New Bus Network Update

Recommendation

That the Board:

i. Note the update provided in this report.

ii. Note the next steps in the development of the bus network.

Executive summary

1. Following the principles, policies and detail outlined in the 2013 Regional Public Transport Plan (RPTP), Auckland's New Network has been largely implemented. Beginning with South Auckland in October 2016 and culminating with north in September 2018, the network on the mainland has been rolled out in phases. Waiheke Island is to be implemented in October 2019.
2. Overall patronage has risen in all areas where the New Network has been implemented. Boarding growth has happened very soon after the introduction of revised services in each area, despite overseas experience showing that it is not unexpected to experience an initial drop in patronage, rebuilding and increasing over time.
3. Boarding growth has been stronger than journey growth which is in line with expectations due to the design of the New Network, creating a hub-and-spoke system with a need to transfer at interchange points across the network, where single leg journeys may have existed in the previous network design.
4. The next stage is to promote the New Network and grow patronage further, in conjunction with reviewing services where growth has been lower than expected and progressively increasing frequency and capacity including creation of new Frequent Services. There are also areas where infrastructure was not completed in time for the New Network roll out which will improve customer amenity as it is completed.

Strategic context

5. The New Public Transport Network design for the whole of Auckland was proposed as part of the 2013 RPTP. In October 2012, AT invited the public to have their say on Auckland's future public transport network through consultation on the draft RPTP. 719 submissions were received. Approximately 70% of respondents either supported or strongly supported AT's proposed direction. The RPTP was endorsed by the AT Board in 2013.

6. Several pre-requisites were required in order to enable the implementation of the New Network. These included:
    - Public Transport Operating Model (PTOM) –which allowed Regional Councils (including AT) to fully contract public transport services except for a few exempt services.
    - Electric trains - to provide the capacity required to carry passengers transferring from local bus services
    - Integrated ticket and integrated fares – so that passengers were paying for their entire journey rather than cumulative individual trips. Without this, passengers would be essentially penalised when having to make more than one trip to complete a journey
    - Essential infrastructure – the New Network implemented Otahuhu Station, Manukau Bus Station, hundreds of new bus stops and shelters.

Background

7. Auckland is New Zealand's biggest city with a population of around 1.6 million people and growing in the 2% to3% range per year. The population is forecast to grow to 2.4 million people by 2043. Historic under-investment led to a poor public perception of public transport and therefore low usage. While there had been limited growth since the 1990s, an aspirational target of doubling passenger boardings over the 10 years 2012 to 2022 (70m to 140m passenger boardings) meant that a radical overhaul of the network was required to accelerate public transport uptake.
8. Auckland's old public transport network was complex and, in many places, made up of infrequent services. It developed over time through a series of ad-hoc modifications. If Auckland is to cope with its predicted population growth, public transport must become the travel mode of choice for more people and for more types of trips.
9. Kerb space for bus stops and bus lay-up in Auckland CBD is limited. Efficiencies were needed to try and limit the number of bus trips into the City Centre while still ensuring sufficient capacity for those travelling into the City Centre at attractive frequencies.
10. Although public transport patronage was growing, it was clear that the old network was not fit-for-purpose in a city forecast to grow its population by 50% within 25 years.
11. A few high-level principles were adopted as part of the New Network
    - Simplicity: simplify the existing network. Straightening routes and removing duplicated services.
    - Tiered service Level approach:
        - Rapid Transit Network (RTN): high frequency, right-of-way services forming the backbone of the system, including four heavy rail lines, Northern Busway, Eastern Busway and light-rail.
        - Frequent Transit Network (FTN): minimum 15 min frequency 7am – 7pm seven days a week, approximately 30 routes, utilising bus priority or bus lanes.

    - Connector Services: target 30 min frequency connecting into the RTN and FTN and local destinations.
    - Local and Targeted services: peak only, on-demand, school bus.
- Frequency: introduce high frequency routes on key arterial corridors, primarily at least 15 mins frequency 7am – 7pm seven days a week.
- Connected: introduce a hub and spoke model with high quality transfer points.
- Encourage school students to use the regular PT network as a preference over dedicated school bus services.

12. An example of how the old network has been amended can be seen in Figure 1 below.

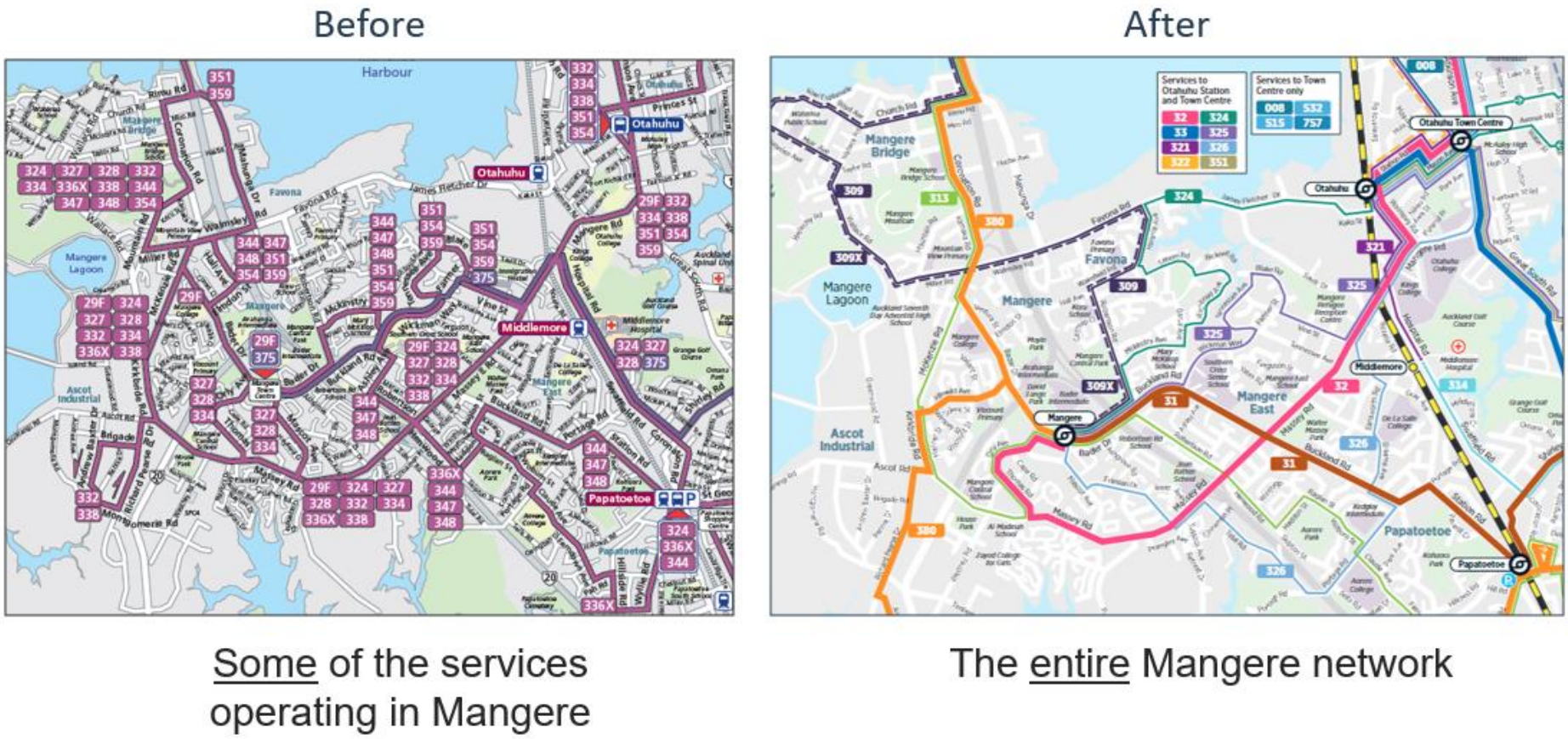


Figure 1: Changes to the public transport network in Mangere, illustrating the simplicity of the new network

