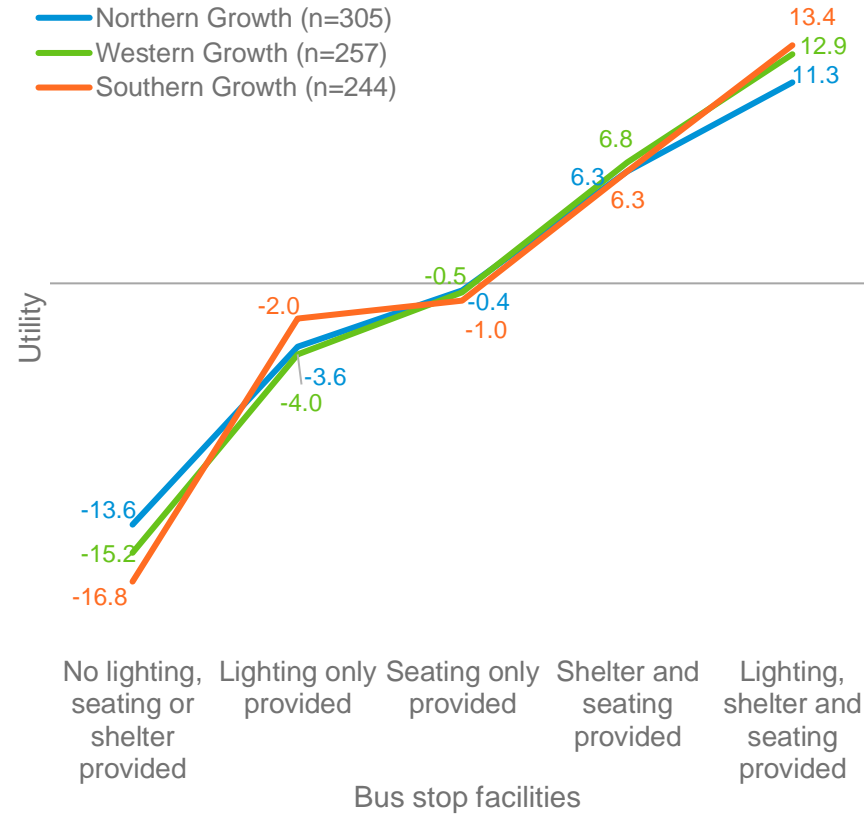
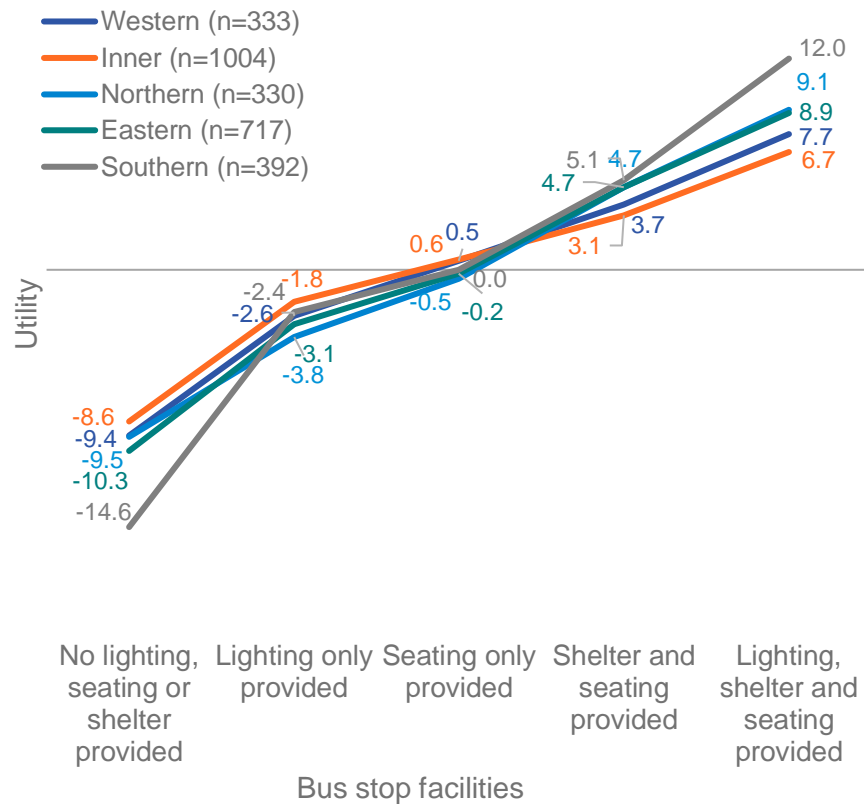
## Utility of reliability of bus service



Patterns of preference tended to be similar across regions with respect to bus reliability.

# While all regions preferred to have as many bus stop amenities as possible, if they could only have one, seating was preferred over lighting

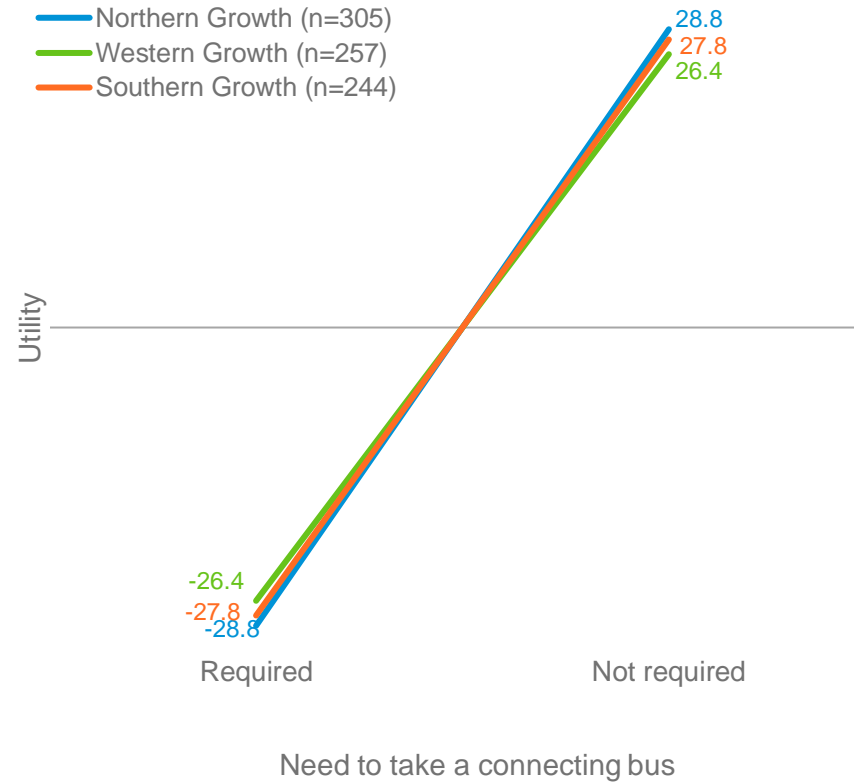
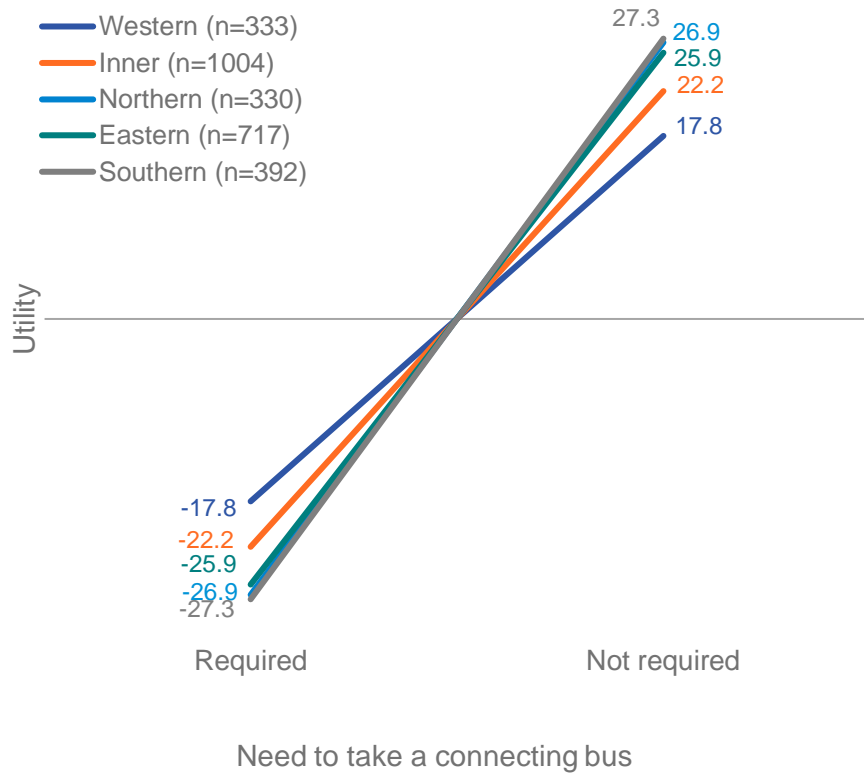
## Utility of bus stop facilities



Patterns of preference tended to be similar across regions with respect to bus stop amenity preferences, with the exception of Western Growth where there was little differentiation between having lighting only or seating only.

