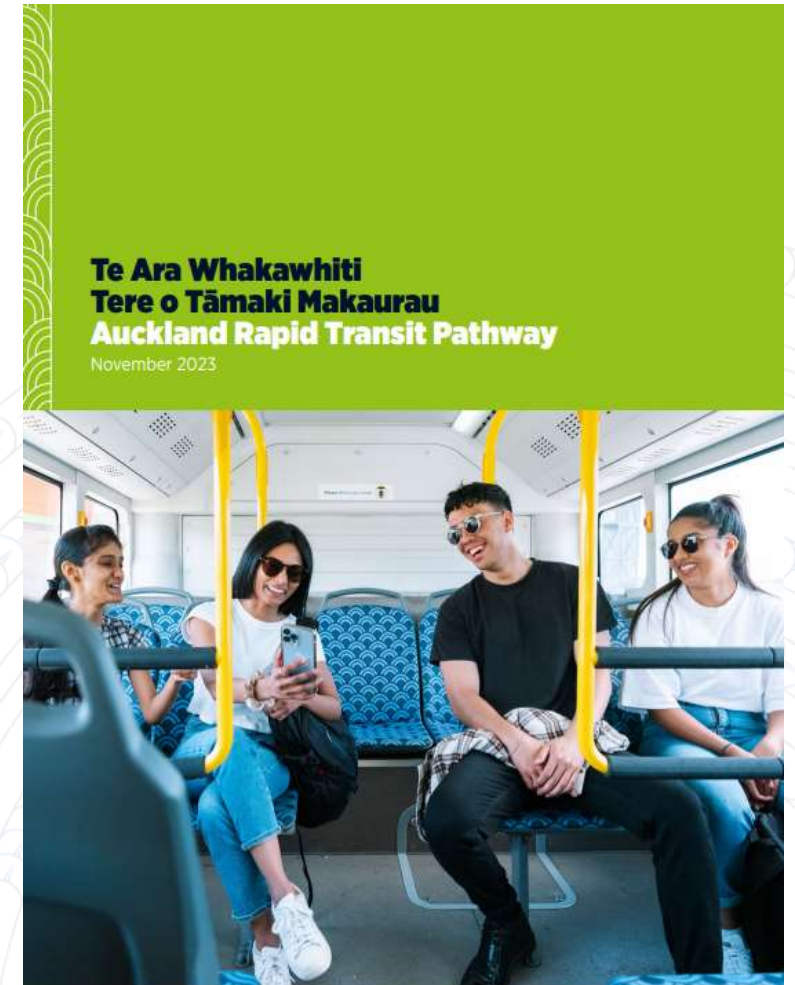




# Updating Auckland's Rapid Transit Network: Affordability, Stageability & Flexibility

# Introduction

- AT, with other agencies, are tiaki (custodians) of Auckland's Rapid Transit Network (RTN).
- The planning of the RTN has always evolved over time, however 2023 saw some of the most significant changes in recent memory, with several 'mega-projects' developing in ways that challenged previous thinking, followed by major shifts in political direction, which created further abrupt changes.
- This presentation outlines a process AT undertook last year to update the light rail corridors proposed in the Auckland Rapid Transit Plan (ARTP).
- The other lines (e.g. heavy rail) were excluded. The full work is yet to be formally adopted, so don't copy it yet.
- *The focus is on the process used to develop an updated network and not to reflect any judgement on the various projects that are named in the presentation (some of which are still underway) or the quality of the project teams involved.*







# Why did we need to relook at the Light Rail Network?



**Different mode and alignment**

**Greater realisation of affordability and deliverability challenges**

**Different mode and alignment**

# Editorial: Auckland light rail too expensive for taxpayers



NZ Herald  
18 Jan, 2024 05:00 AM © 3 mins to read



## 'Significant affordability issues': Red light for Labour's plan for second harbour crossing

6 Dec 2023

The previous government's plan for a second harbour crossing in Auckland does not have the support of the transport agencies tasked with taking on the project.



