

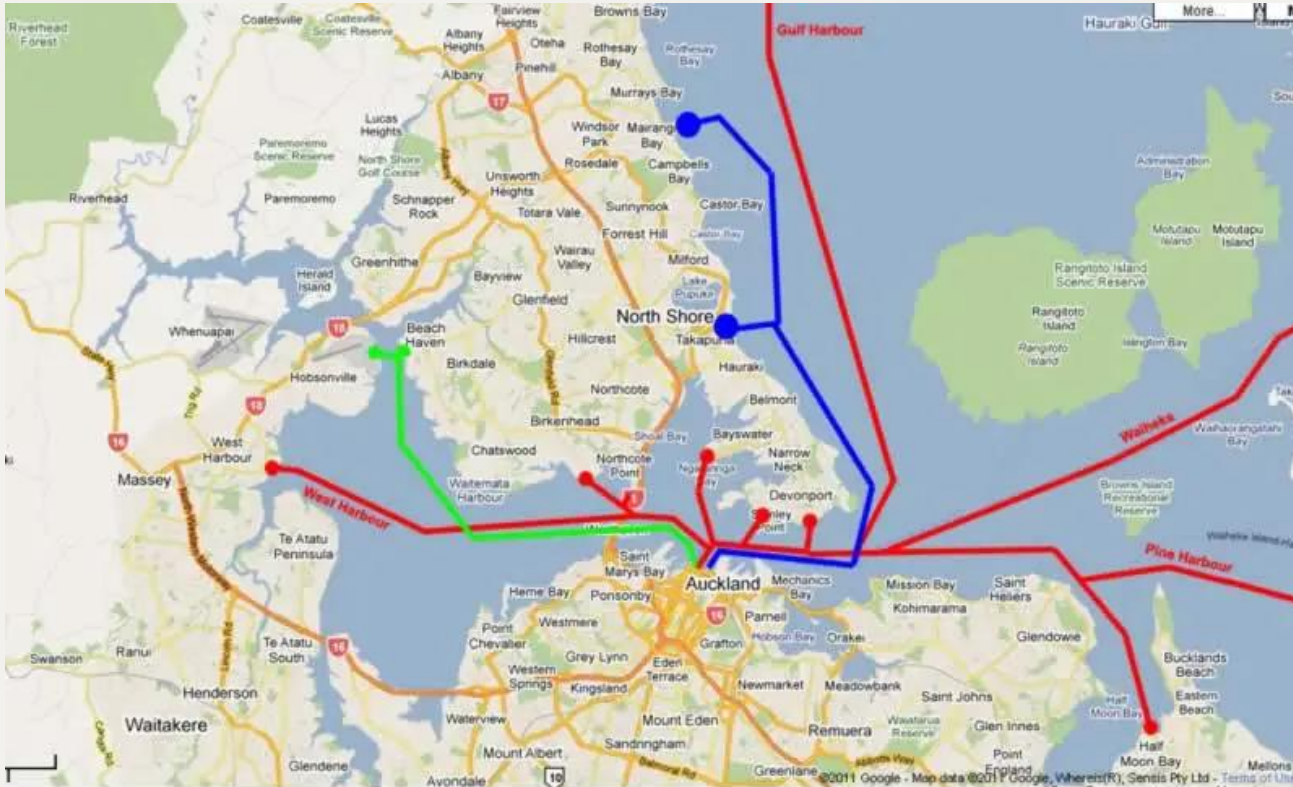
On-Demand Mobility Trial in East Auckland



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A final year BE(Hons in Civil Engineering Research Project
(2021)
Supervised by Douglas Wilson



Overview



01 Introduction

02 Aim, Objectives & Scope

03 Research Methodology

04 Results & Analysis – Cost

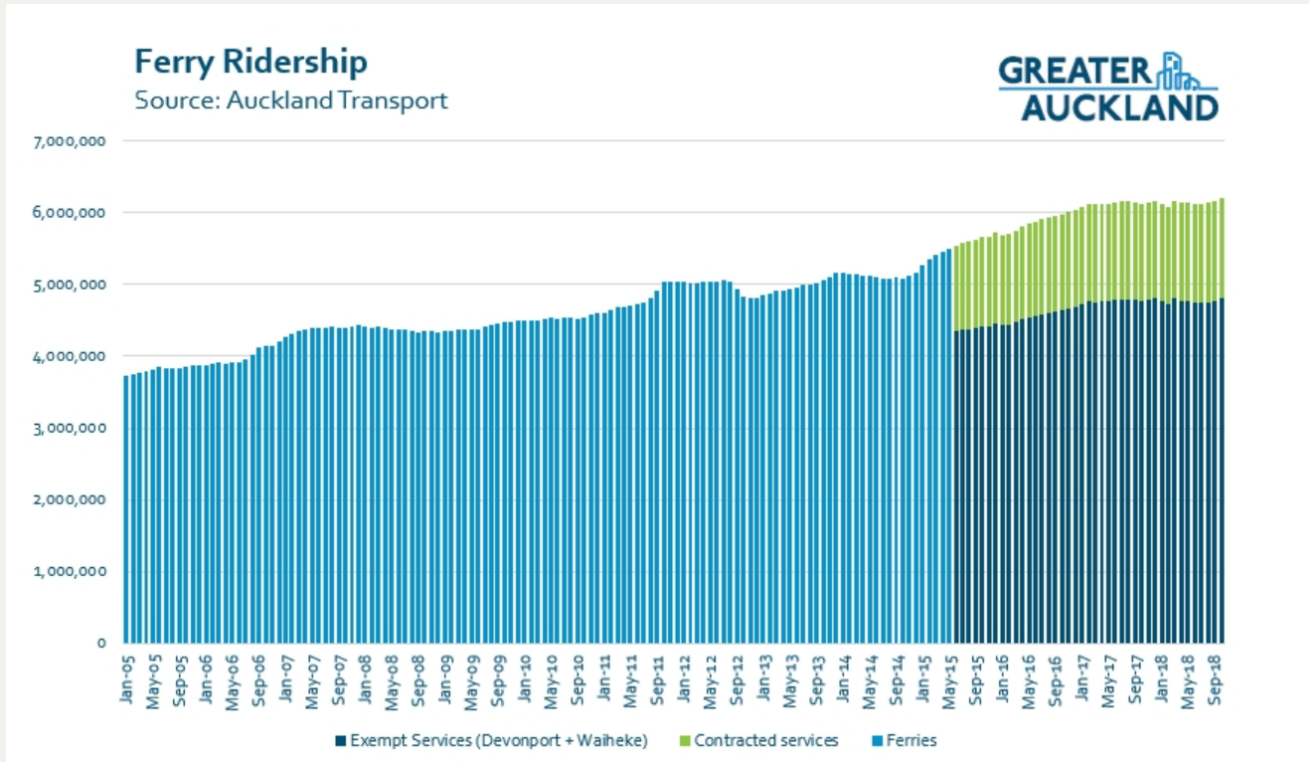
05 Discussion – Cost

06 Results & Analysis – Commute Time

07 Discussion – Commute Time

08 Limitations, Conclusions & Recommendations

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08 Limitations, Conclusions &