# All regions expressed a strong preference to not have to take connecting buses

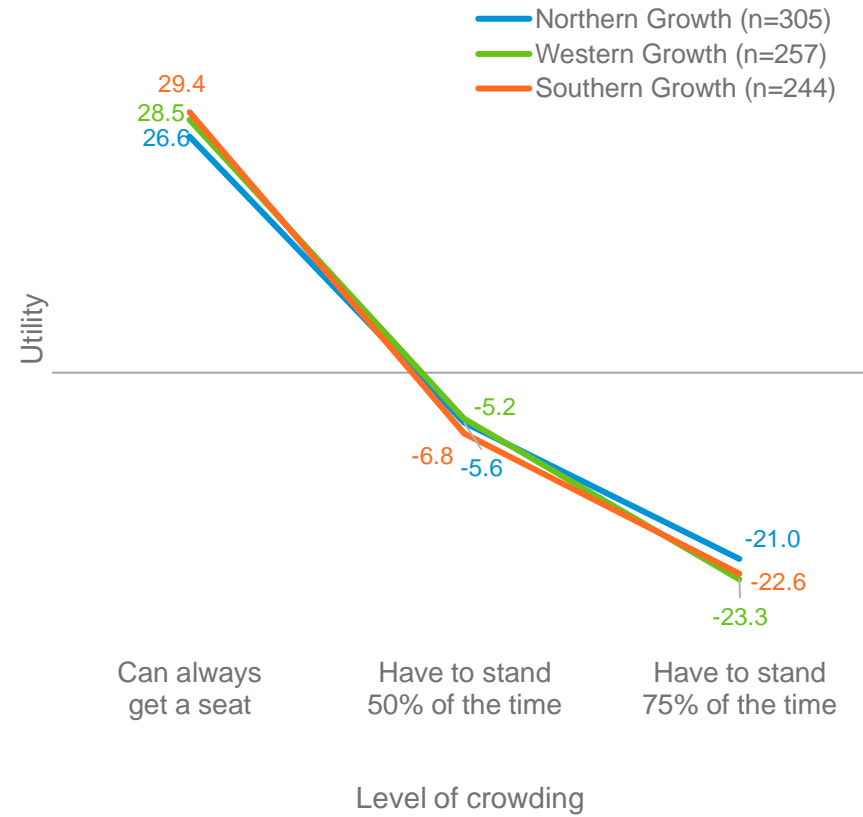
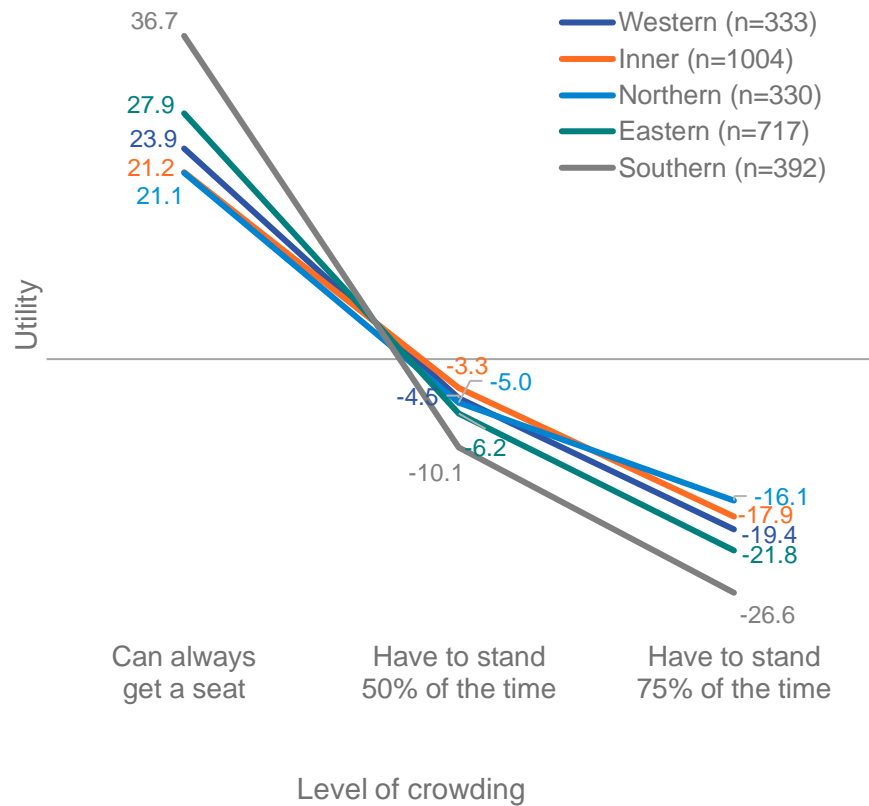
## Utility of need to take a connecting bus



Patterns of preference tended to be similar across regions with respect to whether they needed to take a connecting bus or not.

