



AT Local: Alternative Public Transport Solutions Evaluation Report

An evaluation report on alternative public transport options to replace the existing On-demand service in Conifer Grove, Takaanini & Papakura

March 2025

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Owner (contact for updates, clarity etc)	Holly Smith, Senior Transport Planner		
Stakeholders for consultation	-		
Reviewed by	Service Network Development Manager		
Name	Kym Lilford	Signature	
Authorised by	Head of PT Services Planning and Development		
Name	Pete Moth	Signature	
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Glossary

Capex	Capital Costs associated with assets such as bus stop infrastructure and groundworks to facilitate a fixed route bus service
Customer Satisfaction	A measure that determines level of customer satisfaction. For the Auckland Transport AT Local service, this is measured through customer surveys and the AT Local app.
Farebox Recovery Ratio	Measures the contribution fares make to the cost of providing public transport services, and is typically expressed as a percentage.
Fixed Route Services	A public transport service operated to a published timetable, picking up and dropping off passengers at stops at fixed locations, with no capability to pre-book.
Key Performance Indicators (KPI)	Indicators used to measure the success of the initial trial.
On-demand Public Transport (ODPT)	A form of transport where vehicles adapt their routes and picks up passengers according to their needs, rather than using a fixed route or timetable.
Opex	Operational costs to run a public transport service
Optimisations	Measures that have been implemented to make most effective use of the resources available.
Public Transport Operating Model (PTOM)	The Public Transport Operating Model (PTOM) is the framework that governs how public transport bus and ferry services are planned, procured, and delivered. Public Transport Services are allocated into PTOM Units across Auckland depending on geography.
Rideshare	A form of transport where passengers travel in the same vehicle with other individuals.
Service Zone	Area operated by AT Local (approx. 14.5km square kms).
Subsidy Per Passenger	The subsidy cost per passenger based on the overall cost of the service and number of passengers.

Executive Summary

This report covers:

- The recent issues with the AT Local service.
- What Auckland Transport (AT) has done about these issues to better serve the growing demand for AT Local.
- The options AT looked at for public transport in the Takaanini-Papakura area.
- The changes for public transport in the Takaanini-Papakura area that are planned.

What is AT Local?

AT Local is AT's on-demand rideshare service. This type of public transport service doesn't have a fixed route or timetable – where and when the AT Local vans and cars run is decided by customers' bookings.

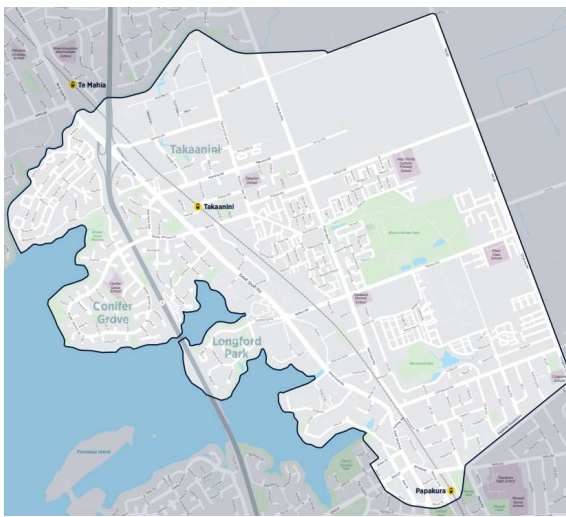


Figure 1: AT Local Service Zone (as of June 2023)

Every AT Local trip must be booked through the AT Local app or AT's call centre. Bookings can be made to travel as soon as possible, or up to seven days in advance. The booking system gives customers their pick-up and drop-off locations and times, and directs the drivers to pick up and drop off customers using the most efficient route. AT Local can be used to travel anywhere in the service zone (Figure 1).

AT Local has been running since October 2021. It runs seven days a week, from 5:30am until 9:30pm on weekdays, and from 6:30am until 8:30pm on weekends and public holidays.

Recent issues with AT Local

A lot more people have moved into the service zone since we started running AT Local. From census counts around 10,000 people moved into the area between 2018 and 2023.

As the population has grown – the demand for AT Local has also grown.

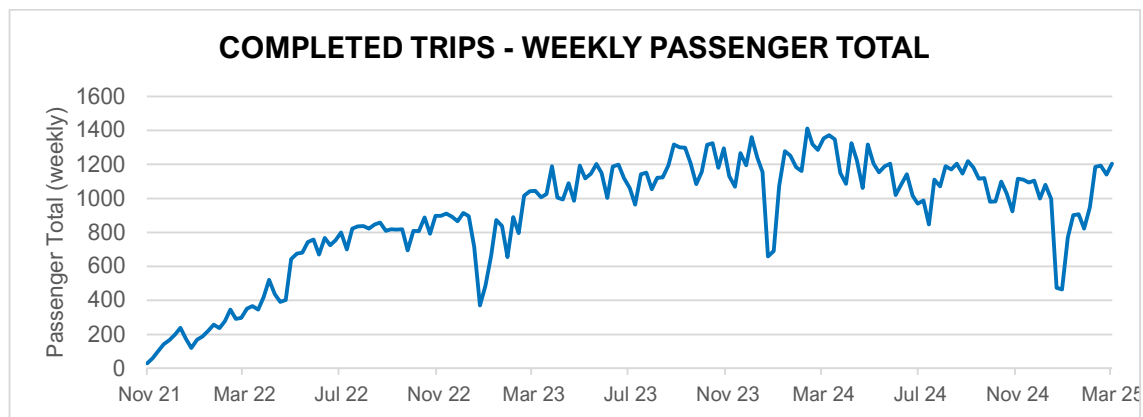


Figure 2: AT Local weekly patronage over time and original weekly target

More people are telling us that AT Local isn't available when they need it. Since mid-2022, only 20-40% of booking attempts have resulted in the customer actually using the service. The main reason booking attempts are unsuccessful is that the pick-up/drop-off times and locations offered by the booking system are unacceptable to the customer.

We also know some people find it difficult to use AT Local, particularly people with wheelchairs and other mobility aids, reduced mobility, prams and luggage.

As a result, we've seen a drop in customer satisfaction. In March 2022, 85 per cent of survey respondents were very satisfied with AT Local. That percentage dropped to 55 percent in June 2024.

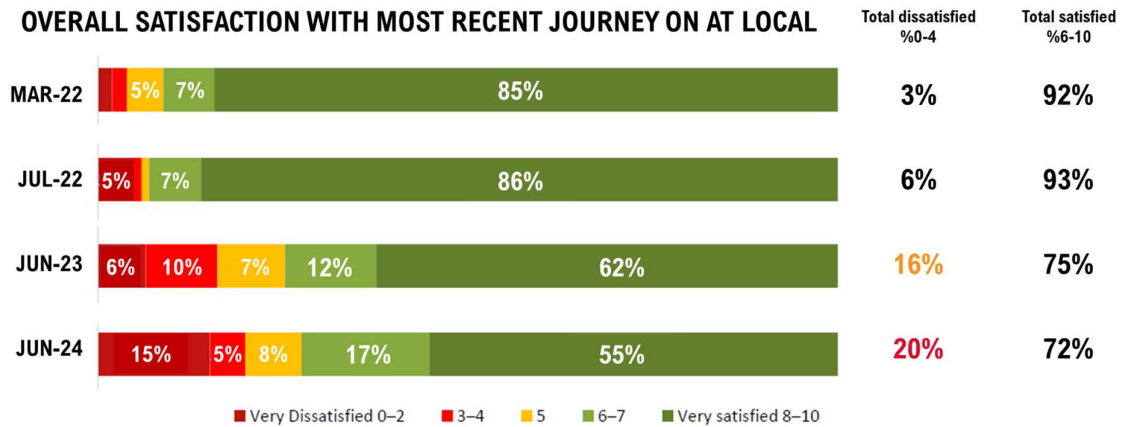


Figure 3: Overall customer satisfaction in AT Local has fallen significantly over time

What has AT done about these issues?

AT has done a lot to increase the number of customers AT Local can serve. For example, we have:

- Used larger vans.
- Reduced how long drivers will wait for late customers to one minute.
- Changed the way that the service planned trips so that drivers spend less time waiting, and more time moving customers.
- Directed drivers to take less direct routes and therefore pick up and drop off more customers during a single trip.
- Asked customers to avoid cancelling their booking at late notice.
- When the service is busy at the requested pick-up time, offered alternative pick-up times up to 45 minutes earlier and later than the requested trip time.
- Referred customers to alternative bus services. (This change didn't increase the number of customers who could use AT Local, but did free up space on the service for customers who did not have another public transport option.)

These changes have increased the number of customers AT Local can accommodate. However, the extra spaces have been quickly taken up by new customers, or customers previously unable to make a booking.

Continuing to make similar changes would negatively affect the quality of the AT Local service. For example, it would not be reasonable for drivers to wait less than one minute for a late running customer; and while less direct routes enable drivers to pick up and drop off more customers, it also means customers' trips can take longer, which makes the service a less attractive, feasible travel option.

Other public transport options

AT has looked at a range of options for how we can best meet the public transport needs of everyone travelling to, from and around the Takaanini-Papakura area. We want to provide public transport services that meet the needs of as many people as possible, and are the best value for money.

We looked at the following options:

- Keep AT Local and use more vehicles and drivers to run the service.
- Run a bus service in addition to AT Local.
- Replace AT Local with one or two new bus services.

(Bus services have a set timetable and route the drivers follow for every trip.)

Each of the alternative options would be more expensive to run than the current AT Local service. However, the current AT Local service is unable to meet the demand from people wanting to travel in the area.

AT looked at whether using more drivers and vans to run AT Local would solve the problems described above. We found that three more vans would nearly double the cost to run the service, but still only meet 98 per cent of the existing demand. So as demand for AT Local continues to grow, adding more vans and drivers is not a practical long-term solution.

We looked at whether we could support the existing AT Local service with a new bus service which would run in the same area. We found that while some passengers would switch to using the bus for some trips. However, demand for AT Local is so high that the spare spaces on the service would quickly be filled by new customers or customers previously unable to book the service. This means that in addition to the new bus service, we would still need more AT Local drivers and vans to meet the growing demand for the service. As a result, this is also not a practical long-term solution.

Replacing AT Local with a bus service was the only option we could identify that could meet current demand for public transport in the area, and still have enough space to meet future growth. Overall, a bus service would be better value for money - while it would cost two to two and a half times the running cost of AT Local, a bus service would be able to serve nearly four times the number of people.

What happens next?

AT will replace AT Local with a bus service. The final bus service will depend on the public feedback collected through consultation and available funding. No service changes will be made until public consultation has been completed.

The new bus service will allow people to replicate many of their existing AT Local trips, and there will be more room for more people. People won't have to book, and buses will follow the same route and use the same stops every trip.

The proposed new bus service would connect Papakura Station, Awakeri Wetlands, Takaanini Station, Conifer Grove, Waiata Shores and Manurewa Station. Buses would run every 30 minutes, seven days a week, from 5:30am – 11pm on weekdays, and from 6:30am – 11pm on weekends.

At the same time, we also propose to extend the existing 365 bus route on to Airfield Road to help serve people travelling north of Bruce Pullman Park.

Public consultation regarding these proposals is planned to take place in July 2025, ahead of AT Local being replaced by a new bus service in April 2026.

1 Introduction

In October 2021, Auckland Transport's (AT) second 'AT Local' On-demand rideshare service began running in Conifer Grove, Takaanini and Papakura as an initial 12-month trial. The service was made continuous in October 2022 after successfully meeting the trial's key performance indicators (subsidy per passenger, patronage and customer satisfaction) and is currently still in operation.

As part of the service being part of AT's continuous programme, AT regularly reviews the service to ensure that it is fit for purpose, meets customer needs and offers good value for money. In addition, AT continually explores ways to improve the service, improve customer experience and connectivity, such as increasing the size of fleet and the operating zone.