# Auckland mayor wanted consultants on Waitematā Harbour crossing to be blacklisted

7:47 am on 2 March 2024

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 Finn Blackwell, Reporter  
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## Tunnels, light rail, cycling and bus lanes - govt unveils ambitious \$45b new harbour crossing plan

## Government's Auckland light rail project could cost \$29 billion, Treasury papers say



By [Bernard Orsman](#)

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## 'A stupid number' - Auckland Council, Wayne Brown reject plan for harbour tunnel

News **New Zealand / Transport** 7 Dec 2023

Auckland Council's Transport and Infrastructure Committee has decided not to support the current \$56 billion plan for a secondary harbour crossing.



# Project versus project

- Through business cases, there had been a lot of focus on individual projects maximizing their own benefits and proving their own urgency and importance.
- There was little consideration of a network view or shared approach to achieving outcomes (e.g. it was common to read *“Auckland needs more houses, and our project enables some, so it must be built urgently”*, rather showing how all the projects contribute in their own way to enabling more houses to be built).
- Effectively the projects were competing for funding, ignoring the overall best outcomes for Aucklanders.
- There is a need to consider how the network is optimally rolled out, in a staged and affordable way, as well as its aiming to maximise its performance.
- This may include choosing a mode or a delivery sequence that is more adaptable to future scenarios or avoids significant upfront investment which may not be required for some time.
- The city centre is a particular challenge and informs some network decisions.