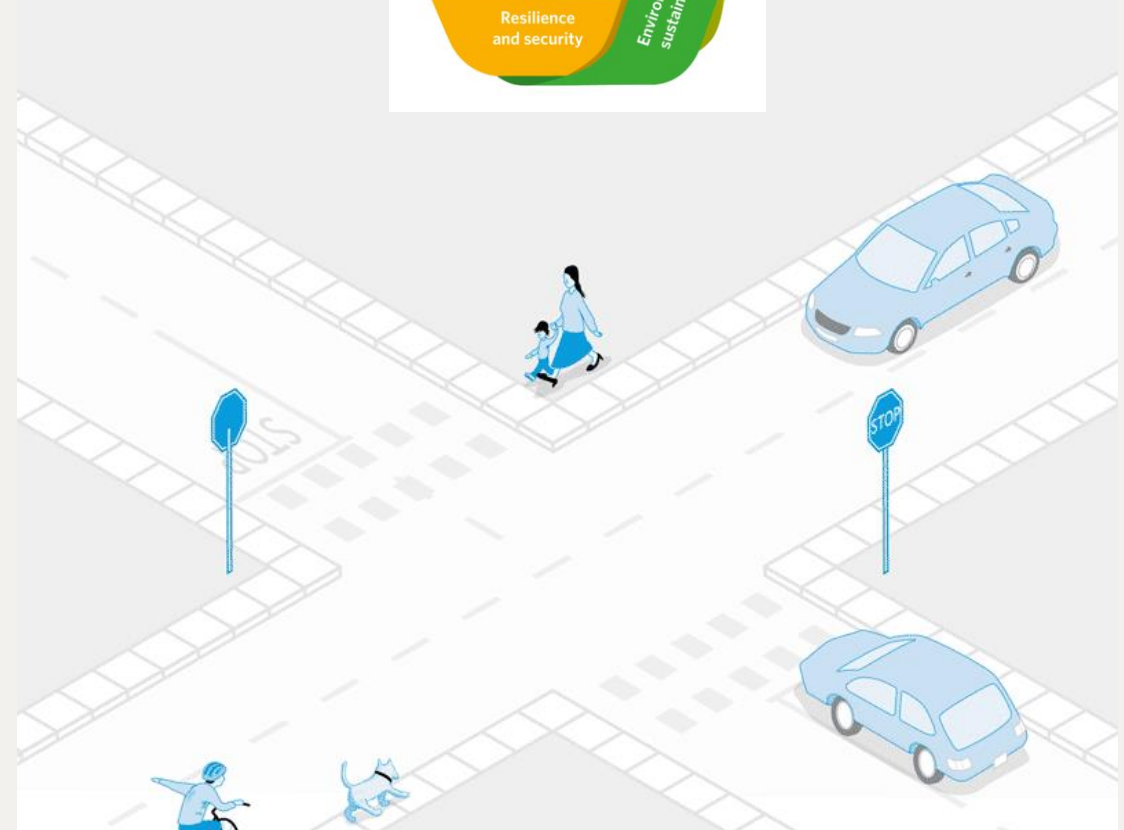
Recommendations

01 Introduction

A transport system that improves **wellbeing** and **liveability**



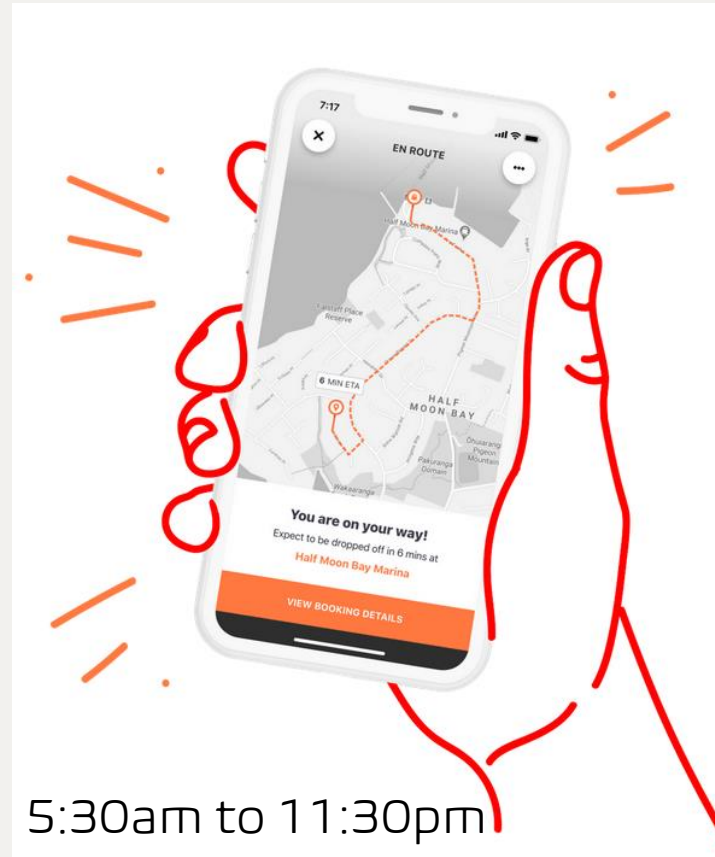
- ❖ Mobility as a Service (MaaS) is a relatively new on-demand transport service that requires an understanding of where it best complements fixed route services
- ❖ **Shared** Autonomous Vehicles (SAVs) when mature provide the potential for reduced operator costs BUT....there it is a long way off to providing real wider transport outcomes in complex traffic conditions







P. Antonson, "Self Driving Car Animation," 2021. [Online]. Available: <https://dribbble.com/shots/3897247-Self-Driving-Car-Animation>. [Accessed 10 2021].