# Travellers naturally preferred less crowded buses

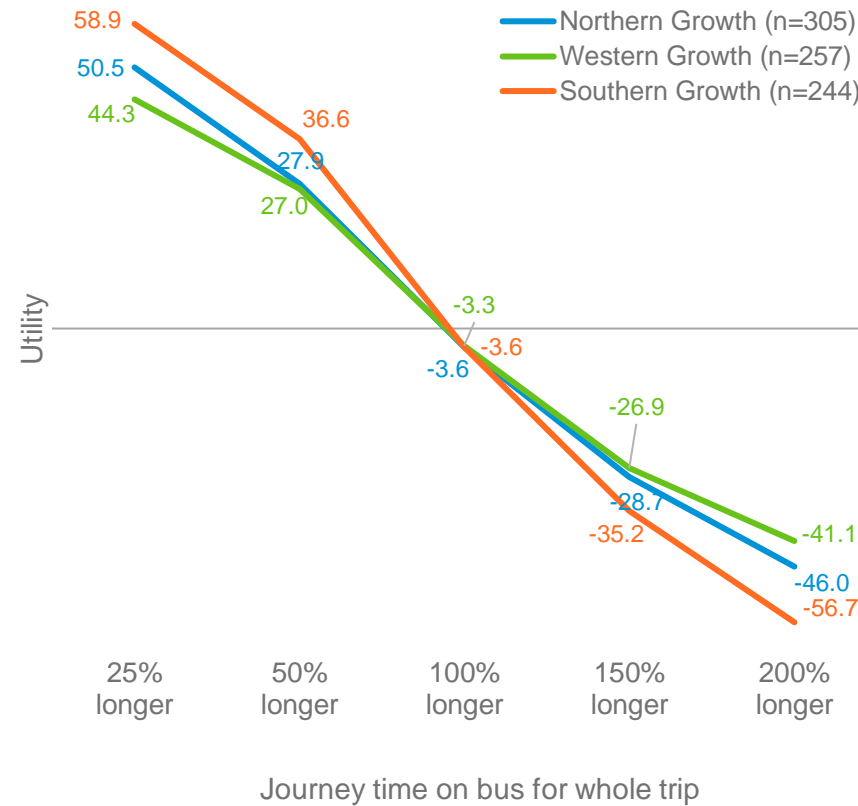
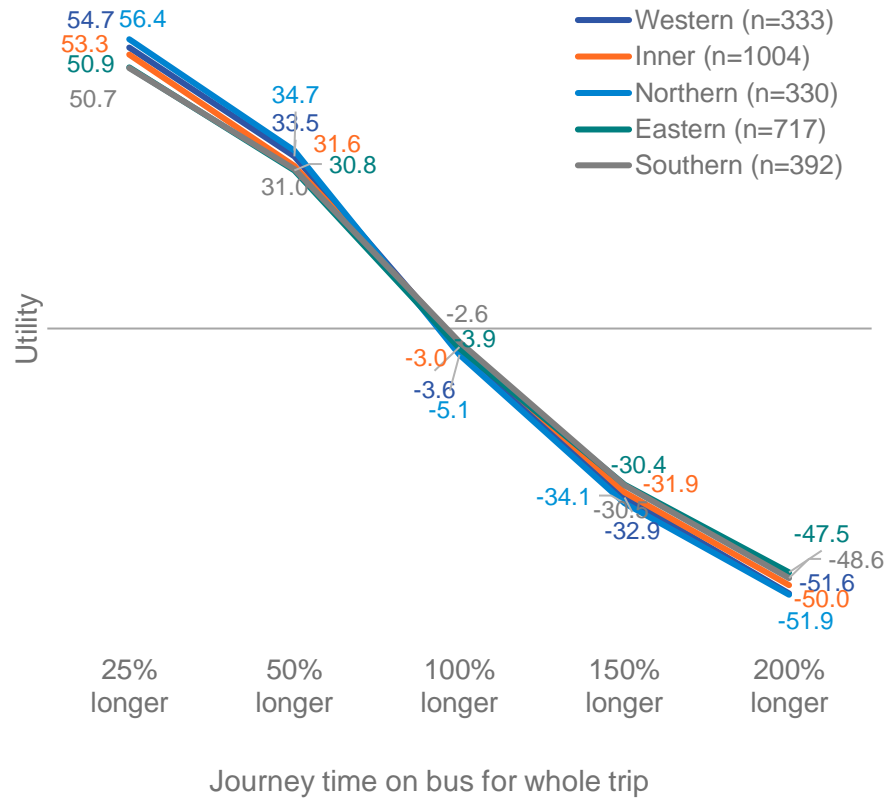
## Utility of level of crowding



Patterns of preference tended to be similar across regions with respect to level of crowding, although those in the Southern region tended to be the most sensitive.

# Shorter journey times were naturally preferred

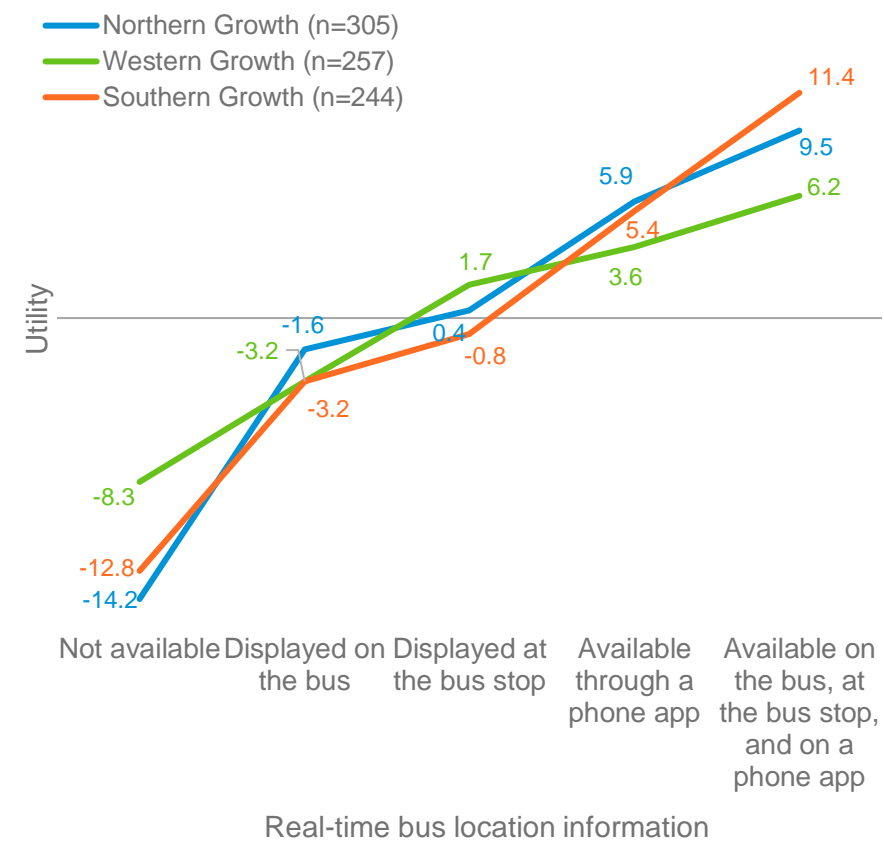
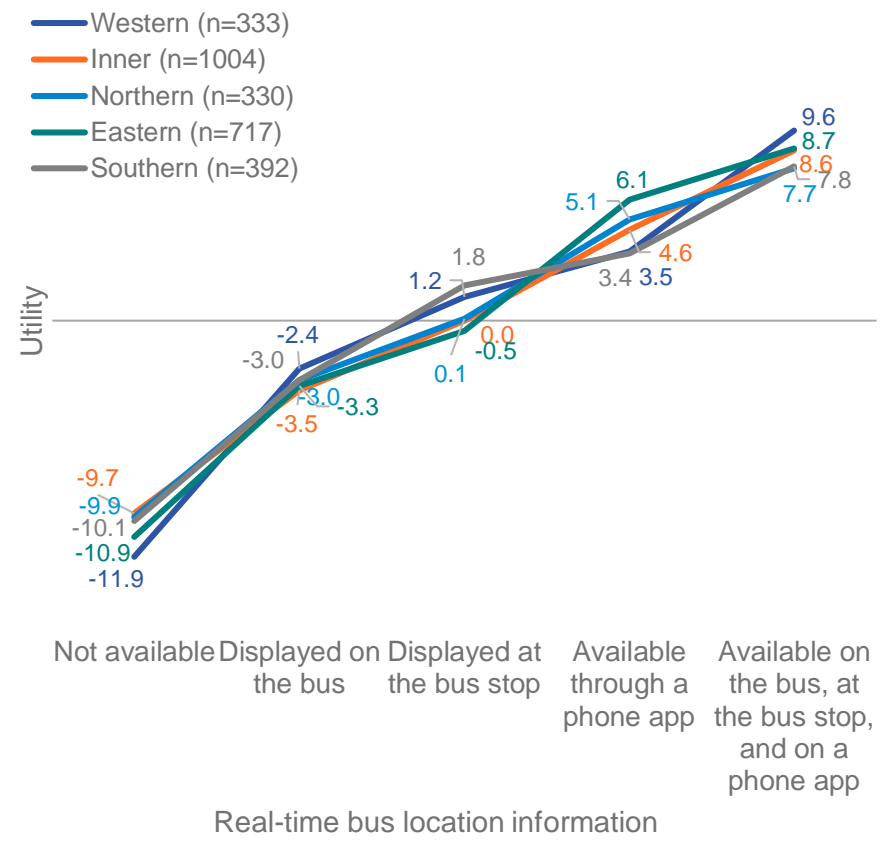
## Utility of journey time on bus for whole trip



Patterns of preference tended to be similar across regions with respect to journey time.