This evaluation report sets out the capacity issues that AT Local is experiencing and the measures that AT have taken to increase capacity and improve the service.

1.1 Background to the current service

As previously published, AT Local Evaluation Summary Report, provides a full background on:

- Why Takaanini-Papakura was selected for AT Local
- How AT Local works
- Learnings taken into the trial period
- The success of the trial and challenges
- Key lessons to improve the service

The report is hosted on AT's - AT Local webpage:

<https://at.govt.nz/media/ayspll0d/at-local-trial-2-papakura-takaanini-final.pdf>

When AT Local was first introduced (initially as a trial), AT set three KPIs relating to boardings, customer satisfaction and financial viability (Table 1). After 12 months, the service was meeting these targets, and the service was made continuous in October 2022.

Table 1: AT Local Key Performance Indicators

Patronage (Weekly Boardings)	Outperform 'Do Minimum' by 40% i.e., 600 - 1000 Weekly Boardings. (This reflected the performance of the previous fixed route service with some allowance for the effects of introducing the on-demand trial (extended catchment, new weekend service etc).
Subsidy per Passenger	Lower or equal to current: Between \$22 (2019 i.e., pre-Covid estimate for route 371) and \$37 (post-Covid estimate for previous local route 371)
Customer Satisfaction - Average Customer Rating	More than 70% of On-demand customers with 'high/very high satisfaction' score (8+ out of 10) based on On-Demand Satisfaction Survey

1.2 AT Local operating zone and service hours

AT Local operates in a 14.5km² (approximately) service zone (Figure 4). There are nearly 400 pick-up and drop-off points within this Service Zone, so most customers only have a short walk (~150m) at the start and end of their trip. The zone was extended to the northeast in June 2023 to provide connectivity further north along Mill Road.



Figure 4: AT Local Service Zone as at June 2023 when the zone was extended to the north-east

Customers book rides either via the AT Local smartphone app (provided by Liftango, the software supplier) or by calling the AT call centre. The app allows customers to send feedback and is available in several languages.

The service runs 7 days a week, between the hours of 5.30am to 9.30pm Monday to Friday and 6.30am to 8.30pm on weekends and public holidays.

1.3 371 bus service

Prior to the introduction of AT Local in the area, a local bus service was in operation – the 371. This bus service ran on weekdays between the hours of 06:00-21:30, every 30 minutes in peaks and 60 minutes in the off peak. It ran between Papakura and Takaanini train stations but did not serve Conifer Grove or Waiata Shores. This service was replaced by the AT Local trial in 2021.

1.4 Trip patterns on AT Local

Figure 5 shows the stop utilisation for the full year of 2024, between January and December. Figure 6 below shows the span of trips on AT Local in October & November 2024. Together these two visuals demonstrate the popular origin / destination hotspots and key activity areas.

Takaanini and Papakura town centres and train stations are key trip generators. Passengers travelling either to or from Papakura Central or Takaanini station cover around two thirds of

all trips on the service. Behind the two stations, Awakeri Wetlands follows as the next highest travel zone with around 1,500 trips across October and November 2024 starting here.

Figure 6 highlights that there are significant east to west movements that were previously not served by public transport.

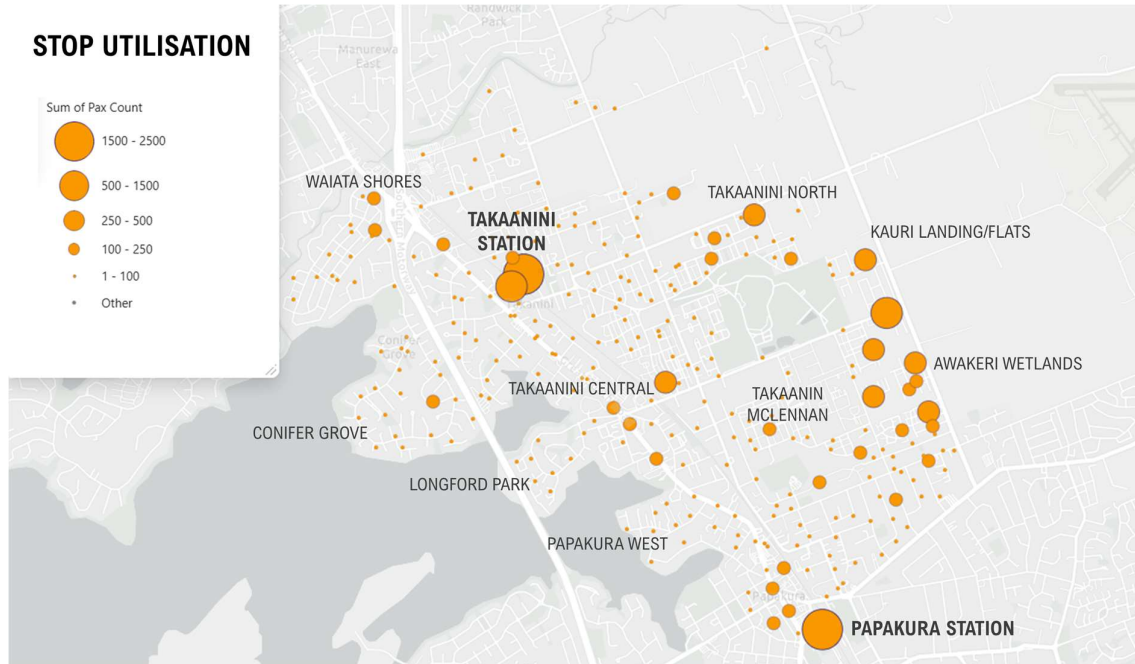


Figure 5: Stop utilisation, January – December 2024

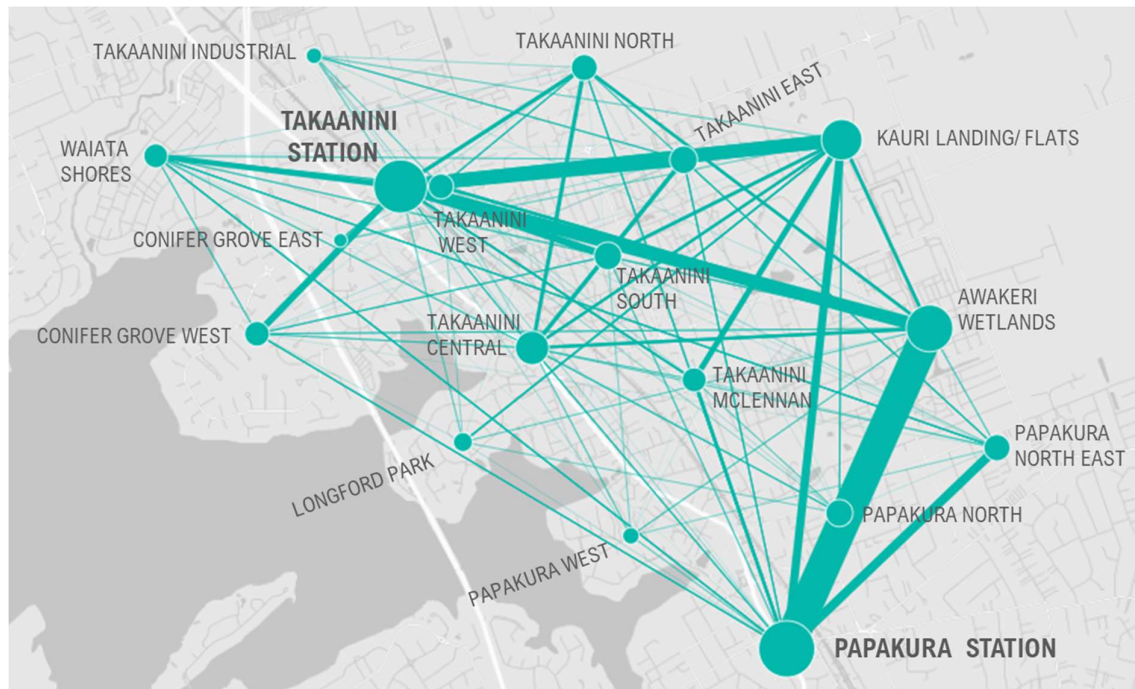


Figure 6: Origin-destinations for AT Local passengers, October & November 2024 (grouped by area)

1.5 Patronage over time

The patronage target for the trial period was for customers to take 600-1000 AT Local trips per week. The target range was established at the evaluation plan stage to outperform the 'do minimum' scenario (ie. no on-demand service at all, simply extend the existing 371 route to Conifer Grove) by 40%. This reflected the patronage performance of the previous fixed route service with some allowance for the positive effects of introducing the on-demand trial (extended catchment, new weekend service etc). The AT Local fleet size and hours of operation were therefore selected to be able to accommodate 1000 passengers per week.

Figure 7 (below) shows the number of weekly trips on AT Local since the service began against the original target range. The service first met the target range in May 2022, and has remained or exceeded the target range ever since, with the exception of the festive periods in 2022 and 2024. Since January 2023, the service has regularly been exceeding the target range and recorded the busiest week in February 2024, with 1398 trips taking place on the service. The increase in patronage over time reflects the increase in awareness and popularity of the service. In addition, there has been significant housing and population growth in the zone.

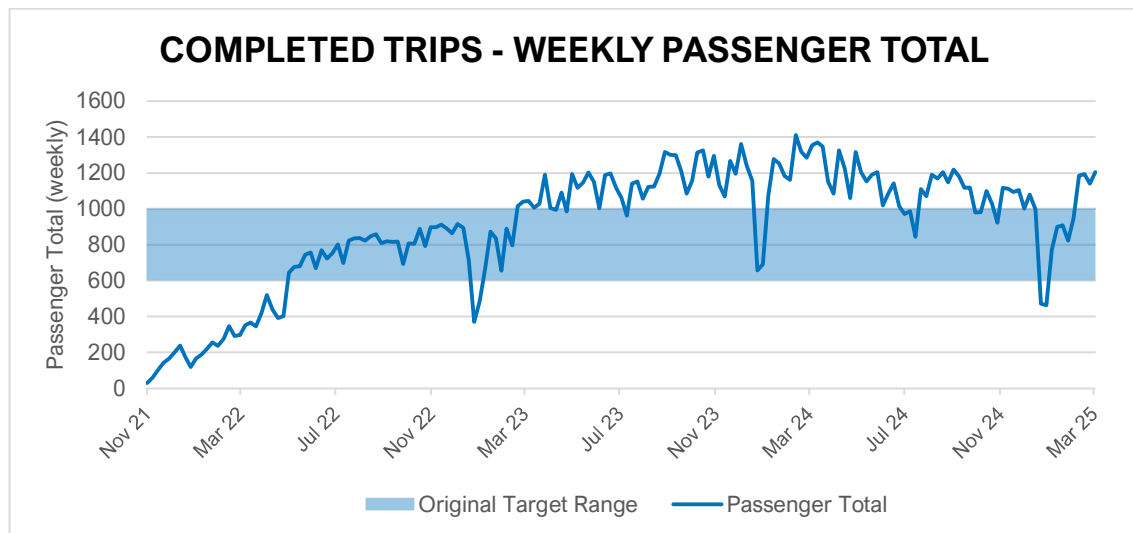


Figure 7: AT Local weekly patronage over time and original weekly target

AT has worked extensively with the AT Local software provider and service operator to implement a range of service optimisation measures to serve growing demand for the service as it has started to meet capacity constraints, indicated by exceeding the target range for which operations were planned (1000 passengers per week). These measures allowed some degree of patronage growth in 2023 and 2024, but with there being no ability to implement further operational fixes without degrading other service KPIs, further growth is not considered able to be accommodated.