13. The New Network was implemented in a phased approach across Auckland, the scale of the changes, including the way these were contracted (PTOM) meant that the scale was too large to implement at one time. Although best practice was to roll-out the entire network at once, the adopted approach has proved successful. The roll out has been phased over four years as listed below:

    - 2014 – Green Bay and Titirangi (New Network principles but contracts updated with West implementation)
    - 2015 – Hibiscus Coast (New Network principles but contracts updated with North implementation)
    - 2016 – South, Pukekohe and Waiuku

- 2017 – West and North West
- 2017 - East including Beachlands and Maraetai
- 2018 – Central
- 2018 – North Shore, Warkworth and Hibiscus Coast (final changes)
- October 2019 – Waiheke Island

Benefits of the New Network

14. The high-level principles identified above have given rise to several key benefits to public transport in Auckland.
15. A layered approach to service delivery has been adopted, comprising frequent services across the RTN and FTN (at least every 15 minutes), that run at least 7am-7pm, seven days a week, connector services (high frequency during peak times, typically less outside peaks) and local / coverage services, to ensure that all Aucklanders have access to public transport.

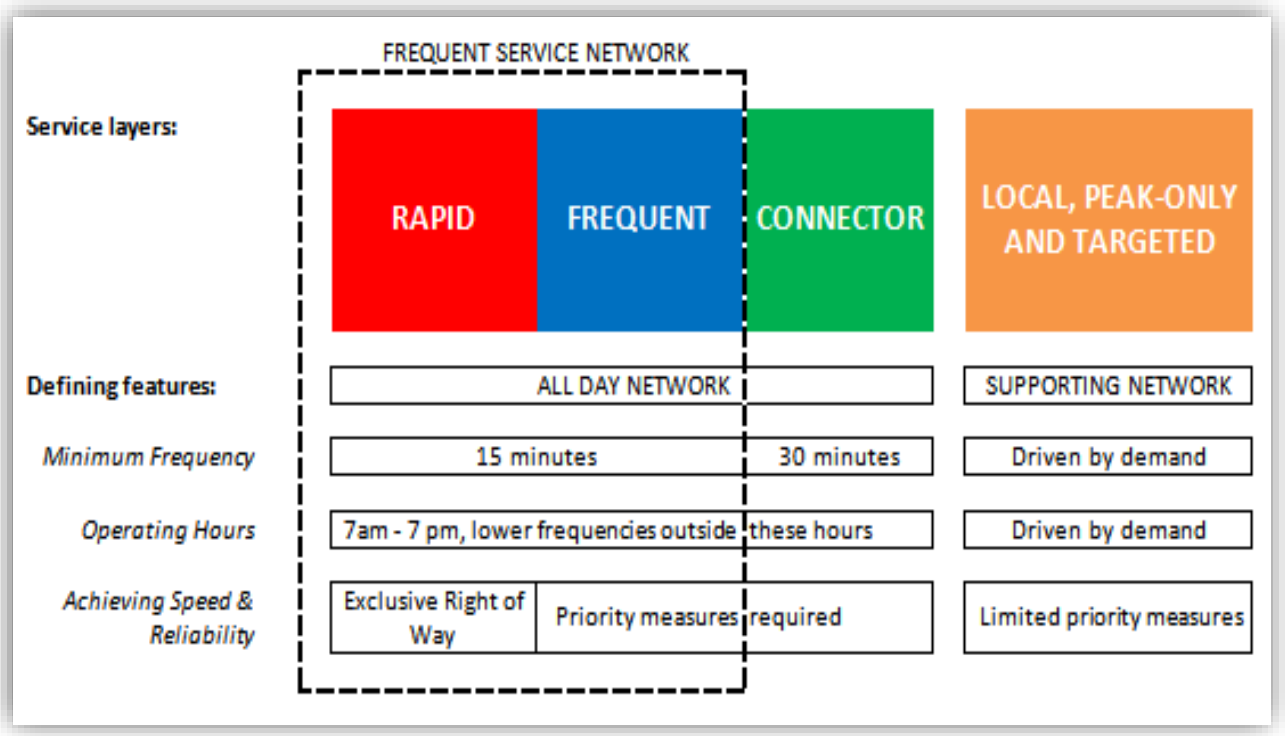


Figure 2: Different service types defined as part of the new network

16. One major benefit of the new network is that Auckland now has a much more extensive frequent and rapid transit network. This effect is illustrated in Figure 3

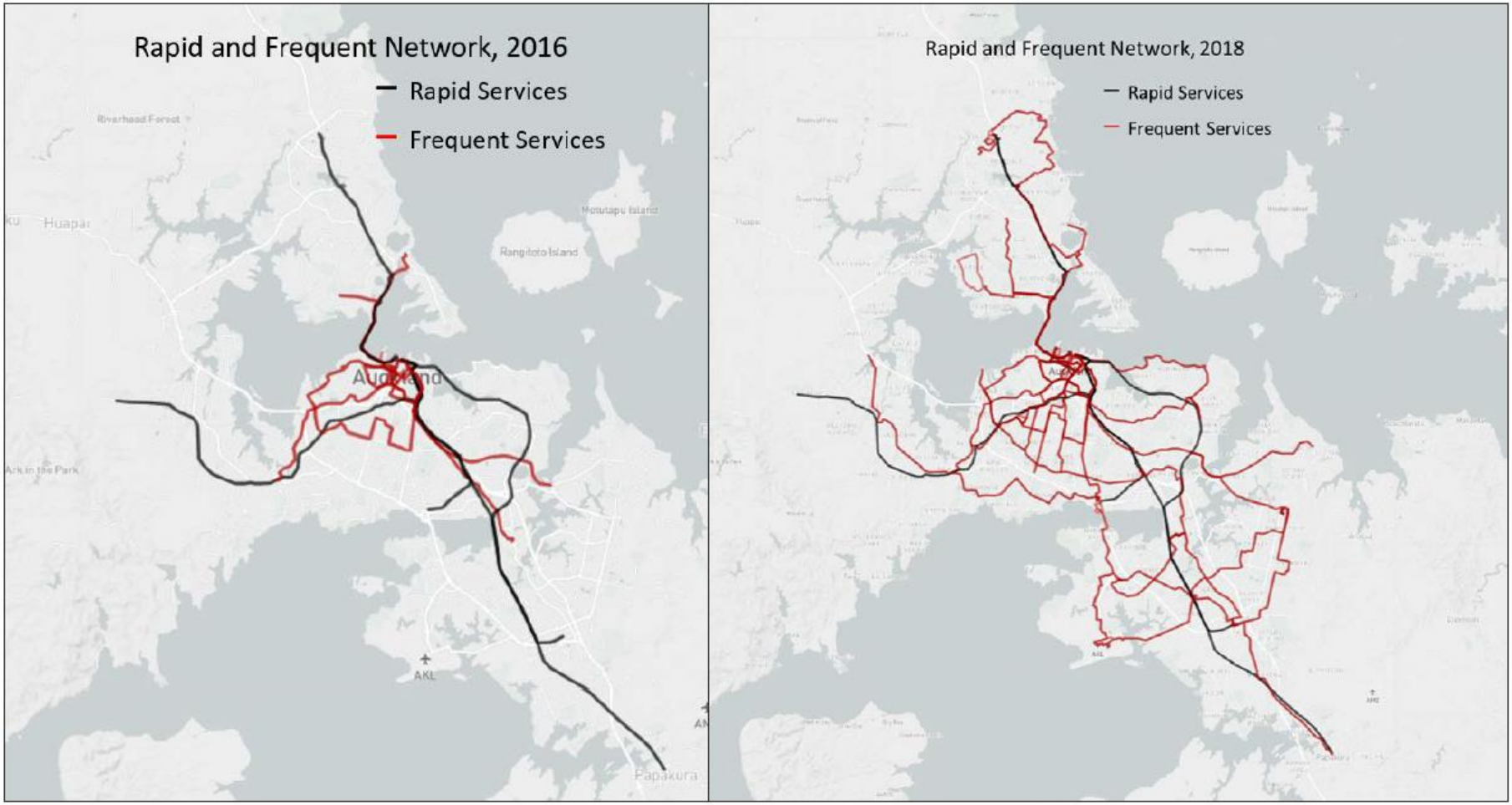


Figure 3: The growth in the Frequent and Rapid Transit networks since 2026

17. A simpler bus network is easier for people to understand and is therefore a more attractive option for a wider range of trips. Instead of buses only running frequently in the morning and evening peaks, many services run frequently at least from 7am to 7pm, seven days a week. Other changes that have made the network simpler:

    - Clock face timetable: the new network has allowed services to run at the same time every hour, with even gaps between services

- Route naming: two-digit route numbers are frequent (every 15 minutes or better, 7am-7pm, seven days a week)
- Fewer routes: in many cases, a single high frequency route has replaced previous several low frequency ones
- Intuitive maps, digital real time information, upgraded wayfinding and bus stop flags and simpler fares.

18. A more connected network provides better access to more destinations.

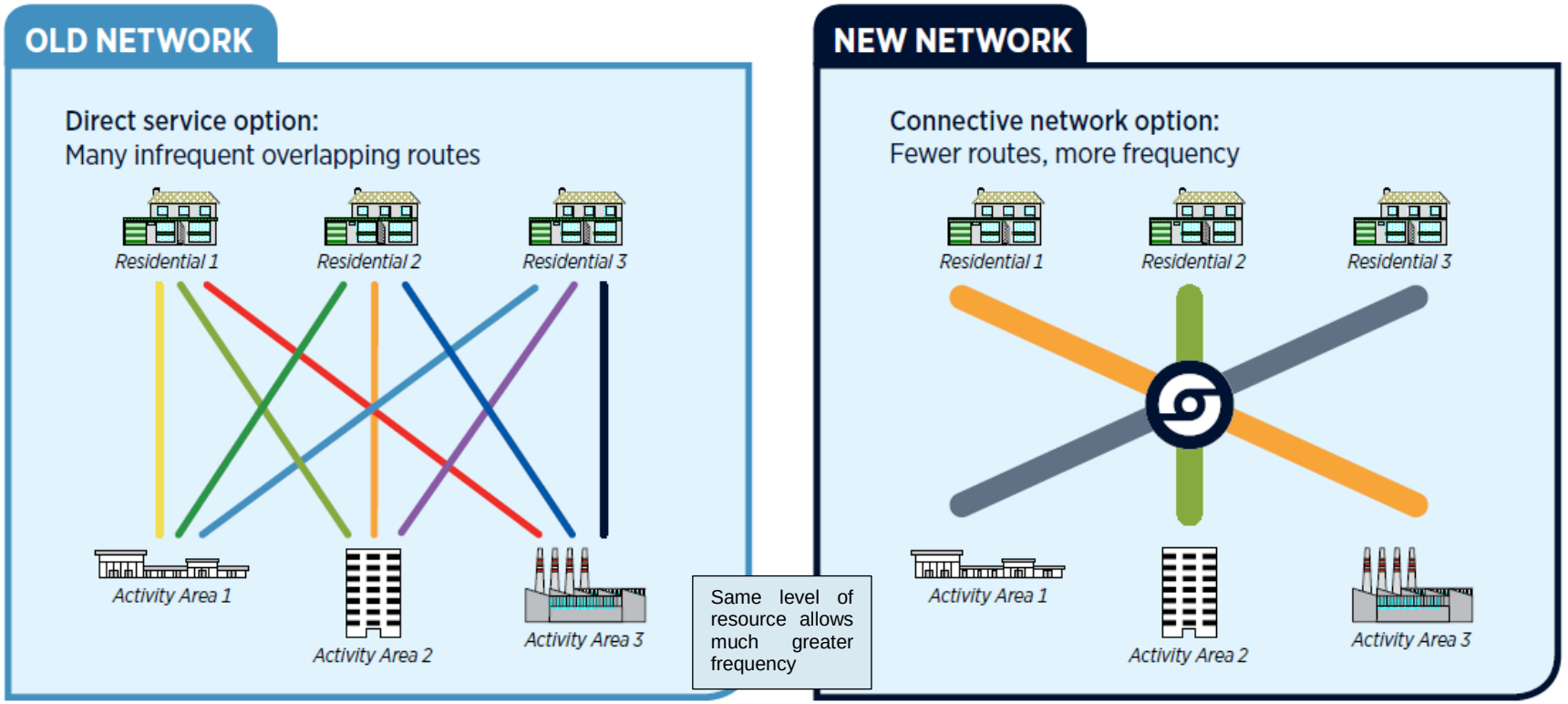
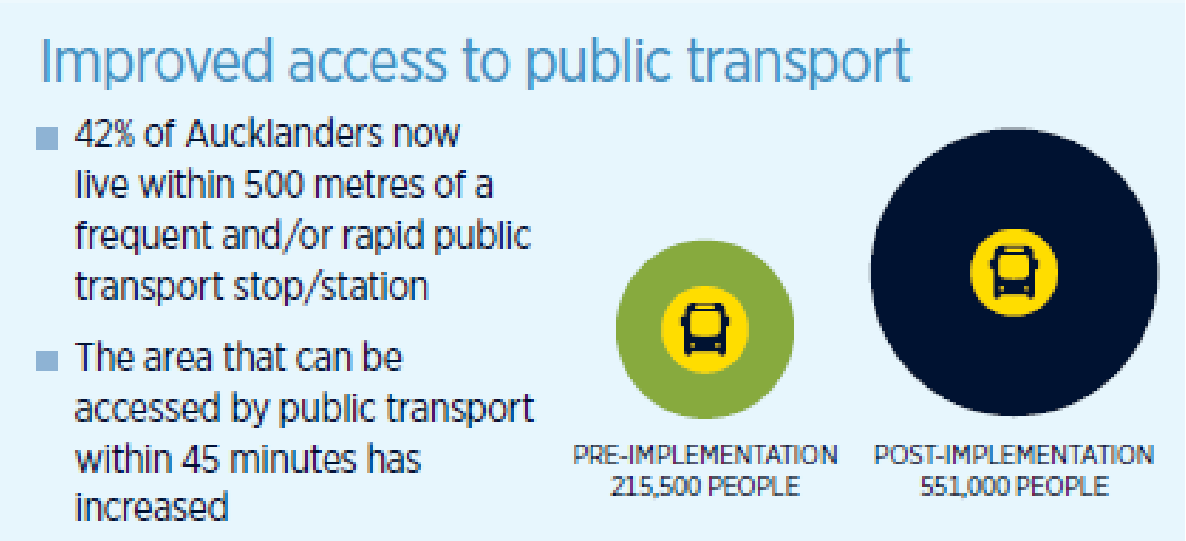


Figure 4: the old network, running buses from everywhere to everywhere, and the new network, illustrating the importance of hubs

19. Figure 4 illustrates how the network has changed at a schematic level. Potentially each of the three routes in the new network model on the right can be operated at three times as often as the nine routes in the old network model on the left for a similar cost, improving efficiency of service delivery while offering greater customer experience (higher frequency and targetted “turn-up-and-go”), and on average improved journey times despite the need to transfer when considering wait time for previous in-frequent services.