# Real-time information was most valued through a phone app, and least valued when displayed on the bus

## Utility of real-time bus location information

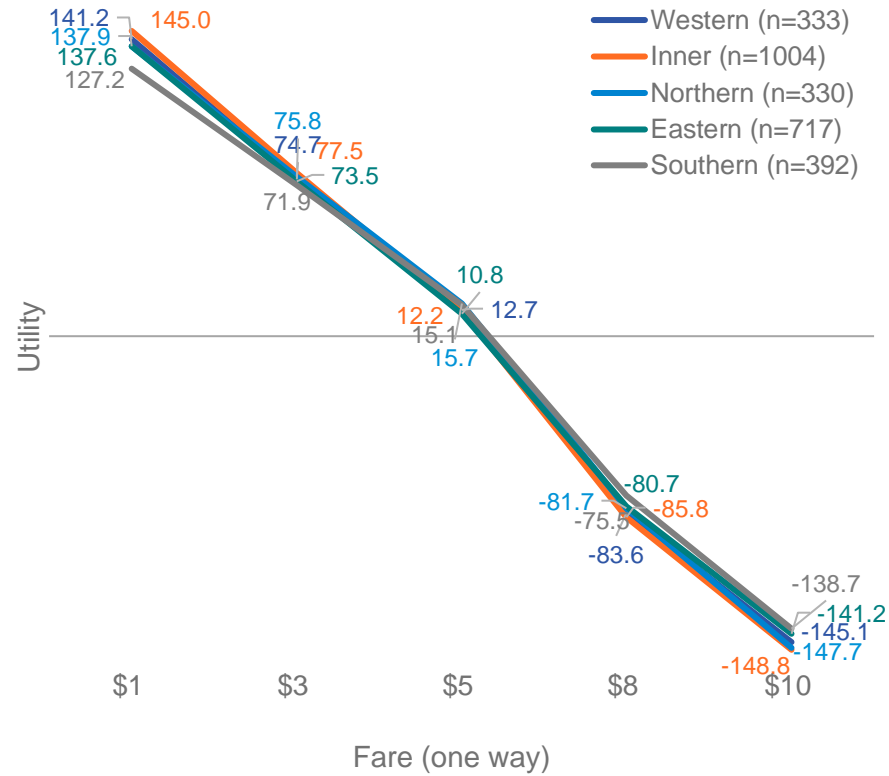


All regions would prefer to have real-time information available on the bus, at the bus stop and on a phone app, and failing that they most preferred to have it available through a phone app, followed by displayed at the bus stop.



# Lower fares were always preferred

## Utility of fare (one way)



Patterns of preference were similar across all regions with respect to fares.



# Appendix

## Additional differences by demographics

# Summary: Differences by demographic

## Women

(n=2,061)

**Women typically had different trip purposes to men and were less likely to use public transport in general. Safety concerns were more prevalent for women.**

- Less likely to use buses, trains, trams at least weekly. More likely to use car/motorcycle at least weekly (92%, vs 88% of men). Less likely to at least occasionally consider using the bus to get from A to B (28%, vs 38% of men).
- More likely to travel for shopping/appointments/drop offs and leisure/recreation reasons, and less likely to travel for work and study reasons.
- Higher levels of car dependency (74% agreed they couldn't survive without a car, vs. 67% of men).
- More likely to *disagree* they felt safe waiting at and walking to public transport stations/stops and travelling on public transport across both day and night.
- More likely to avoid taking public transport if interchanges are required (52%, vs. 42% of men).
- More likely to feel removing bus routes, with or without supplementation, is unacceptable (rated 0-2).

## Those aged 65+

(n=717)

**Over 65s typically travel less and use public transport less frequently, with stronger perceived car dependence. However, sentiment towards buses and attachment to bus routes is relatively high.**

- More likely to travel for shopping/appointments/drop offs, and less likely to travel for work and study reasons.
- Less likely to use all modes of transport, suggesting lower overall mobility. Less likely to use all modes of transport except cars on a weekly basis. Just 7% use buses at least weekly, compared to 16% of the total population.
- More likely to *disagree* they felt safe waiting at and walking to public transport stations/stops and travelling on public transport after dark.
- More likely to have their own car (89%, vs. 85% of the total population), and to agree they couldn't survive without a car (74%, vs. 70%).
- Less likely to at least occasionally consider using the bus to get from A to B (27%, vs 33% of the total population).
- More likely to agree that buses are comfortable (41% vs. 35% of the total population), and they feel safe travelling by bus (49%, vs. 45%).
- Less likely to think removing bus routes, whether supplemented or not, is acceptable.

## Households with children

(n=1,216)

**Households with children were more likely to travel via multiple modes of transport, as well as by car. However, they have concerns about car ownership.**

- More likely to use bus, train, car, taxi / rideshare at least weekly than those without children.
- More likely to at least occasionally consider using the bus to get from A to B (37%, vs 32% of those without children).
- More likely to have their own car (92%, vs. 82% of households without children) and hold a valid driver's licence (97%, vs. 93%).
- More likely to agree they are concerned about what their car is doing to the environment (41%, vs. 37% of those without children) and that they'd love to get rid of their car but feel there isn't a viable alternative (30%, vs. 22% of those without children).
- More likely to feel removing bus routes, with or without supplementation, is acceptable.
- More likely to avoid taking public transport if interchanges are required (50%, vs. 46% those without children).

# Summary: Differences by demographic

## Disability

(n=495)

**Those with a disability were more reliant on, but had elevated safety concerns about, catching public transport.**

- Those with sight or mobility disability were less likely to hold a valid driver's licence or have access to a car, making them more reliant on other modes of transport than those without a disability.
- Those with a sight disability were least likely to ever travel by car. Those with a hearing disability were less likely to ever travel by walking/bike or taxi / ride share. Those with a mobility disability were least likely to ever use any mode of transport aside from bus.
- There were no significant differences in ever using the bus between groups with a disability, and those with a sight disability were significantly more likely than average to use the bus at least weekly (23%, vs 16% of the total population).
- Those with a mobility disability had elevated safety concerns surrounding catching public transport, waiting at and walking to public transport stations/stops across both day and night, and were significantly more likely to *disagree* they felt safe on these occasions. They were also more likely to *disagree* that they felt safe travelling by bus (26% disagreed, vs 20% of the total population) and were less likely to agree that public transport has enough COVID-safe measures (35% agreed, vs. 40% of the total population).
- While those with a hearing disability were most accepting of converting a road lane to a bus lane (47% scored 8-10), those with a mobility disability were more likely than average to rate all of these scenarios (road land to bus, removing bus routes) as unacceptable.

## CALD respondents (those who speak a language other than English at home)

(n=767)

**CALD respondents were less dependent on cars, felt positively towards, and use public transport more frequently, than the general population.**

- More likely to travel to get to/from work or study than the general population.
- More likely to catch public transport, to travel by bus at least weekly (24% vs. 16% of the total population), and to at least occasionally consider catching a bus (46% vs. 33% of the total population).
- More likely to use train, tram and taxi / ride share at least weekly.
- More likely to feel positively towards public transport (60% vs. 57% of the total population) and agree that public transport has enough COVID-safe measures in place (44% vs. 40%).
- More likely to agree that buses are comfortable (41% vs. 35% of the total population), have enough COVID-safe measures (36% vs. 32%), and are for people like them (29% vs. 24%).
- Less likely to hold a valid driver's licence (91% vs. 95% non-CALD).
- Less likely to agree that they couldn't survive without a car (62% vs. 70% of the total population) and more likely to agree that there is no need to own a car with the availability of taxis and rideshare (16% vs. 12%).

## Low income (annual household income <\$50k)

(n=683)

**Lower income respondents were more reliant on public transport, but also more likely to have safety concerns, particularly when travelling after dark.**

- Less likely to have their own car (69%, vs. 85% of the total population) and hold a valid driver's licence (84%, vs. 94%).
- Less likely to ever use all modes of transport, except buses. More likely to use a bus at least weekly (21%, vs. 16% of the total population).
- More likely to agree that buses are comfortable (43% vs. 35% of the total population), are for people like them (34% vs. 24%), and more likely to at least occasionally consider using the bus (41%, vs. 33%).
- More likely to think converting a road lane into a bus lane is acceptable (42%, vs. 36% of the total population).
- More likely to *disagree* they felt safe waiting at and walking to public transport stations/stops and travelling on public transport after dark.