1.6 Population growth

Based on census data, between 2018 and 2023, around 10,000 people moved into the Takaanini-Papakura area (Figure 8). Most localities within the Takaanini-Papakura area have a much higher growth rate than the rest of New Zealand (as seen in Table 2). Many local zones have a growth of at least 20% (see Figure 9), with some areas far higher. As an example, Takaanini South East (which mainly encompasses Awakeri Wetlands) has seen 2,000 new residents within the last 5 years alone at a growth rate of over 800%.

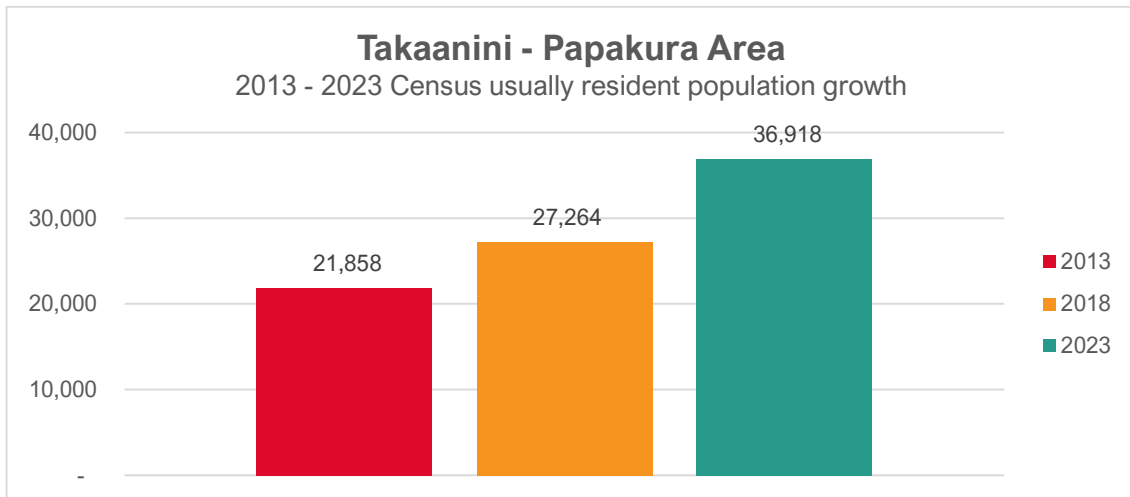


Figure 8: 2013 - 2023 Takaanini Papakura census population change

Table 2: 2013 - 2023 Takaanini Papakura census population change

Census	2013	2018	2023	% Change 2018-2023
Usually resident population				
Conifer Grove East	2,100	2,200	2,300	3.1%
Conifer Grove West	2,500	2,500	3,600	45.5%
Papakura Central	2,700	3,200	3,700	14.9%
Papakura North	3,000	3,300	3,700	12.6%
Papakura North East	1,900	2,000	2,300	17.1%
Papakura West	1,700	1,800	1,900	7.0%
Takaanini Central	1,100	1,200	1,100	-4.4%
Takaanini East	200	1,500	3,600	131.8%
Takaanini Industrial	100	-	-	-25.0%
Takaanini McLennan	800	1,200	2,600	115.6%
Takaanini North	2,000	2,500	2,600	4.6%
Takaanini South	1,300	2,800	4,200	51.1%
Takaanini South East	200	300	2,400	808.0%
Takaanini West	2,500	2,800	2,900	2.9%
Rest of NZ*	4,220,000	4,670,000	4,960,000	6.1%
Area totals rounded to nearest hundred, rest of New Zealand total to nearest ten thousand.				

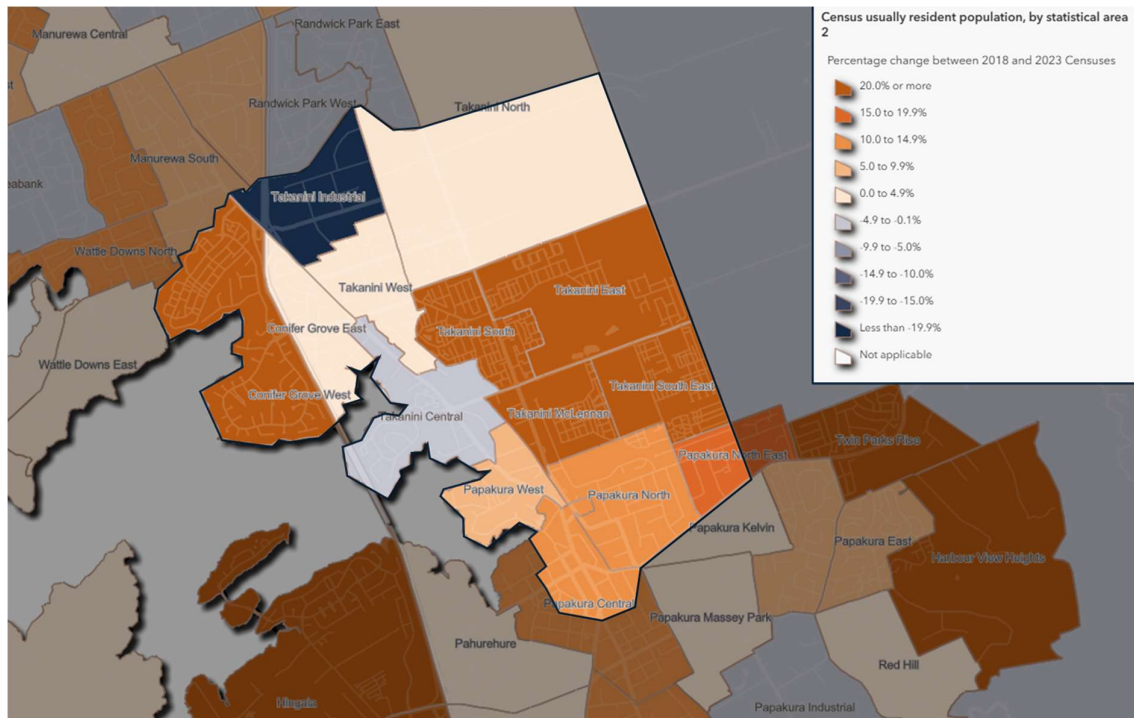


Figure 9: Population change between the 2018 and 2023 Censuses

2 Capacity constraints and service optimisation measures

The increase in demand on the AT Local Takaanini-Papakura service over time has resulted in capacity constraints and therefore an increase in the number of booking requests that are unable to be served. To address this, AT has worked extensively with the service software provider and service operator to provide additional capacity.

To make the most of the resources available and better manage the demand for the service AT has implemented a range of service optimisation measures. Measures implemented to increase the service capacity include:

- Behind-the-scenes changes to logic in the booking system, such as optimising the routing algorithms, and allowing longer journey times
- Offering alternatives, including providing a wider range of alternative trip times when AT Local was not available and rejecting requests within reasonable distance of a fixed route service alternative.
- Customer communication to discourage 'last minute' cancellations, as this prevented other users booking the service.
- Operational changes, such as increased vehicle capacity, and reduced driver wait time tolerance

The following sections provides more detail on each of these, and an assessment of the impact of the optimisation measures on capacity explored further in **3.2 The impact of optimisation measures on trip requests**.

2.1 Changes to booking logic

2.1.1 Amended the algorithm that sets AT Local drivers' routes and passenger journey times.

From August 2023 the slope of journey times was increased by utilising the 'spare' time that was generated from trips arriving early. The time generated from early trips was reallocated to serve trip requests and therefore increase service capacity.

2.1.2 Increase tolerance for maximum journey times

In July 2024, journey times were increased incrementally by a factor relative to the direct drive time between two points. If a direct journey between two points takes 5 minutes by car, the initial maximum journey time for AT Local was 2.15 x 5 minutes. AT increased this ratio gradually from 2.15 to 3 by 0.5 per week.

Customers did not experience a significant increase in individual journey times, but more time was created for the service to pick up more passengers and more journeys were therefore shared.

2.2 Offering alternatives

2.2.1 Rejected trip requests that could be completed using a fixed route service.

Since AT Local went live at the start of the trial period, trips could not be booked that could be served by train between Takaanini and Papakura stations.

In March 2024, this initiative was expanded and AT Local rejected requests for trips that could be served by fixed route bus services that operate in the zone. Therefore, if a trip

request for AT Local started and finished within 150m of a fixed route bus stop and within 15 minutes of a fixed route service, the customer would be re-directed to AT's journey planner and prevented from booking AT Local.

The parameters for re-directing customers onto a fixed route service can be altered, for example, the walking distance to/from a fixed route bus stop could be extended to cover a greater catchment.

This measure ensures that capacity is freed up and priority is given to customers who do not have access to a fixed route service. During its highest week to date, approximately 9% of booking requests were re-directed to travel using a fixed route service.

In July 2024, the catchment to be re-directed onto a fixed route was increased incrementally by 50m per week to 400m. Incrementally increasing the distance reduced the impact to AT Local customers.

2.2.2 Offering greater alternative ride windows to customers.

From August 2023, customers have been offered alternative ride windows of up to 45 minutes before and after their requested ride time, if their requested ride time was unable to be matched. Customers were previously offered an alternative ride window of 30 minutes before and after their requested travel time.

It is acknowledged, that this is unlikely to make a difference for customers requesting rides at a short notice, however for customers booking in advance, they may be more willing to change their travel times based on the availability of AT Local.

2.3 Customer communications

2.3.1 Directly contact customers to discourage 'last minute' cancellations.

If customer cancels a trip 'last minute' (within an hour of the requested pick-up time), this prevents other users from being able to book the service. If a customer cancels with more than an hours' notice, this provides sufficient time that can be reallocated to another trip request.

2.4 Operational measures

2.4.1 Increasing vehicle capacity.

In November 2023 AT replaced the existing two 10-seater vans with three 18-seater vans to operate AT Local. From November 2023 the fleet consists of three 18-seater vans and three 3-seater cars. However, due to financial constraints, the operations timetable has remained the same. AT does not have sufficient budget to operate all vehicles throughout the day and instead prioritises providing more vehicles at peak times. At peak times AT Local therefore operates with 3-vans and 1 car and at off peak times with 2-vans.

2.4.2 Reduced the amount of time the AT Local vehicle will wait to pick up passengers.

The AT Local vehicle would previously wait up to 2 minutes for a passenger to arrive at the pick-up location. From April 2023 this was reduced to 1 minute. The extra minute saved across each trip provides additional time for more trip requests to be served.

2.5 Other measures explored

In addition to the above measures, AT in collaboration with the software provider has explored significantly reducing the number of pick-up and drop-off points and reducing the amount of time that customers can book the service in advance. Both measures were assessed to have little impact on demand, and customer experience and quality of service would deteriorate as a result. In addition, throughout the service Liftango has continuously worked to improve the efficiency of the front and back of the software to increase capacity and improve customer experience.

Increasing the designated 'arrive by' and 'leave after' time window for trip times was investigated. Currently, this is set at 15 minutes - meaning the app currently looks at trip availability 15 minutes before the 'arrive by' time specified, or 15 minutes after the 'leave after' time specified. Increasing this window would have given the AT Local algorithm more flexibility when scheduling and allocating trips, therefore making more efficient use of the AT Local vehicles on the road at the time.

However, it was decided to offer more alternative ride windows instead (as listed in section 2.2.2 above). Meaning that if the service is unable to run within the standard 15-minute arrive by or leave after window, that other trip times are offered, +/- 15, 30 or 45 minutes from the requested trip time. This gives users more options when the service is unable to provide the original requested trip, without impacting customers at times when the service is available. As a result, the leave after and arrive by windows have been consistently set at 15 minutes.