20. Operating this model does mean there are some trade-offs required. In order to offer frequency based on the New Network model above, some passengers now have to transfer (bus-bus or bus-train) in order to complete their journeys. Approximately 1 in 6 journeys now involves a transfer, compared to 1 in 12 before the new network. The new network also operates buses on fewer routes[1], whereby some streets are no longer directly serviced in order to make routes simpler to understand and quicker. However, a combination of these factors means that, with the additional frequency, many passengers may now have faster journeys than under the previous network, even if this now involves making a transfer. It has resulted in a significant increase in the number of Aucklanders with access to a rapid or frequent public transport service at +335,500 (+168%) as illustrated in Figure 5



Results Figure 5: Improved access to Rapid or Frequent stop

[1] A total of 25 streets across Auckland no longer receive a bus service

21. The implementation of the New Network for buses has seen an increase in service levels of 32% (measured in in-service kilometres) over 40% increase in driving hours, creating more than 300 jobs and a 15% increase in fleet size with capacity increasing by more than 20% at peak times. This was implemented with an approximate 7% increase in cost.

22. There have been patronage increases in all areas following implementation. Overseas experience suggests that there would normally be an immediate downturn in patronage, ahead of a period of recovery and growth. We expect to see continued growth across the network although in the case of north and central, it has been less than a year since implementation. Figure 6 illustrates the growth in each region. It is important to note that this growth represents growth in *journeys* not *trips*, to account for the fact that more transfers are now made. Measuring journey changes, which may comprise a single trip (boardings) or multiple trips (boardings) with transfers, is the true measure of mode-shift from private vehicles compared to measuring trips (boardings) only (refer Figure 7).

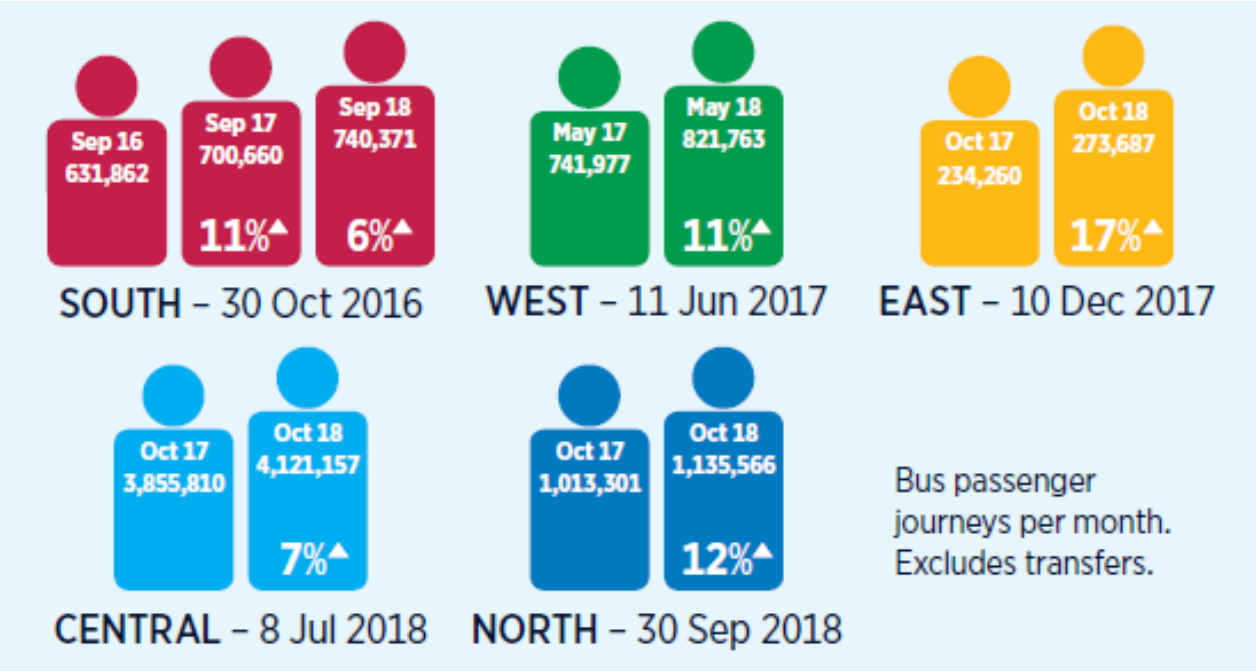


Figure 6: Increase in journeys across the five regions

23. As noted above, the growth in patronage is measured in terms of journeys, not trips. In the case below, (Figure 7) illustrates the increase in trips (boardings) is greater than the growth in journeys (which may comprise a single or multiple trips (boardings) to complete a journey), indicating the increased need for connected journeys. Trips (boardings) is the Statement of Intent (SOI) measure.

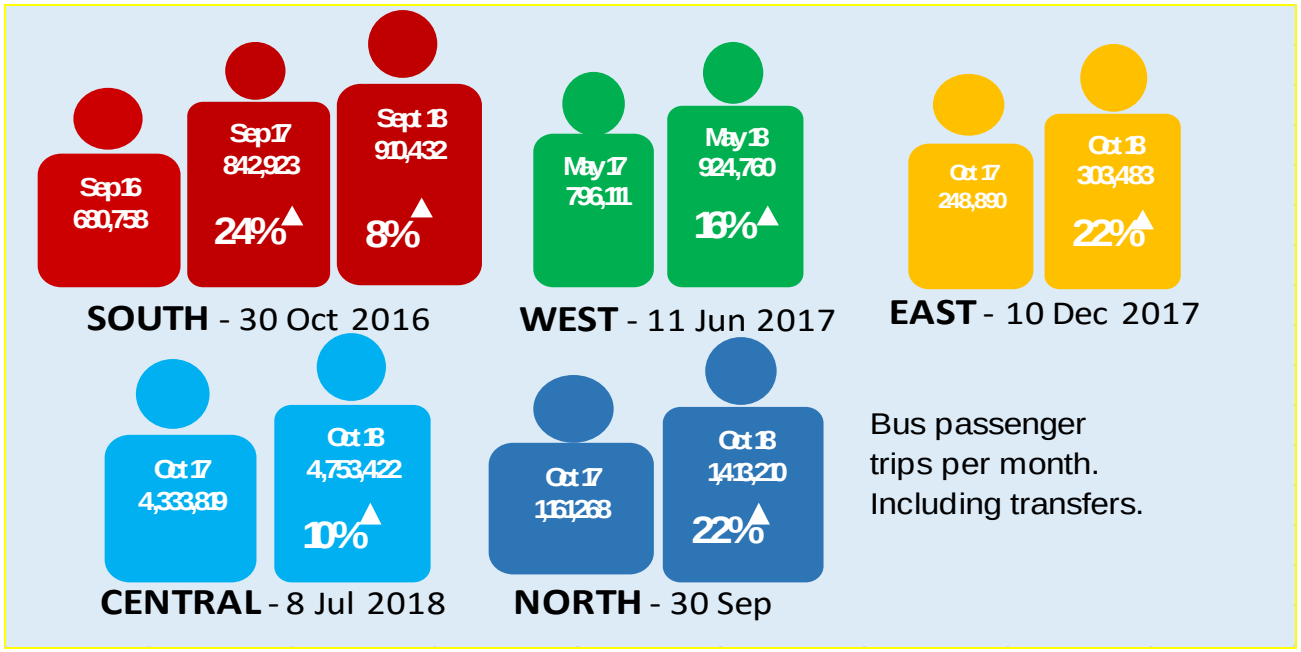


Figure 7: Increase in passenger trips (boardings) across the five regions

24. Patronage growth with all regions of the network functioning together has shown an accelerated growth rate.

- Journeys at +6.1% for 2018/19 year-to-date, February 2019 + 8.5% (550,076) journeys added to the network. Attachment 1 illustrates sub-regional boardings and journey charts.
- Trips (boardings) at +8.7% 2018/19 year-to-date, including +10% bus and +6% train. February saw + 823,895 (+10.8%) trips added to the network with a new annual high of 97.5m boardings – the highest since the 1950s when the tram network was decommissioned (see Figure 8).