# Appendix

## Comparison of sample against Greater Melbourne population statistics

# Sample compared to ABS population statistics

	Sample	Greater Melbourne population (2021 census statistics)
<b>Age</b>		
18-24	13%	11%
25-34	21%	20%
35-49	27%	27%
50-64	22%	22%
65+	18%	19%
<b>Gender</b>	<b>Adults 18+</b>	<b>Adults 18+</b>
Male	48%	49%
Female	52%	51%
Non-binary	<1%	Not reported
<b>Region</b>	<b>Adults 18+</b>	<b>Whole population</b>
Inner	29%	18%
Western	9%	10%
Northern	9%	10%
Eastern	20%	19%
Southern	11%	13%
Western Growth	7%	10%
Northern Growth	8%	11%
Southern Growth	7%	10%

	Sample	Greater Melbourne population (2021 census statistics)
<b>Employment</b>	<b>All adults (18+)</b>	<b>All in workforce (15+)</b>
Full time work	46%	38%
Part-time work	21%	21%
Self-employed	5%	Not split out in ABS
Unemployed	2%	4%
Retired	15%	33% combined
Disability / workers compensation	2%	
Home duties	4%	
Student	3%	
Volunteer	1%	
Other	1%	
<b>Household structure</b>	<b>Children defined as under 18</b>	<b>Children can be any age</b>
Couple (no children at home)	29%	23%
Couple (children at home)	30%	32%
Single parent family with children at home	6%	10%
Living at home with parents	10%	Captured in above categories
Single person household	20%	22%
Living with friends or flatmates	5%	13%
Other	1%	

# Sample compared to ABS population statistics

Note that ABS categories for household income do not match the categories we captured, so a direct comparison cannot be made.

Household income	Sample	Household income	Greater Melbourne population (2021 census statistics)
Less than \$25,000	5%	Less than \$26,000	14%
\$25,000 - \$49,999	12%	\$26,000 - \$51,999	14%
\$50,000 - \$74,999	12%	\$52,000 - \$77,999	13%
\$75,000 - \$99,999	14%	\$78,000 - 103,999	11%
\$100,000 - \$124,999	12%	\$104,000 - \$129,999	12%
\$125,000 - \$149,999	10%	\$130,000 - \$155,999	8%
\$150,000 - \$174,999	5%	\$156,000 - \$181,999	7%
\$175,000 - \$199,999	6%	\$182,000 - \$207,999	4%
\$200,000 or more	10%	\$208,000 or more	14%
Unsure / rather not say	14%	Not stated	6%





# Appendix Questionnaire

## Infrastructure Victoria

Survey type: Online

Project consultants:	Anita, Sharon
Total number of interviews to be completed:	N=4,000
Definition of target audience:	Adults aged 18+ in Greater Melbourne
Panel Provider (panel sample only):	Pure Profile
Fieldwork to close by:	5 <sup>th</sup> December 2022 (TBC)
Data to be merged with a previous datafile?	No
Questionnaire has been reviewed by Sharon	Yes

## Quotas to be applied:

	18-24	25-34	35-49	50-64	65+	Total
Male	259	409	528	417	324	1937
Female	253	423	550	444	393	2063
<b>Total</b>	<b>512</b>	<b>832</b>	<b>1078</b>	<b>861</b>	<b>717</b>	<b>4000</b>

Any additional variables that should be tracked in the portal (aside from quota variables):

## Introduction – Online

Thank you for taking part in this survey.

This survey is about travel behaviours and should take no more than 20 minutes to complete.

Please be reassured that this survey is anonymous, and we will never use your individual responses on their own. Quantum is an independent market research company and complies with the Australian Privacy Act 1988 and The Research Society's Code of Professional Behaviour.

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## Screener

The first few questions are to check if this survey is relevant to you.

## ASK ALL

Q.1. How old are you?

TYPE IN AGE AND GROUP INTO THE FOLLOWING BANDS

Under 18.....	1	TERMINATE
18-24 .....	2	
25-34 .....	3	
35-49 .....	4	
50-64 .....	5	
65+.....	6	

## ASK ALL

Q.2. What gender do you identify with?

## SINGLE RESPONSE

Male .....	1
Female .....	2
Non-binary .....	3
Another gender (please specify): .....	4

## NON-BINARY / OTHER – SPLIT BETWEEN MALE AND FEMALE FOR QUOTA PURPOSES

## ASK ALL

Q.3. Which state do you live in? SINGLE RESPONSE

New South Wales .....	1	TERMINATE
Victoria .....	2	
Queensland .....	3	TERMINATE
Western Australia.....	4	TERMINATE
South Australia .....	5	TERMINATE
Tasmania .....	6	TERMINATE
Australian Capital Territory .....	7	TERMINATE
Northern Territory.....	8	TERMINATE
Outside Australia .....	9	TERMINATE

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ASK ALL

Q.4. What is your suburb?

TYPE SUBURB AND SELECT FROM DROP DOWN LIST

TERMINATE POSTCODES OUTSIDE GREATER MELBOURNE  
GROUP INTO INNER SUBURBS, MIDDLE SUBURBS IN THE NORTH, EAST, SOUTH, AND WEST, OUTER GROWTH AREAS IN  
THE NORTH, EAST, SOUTH, AND WEST (POSTCODE DEFINITIONS NEEDED)

Main survey

The first few questions are about how and why you travel.

ASK ALL

Q.5. How frequently do you usually travel by each of the following modes of transport? SINGLE RESPONSE PER ROW

RANDOMISE		6-7 days a week	5 days a week	3-4 days a week	1-2 days a week	At least once a month	Less often than once a month	Once a year or less	Never
1	Metropolitan Train	1	2	3	4	5	6	7	8
2	Tram	1	2	3	4	5	6	7	8
3	Metropolitan Bus	1	2	3	4	5	6	7	8
4	Car or motorcycle	1	2	3	4	5	6	7	8
5	Van/truck	1	2	3	4	5	6	7	8
6	Taxi / Ride share (e.g. Uber)	1	2	3	4	5	6	7	8
7	Walking or bicycle	1	2	3	4	5	6	7	8
8	Another form of transport	1	2	3	4	5	6	7	8

TERMINATE THOSE WHO SELECT 'NEVER' FOR ALL MODES OF TRANSPORT

ASK ALL

Q.6. For which of the following reasons do you ever travel?

MULTIPLE RESPONSE, RANDOMISE

- Getting to/from work .....1
- Getting to/from shopping/ appointments/ drop-offs .....2
- Getting to/from leisure/ recreation/ social outings .....3
- Getting to/from place of study .....4
- Other reasons [ANCHOR] .....5
- I never travel [ANCHOR].....6 [EXCLUSIVE] TERMINATE

TERMINATE THOSE WHO SELECT 'OTHER REASONS' ONLY

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ASK IF Q.6 = CODE 1 (WORKING)

Q.7. In which suburb is your workplace located? If you work across more than one location, please enter the location you spend most time, *excluding* working from home.

TYPE SUBURB AND SELECT FROM DROP DOWN LIST

- Work from home only .....1
- No fixed location .....2

ASK IF Q.6 = CODE 1 (WORKING), SKIP IF Q.7=1 (WORK FROM HOME ONLY – AUTOCODE IN DATA AS 'WORK FROM HOME ONLY')

Q.8. In a typical week, when do you travel to/from work?

MULTIPLE RESPONSE

- Weekdays .....1
- Weekends.....2
- No set days.....3 EXCLUSIVE

ASK IF Q.6 = CODE 1 (WORKING), SKIP IF Q.7=1 (WORK FROM HOME ONLY)

Q.9. In a typical week, which of the following modes of transport do you use for getting to and from work?

MULTIPLE RESPONSE, RANDOMISE. SHOW MODES OF TRANSPORT USED AT LEAST SOME OF THE TIME (CODES 1-7) AT Q.5

- Metropolitan Train .....1
- Tram .....2
- Metropolitan Bus .....3
- Car or motorcycle.....4
- Van/truck.....5
- Taxi / Ride share (e.g., Uber) .....6
- Walking or bicycle .....7
- Another form of transport .....8
- None of these.....9

ASK IF Q.6 = CODE 1 (WORKING), SKIP IF Q.7=1 (WORK FROM HOME ONLY)

Q.10. Which of the following times of day do you usually travel to and from work?