3 The need for an alternative solution

3.1 Proportion of completed bookings is decreasing despite patronage increase

Whilst the patronage of AT Local has increased over time (Figure 7) the overall proportion of completed trips as a percentage of all booking attempts has fallen (Figure 10). This data is complex to analyse, but the following are the key points:

- Figure 10 shows all booking **attempts** – and is not a direct measure of demand. This is explained further below.
- This does however give an estimate of how well the service is able to meet customer needs.
- Since mid-2022, only 20-40% of booking attempts have resulted in the service being used.
- The main reason booking attempts are unsuccessful is that the pick-up/drop-off times and locations offered are unacceptable to the customer.

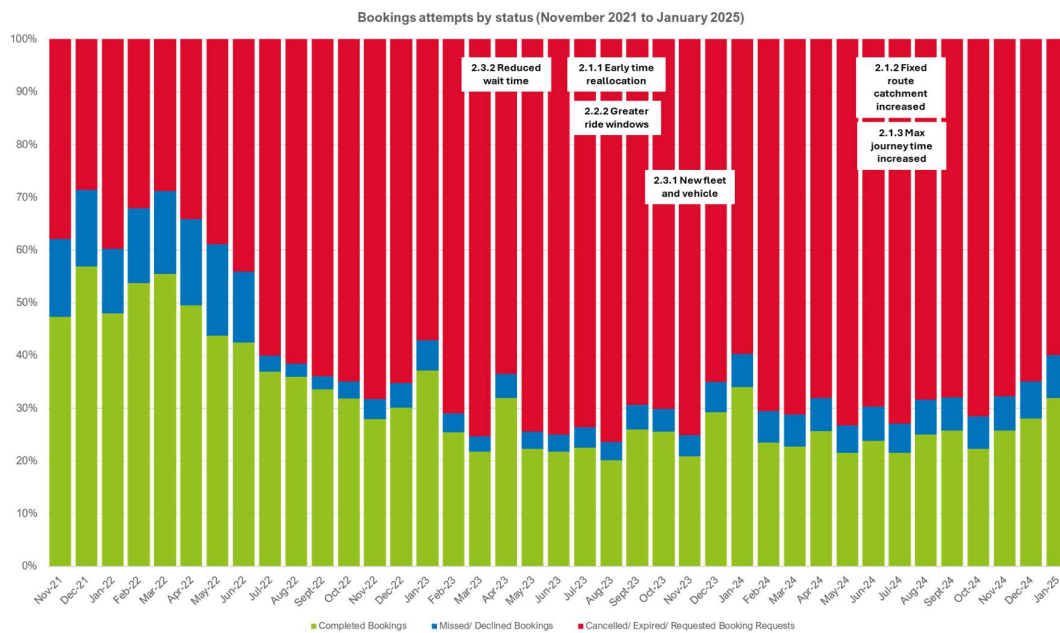


Figure 10: Booking status as a proportion of total bookings since the service began, including timeline of service optimisation measures discussed in previous section

Table 3: Booking status explanation

Portal status	Explanation
Completed	This status represents that a trip has been completed.
Missed	The customer is not at the pick up location, the driver waits for the designated time and marks the trip with No Pickup.
Declined	When a user accepts a match and then decides to no longer use the trip, the status is set to declined.
Cancelled	When a user requests a booking but does not like the trip offered and selects to cancel the request. Note that it is not a booking at this stage.

Portal status	Explanation
Expired	If the user has exceeded the 3-minute reservation timeout upon making a trip request the status will be set to expired.
Requested	A booking has been requested and the user has not accepted the match OR there was no match that could be made due to the availability capacity and location of the vehicles, as well as the time.

It is important to note that booking requests (as outlined in Figure 10) are not a complete reflection of service performance and demand. A completed trip proportion of 33% does not necessarily mean that only 1 in 3 trips requests can be completed but instead that only 33% of trip requests go on to use the service.

For example, Customer A could request to book AT Local and reject the ride that is offered to them. They instead try to book again as they are hopeful that another trip may have been cancelled and capacity freed up for them. On this occasion AT Local is still not available at the exact time Customer A wishes to travel and therefore they reject the ride again. This scenario has been recorded as two booking requests that are rejected by the customer and reflects poorly on the service but there was only demand for one trip.

As the demand for the service increases, customers respond by booking in advance to secure a 'matched' trip. This means that customers 'speculatively' book in case they might need to travel in the future, and then cancel closer to the time of their journey. In the meantime, because of this booking, fewer other trip requests can be 'matched' which subsequently increases the amount of 'service' and 'rider' rejected trips. Whilst this scenario is recorded as a 'rider rejected' ride, it is not a reflection of the service being unable to offer a suitable trip and has further negative effects on booking status.

Figure 10 shows the status of attempted bookings since the service began, where a "completed" status indicates a successfully made trip. After an initial ramp up phase, the percentage of matched trips dropped to approximately 30% around September 2022, and remained at between 20%-40% (with exceptions around holiday periods). This data also shows the proportion of attempted bookings that either the service or the customer rejects (Red) has also reached a steady state (around 65% of all bookings attempted), as demand on the service grows. Broadly, a customer may reject a ride offered to them because:

- The customer's plans have changed, and they cancel a booking that they have made in advance.
- The pick-up/drop-off points offered did not suit the customer.
- The pick-up/drop-off time did not suit the customer's needs.
 - As covered in section 2, since August 2023 customers have been offered an alternative ride time of up to 45 minutes before and after their requested pick-up time.
- The customer cancels a speculative trip request
 - This happens when a customer requests a trip as they know the service is busy and they may need to travel. They later cancel the trip as it gets closer to the requested time.

A service rejects a booking request if customer demand exceeds the available capacity of the service during the requested time and/or available alternative windows.

Whilst booking requests as a measure of service demand and utilisation may not capture the full context of bookings that weren't realised, the results are still consistently symptomatic of

the broader service issue of demand exceeding supply and demonstrates customers adapting their booking behaviour as a result. This leads to further capacity constraints on the service.

3.2 The impact of optimisation measures on trip requests

Section 2 outlines the number of system optimisations have been implemented to better serve demand and provide as much choice and flexibility as possible with the service.

Booking attempts by system status are shown in Figure 11 below. As each measure has been implemented there has been an increase in capacity and broadly a short-term decrease in the percentage of booking attempts that are rejected by the system (these are shown in pink). For example, the percentage of ‘service rejected’ trips fell from approximately 40%, to 35%, to 25% across August & September 2023, as vehicle waiting times were reduced from 2 minutes to 1 minute.

Note that Figure 11 represents system status (ie what the booking system has registered as an action), and is different from the data in Figure 10 (ie, what customer actions have been taken). So the “Service Rejected” trips in Figure 11 may generally correspond to a subset of red “Requested” trips in Figure 10, but not entirely due to other system possibilities such as a booking offered but never confirmed.

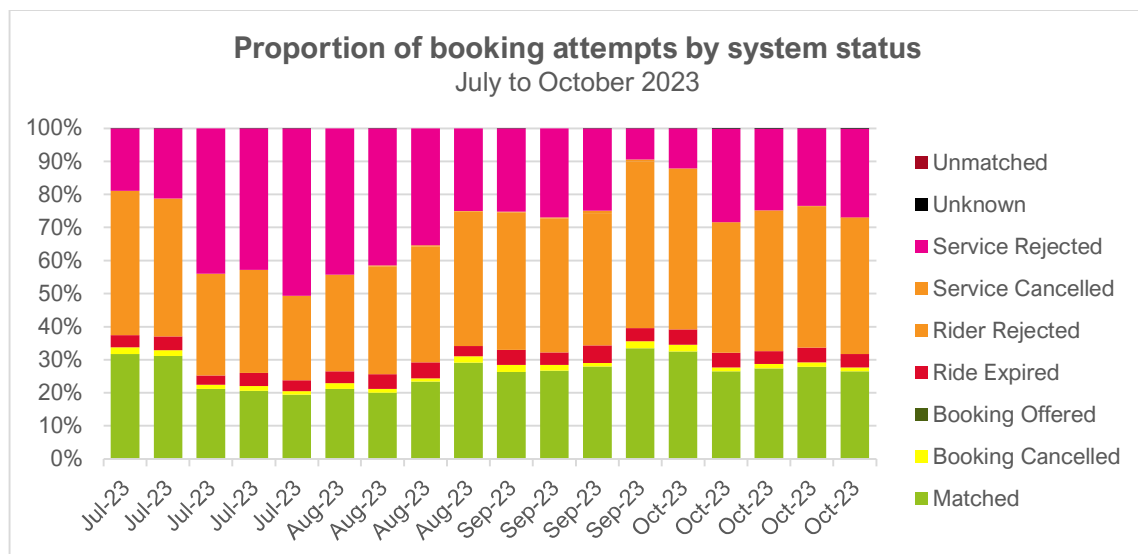


Figure 11: Proportion of booking attempts by system status – July to October 2023

Overall, whilst the proportion booking attempts that were ‘service rejected’ fell, this does not directly transfer to a consistent increase of ‘matched’ trips. Customer demand on the service continues to grow and any additional capacity is quickly absorbed.

As covered in section 2, allowable journey times were increased incrementally in July 2024. As a result of this optimisation, people moved went up by 17%, people per vehicle by 8.2%. At the same time passenger rejection increased by 17%. This shows the trade-offs that system optimisations make between efficient and higher capacity service and the attractiveness of the service.

As highlighted previously, the proportion of matched trips since September 2022 is fairly consistently between 20%-40%. This means that in general, only 20%-40% of all booking requests go on to use AT Local and that, despite the optimisation measures, the system is still not able to adequately meet growing demand.

3.3 Customer satisfaction in the service has fallen

Based on the above it is important to understand that whilst booking status percentages provide valuable insight, they do not tell the full picture, and it is therefore important to look at other metrics such as how satisfied a customer is with their most recent journey on AT Local.

As outlined in the introduction of this report, one of the key performance indicators (KPIs) throughout the trial period was customer satisfaction. This is measured through the annual AT Local customer satisfaction survey. The target for the trial period was for at least 70% of respondents to be 'very satisfied' with the service, (a score of 8+ out of 10). In addition to annual customer satisfaction survey, customers can record feedback on a regular basis through the AT Local app.

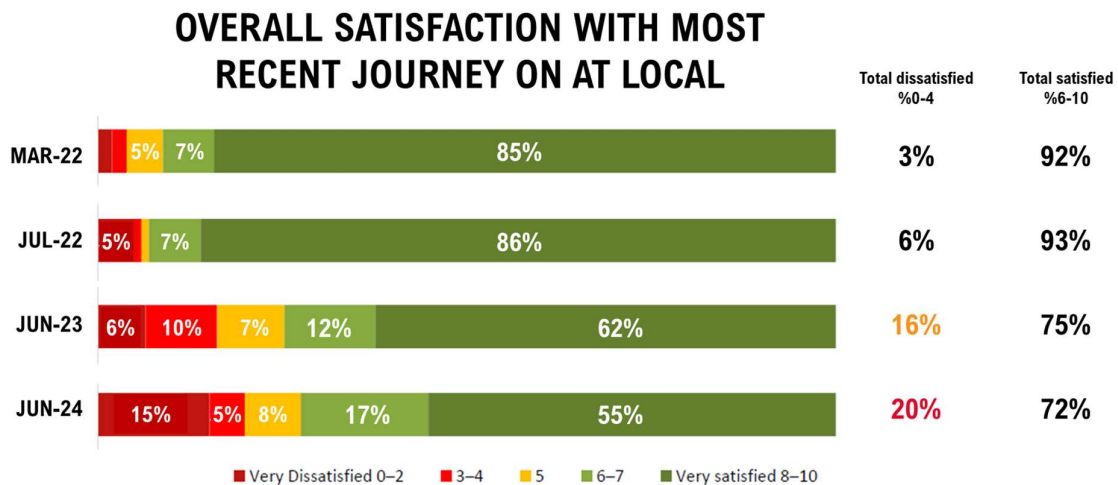


Figure 12: Overall customer satisfaction in AT Local has fallen significantly over time

Figure 12 (above) shows the overall satisfaction of AT Local customers with their most recent AT Local journey. From July 2022 to June 2023 the in terms of 'very satisfied' the service fell from 86% to 62%. This then fell to 55% in June 2024. The service is therefore underperforming and has been failing to meet the original trial KPI since June 2023.