# City Centre Bus Congestion

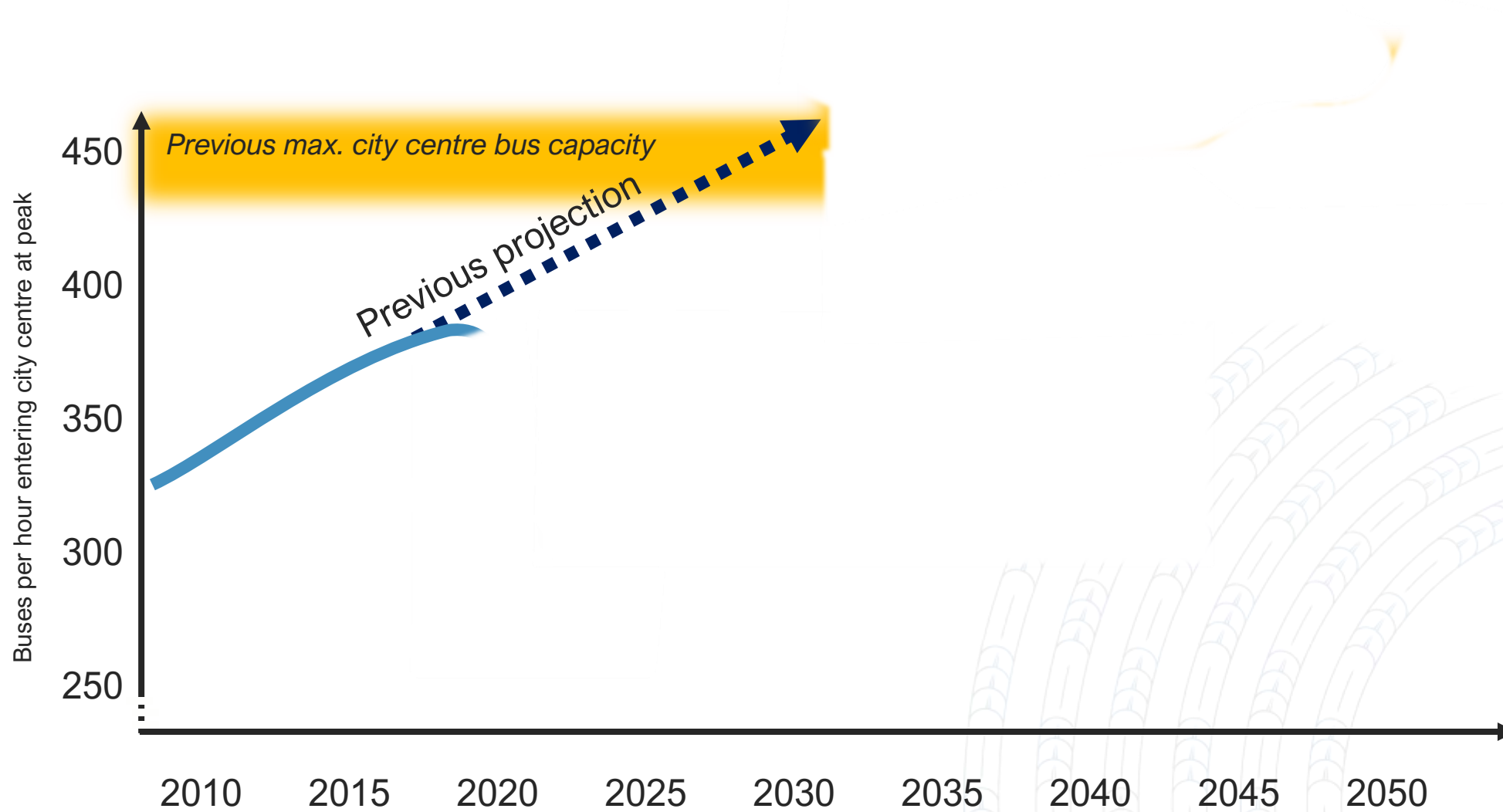




# City centre bus capacity – driving network decisions

- The city centre's bus capacity is influencing several network decisions, such as:
  - Timing of CC2M ('need to remove some isthmus buses by mid-2030s')
  - Viability of a busway for the Northwest
  - Longevity of Northern Busway enhancements
- Public transport patronage is currently at around 90% of pre-pandemic levels.
- AT has significantly revised the bus network to reflect changes in travel patterns and funding constraints, resulting in the removal of many peak or express services, which has reduced city centre bus volumes from a peak of 370/hr in 2019 to 290/hr today.
- The four key city centre bus corridors all have, or will soon have, additional capacity for buses.
- By 2031, bus volumes are projected to increase again to 390/hr, however the corridor improvements and other optimisation options mean those volumes will be more manageable.

# City centre bus volumes over time





# Proposal for updated LRT Network

# Reconfirmation of Rapid Transit Network purpose

“Provide strategic access in key corridors, unaffected by congestion, supporting growth”



## Northwest

- No RTN and poor local bus services
- High levels of traffic congestion, affecting bus services
- Current and ongoing growth



## North Shore

- Existing RTN
- High levels of traffic congestion but RTN mostly operates independently
- Capacity for some growth within existing RTN (if enhanced)



## CC2M

- No RTN but mixture of excellent (in isthmus) and limited (in south) local bus services
- Future bus congestion  
Moderate traffic congestion
- Upcoming and preferred area for future growth

# Northwest and South consistently identified with deficiencies



Indicator: Public Transport volume change 2018 versus 2031 (forecast)  
**High** Over capacity (>=85%) in 2018 and worse in 2031  
**Moderate** Under capacity (<85%) in 2018 but over capacity (>=85%) in 2031

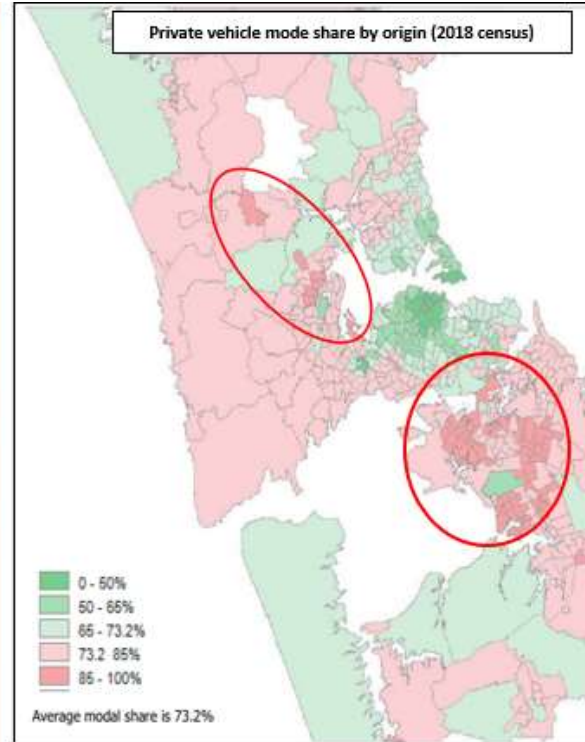
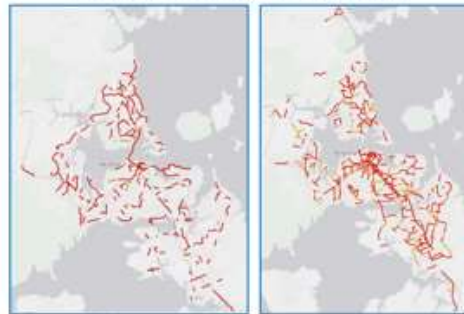