MULTIPLE RESPONSE

- Before morning peak hours (5am – 7am) .....1
- Morning during peak hours (7am – 9am).....2
- Between peak hours (9am – 3pm) .....3
- Afternoon during peak hours (3pm – 6pm) .....4

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Evening (6pm – 10pm) .....	5
Night-time (10pm – 5am) .....	6

ASK IF Q.6 = CODE 1 (WORKING), SKIP IF Q.7=1 (WORK FROM HOME ONLY) OR Q.7=2 (NO FIXED LOCATION)

Q.11. On average, how long does your journey between home and work [if Q.7 is a VALID SUBURB: (in [Q.7])]? take?

If it varies, please just provide an average estimate.

TYPE IN ANSWER IN MINUTES

ASK IF Q.6 = CODE 4 (STUDYING)

Q.12. In which suburb is your place of study located? If you study across more than one location, please enter the location you spend most time, *excluding* studying from home.

TYPE SUBURB AND SELECT FROM DROP DOWN LIST

Study from home only .....	1
No fixed location .....	2

ASK IF Q.6 = CODE 4 (STUDYING), SKIP IF Q.12=1 (STUDY FROM HOME ONLY – AUTOCODE IN DATA AS ‘STUDY FROM HOME ONLY’)

Q.13. In a typical week, when do you travel to/from your place of study?

MULTIPLE RESPONSE

Weekdays .....	1	
Weekends .....	2	
No set days .....	3	EXCLUSIVE

ASK IF Q.6 = CODE 4 (STUDYING), SKIP IF Q.12=1 (STUDY FROM HOME ONLY)

Q.14. In a typical week, which of the following modes of transport do you use for getting to and from your place of study?

MULTIPLE RESPONSE, RANDOMISE. SHOW MODES OF TRANSPORT USED AT LEAST SOME OF THE TIME (CODES 1-7) AT Q.5

Metropolitan Train .....	1
Tram .....	2
Metropolitan Bus .....	3
Car or motorcycle .....	4
Van/truck .....	5

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Taxi / Ride share (e.g. Uber) .....	6
Walking or bicycle .....	7
Another form of transport .....	8
None of these .....	9

ASK IF Q.6 = CODE 4 (STUDYING), SKIP IF Q.12=1 (STUDY FROM HOME ONLY)

Q.15. Which of the following times of day do you usually travel to and from your place of study?

MULTIPLE RESPONSE

Before morning peak hours (5am – 7am) .....	1
Morning during peak hours (7am – 9am) .....	2
Between peak hours (9am – 3pm) .....	3
Afternoon during peak hours (3pm – 6pm) .....	4
Evening (6pm – 10pm) .....	5
Night-time (10pm – 5am) .....	6

ASK IF Q.6 = CODE 4 (STUDYING), SKIP IF Q.12=1 (STUDY FROM HOME ONLY) OR Q.12=2 (NO FIXED LOCATION)

Q.16. On average, how long does your journey between home and your place of study take [if Q.12 is a VALID SUBURB: (in [Q.12])]? take?

If it varies, please just provide an average estimate.

TYPE IN ANSWER IN MINUTES

ASK IF Q.6 = CODE 2 (SHOPPING/ APPOINTMENTS/ DROP-OFFS)

Q.17. For the next few questions, please think about a typical trip that you make to do shopping/ appointments/ drop-offs, and answer the questions based on this trip.

Thinking about a typical trip you make to do shopping/ appointments/ drop-offs, which suburb do you typically travel to?

TYPE SUBURB AND SELECT FROM DROP DOWN LIST

No fixed location .....	1
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ASK IF Q.6 = CODE 2 (SHOPPING/ APPOINTMENTS/ DROP-OFFS)

Q.18. In a typical week, when do you travel to do shopping/ appointments/ drop-offs?

MULTIPLE RESPONSE

Weekdays.....	1	
Weekends.....	2	
No set days.....	3	EXCLUSIVE

ASK IF Q.6 = CODE 2 (SHOPPING/ APPOINTMENTS/ DROP-OFFS)

Q.19. In a typical week, which of the following modes of transport do you use to do shopping/ appointments/ drop-offs?

MULTIPLE RESPONSE, RANDOMISE. SHOW MODES OF TRANSPORT USED AT LEAST SOME OF THE TIME (CODES 1-7) AT Q.5

Metropolitan Train.....	1
Tram.....	2
Metropolitan Bus.....	3
Car or motorcycle.....	4
Van/truck.....	5
Taxi / Ride share (e.g. Uber).....	6
Walking or bicycle.....	7
Another form of transport.....	8
None of these.....	9

ASK IF Q.6 = CODE 2 (SHOPPING/ APPOINTMENTS/ DROP-OFFS)

Q.20. Which of the following times of day do you usually travel to and from shopping/ appointments/ drop-offs?

MULTIPLE RESPONSE

Before morning peak hours (5am – 7am).....	1
Morning during peak hours (7am – 9am).....	2
Between peak hours (9am – 3pm).....	3
Afternoon during peak hours (3pm – 6pm).....	4
Evening (6pm – 10pm).....	5
Night-time (10pm – 5am).....	6

ASK IF Q.6 = CODE 2 (SHOPPING/ APPOINTMENTS/ DROP-OFFS), SKIP IF Q.17=2 (NO FIXED LOCATION)

Q.21. On average, how long does your journey between home and your typical place of shopping/ appointments/ drop-offs [if Q.17 is a VALID SUBURBS: (in [Q.17])] take?

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If you are unsure, or the time varies, please just pick a typical place you shop, go to appointments, or do drop offs, and provide an estimate of how long it typically takes you to get to that specific place.

Two empty boxes for input.

TYPE IN ANSWER IN MINUTES

ASK IF Q.6 = CODE 3 (LEISURE/ RECREATION/ SOCIAL OUTINGS)

Q.22. For the next few questions, please think about a typical trip that you make for leisure / recreation/ social outings, and answer the questions based on this trip.

Thinking about a typical trip you make for leisure / recreation/ social outings, which suburb do you typically travel to?

TYPE SUBURB AND SELECT FROM DROP DOWN LIST

No fixed location.....1

ASK IF Q.6 = CODE 3 (LEISURE/ RECREATION/ SOCIAL OUTINGS)

Q.23. In a typical week, when do you travel for leisure / recreation/ social outings?

MULTIPLE RESPONSE

Weekdays.....	1	
Weekends.....	2	
No set days.....	3	EXCLUSIVE

ASK IF Q.6 = CODE 3 (LEISURE/ RECREATION/ SOCIAL OUTINGS)

Q.24. In a typical week, which of the following modes of transport do you use for leisure / recreation/ social outings?

MULTIPLE RESPONSE, RANDOMISE. SHOW MODES OF TRANSPORT USED AT LEAST SOME OF THE TIME (CODES 1-7) AT Q.5

Metropolitan Train.....	1
Tram.....	2
Metropolitan Bus.....	3
Car or motorcycle.....	4
Van/truck.....	5
Taxi / Ride share (e.g. Uber).....	6
Walking or bicycle.....	7
Another form of transport.....	8
None of these.....	9

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ASK IF Q.6 = CODE 3 (LEISURE/ RECREATION/ SOCIAL OUTINGS)

Q.25. Which of the following times of day do you usually travel to and from leisure / recreation/ social outings?

MULTIPLE RESPONSE

- Before morning peak hours (5am – 7am).....1
- Morning during peak hours (7am – 9am).....2
- Between peak hours (9am – 3pm).....3
- Afternoon during peak hours (3pm – 6pm).....4
- Evening (6pm – 10pm).....5
- Night-time (10pm – 5am).....6

ASK IF Q.6 = CODE 3 (LEISURE/ RECREATION/ SOCIAL OUTINGS), SKIP IF Q.22=2 (NO FIXED LOCATION)

Q.26. On average, how long does your journey between home and your typical place of leisure / recreation/ social outings [IF Q.22 IS A VALID SUBURB: (in [Q.22])] take?

If you are unsure, or the time varies, please just pick a typical place you go to [IF Q.22 IS A VALID SUBURB: in [Q.22]] for leisure, recreation or social outings, and provide an estimate of how long it typically takes you to get to that specific place.