In addition, Figure 13 (below) shows the satisfaction of AT Local customers across multiple elements regarding the service. Satisfaction in the service has fallen across all elements from July 2022 to June 2023 and subsequently decreased further to June 2024. Most significantly, 'the service was available when I needed it' has fallen from 68% to 39% to 37% across the last three surveys waves respectively.

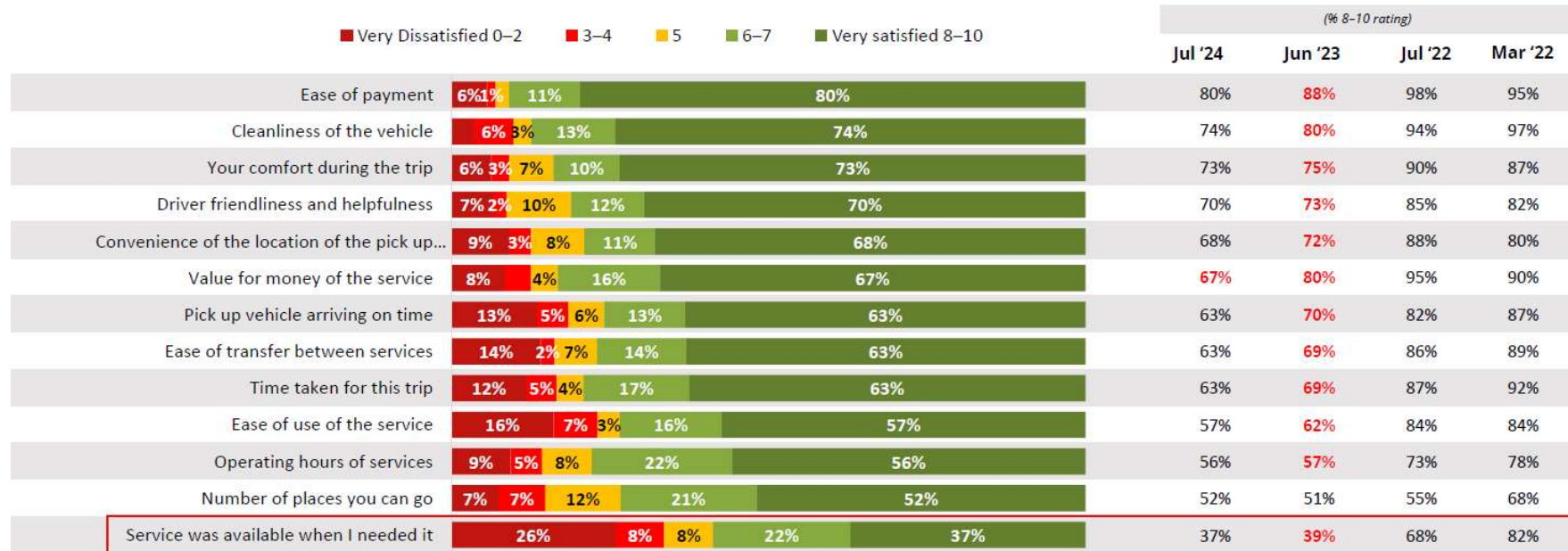
Customer complaints regarding the service have also increased through the mobile app and through customer service. 40% to 60% of written feedback in 2024 and 2025 has been negative compared to 35 to 45% in 2023, on average an increase of 10% since 2023. It is important to note that negative feedback is not limited to capacity, but also captures other issues e.g. issues with the fleet and the AT Local app. However, as patronage has increased over time, so has negative feedback and growing dissatisfaction in the service.



This year, customers are less satisfied with almost all trip aspects.

With the removal of half price fares & greater service unavailability, we see a significant decrease in satisfaction with 'value for money'.

Overall satisfaction with trip elements on most recent journey on AT Local



Q: Overall, how satisfied were you with the most recent journey on AT Local service?

Base: March 2022 (n=61); July 2022 (n=102), June 2023 (n=155), July 2024 (n=150)

Significance testing has been carried out at 95% confidence. Red / green indicates significantly lower / higher than previous wave

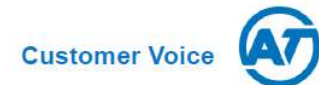


Figure 13: Customer satisfaction has fallen across all metrics over time

Figure 14 is a snapshot from the June 2024 customer survey that gathered responses from 150 AT Local customers. It is evident that over time people have experienced greater difficulty in booking a trip due to the increased demand on the service and lack of sufficient capacity. It is increasingly difficult for customers to rely on the service to get them to their destination by a certain time and therefore it is not considered a viable public transport mode for many respondents.

Service availability is the biggest pain point for customers, with many finding it difficult to book a trip due to high demand.

- “ The app needs a lot of work. It can be very hard to book. There should be more visibility regarding availability so that we can schedule around these easily.
- “ It is difficult to book a slot due to capacity constraints.
- “ Hard to book time needed. Had experiences where the AT local would come ahead of schedule and leave immediately before I could get there.
- “ There doesn't seem to be a lot of availability of the service at peak times. If you don't book a week in advance you can't get a ride. Then the buses often only have 2 or 3 people in them.
- “ They are rarely available when needed, so I could never depend on it as a serious option for transport most of the time. I'd prefer a regular bus service.
- “ Whenever I want book ride on at local it's all the time not available showing one time I got booking and ask to driver why is always booking busy he said I have to book in two week advance 😊 how you know about next two weeks?
- “ 99.9% it says service full even booking in 3 to 4hrs in advance, drivers hardly on time as it's mostly late for 15plus mins on arrival driver are not at all welcoming , it's a good service but need more improvement.
- “ I used to use this service when it first started, however I was then no longer to ever get a trip as the service was full or unavailable. I gave up trying and resorted to driving to the train station.

Figure 14: Negative sentiment for AT Local from the June 2024 customer survey

4 Alternative Replacement Options Assessment

It is clear that improved public transport services in Takaanini-Papakura are needed to better serve the growing demands for travel in the area. AT have looked a range of solutions, including increasing fleet size for the existing on-demand service, adding in fixed route services alongside the on-demand service, and replacing the on-demand service with fixed route services.

The analysis of each of these options is covered in more detail in the following sections. Table 4 below summarises the patronage forecasts and costs for each option.

In summary:

- Each of the alternative options has a higher operational cost than the current AT Local service and would incur capital costs due to the need for new dedicated bus stops where currently drop off occurs on kerbs without any infrastructure.
- However, the existing service is unable to meet demand and the existing operational spend would need to be doubled to meet the current un-met demand. Even with the fleet size doubled the service would not be able to serve future growth.
- The patronage forecasts are significantly higher for a fixed route, and a fixed route has the ability to accommodate future growth. While the costs for a fixed route option would be higher than continuing with the existing service, the patronage benefits would lead to a much higher fare box recovery ratio – nearly triple the existing AT Local service. This highlights that the fixed route option offers better value for money than the current AT Local service.
- The AT Local service will be replaced by a single fixed route service. Several route options were assessed by AT, and the preferred route option will be used for consultation with the public.
- Any new service will involve a comprehensive public consultation and engagement. This consultation will seek input from the public on aspects of the service such as route, bus stops and timetable requirements. Several route options for a fixed route option have been analysed in this report to identify the route to be the basis for consultation – but the final route will not be confirmed until consultation has been completed.

Table 4: Service comparison table

Service	Operational costs	Estimated Patronage (2027)	FBR%	Capital costs
Current AT Local	-	62,000	-	-
AT Local with fleet increase	2x existing service	90,000 – 120,000	Lower/ similar to existing service.	\$0
Fixed route with 365 extension (preferred option)	2 - 2.5x existing service	242,800	Nearly 3x existing service	\$900k to \$1M
Hybrid option	2 - 2.5x exiting service	172,500	Nearly 2x existing service	\$380k to \$400k

4.1 Why increasing the fleet size isn't a viable or cost-effective solution

Currently the AT Local fleet consists of three 18-seater vans and three 3-seater cars. However, AT does not have sufficient budget to operate all vehicles throughout the day and instead prioritises providing more vehicles at peak times.

Table 5 (below) shows the impact of adding additional vehicles to the existing fleet and the estimated percentage (%) of trips served as a result. The data is taken from February 14th, 2024 where there were 270 successful trips and a further 98 requested trips that were unable to be met, (adding to a total demand of 368 trips). The 'base' is the number of trips that would ordinarily be served by the service, the 'reality' is the total number of actual trips served. The 'reality' is larger and demonstrates the optimisation measures are increasing the capacity of the service.

The data outlines that in order to meet 98% of existing trip requests, the service would need an additional three vans at a minimum. This would double the fleet size and approximately double the operating costs of the service. This still would not cover future growth. As a result, additional vehicles do not offer value for money or provide a long-term sustainable solution that can accommodate increased demand.

Table 5: Analysis of service performance from increasing fleet from February 14th 2024

Scenario	Number of Trips	% Success (compared to base simulation)	% Trips served
Reality	270	107%	73.4%
Base	252	100%	68.5%
+1 18-seater	297	118%	80.7%
+2 18-seater	346	137%	94.0%
+3 18-seater	361	143%	98.1%

As covered in section 3.1, when additional capacity has previously been created, this is quickly absorbed and an increase in capacity leads to an increase in passenger demand.

4.2 Fixed Route Only Options

Four fixed route options have been developed to replace AT Local. The preferred option will be used for public consultation. The final replacement service will be confirmed after consultation has been completed.

These options are shown in Figure 15 below alongside the existing fixed route services (33 and 365) and the current AT Local Zone for reference.

All services are proposed to operate every 30 mins, seven days a week, between the hours 0500-2300. The former poor performing 371 service that AT Local replaced operated on weekdays only, every hour during the day and every 30 minutes at peak, from 0530-2045. A fixed route replacement service would therefore have greater span and frequency to meet demand and accommodate future population and housing growth.