Background of MyMobigo

- ❖ Replaced low patronage fixed route 714 Bus
- ❖ Connecting between the Half Moon Bay Ferry and preferred locations (\$3.50 fixed price, (\$2.50 concessions)
- ❖ Operating zones: Half Moon Bay, Bucklands Beach, Howick, Highland Park, Mellons Bay, Cockle Bay, Shelly Park & Botany Downs.
- ❖ Operated by Transdev (Howick and Eastern Buses), and Liftango.



Potential Benefits of On-Demand Transit Services

Social Equity Objectives	Why On Demand Transit?
<p>Mitigating against Climate Change</p> 	<ul style="list-style-type: none"> • Full buses produce significantly less CO₂ levels per passenger than cars (Avoid, Shift and Improve) • On demand competes with the car on convenience, encourages mode shift
<p>Making Transport more Equitable and Accessible</p> 	<ul style="list-style-type: none"> • Public transit should be available to everyone regardless of income, ability, or stage of life • On demand meets a diverse set of community needs and provides better service for riders
<p>Providing a Reliable Network</p> 	<ul style="list-style-type: none"> • On demand creates connectivity in unserved, low and medium density areas • On demand technology enhances the customer experience through notifications, vehicle tracking etc.
<p>Improving Safety</p> 	<ul style="list-style-type: none"> • Door-to-door service can reduce waiting time at bus stops and late at night - trained? drivers

02 Aim, Objectives & Scope

Aim: Evaluating the impact on travel behaviour from implementation of on-demand shuttles and potential SAVs.

Objective One

Appraise how on-demand services and SAVs will benefit passengers for mobility.

Objective Two

Assess key factors that influence users' choices regarding on-demand shuttles and SAVs.

Objective Three

Evaluate the travel behaviours and preferences of users in terms of on-demand shuttles and SAVs.

Scope: Is limited to the scope of the on-demand trials by Transdev in Half Moon Bay area.

Data Collection Methods



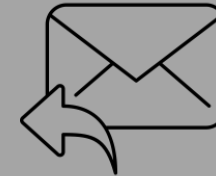
MyMobigo data was accessed through Transdev & Liftango



Letterbox distribution
of survey



Ethics application
approved on 16th July
2021

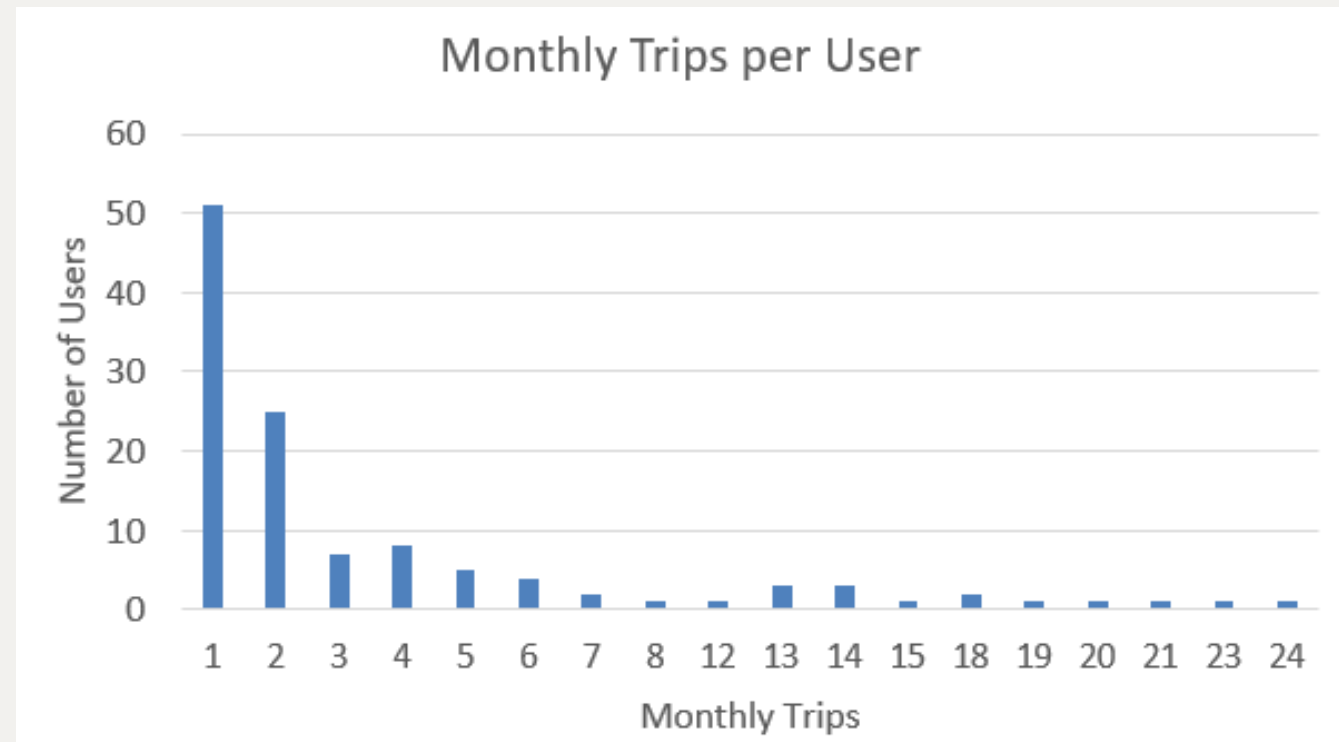


2450 flyers distributed
and 116 responses
received



04 Results & Analysis - Cost

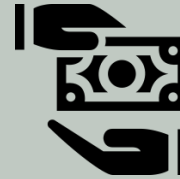
- ❖ Breaking down preferences by age groups for statistical significance was difficult due to sample size.
- ❖ Younger users travel mostly using bus.
- ❖ Majority of MyMobigo users only use it once or twice a month.
- ❖ Regular users are mostly commuters.