--	--

TYPE IN ANSWER IN MINUTES

ASK ALL

Q.27. Do you have access to a car?

SINGLE RESPONSE

- Yes, I have **my own** car.....1
- Yes, I have access to someone else's car.....2
- No.....3

ASK ALL

Q.28. Do you hold a valid driver's licence?

SINGLE RESPONSE

- Yes.....1
- No.....2

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### Attitudes towards transport

The next few questions are about attitudes to travel. While some items might not directly relate to your situation, we would still appreciate your opinion on each.

ASK ALL

Q.29. How strongly do you agree or disagree with each of the following statements about public transport in general? SR PER LINE, RANDOMISE

	Strongly disagree				Strongly agree
1 Overall, I feel positive towards public transport	1	2	3	4	5
2 I avoid taking public transport if it requires changing between different public transport services	1	2	3	4	5
3 Public transport has enough measures in place to make it COVID-safe	1	2	3	4	5

ASK ALL

Q.30. How strongly do you agree or disagree with each of the following statements about buses? SR PER LINE, RANDOMISE

	Strongly disagree				Strongly agree
1 Buses are for people like me	1	2	3	4	5
2 I couldn't imagine myself taking a bus	1	2	3	4	5
3 I feel safe travelling by bus	1	2	3	4	5
4 Buses have enough measures in place to make them COVID-safe	1	2	3	4	5
5 Buses are comfortable	1	2	3	4	5
6 I prefer other modes of public transport over buses	1	2	3	4	5

ASK ALL

Q.31. How strongly do you agree or disagree with each of the following statements about car ownership? SR PER LINE, RANDOMISE

	Strongly disagree				Strongly agree
1 ASK IF HAVE ACCESS TO A CAR (Q.27=1 OR 2) I couldn't survive without a car	1	2	3	4	5
2 I'm concerned about what cars are doing to the environment	1	2	3	4	5
3 ASK IF HAVE THEIR OWN CAR (Q.27=1) I'd love to get rid of my car, but I don't feel there is a viable alternative	1	2	3	4	5
4 There's no need to own a car these days with the availability of taxis and rideshares (e.g., Uber)	1	2	3	4	5
5 Cars are just a means of getting from A to B	1	2	3	4	5

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ASK ALL

Q.32. How strongly do you agree or disagree with each of the following statements about **safety when travelling?**

If you do not currently do any of these things, please tell us how safe you would feel if you needed to do them. **SR PER LINE, RANDOMISE IN PAIRS**

I feel safe / I would feel safe....		Strongly disagree				Strongly agree
1	Walking to/from public transport stations or stops after dark	1	2	3	4	5
2	Walking to/from public transport stations or stops in the daytime	1	2	3	4	5
3	Waiting at public transport stations or stops after dark	1	2	3	4	5
4	Waiting at public transport stations or stops in the daytime	1	2	3	4	5
5	Travelling on public transport after dark	1	2	3	4	5
6	Travelling on public transport in the daytime	1	2	3	4	5
7	Being out in my neighbourhood after dark	1	2	3	4	5
8	Being out in my neighbourhood in the daytime	1	2	3	4	5

**Awareness of bus networks**

ASK ALL

Q.33. Thinking about all the journeys you make; how often do you consider **using a bus** to get from A to B?

SINGLE RESPONSE

- Always ..... 1
- Frequently ..... 2
- Occasionally ..... 3
- Rarely ..... 4
- Never ..... 5

ASK ALL

Q.34. At a comfortable walking pace, how long would it take you to walk from your home to your nearest bus stop?

SINGLE RESPONSE

- Less than a five-minute walk ..... 1
- Five to ten-minute walk ..... 2
- Ten to fifteen-minute walk ..... 3
- Longer than a fifteen-minute walk ..... 4

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Don't know .....5

ASK ALL

Q.35. Please indicate which statement best reflects your knowledge of buses in your area. **SR PER ITEM, SHOW AS A CAROUSEL ONE AT A TIME, RANDOMISE**

		Not at all	To some extent	Definitely
1	I know where my closest bus stop is	1	2	3
2	I know where the bus routes in my local area go	1	2	3
3	I know where to get off if I travel by bus	1	2	3
4	I know how frequently buses in my local area run	1	2	3

**Acceptability of bus route reform**

ASK ALL

Q.36. To what extent do you think each of the following scenarios are acceptable?

SINGLE RESPONSE PER ITEM, SHOW AS A CAROUSEL ONE AT A TIME. RANDOMISE

	Completely unacceptable								Completely acceptable		Don't know	
	0	1	2	3	4	5	6	7	8	9	10	11
Removing bus routes on which very few people travel	0	1	2	3	4	5	6	7	8	9	10	11
Removing bus routes on which very few people travel, supplemented with demand-responsive transport (i.e., transport that has no fixed route and only operates when booked. Passengers can book a trip from a location near their home and be taken to a range of popular destinations)	0	1	2	3	4	5	6	7	8	9	10	11
Converting one of the road lanes into a dedicated bus lane for a busy bus route	0	1	2	3	4	5	6	7	8	9	10	11

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**Choice model**

DP: SET UP CONSTRUCTED LIST AS FOLLOWS FOR TRIP DESTINATION (TO BE IN THE CONSTRUCTED LIST, IT MUST BE = 1):

- If Q.6 = CODE 1 (WORK) AND Q.7 = VALID SUBURB, WORK = 1, OTHERWISE WORK = 0
- If Q.6 = CODE 4 (STUDY) AND Q.11 = VALID SUBURB, STUDY = 1, OTHERWISE STUDY = 0
- If Q.6 = CODE 2 (SHOPPING / APPOINTMENTS / DROP OFFS) AND Q.17 = VALID SUBURB, SHOP = 1, OTHERWISE SHOP = 0
- If Q.6 = CODE 3 (LEISURE / RECREATION / SOCIAL OUTINGS) AND Q.22 = VALID SUBURB, LEISURE = 1, OTHERWISE LEISURE = 0

IF A RESPONDENT HAS A VALUE OF 0 FOR ALL FOUR VARIABLES, THEY WILL SKIP THE CHOICE MODEL (WE NEED TO HAVE AN ESTIMATED LENGTH OF TRIP FOR AT LEAST ONE OF THESE PURPOSES TO RUN THE MODEL).

ASK ALL

\*\*\*New page\*\*\*

There are many different ways in which bus services can differ. For the next few questions, we'd like you to consider the following features of bus routes:

- **Typical frequency of services on weekdays and on weekends:** Bus services could run as frequently as every 5 minutes or as infrequently as every 60 minutes.
- **Operating hours on weekdays and on weekends:** Bus services could be expected to run from 7am to 7pm, but other options (e.g., 5am to 1am) are also possible.
- **Journey time on the bus for the whole trip:** For this feature, consider how long the journey typically takes by car. A bus could take almost the same time, through to twice as long.
- **Time needed to walk to the bus stop:** The distance of the bus stop from your home or destination could be anywhere between a 2 minute walk and a 20 minute walk (for an average person).
- **Reliability of bus service:** Bus services could typically always be on time, or anywhere up to 10 minutes early or late.
- **Level of crowding:** Bus services could be uncrowded, and you might always be able to get a seat, but on a more crowded service you may have to stand half (50%) of the time or even three quarters (75%) of the time.
- **Real-time bus location information:** It may be possible to access real-time information about the location of the bus, through a phone app, displayed on the bus itself, or displayed at the bus stop.
- **Bus stop facilities:** There could be no facilities at the bus stop, or there could be seating, shelter, and/or good lighting.
- **Need to take a connecting bus:** You might be able to get to your destination on a single bus or might need to take two connecting buses to get to your destination.

ASK ALL

Q.37. Now that you have thought about different things that could be offered (or not) on a bus service, we'd like you to consider the following list. If you needed to catch the bus for any reason (e.g. [If WORK = 1: work; if STUDY=1: study, if SHOP=1: shopping, appointments or drop off; if LEISURE =1: recreation, leisure, or social outings]), which FIVE of the following would be MOST important to you?