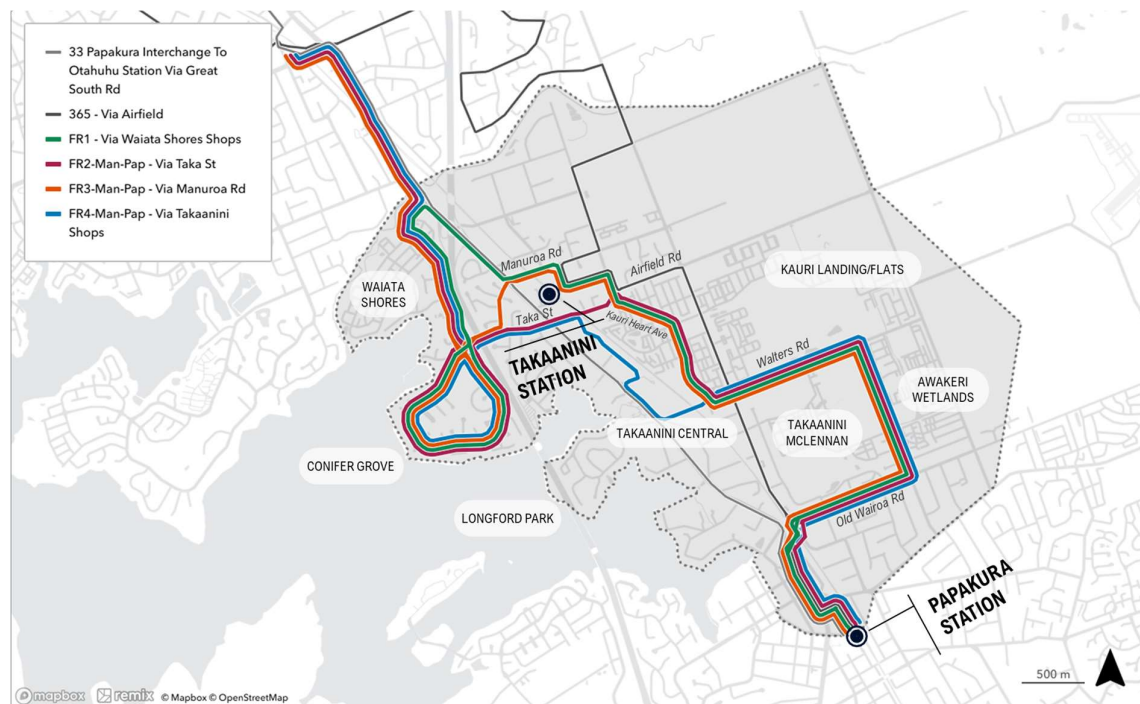


Figure 15: Fixed Route Options, the existing AT Local Zone (green), existing 33 service and proposed 365 service

The four fixed route (FR) options are:

- FR1: Papakura to Conifer Grove via Takaanini Shops, Takaanini Station and Waiata Shores
- FR2: Papakura to Manurewa Station via Takaanini Shops, Takaanini Station (via Taka Street), Conifer Grove and Waiata Shores (Gosper Road)
- FR3: Papakura to Manurewa Station via Takaanini Shops, Takaanini Station (via Manuroa Road), Conifer Grove and Waiata Shores (Gosper Road)
- FR4: Papakura to Manurewa Station via Takaanini Shops (via Great South Road / Takaanini Road), Takaanini Station (via Taka Street), Conifer Grove and Waiata Shores (Gosper Road).

Table 6: Fixed route options differences

Option	Northern Terminus	Station Access	Rail Crossing	Addison Route
FR1	Conifer Grove	Station Rd	Manuroa Rd	Kauri Heart Ave
FR2	Manurewa	Taka St	Taka St	Kauri Heart Ave
FR3	Manurewa	Station Rd	Manuroa Rd	Kauri Heart Ave
FR4	Manurewa	Taka St	Walters Rd	Takanini Rd

FR1 is a loop service that terminates in Waiata Shores, all other options terminate at Manurewa station in the northbound direction. All services serve Takaanini Station via the main station entrance (FR1, FR3) or via the Taka Street entrance (FR2 & FR4).

4.2.1 Serving Takaanini Station via Taka Street Access

Serving Takaanini Station via the Taka Street entrance is not desirable from a pedestrian, accessibility and operations perspective. Pedestrians would be required to access the station platforms via the stations existing Park and Ride Car Park which would lead to potential pedestrian conflict with cars. Alternatively, pedestrians can access the station via the existing footpath that runs adjacent to the western side of the train tracks. The distance from Taka Street to the front of the station is approximately 250m. Additionally there is no safe crossing on Taka Street for bus passengers to access the station.

4.2.2 Providing access to Manurewa Station

Access to Manurewa Station (FR2, FR3, FR4) provides AT Local customers with more options for rail transfers than they currently have access to. It also provides resilience for rail transfers during ongoing, upcoming and unforeseen disruptions on the Southern Rail Line, including the upcoming level crossing removals project in South Auckland.

4.2.3 Conifer Grove access

Conifer Grove does not have service as part of the New Network for South Auckland, which was implemented on 30 October 2016. The nearest services are on Great South Road, which is approximately 2km from the westernmost point of Conifer Grove.

All options that were assessed do serve Conifer Grove via Brylee Drive and Walter Strevens Drive. On Walter Strevens Drive within Conifer Grove, services would run in a one-way loop when travelling both Northbound and Southbound. This would lead to less bus stop infrastructure needing to be developed and subsequently capital cost (capex) savings.

The estimated unique population catchment of a Conifer Grove neighbourhood is roughly 2,500 people. This is based on a 400-metre distance from stops, which have been roughly spaced along Walter Strevens Drive to ensure total coverage of the area.

4.2.4 Grove Road v Cosgrave Road

Figure 16 shows all fixed route options routing along Grove Road with the option to instead use Cosgrave Road (as indicated by the black dotted line). Routing via Cosgrave Road is approximately 2.2km longer (1-way) (approx.+6mins travel time 1-way) and therefore requires greater operational (opex) costs in terms of kilometres travelled and service hours. Cosgrave Road would also have greater capex costs in terms of the number of bus stops and supporting infrastructure required.

However, as this area continues to grow in population, routing along Cosgrave Road is forecast to have greater catchment and patronage than serving Grove Road. The parcel of land directly to the east of Cosgrave Road is identified as a future urban zone in Auckland Council's current Land Use Plan (see Figure 16 below). However, there is likely to be disruption on this route due to prioritised Mill Road as a Road of National significance.

Due to costs and disruption, the route for consultation will run on Grove Road.

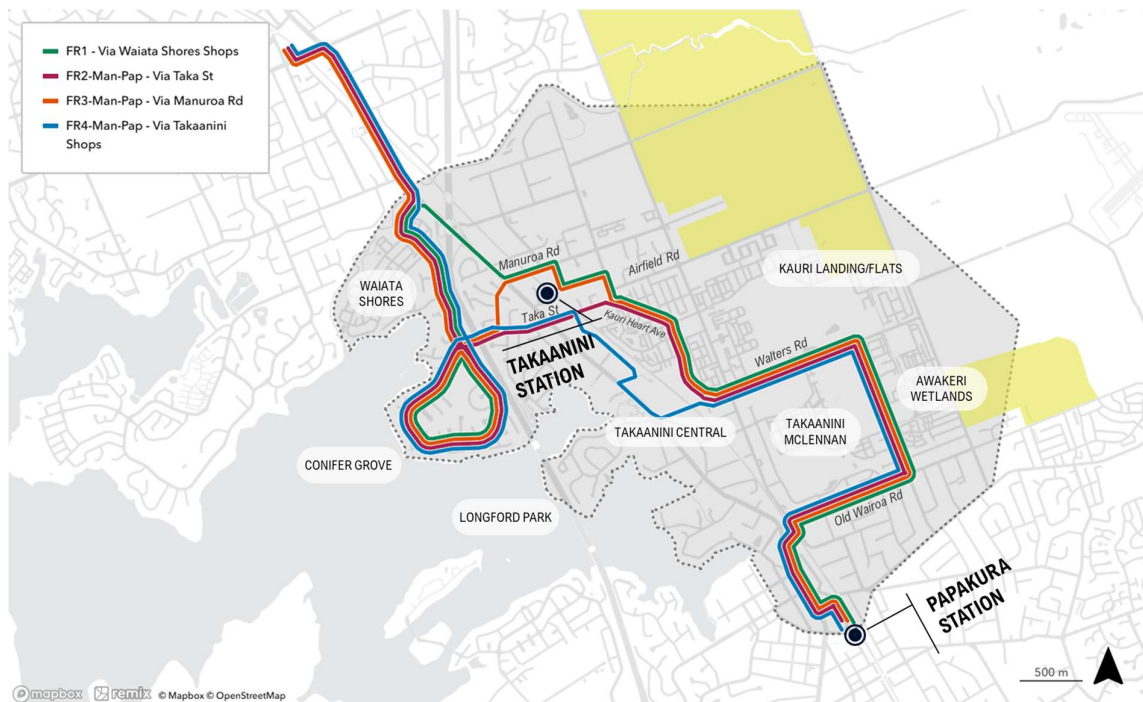


Figure 16: Future Urban Zones and route options

4.3 Assessment of fixed route options

Future patronage projections (low, medium, high) have been developed for these fixed route options (Table 7). These are based on existing catchment, future catchment, ramp up factor, elasticities, route frequency, timetable, length of route and comparable routes. Table 7 shows the approximate patronage in 2027 for each fixed route option. The year 2027 has been analysed as this would be the first full year of service.

The fleet for each option consists of small electric buses. Based on estimate run times, FR1 has been assessed to require fleet of three small buses, all other options have analysed using a fleet of four small buses. However, with in-depth timetabling planning there is scope for this to be reduced to a fleet of three small buses and thus save on opex costs.

AT have undertaken site visits and analysis to assess the level of infrastructure required to facilitate each route. This has been done for Grove Road.

Table 7: Summary of approximate analysis costs

Route	FR1	FR2	FR3	FR4
Capex cost estimate (based on Grove Rd)	\$635k	\$725k	\$680k	\$600k
Patronage via Grove Rd	202,100	230,600	242,800	235,300
Patronage via Cosgrave Rd	223,700	271,00	283,300	275,800

Table 7 highlights that FR3 has the highest estimated patronage out of all the options.

An assessment of each option is provided in Table 8 (below).

FR3 is the route that will be taken through for public consultation due to its catchment, patronage and low subsidy. As stated in the section above, the route would run on Grove Road, rather than Cosgrave due to costs.

Table 8: High-level pros and cons of each service

Route	Pros	Cons
FR1	Requires less fleet Highest FBR% Lowest subsidy per pax	Does not serve Manurewa Serves existing route catchments on Great South Road
FR2	Serves Manurewa Lowest run time out of Manurewa options	Serves Takaanini Station via Taka Street Highest estimated capex Less resilience with Level Crossing removal programme
FR3	Serves Manurewa Serves front of Takaanini Station Highest patronage projections Lowest subsidy per pax out of Manurewa options Serves currently unserved corridors	Second highest capex costs
FR4	Serves Manurewa Lowest capex required	Serves Takaanini Station via Taka Street Serves existing route catchments on Great South Road Does not serve Arion Road (currently only served by AT Local)

For context and to enable comparisons to the existing service, a fixed route replacement would cost 2 to 2.5 times the existing AT Local operational costs and would incur additional capex costs for new stops. The existing AT Local service can only serve 62,000 passengers a year, whereas a fixed route service is able to serve nearly four times that amount. Effectively, a fixed route service is twice the operating cost, but for four times the patronage. Overall, this leads to a higher FBR% and a lower passenger subsidy for a fixed route service. It is important to note that the fixed route option will have an initially higher cost due to the capital cost expenditure for local bus stops.

Out of the single fixed route options, fixed route 3 is the preferred. The estimated capital costs for this route would be between \$650,000 to \$700,000.

4.4 Serving the area with one or two fixed services

Initial network planning had suggested the on-demand service be replaced by two fixed route services. This was originally developed to ensure that any potential AT Local replacement services were captured for budgeting requirements before any decision on the future of AT Local was made. This would have served Conifer Grove and Waiata Shores with one route, and the areas to the east of the rail line with another.

This network would have had:

- One service east of the rail line, which would be very similar to the original 371 service – noting that this service would operate more frequently, and for longer than the original service that was removed.
- One service west of the rail line, serving Conifer Grove, Waiata Shores and Manurewa.

Both services would operate every 30 mins, 7 days per week, 0500-2300.

Figure 17, shows the preferred single fixed route (fixed route 3 from section 4.3 above) alongside the option of serving the area with two separate services. The map highlights that the preferred fixed route option provides better east to west connections and therefore better accommodates existing AT Local trips without the need to transfer between services.