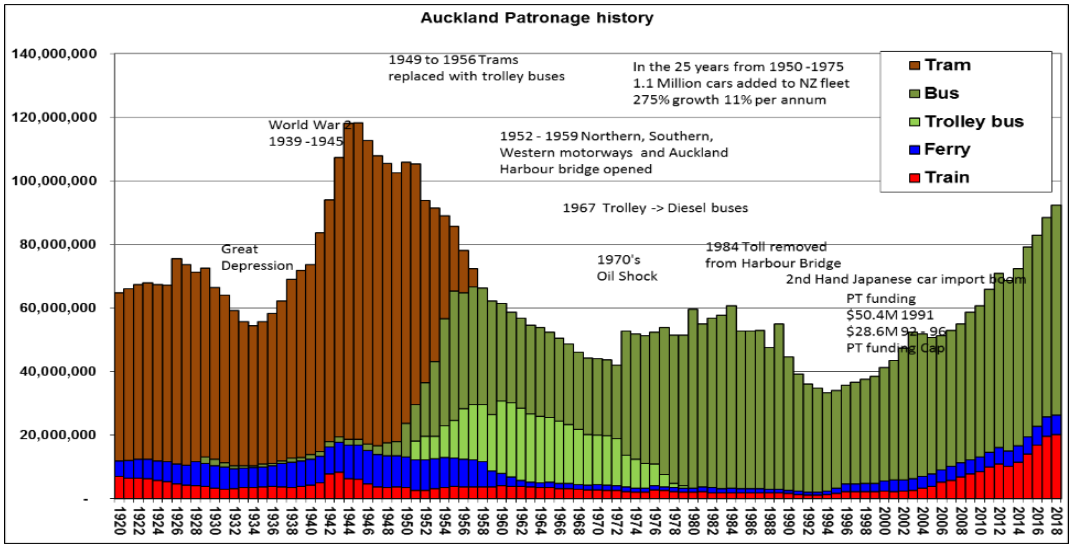


Figure 8: Historic patronage boardings

25. The new network has resulted in operating efficiencies; we are now running approximately 32% more service kms, for an increase in operational cost of 7% (refer Figure 9).

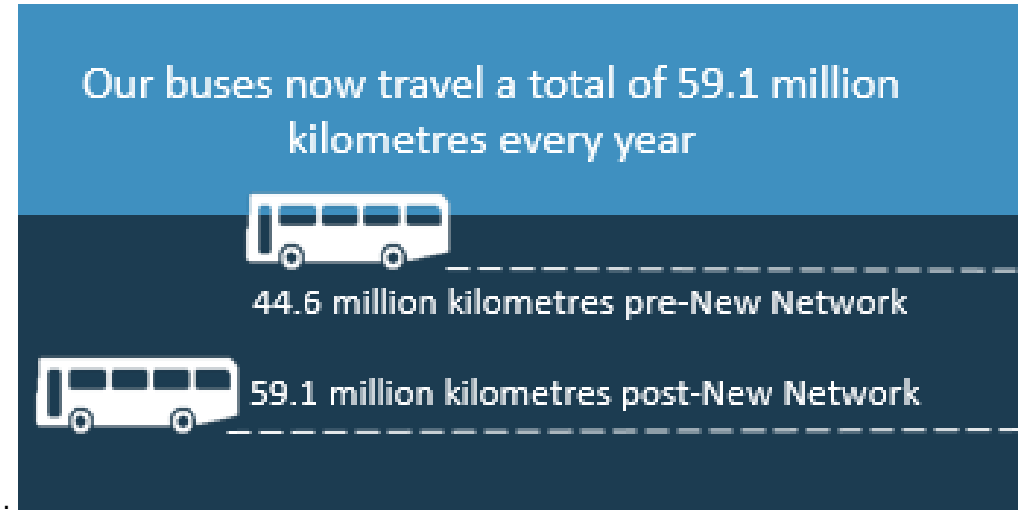


Figure 9: Increase in in-service kilometres across the bus network

External Consultation/Engagement

26. To secure buy-in from across each region, an extensive consultation and engagement exercise was undertaken. This involved informing the public of proposed changes ahead of finalising plans and making a substantial number of changes based on feedback.

27. Public consultation was undertaken in all areas, as listed below:

- 2013 – South Auckland
- 2014 – Green Bay and Titirangi, Hibiscus Coast, West Auckland, Pukekohe and Waiuku
- 2015 – Central, East, North Shore, Beachlands and Maraetai
- 2016 – Waitakere Ranges
- 2018 - Waiheke

28. Public consultation was generally open for 4 – 6 weeks and included:

- Printed brochures – generally sent to all households in the area
- Public events

- Presentations/meetings with local boards and councillors
- Meetings with various community groups
- Social media and radio, including targeted ethnic groups

29. AT publicly consulted on 171 routes, and 90 (53%) were amended in some form because of feedback.
30. Extensive information campaigns were initiated prior to the implementation of each area of the New Network to ensure passengers and potential passengers were aware of the changes.
31. With existing passengers, the aim was to inform on how the changes would impact on them and how they could continue to make their existing journeys under the New Network.
32. With potential passengers it was about educating on the changes with the aim of attracting additional people to public transport.

Issues and options

33. Several lessons were learnt during the implementation of the New Network including the following needs:
    a. Allowing a greater lead time for infrastructure design, consenting and construction as some identified sites may take longer to deliver.
    b. A more extensive schools engagement process
    c. Establishing more ways to engage with vulnerable public transport dependent users outside of the traditional means such as user and advocacy groups.
    d. Earlier engagement with high demand origin/destination addresses to ensure adequate, suitable and efficient bus stop facilities can be put in place “on the way” rather than “out of the way”.
    e. Improved wayfinding planning particularly where transfer points are not intuitive and /or immediately visible.
    f. Pre-implementation in-field operational testing where possible
34. Adequate active mode connections and facilities to new interchange points on the network will remain a challenge until the mobility network principle is progressed.
35. With service providers changing and a significant increase in drivers required at a time when unemployment is at a low point of about 4% has led to an industry shortage of drivers.
36. The continued major works in the CBD over the coming few years remains a challenge to manage from a customer communication and customer convenience point of view.

37. Not all infrastructure has been provided to run a true hub-and-spoke model across all regions of Auckland. In west Auckland in particular, the lack of interchange infrastructure has led to fewer frequent routes than originally planned. AT are working with various stakeholders to understand how earlier delivery of some of these interchanges can be facilitated.

Next steps

38. To build on the success of the new network several next steps are identified below:

- Implement the last region of the New Network in October 2019, being Waiheke Island.
- Complete infrastructure that will enhance the New Network such as Neighbourhood Interchanges.
- Continue to build on the New Network by improving levels of service particularly to create more frequent routes, in line with the RPTP.
- Continue to promote the New Network to further grow patronage.
- Ensure the future bus network is developed using the New Network principles.
- Ensure that the bus network complements future projects such as LRT and CRL.
- Investigate and implement first-and-final leg solutions to access the New Network (particularly RTN and FTN) without use of the private car. Connector and Local feeder bus services are one solution in the New Network but frequency and value for money (patronage / service) can be a challenge. AT is currently developing an On-Demand Rideshare roadmap to expand AT Local services to complement or replace Local scheduled feeder bus services. Other options are bike, e-bike, e-scooter, and ride-share, car-share options, likely delivered by private sector with need for AT to integrate with PT.