MULTIPLE RESPONSE; RANDOMISE; USE CONSTRUCTED LIST TO CREATE ATTRIBUTES FOR THE CHOICE MODEL, WHICH WILL ONLY SHOW EACH RESPONDENT THEIR 8 MOST IMPORTANT ATTRIBUTES. ALL RESPONDENTS WILL HAVE A CONSTRUCTED LIST COMPRISED OF THEIR TOP 5 ATTRIBUTES FROM THE LIST BELOW PLUS FARE AND TRIP DESTINATION

Frequency of services on the weekend.....	1
Operating hours on the weekend (runs 7am to 7pm or more extended hours).....	2
Frequency of services on weekdays.....	3
Operating hours on weekdays (runs 7am to 7pm or more extended hours).....	4
Journey time on the bus.....	5
Time it takes to walk to the bus stop.....	6
Reliability of the bus service (i.e., whether it is on time).....	7
Crowding (i.e., can you usually get a seat).....	8
Realtime bus location information available (i.e., you can find out exactly where the bus is at any time).....	9
Bus stop facilities (does the bus stop have lighting, seating, or shelter).....	10
Ability to get to your destination without catching a connecting bus.....	11

ASK ALL

In this next section, we will be presenting you with a number of hypothetical scenarios of different bus services that could be available to you to get to your destination. Some of these scenarios might seem a little unrealistic, but please use your imagination.

We will include those aspects of a bus service you indicated would be of most importance to you, and in addition will show two more features:

- **Destination:** This is where you are going to for this particular trip.
- **Fare (one way):** The one-way cost of making this trip.

\*\*\*New page\*\*\*

COMMENCE ACBC. ALL QUESTIONS TO BE PHRASED IN TERMS OF LIKELIHOOD OF TAKING THE BUS FOR A PARTICULAR DESTINATION IF THE BUS SERVICE LOOKED LIKE THIS

Process will be:

- BYO module skipped
- Screening module (number of tasks to be determined based on model testing)
- Choice task (number of tasks to be determined based on model testing)
- Calibration module

Attributes	Levels
Frequency of services on weekdays	Every 5 minutes Every 10 minutes Every 20 minutes Every 30 minutes Every 60 minutes
Operating hours on weekdays	5am to 1am 6am to 11pm 6am to 9pm 7am to 7pm 7am to 6pm
Frequency of services on weekends	Every 5 minutes Every 10 minutes Every 20 minutes Every 30 minutes Every 60 minutes
Operating hours on weekends	5am to 1am 6am to 11pm 6am to 9pm 7am to 7pm 7am to 6pm
Journey time on bus for whole trip	25% longer 50% longer 100% longer 150% longer 200% longer
Time needed to walk to the bus stop	2 minutes 5 minutes 10 minutes 15 minutes

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Attributes	Levels
	20 minutes
Reliability of bus service	Always on time Typically 1-4 minutes late or early Typically 5-10 minutes late or early
Level of crowding	Can always get a seat May have to stand 50% of the time May have to stand 75% of the time
Real-time bus location information	Not available Displayed on the bus Displayed at the bus stop Available through a phone app Displayed on the bus, at the bus stop, and through a phone app
Bus stop facilities	No lighting, seating, or shelter provided Seating only provided Lighting only provided Shelter and seating provided Lighting, shelter, and seating provided
Need to take a connecting bus	Required Not required
Trip destination	Work in [Q.7]
DP – ONLY INCLUDE THOSE FOR WHICH THE RELATED VARIABLE = 1	Study in [Q.12] Shopping/appointments in [Q.17] Leisure/recreation in [Q.22]
Fare (one way)	\$1 \$3 \$5 \$8 \$10

**Validation question**

ASK ALL

Q.38. Earlier you told us your gender, age and postcode. Can you please confirm these again?

I am...

SINGLE RESPONSE

	Yes	No
[PIPE IN RESPONSES].....	1	2
[PIPE IN RESPONSES].....	1	2
[PIPE IN RESPONSES].....	1	2

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**Demographics**

And finally, just a few more questions about you, so that we can understand how different people have answered these questions. All your answers will be kept confidential and will only be used for research purposes.

**ASK ALL**

Q.39. Which of the following best describes your current household? [SR]

Single person household (including single, divorced, and widowed).....	1
Couple (with no children living at home).....	2
Couple with children at home .....	3
Single parent family with children living at home .....	4
Living at home with parents .....	5
Living with friends or flatmates .....	6
Other (please specify).....	98

**ASK ALL**

Q.40. Do you have any children aged under 18 living with you all or some of the time?

**SINGLE RESPONSE**

Yes.....	1
No .....	2

**ASK IF Q.40 = CODE 1 (YES)**

Q.40.a What age(s) are the children under 18 living with you?

**MULTIPLE RESPONSE**

0 – 4 years.....	1
5 – 12 years.....	2
13 – 17 years.....	3

**ASK ALL**

Q.41. What is your current work situation?

**SINGLE RESPONSE**

Full time work .....	1
Part time/casual work.....	2

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Self-employed .....	3
Retired.....	4
Unemployed .....	5
On disability / workers compensation benefits and not working .....	6
Home duties .....	7
Student .....	8
Volunteer .....	9
Other (please specify): .....	10
Prefer not to answer .....	11

**ASK IF Q.41 = CODES 1-3**

Q.41.a Which of these best describes the industry you currently work in?

**SINGLE RESPONSE**

Administration.....	1
Accounting / Banking / Finance.....	2
Advertising .....	3
Customer service.....	4
Construction .....	5
Education / Training .....	6
Farming .....	7
Healthcare / Medical .....	8
Hospitality / Tourism .....	9
Human Resources / Recruitment .....	10
Information Technology .....	11
Legal .....	12
Manufacturing / Transport / Logistics.....	13
Marketing .....	14
Mining / Resources.....	15
Real estate / Property .....	16
Retail .....	17
Sales .....	18
Trades / Services .....	19
Other (specify) .....	20

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ASK ALL

Q.42. Do you consider yourself to have a disability in any of the following areas?

MULTIPLE RESPONSE

- Sight ..... 1
- Hearing ..... 2
- Mobility / movement ..... 3
- Other (please specify) ..... 4
- None of the above ..... 5
- Rather not say ..... 6

ASK ALL

Q.43. What is your current annual household income before tax?

SINGLE RESPONSE

- Less than \$25,000 ..... 1
- \$25,000-\$49,999 ..... 2
- \$50,000-\$74,999 ..... 3
- \$75,000-\$99,999 ..... 4
- \$100,000-\$124,999 ..... 5
- \$125,000-\$149,999 ..... 6
- \$150,000-\$174,999 ..... 7
- \$175,000-\$199,999 ..... 8
- \$200,000 or more ..... 9
- Not sure ..... 10
- Rather not say ..... 11

ASK ALL

Q.44. Do you speak a language other than English at home?

SINGLE RESPONSE

- Yes ..... 1
- No ..... 2

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ASK IF Q.44 = CODE 1 (OTHER LANGUAGES SPOKEN AT HOME)

Q.44.a What languages, other than English, do you speak at home?

MULTIPLE RESPONSE

Digital – provide list of languages

ASK ALL

Q.45. In what country were you born?

SINGLE RESPONSE

Digital – enter drop-down list of countries

ASK THOSE NOT BORN IN AUSTRALIA

Q.46. When did you arrive in Australia?

SINGLE RESPONSE

- Before 2000 ..... 1
- 2000-2005 ..... 2
- 2006-2010 ..... 3
- 2011-2015 ..... 4
- 2016-2019 ..... 5
- 2020-2022 ..... 6
- Not sure ..... 8
- Rather not say ..... 9

Online thanks

End with thanks (all):

Thank you for assisting us today. Your response to this questionnaire will be kept strictly confidential and will be used only for research purposes. If you have any queries or concerns, please contact us on [surveys@gmr.com.au](mailto:surveys@gmr.com.au)

All data and information collected from the survey will be stored appropriately and in accordance with the Australian Privacy Act 1988 and the New Zealand Privacy Act 2020.

Ref: Infrastructure Victoria Better Buses - Questionnaire Final Programming v2

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