MyMobigo's User Demographics



35-49 year old
professionals



Salary is in excess of
\$100k

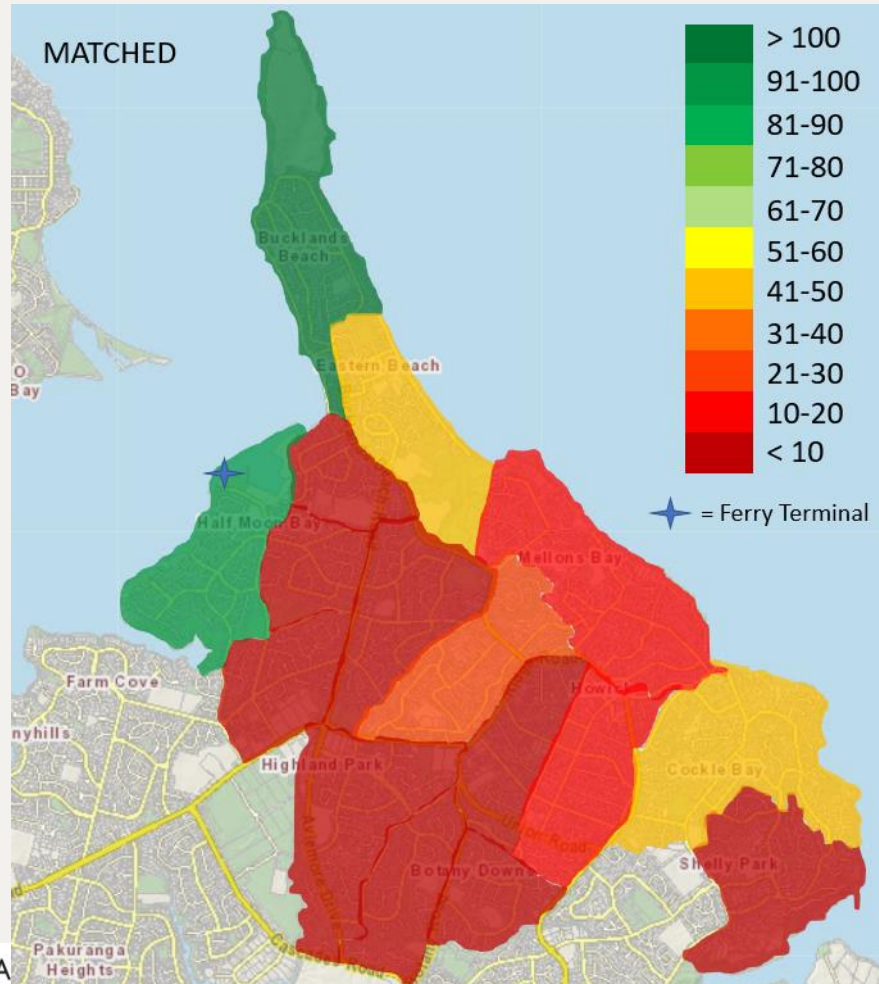


\$15 fare for MyMobigo
and Ferry is affordable
for these users



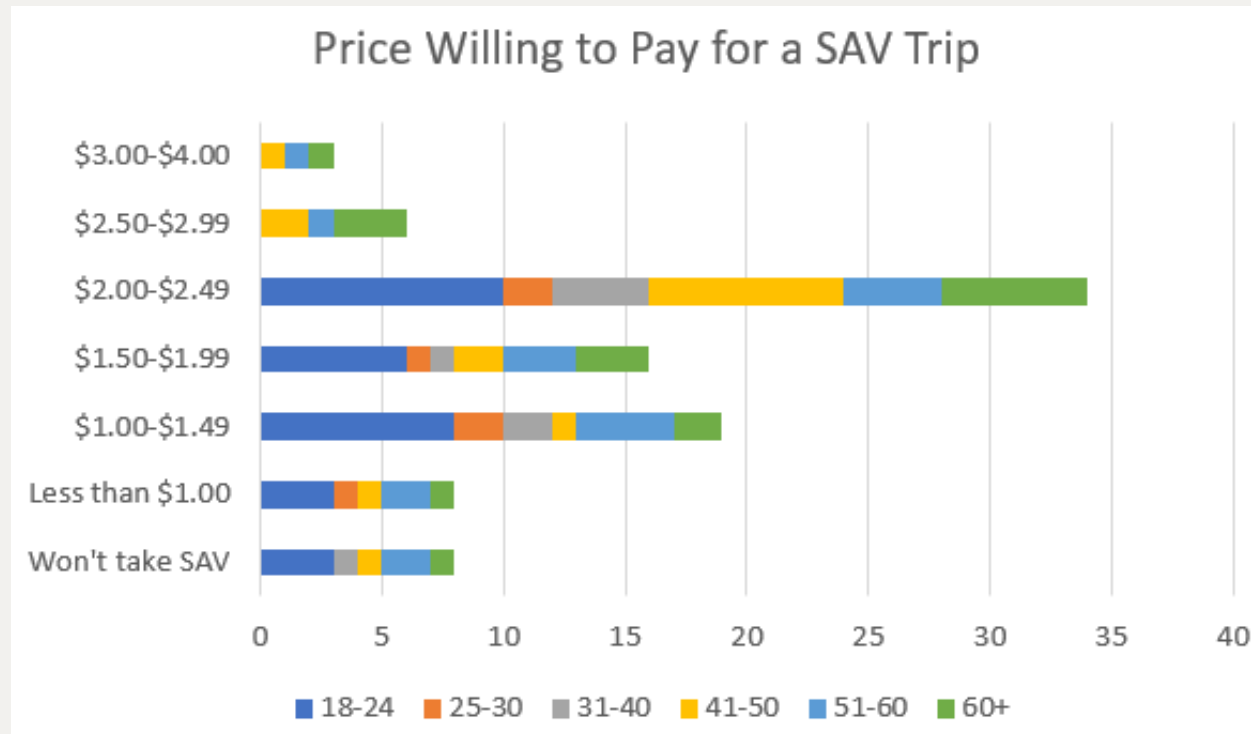
Ferry is an expensive way to travel to the city for lower income users

MyMobigo Trips



- ❖ Majority of trips came from Bucklands Beach North and Half Moon Bay West.
- ❖ These residents are among the highest earning in East Auckland.
- ❖ The ferry service majorly serves the higher income groups.