Attachments

1	Sub-regional patronage growth graphs to end-February 2019.

Document ownership

Submitted by	Colin Homan **Group Manager Integrated Networks Enablement**	
Recommended by	Mark Lambert **Executive General Manager Integrated Networks**	
Approved for submission	Shane Ellison **Chief Executive**	

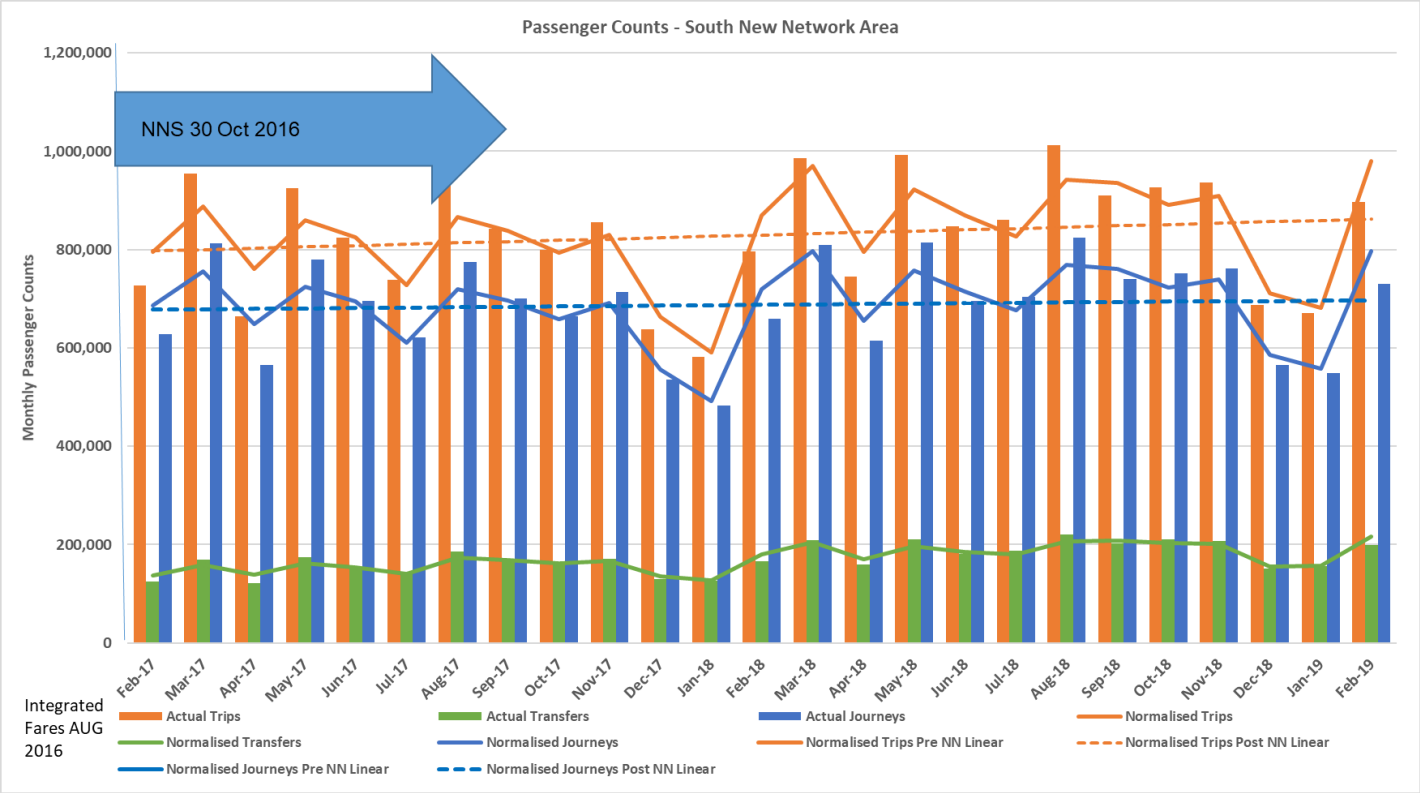
Glossary

Acronym	Description
AT	Auckland Transport
CBD	Central Business District
FTN	Frequent Transit Network
CRL	City Rail Link
LRT	Light-rail Rapid Transit
PTOM	Public Transport Operating Model

RPTP	Regional Public Transport Plan
RTN	Rapid Transit Network
SOI	Statement of Intent

Attachment 1 Sub-Regional Boardings and Journey Charts

Growth in New Network rollout for South Auckland

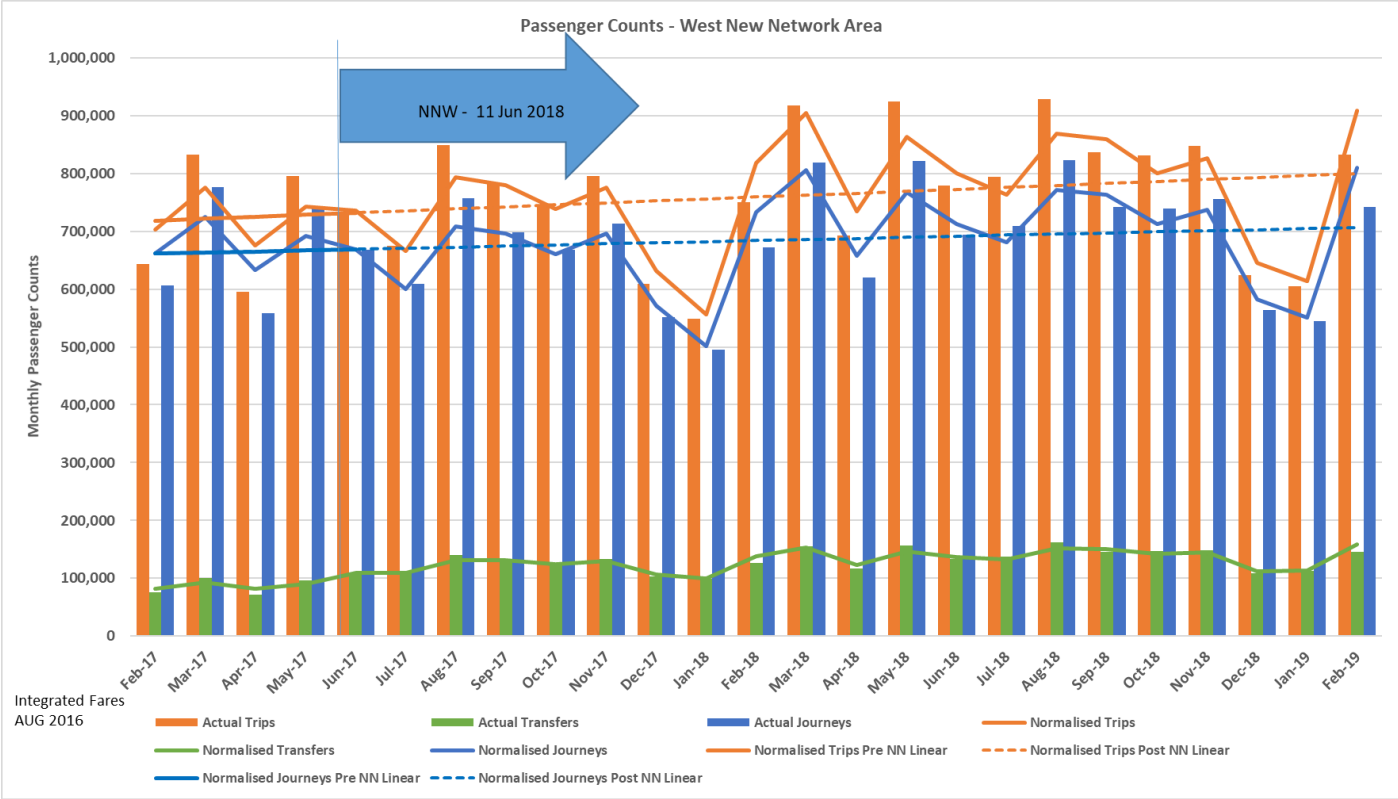


For the South New Network area the 12 months to February 2018 trips from the South totalled 8.6 million passenger journeys, an increase of +7.0% on the previous year, there were 10.5 million passenger trips, an increase of +9.6%. February 2018, there were 729,486 journeys, 896,132 passenger trips a difference of 23% and 198,298 transfers (27% of journeys). Whole of network base 12 months to February of journeys 78.4 million (growth +4.2%), trips 91.1 million (growth +6.9%). *Note: - HOP transactions only - excludes exempt services, special events, train line transfers, free counter products. Activity originating within the South area. Transfers from customer perspective.*

Normalised year on year growth in the South New Network Area for February 2018:

- Passenger journeys have increased by + 77,083 (+11%), Trips + 109,197 (+13%).
- Customer Transfers within the South have increased by + 35,763 (+20%).