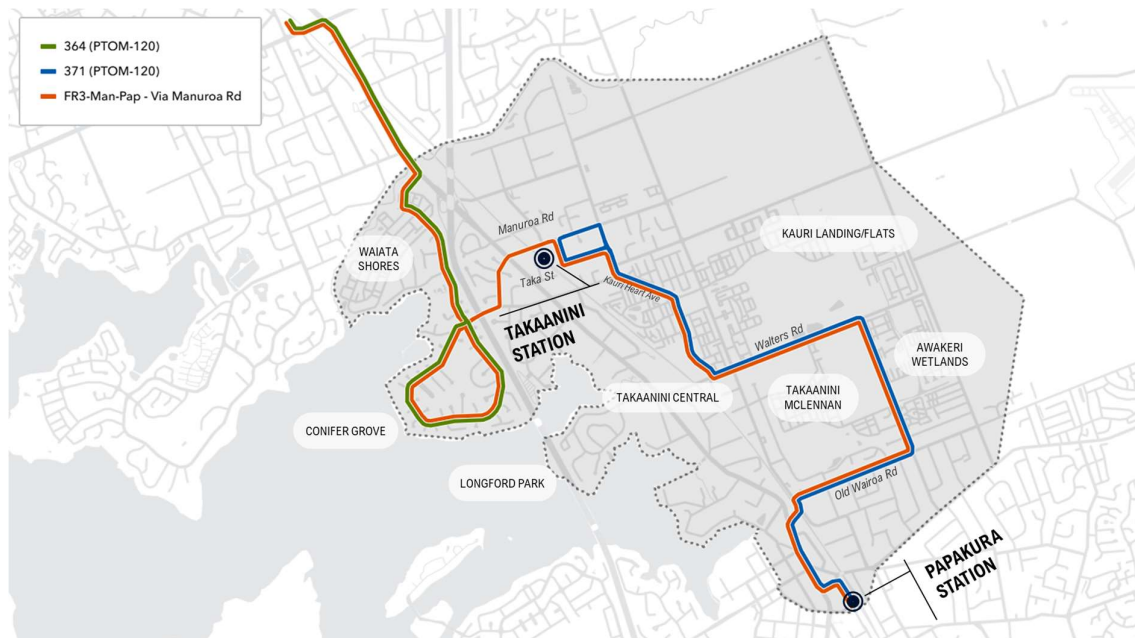


Figure 17: Preferred single fixed route option vs two separate fixed routes.

Table 9 (below) shows the forecast patronage and approximate capital costs for separate services vs the preferred single fixed route service (fixed route 3 – FR3).

Table 9: Summary of estimated analysis of serving the area with two separate routes vs the preferred single fixed route option (FR3)

Service	Patronage (2027)	Capital cost estimate
364	53,750	\$280,000

371	110,500	\$390,000
Total	164,000	\$640,000 to \$690,000
VS		
Preferred single fixed route (FR3)	242,800	\$650,000 to \$700,000

The single fixed route would have higher operational costs than the two separate routes due to its longer route. The single fixed route also has higher capex costs than two separate fixed route services. However, patronage projection after the first full year of implementation is significantly higher when the area is served with one route and not two split routes as it better serves east-west trips. While there is similarity between the options, subsidy per passenger and FBR% for the single fixed route outperforms two separate routes as the single fixed route provides better connectivity, higher patronage and overall better value for money.

As a result, it is recommended that the preferred single fixed route option, FR3, is used as the network for consultation, rather than two separate routes.

4.5 Alternative 365 route

In order to facilitate existing AT Local trips and serve as much as the existing AT Local service zone as possible, the existing 365 route would be diverted from Kauri Heart Avenue to Airfield Road. This would mean that the fixed route would not be ‘doubling up’ on the 365 service but instead would be complimenting the wider network (see Figure 15).

It is evident from existing AT Local trips that people are using the service to travel to Kauri Landing and the residential area bound between Airfield Road (northern boundary) and Kuaka Drive (southern boundary). These people would continue to have access to public transport as result of the proposed 365 diversion (see Figure 18 below).

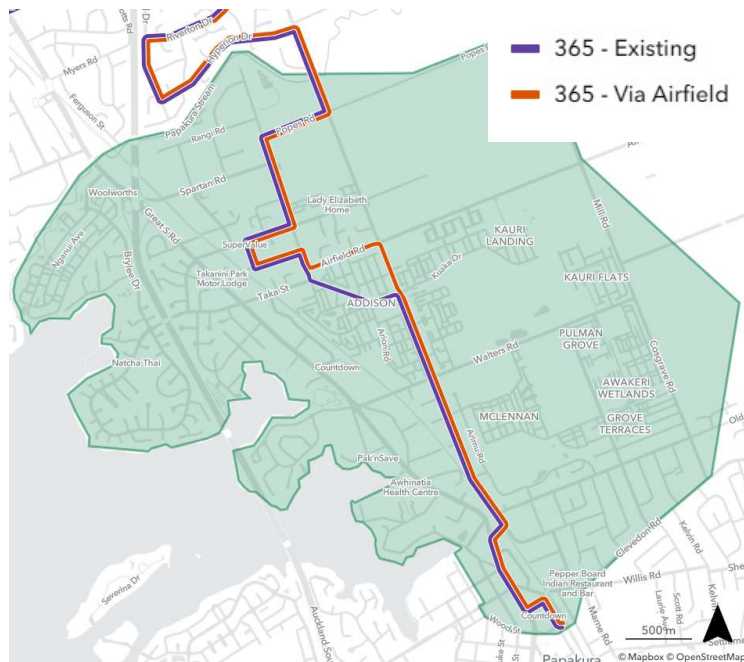


Figure 18: Proposed 365 diversion to Airfield Road

Opex costs for the relatively small diversion are not estimated to change significantly as no significant additional distance is added or run time increased. However, new bus stops and supporting infrastructure would be required. This is anticipated to cost between \$260,000 and \$280,000, so needs to be added to the final capex costs for the fixed route options. This cost estimate allows for 3 bus stops, and ground works/ infrastructure for footpath extension and a pedestrian crossing.

4.6 Hybrid option: on-demand supported by fixed route

AT has worked closely with the existing AT Local software supplier Liftango to assess a hybrid option. This would keep the AT Local service, alongside a new fixed route service operating between Papakura and Takaanini.

The new fixed route used for this option is similar to the former 371 service that AT Local replaced. However, the proposed service would operate every 30 mins, 7 days a week from 0530-2300. Unlike the previous 371 service, the proposed service would serve Takaanini Shops via Arion Road.

The new 371 service would operate entirely within the existing AT Local service zone. However, any AT Local booking requests that could be served by the 371 (in terms of origin and destination), would be re-directed to use the fixed route service. This is consistent with the way that the existing AT Local service runs (as a result of the optimisation works highlighted in Chapter 2). This ensures that AT Local requests that can't be served by other public transport modes receive priority.

A maximum catchment of 400m has been used as this is the typical distance that bus stop provision is provided along a fixed route service.

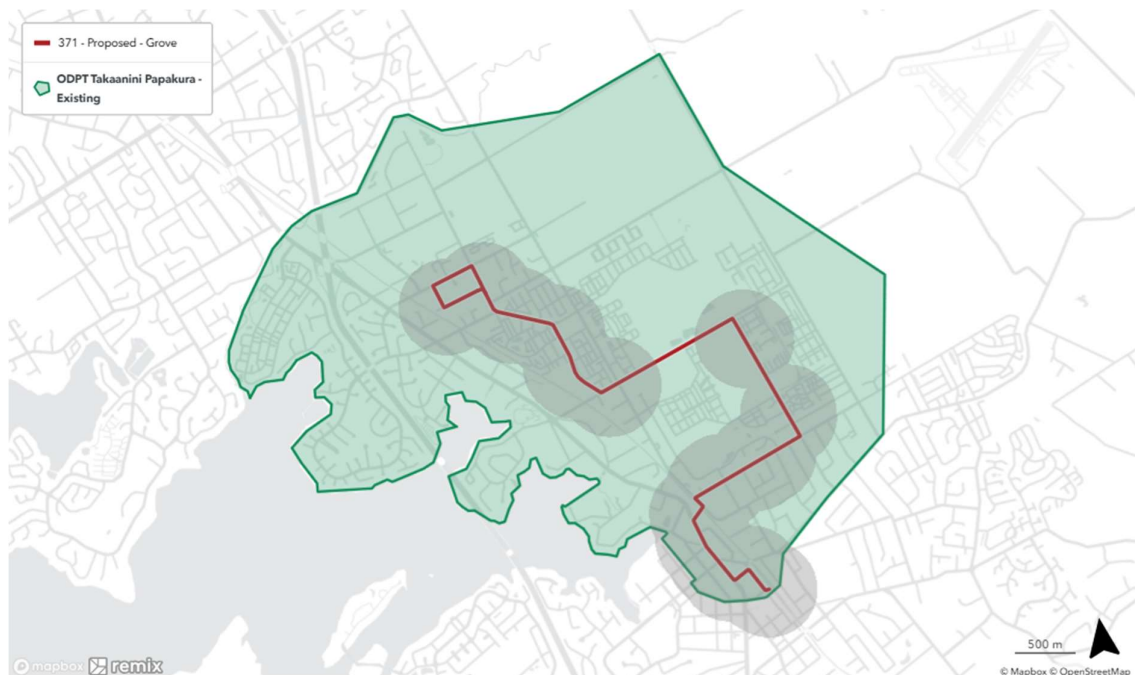


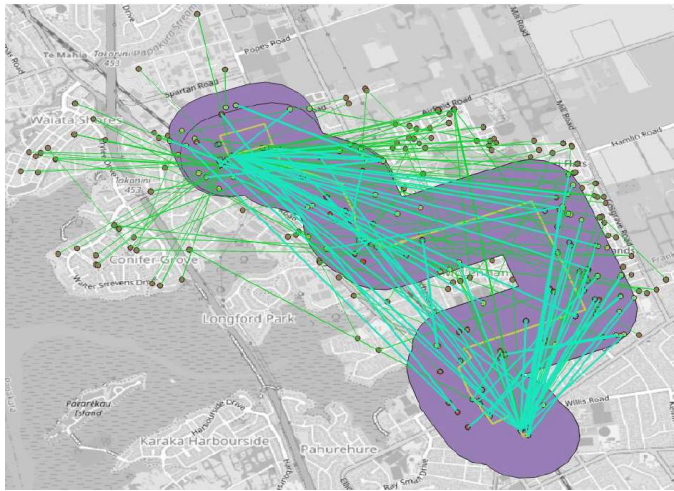
Figure 19: AT Local supported by a fixed route option. The grey buffer represents a 400m catchment to the 371 fixed route service.

The benefits of keeping the AT Local service zone the same size are enabling existing AT Local journeys to be completed and provides connectivity to the same destinations without impacting customer experience.

4.6.1 Hybrid option analysis

To assess the impact of AT Local supported by a new 371 fixed route service, the busiest day (April 30th 2024) on AT Local since the optimisation measures to re-direct customers onto a fixed route service began, was selected for analysis.

Figure 20 (below) shows the completed trips (light green) on AT Local and the number of trips that would be re-directed to use the 371. 39% of trip requests would be re-directed to use the 371 service and could be used to serve un-met demand on AT Local.



400m radius applied to fixed route.

Total demand of 261 trips (serving 293 passengers in total).

102 (39.08%) of these trips would be diverted to use the new fixed route service – 371.

Figure 20: AT Local trips and 400m catchment to 371

4.6.2 On-demand service fleet requirements

Table 10 (below) then shows what the impact would be of reducing the fleet size on AT Local. Trip data is from April 30th 2024, when four vehicles were in operation (three vans, one car).

Table 10: The impact of reducing fleet at various catchments on serving AT Local trips

Fleet Reduction	AT Local Trips	Trips not served	
In all cases 102 trips are diverted to the 371.			
The total demand for trips in the area is 261 (293 passengers).			
Base Case 3 Vans, 1 Car	159	0	All trips served.
3 Vans Reduction of 1 car	141	18	11% of trips not served.
2 Vans -1 car, -1 van	116	43	27% of trips not served.
1 Van -1 car, -2 vans	69	90	56% of trips not served.