SAV Trips

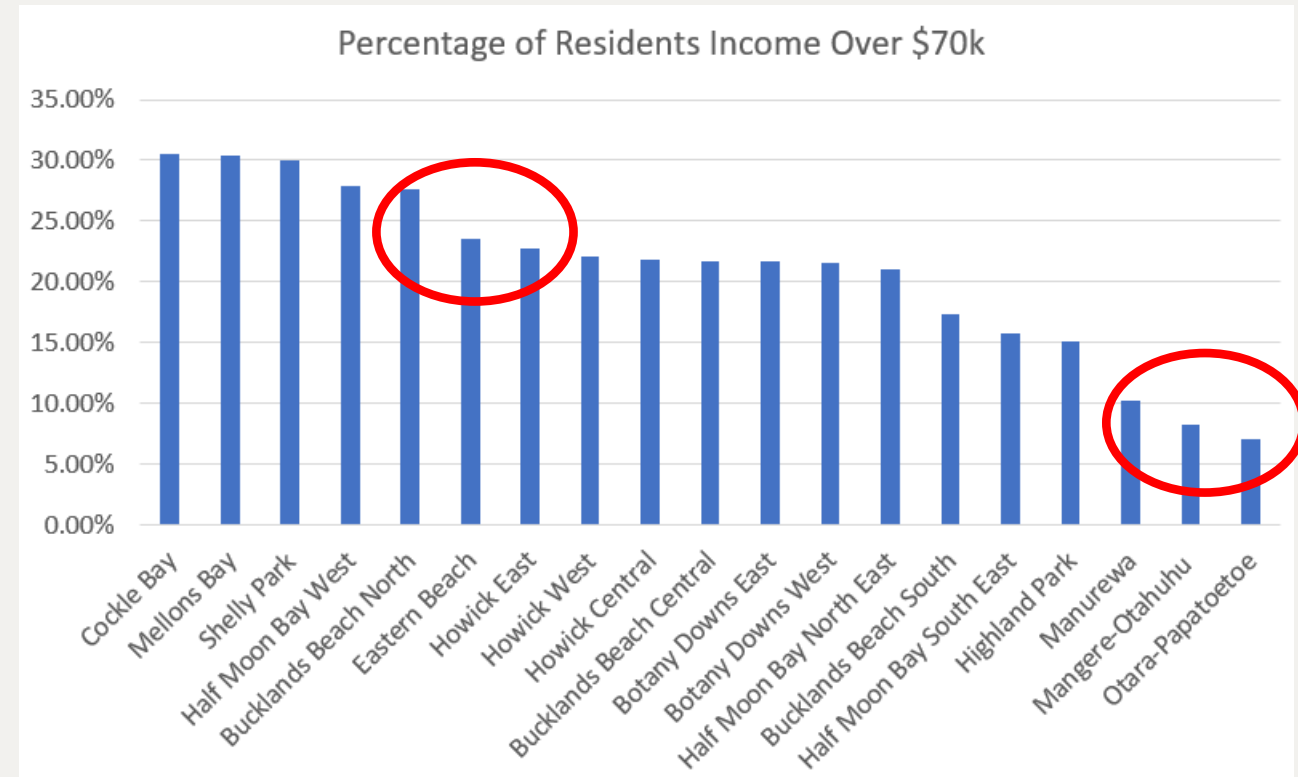


- ❖ SAVs are a potential future service as an extension to MaaS.
- ❖ Cost is a barrier for lower income users.
- ❖ Willing to spend \$2.00-\$2.49 for a SAV trip.
- ❖ There is some hesitancy to use SAVs.

05 Discussion - Cost

From census data:

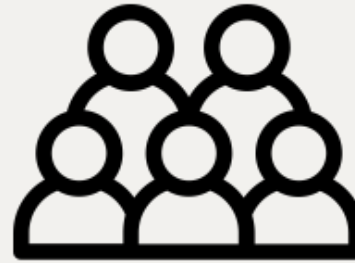
- ❖ 20-30% of residents in East Auckland earn more than \$70k.
- ❖ 5-10% of residents in South Auckland earn more than \$70k.
- ❖ This trial cannot be translated to other areas.



Travel Behaviours and Preferences



Cost is an important factor users consider.



Cost is currently a barrier to many *MyMobigo* users.



Students choose the cheapest public transport option available.

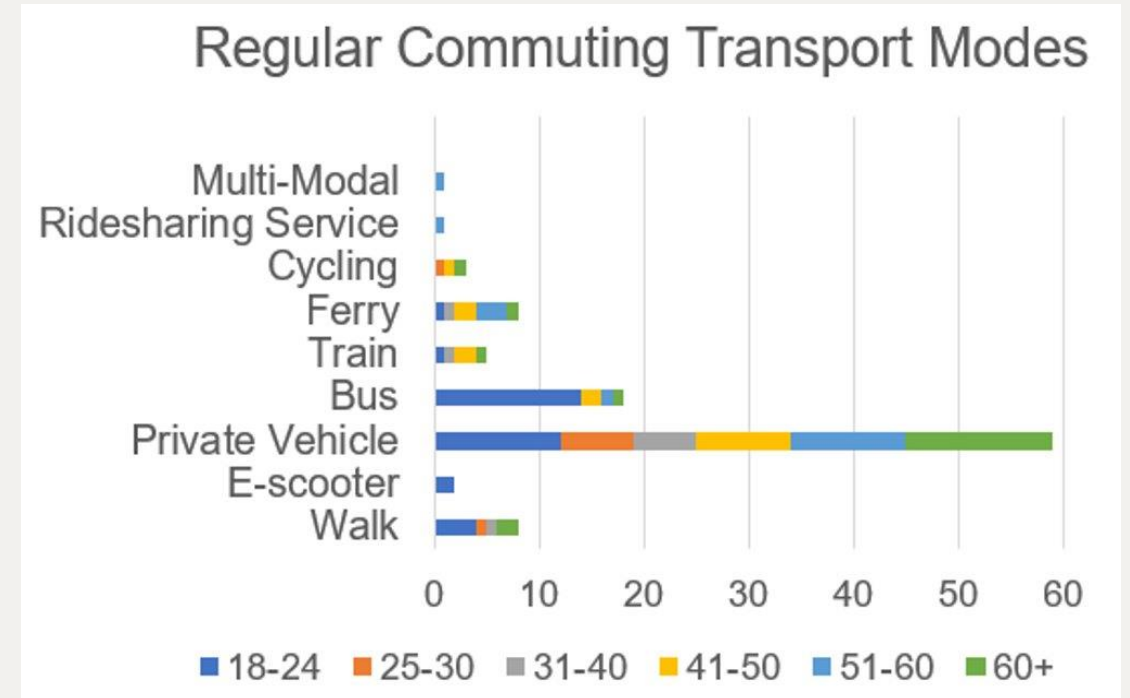
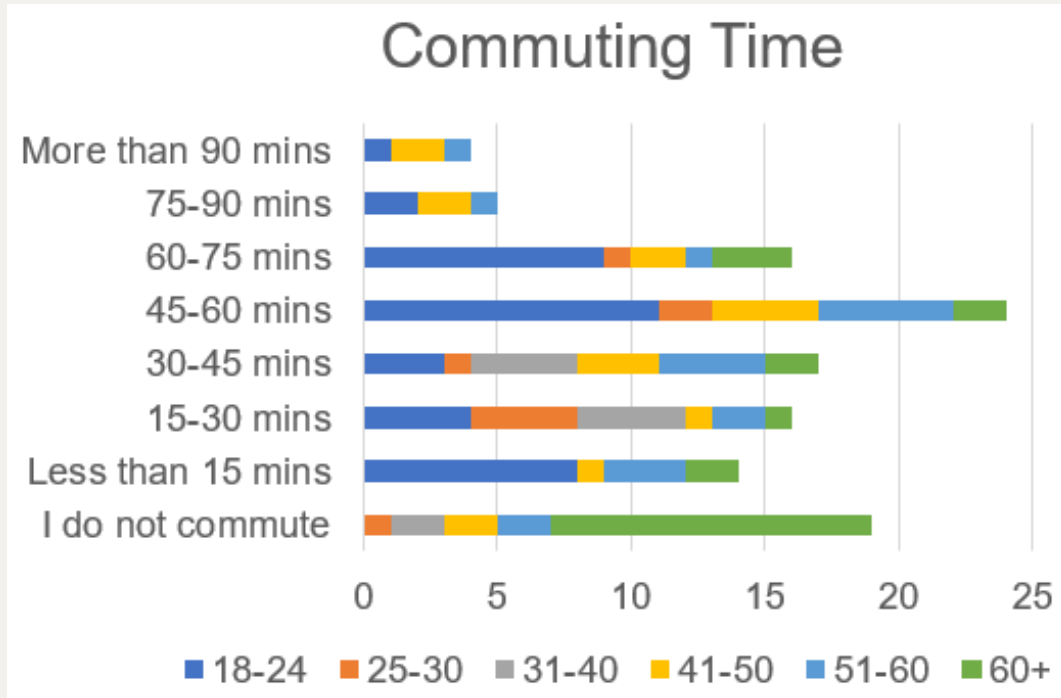