Growth in New Network rollout for West Auckland

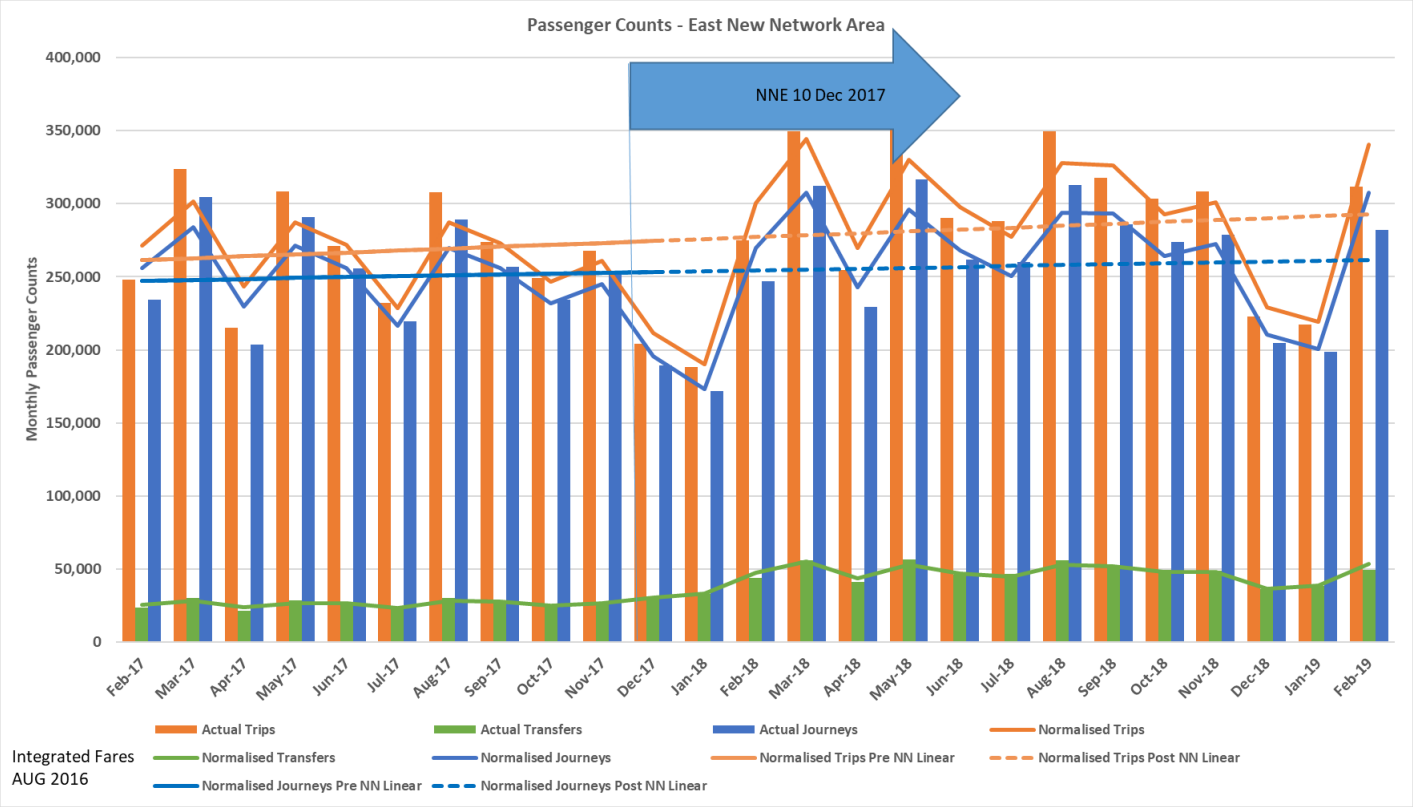


For the West New Network area the 12 months to February 2018 trips from the West totalled 8.6 million passenger journeys, an increase of +8.4% on the previous year, there were 9.6 million passenger trips, an increase of +10.3%. February 2018, there were 741,892 journeys, 832,598 passenger trips a difference of 12% and 145,547 transfers (20% of journeys). Whole of network base 12 months to February of journeys 78.4 million (growth +4.2%), trips 91.1 million (growth +6.9%). *Note: - HOP transactions only - excludes exempt services, special events, train line transfers, free counter products. Activity originating within the West area. Transfers from customer perspective.*

Normalised year on year growth in the West New Network Area for February 2018:

- Passenger journeys have increased by + 76,692 (+11%), Trips + 90,504 (+11%).
- Transfers have increased by + 21,347 (16%).