The data indicates that 102 out of 261 real world trips would have been re-directed onto the 371 service. If on the same day the fleet was reduced by one car, AT Local would have only been able to serve 141 trips, leaving 11% of trip request not served.

This shows that any reductions to fleet size would result in un-met demand on AT Local. Despite some passenger demand for AT Local being re-directed onto the proposed 371 service, any capacity created would be quickly absorbed by the un-met demand for AT Local. The existing un-met demand for AT Local means that with this option the AT Local fleet would still need to be increased to accommodate future passenger demand.

4.7 Assessment of on-demand supported by fixed route option

In order to assess the impact of this option, patronage analysis from initial PTOM-120 analysis has been used to provide patronage forecasts for 371 service. This figure is an estimate only as this forecast did not include AT Local. However, to balance this, the forecast did consider a new fixed service serving Conifer Grove. As a result, this forecast should be a close enough approximation for this assessment.

Capital cost estimates for the infrastructure required to facilitate the proposed 371 service has been completed by AT.

Table 11: Approximate costings of AT Local supported by a fixed route 371 service

Service	Patronage (2027)	Capital Costs
AT Local	62,000 (max with current fleet)	NA
371 (Grove Rd) to Takaanini only	110,500	Est \$390,000
Total	172,500	\$380,000 to 400,000
<p>Together this option would have 2 to 2.5 times the current operating cost of the existing AT Local service.</p> <p>To accommodate further growth on AT Local this opex cost would need to increase further to provide additional fleet.</p>		

Table 10 (above) gives the total patronage forecast and capex cost of AT Local supported by a fixed route 371 service. As outlined in section 4.6, the current level of fleet is required as a minimum in order to meet demand on AT Local. No reductions to the fleet are feasible. Based on existing analysis of AT Local the current fleet has the capacity to serve approximately 62,000 trips. To accommodate future growth, additional AT Local vehicles would be required, increasing opex costs further.

Transitioning to a fixed route service offers a better customer experience and longer-term capacity to accommodate future growth in the area. By providing a connection to Manurewa Station, resilience is added to the public transport network and provides existing AT Local users with better access to urban centres.

5 Next steps

Based on analysis of the various route options presented in section 4 of this report, in addition to the constraints of the current AT Local service and increased negative customer experience; AT recommends introducing the Fixed Route Option 3 (FR3) as a replacement service to AT Local.

The final routing of the replacement service will be dependent on the outcome of public consultation and is subject to available funding. No service changes will be made until public consultation has been completed.

5.1 Public consultation and engagement

Any new service will involve a comprehensive public consultation and engagement. This consultation will seek input from the public on aspects of the service such as, but not limited to:

- Route option on Grove Road or Cosgrave Road
- Bus stop provision
- Timetable requirements

Existing AT Local users will be engaged with to help them transition to a fixed route service, this will involve written communications, in-vehicle notifications and drop-in sessions.

AT will also work with elected members and the Papakura Local Board to ensure a smooth transition to an alternative solution.

5.1.1 Routes for consultation

Consultation will be based on the Fixed Route Option 3 – and will be referred to as the 364. The run time of this route is estimated to be approximately 35 to 40 minutes between Papakura station and Manurewa station via Awakeri Wetlands, Takaanini Station, Conifer Grove and Waiata Shores. The new bus service is planned to run every 30 minutes, seven days a week, from 5:30am – 11pm on weekdays, and from 6:30am – 11pm on weekends.

Consultation on the 365 extension via Airfield Road will also done at the same time.

The estimate capital costs for the route are between \$650,000 to \$700,000 for the fixed route service infrastructure, with an additional \$260,000 to \$280,000 for the extension of the 365 to Airfield Road. Capital costs can only be confirmed after consultation on the AT Local replacement, and bus stops to support the replacement route.

These two route changes are shown below in Figure 21.

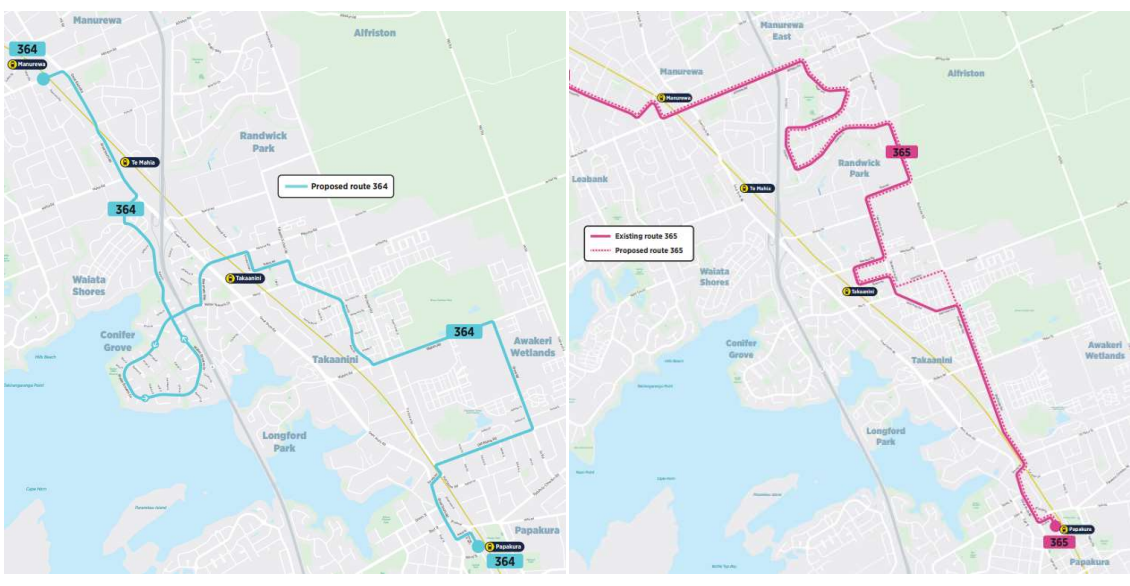


Figure 21: Routes for consultation

6 Lessons Learnt

A number of lessons have been learned from the Takaanini-Papakura AT Local service. These will be taken into consideration with the planning of any future on-demand services. These are summarised below.

The transition to a fixed route service in Takaanini-Papakura will also provide learnings and insights for future on-demand services, such as the ability to retain and serve AT Local users on the replacement service.

On-demand as a first and final leg (feeder to rail) service:

It is important to consider to what extent is an on-demand service is capable of being a first and final leg mode. If the service is primarily serving a transport hub at peak times, then those trips may be better served by a fixed route service. Issues can arise as a result of peak intensive demands and with the difficulty of aligning on-demand trips with departure schedules of the main public transport service. Fixed route services are more able to provide better reliability securing a ride at a set time and more consistent journey times.

The Takaanini-Papakura service serves two public transport hubs, Takaanini Station and Papakura Station, which increases the complexity of the service. Both stations serve the same major line and train services (the southern rail line) and so there are less benefits in terms of connections beyond the local area. It is important to note that both areas are important to connect from a local network perspective. In future more consideration should be given to the number of transport hubs connected to the service – as each addition can make the service more complex and possibly less efficient. Though noting that there would still be significant benefits in serving multiple public transport hubs when they serve different regional lines.

On-demand as a public transport growth service:

It is vital to look at future population growth in the zone when committing to a service. The On-demand and Shared Mobility roadmap identified several scenarios to test on-demand service in, including “new medium-density housing areas where the initial population is insufficient to justify conventional public transport e.g. bus service”.

While the Takaanini-Papakura area was identified as a strong candidate for on-demand service for more reasons than just growth – the area has seen a large amount of growth as covered in Section 1.6. This is the leading cause for the need to replace the service, as demand has outstripped the ability of an on-demand solution to serve the demand. It is important that this is not seen as a failure of the service. The on-demand service has been critical in serving the local travel demand while population in the area has grown, and the demand for public transport with it. This service is the first example where we have encountered sufficient growth to transition to a fixed route service and as a result, will be important to review for insights for future services.

For future trials it will be critical to review growth and include the messaging as ‘on-demand as a path to patronage growth’ more clearly.

It will be important to consider more carefully the type of service run in this growth areas.

The Takaanini-Papakura service is run as an ‘anywhere-to-anywhere’ service, where users can travel between any two selected points within the service zone (excluding the fixed route exclusion applied on the service as covered in Section 2.2.1). This is likely to make the replacement of the service more challenging for some users on the service. The fixed route has been planned with consideration of the existing trips made and will be able to serve the majority of trips more directly than the existing on-demand service. Services planned for

growth areas should look to apply models that would better replicate future fixed route replacements with the expectation that population and public transport demand will grow, such as 'anywhere-to-hub' or 'zone-to-zone'.

An 'anywhere-to-hub' model would allow travel from anywhere in the service zone but only to specifically set points (such as train stations or town centres). A 'zone-to-zone' model would allow travel between specified zones and could be applied to a neighbourhood and a local town centre and streamline travel between the two. These models would better replicate future fixed route service and would make the transition smoother for users.

Value for money:

There is a high risk of incorrect interpretation of on-demand service costs. Despite lower subsidy per passenger, total delivery cost of on-demand services is often higher than traditional bus services. However, it is commonly believed that on-demand services would help to reduce total PT costs, which has not been confirmed yet based on either AT's or in any known international experiences. Value for money will need to be a key consideration for future services, and it may be valuable to look into alternative/ additional funding sources for future services.

It is important to note that like with other PT services, there are non-monetary benefits that may justify the high cost of on-demand services.

Estimating demand and capacity on on-demand services:

It is important to not just focus on patronage but instead look at patronage as a proportion of total booking requests, the number of rejected and cancelled trips provides a greater insight into the overall demand on the service. As the service gets busier and un-met demand grows, it becomes increasingly difficult to accurately model what the actual demand is as passengers may try to book multiple times and there may be an increase in speculative bookings.

Regularly assessing customer feedback through the software platform also provides valuable insight into capacity constraints.

Service optimisations:

There are a range of optimisation initiatives available to increase capacity and at different scales. Future AT Local services should establish the degree of 'optimisation' that the service begins with and allow room for more optimisation initiatives. The extent to which optimisations are implemented impacts the number of vehicles required. For example, if a future service is predicted to need 2 or 3 vehicles, the service could start out with 2 but with high levels of optimisation to provide extra capacity. Optimisations are best implemented incrementally as this limits the impact to the customer but also allows for analysis at each stage.

Fleet:

From an operational and capacity point of view, it is desirable for the service operator to own the fleet rather than AT. This ensures that the operator is responsible for fleet maintenance and provides capacity resilience as the operator has better access to a backup fleet if a vehicle is out of service.

Lessons learned from the 2018 to 2021 Devonport trial:

The following service changes were used for the Takaanini-Papakura service as learnings from the very first on-demand trial run in Auckland:

- Replace existing bus service instead of overlapping

- Exclusion zones were applied on the rail stations to avoid PT cannibalisation of the rail line from the very beginning of the service.
- The Takaanini-Papakura service was implemented as a full replacement of the original 371 service.
- As demand grew on the service trip requests that could be served by existing local routes (365 and 33) were later redirected to these services.
- Future services should be integrated into the PT network:
 - The Takaanini-Papakura service was included within integrated fares like all other bus services and payments could be made through AT HOP cards, and later contactless payments, as per the rest of the public transport network.
 - Journey Planner / MaaS readiness – the Takaanini-Papakura service was included within standard AT journey planning apps.
 - Identity Management (same online account credentials)
- Alternative booking options (for the less tech-savvy) – bookings for the Takaanini-Papakura service could be made through AT’s Contact Centre (inhouse).

All of these service inclusions have been successful and seen as major benefits to the current system. It is recommended that these be continued on to any other future on-demand services.