Higher income users choose transport with a higher service quality.



Avoid, Shift & Improve Carbon Strategy
Alongside Road to zero safety outcomes

Results & Analysis – Commute Time

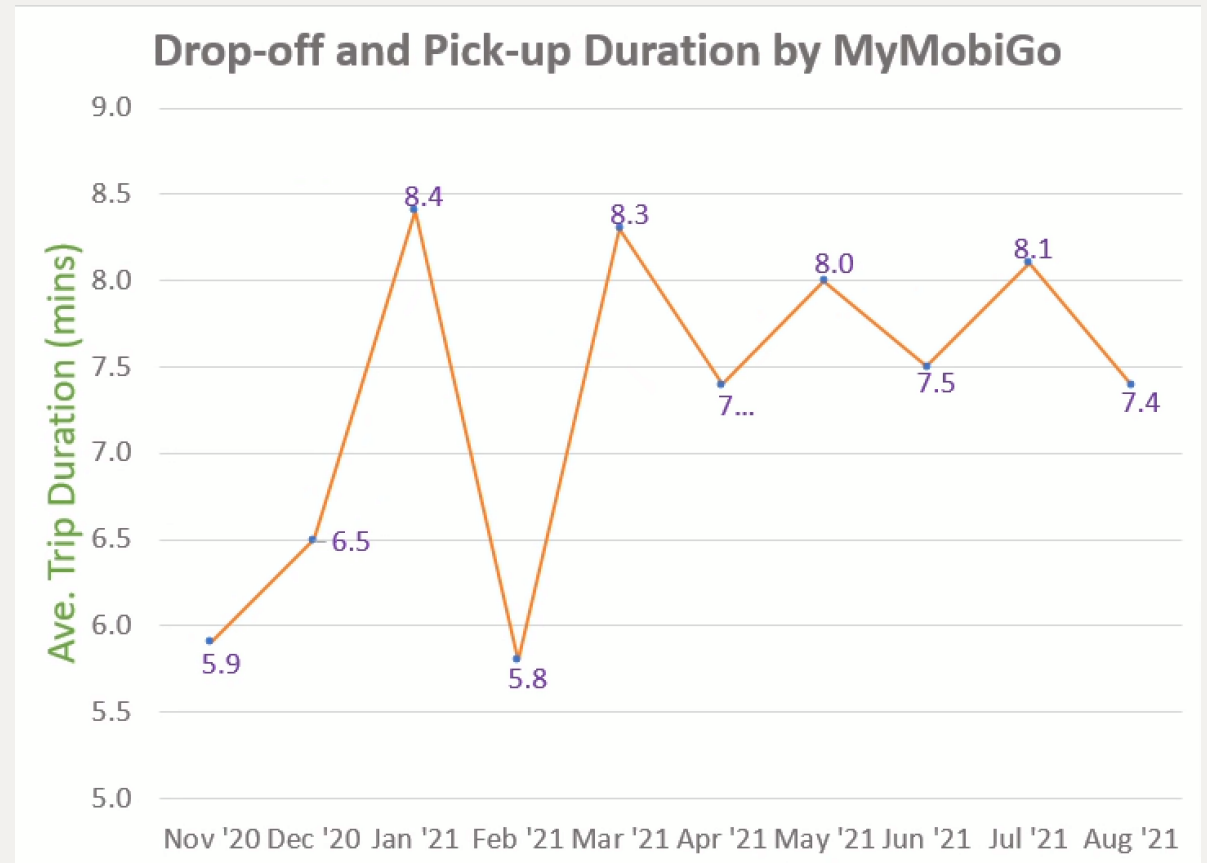


- ❖ Significant amount of commute time to work or school.
- ❖ 18-24 age group have a long commute time.
- ❖ The 60+ group do not commute.