Growth in New Network rollout for East Auckland

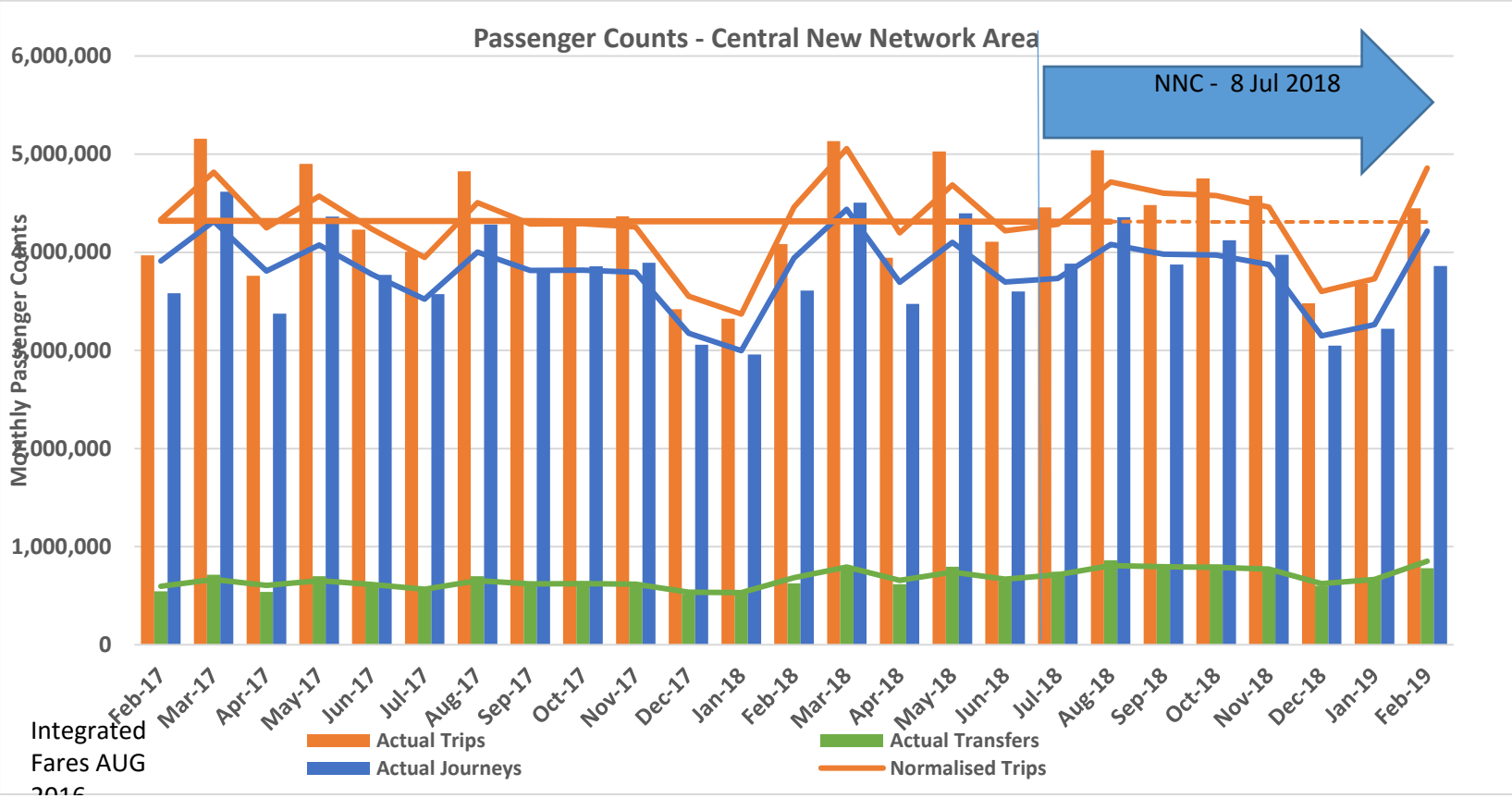


For the East New Network area the 12 months to February 2018 trips from the East totalled 3.2 million passenger journeys, an increase of +10.4% on the previous year, there were 3.6 million passenger trips, an increase of +14.4%. February 2018, there were 281,865 journeys, 311,773 passenger trips a difference of 11% and 49,348 transfers (18% of journeys). Whole of network base 12 months to February of journeys 78.4 million (growth +4.2%), trips 91.1 million (growth +6.9%). *Note: - HOP transactions only - excludes exempt services, special events, train line transfers, free counter products. Activity originating within the East area. Transfers from customer perspective.*

Normalised year on year growth in the East New Network area for February 2018:

- Passenger journeys have increased by + 38,112 (+14%), Trips + 40,100 (+13%).
- Transfers have increased by + 6,090 (13%).

Growth in New Network rollout for Central Auckland



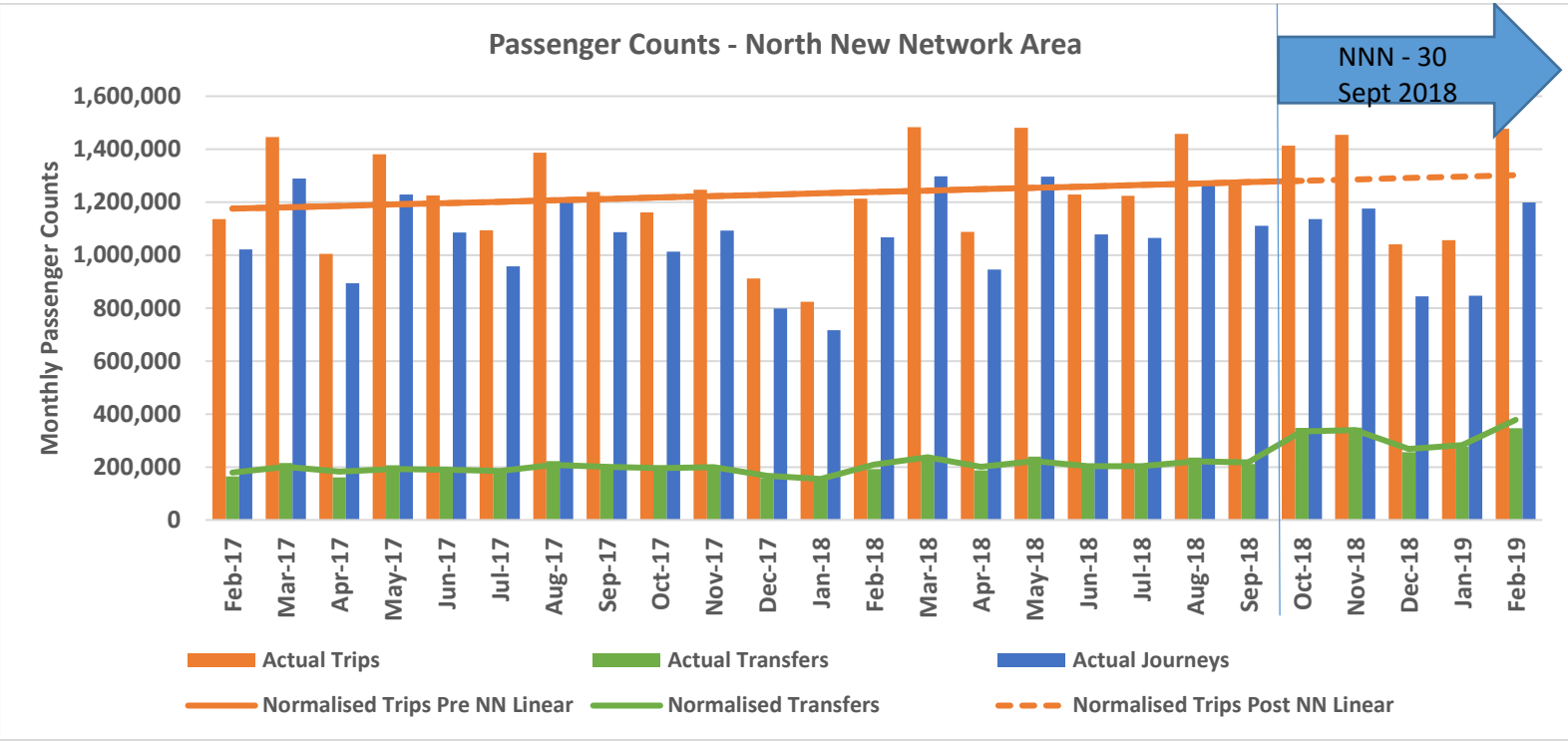
For the Central New Network area the 12 months to February 2018 trips from the Central totalled 46.3 million passenger journeys, an increase of +2.5% on the previous year, there were 53.1 million passenger trips, an increase of +4.8%. February 2018, there were 3.8 million journeys, 4.4

million passenger trips a difference of 15% and 602,952 transfers (20% of journeys). Whole of network base 12 months to February of journeys 78.4 million (growth +4.2%), trips 91.1 million (growth +6.9%). *Note: - HOP transactions only - excludes exempt services, special events, train line transfers, free counter products. Activity originating within the Central area. Transfers from customer perspective.*

Normalised year on year growth in the Central New Network area for February 2018:

- Passenger journeys have decreased by + 271,636 (+71%), Trips + 396,529 (+9%).
- Transfers have increased by + 166,657 (24%).

Growth in New Network rollout for North Auckland



For the North New Network area the 12 months to February 2018 trips from the North totalled 13.3 million passenger journeys, an increase of +6.6% on the previous year, there were 15.7 million passenger trips, an increase of +10.9%. February 2018, there were 1.2 million journeys, 1.5

million passenger trips a difference of 23% and 256,548 transfers (29% of journeys). Whole of network base 12 months to February of journeys 78.4 million (growth +4.2%), trips 91.1 million (growth +6.9%). *Note: - HOP transactions only - excludes exempt services, special events, train line transfers, free counter products. Activity originating within the North area. Transfers from customer perspective.*

Normalised year on year growth in the North New Network area for February 2018:

- Passenger journeys have increased by + 142,824 (+12%), Trips + 288,139 (+22%).
- Transfers have increased by + 168,564 (80%).