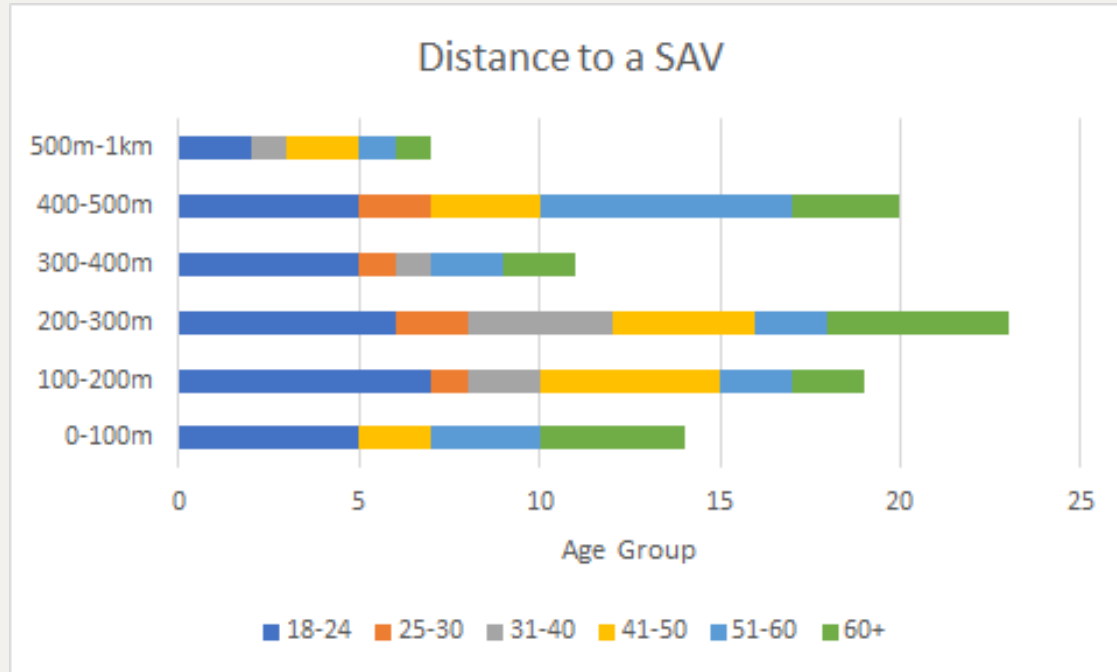
- ❖ Preference to commute by private vehicles.
- ❖ Bus is a regular transport mode taken by 18-24 age group.

MyMobigo Transfer Commute Time

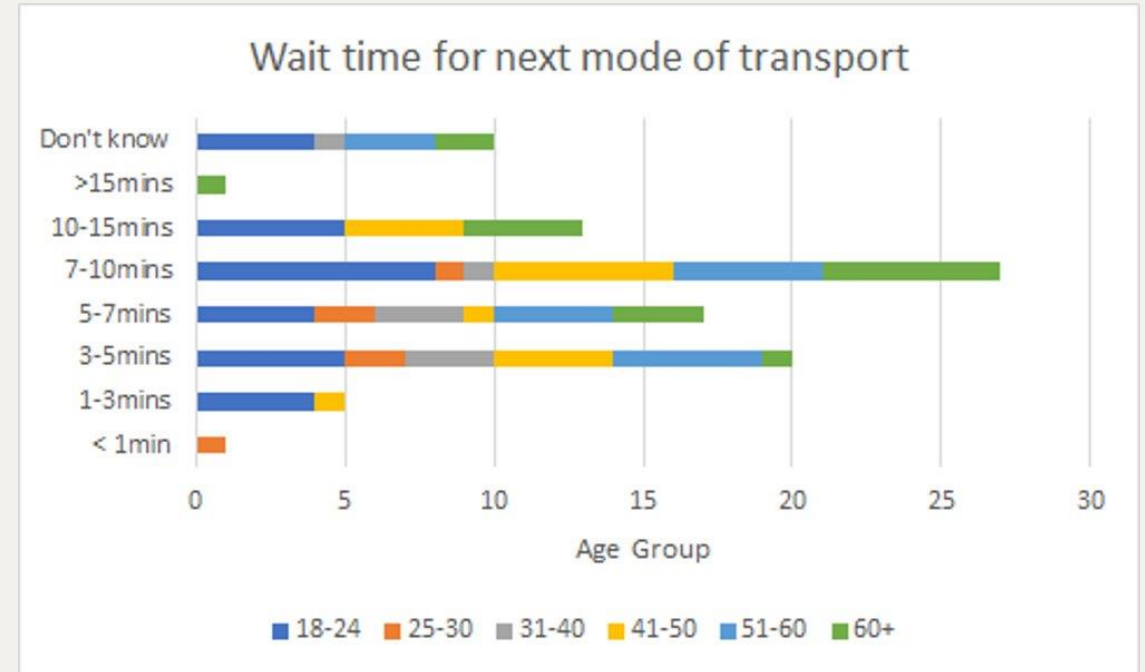
- ❖ Average pick up and drop off duration is between 5.8 to 8.4 minutes.
- ❖ Short and effective travel time.



User Preference Commute Distance / Time for ODT



- ❖ 18-24 age group are willing to walk 100-200m.
- ❖ Older age groups are willing to walk longer distances.



- ❖ 7-10 minutes wait time is the most selected.
- ❖ And many of them are in the 18-24 age group.

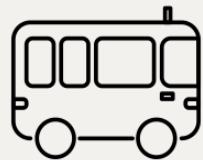
Benefits of MyMobigo Mobility



8 minutes between origin/destination and the ferry is short.



MyMobigo delivers short commute transfer time, convenience and stress reduction.



May take more than 1 bus if travel long distance by bus.



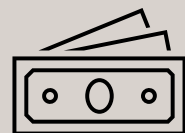
MyMobigo could attract more users if:

- ❖ Services expand to operating areas to greater zones.

00 Limitations, Conclusions & Recommendations

Conclusions

- ❖ The idea of ODT is great to improve access to MRT - it will take time to realise benefits
- ❖ Connections to more destination, mass transit stations.
- ❖ Travel time and cost influence user preferences.



Recommendations






- ❖ Need to carefully plan trials
- ❖ Where is the demand and where can demand be created
- ❖ Consider equity/access issues
- ❖ Pool various study learnings.



Limitations

- ❖ Small size of data collection.
- ❖ Covid effects on PT demand & price

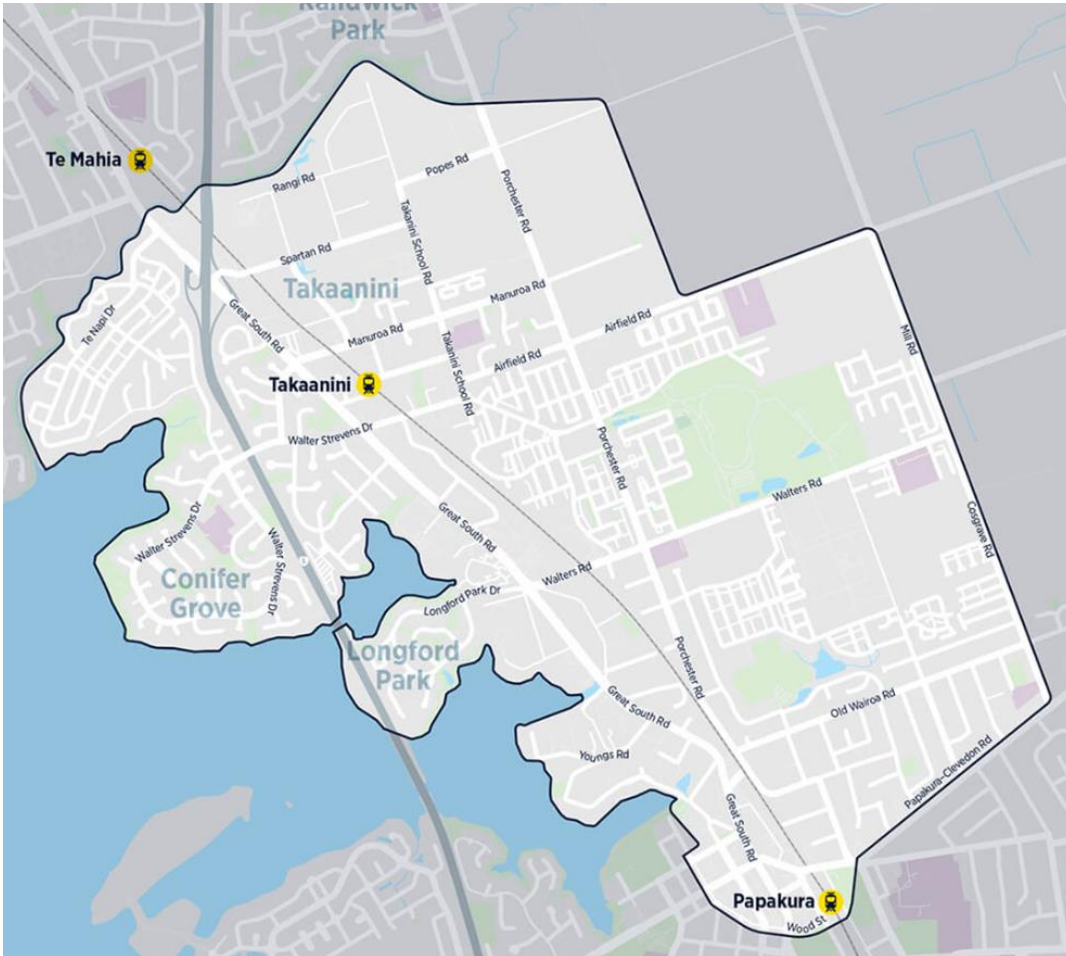


Legend	
	Bus route
	Direction of route
	Key station or connection point
	Train line
	Train station



70 continues to City Centre via Main Hwy, Great South Rd, Newmarket, Hospital and Symonds St.
72X continues to City Centre via motorway. On at Eilerslie Panmure Hwy off at Symonds St.

AT Local ODT Overview



Tell us where you want to go and when

AT Local has no fixed route or timetable.



Book your ride

You can book to travel straight away or up to 7 days in advance.

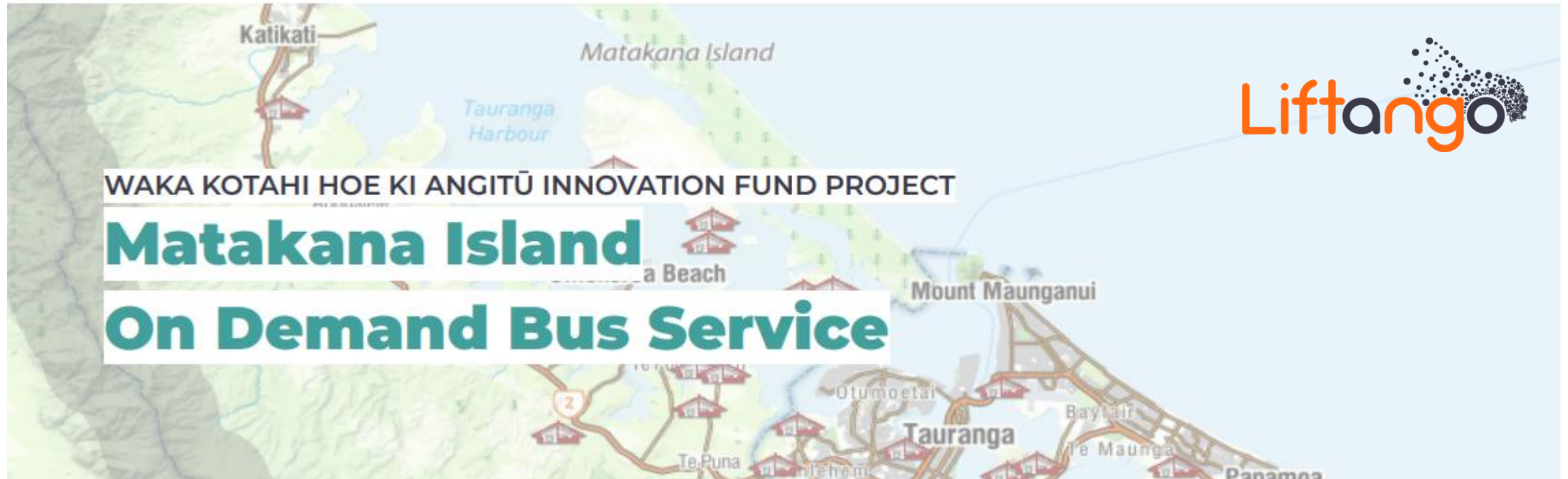


Walk to your pick-up point



Pay with your AT HOP card





Using a co-design approach, Māori will:

- be hands on in identifying the problems that most affect them locally
- co-design the solution that most benefits their local needs
- utilise their own vehicles, drivers and other assets in delivering the service
- directly own the community-based solution
- work with health boards and other relevant bodies to measure community health and social outcome improvements

Ngā mihi He Patai (questions)

Acknowledgements

- ❖ 2021 final BE(Hons) Civil Students
– Gabby and Thao (now graduate engineers)
- ❖ Sujith Padiyara (Technical support)
- ❖ Transdev & MyMobigo (Liftango)