Figure 20 - Current Deficiencies on the Strategic Transport Networks<sup>14</sup>



High LOS F  
 Moderate LOS E

Figure 24 - Number of Jobs Accessible by Mode from locations within Auckland (2031)<sup>14</sup>

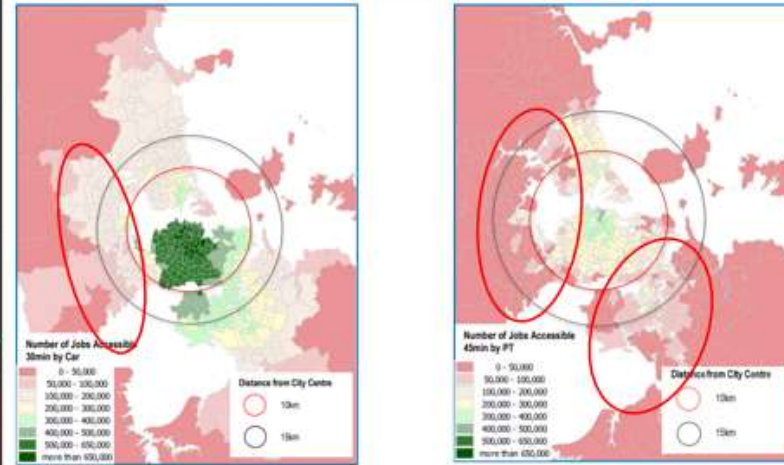
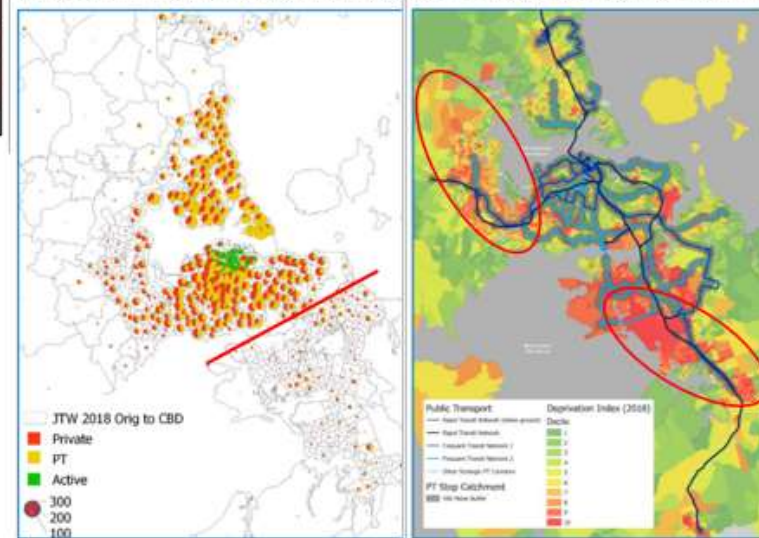


Figure 31 - Modal shares for trips commuting to the Central City / C's 25 - Current deprivation levels and access to all-day Public Transport<sup>14</sup>





**How to come up  
with a plan?**

# Phased approach for LRT network update

- It is difficult to provide certainty for a multi-decade network plan, due to increasing levels of uncertainty into the future.
- While there may be sufficient certainty to commit to the first phase, more work needed to confirm details of later phases, though a general ‘direction of travel’ is known.
- Hence, producing a 30-year network plan with confidence is not the focus.
- Instead three phases are proposed:
  - *Phase 1 – Certainty*
  - *Phase 2 – Reasonable confidence (with more work to be done)*
  - *Phase 3 – Direction of travel (informed by preceding phases)*
- The key elements of each phase respond to specific growth pressures and seek to enable preferred urban outcomes for the region as a whole.
- The duration of a phase is flexible, more focused on sequencing than specific timing, and is informed by funding availability.
- Interim and staged improvements should also be considered.



# Updated LRT Network

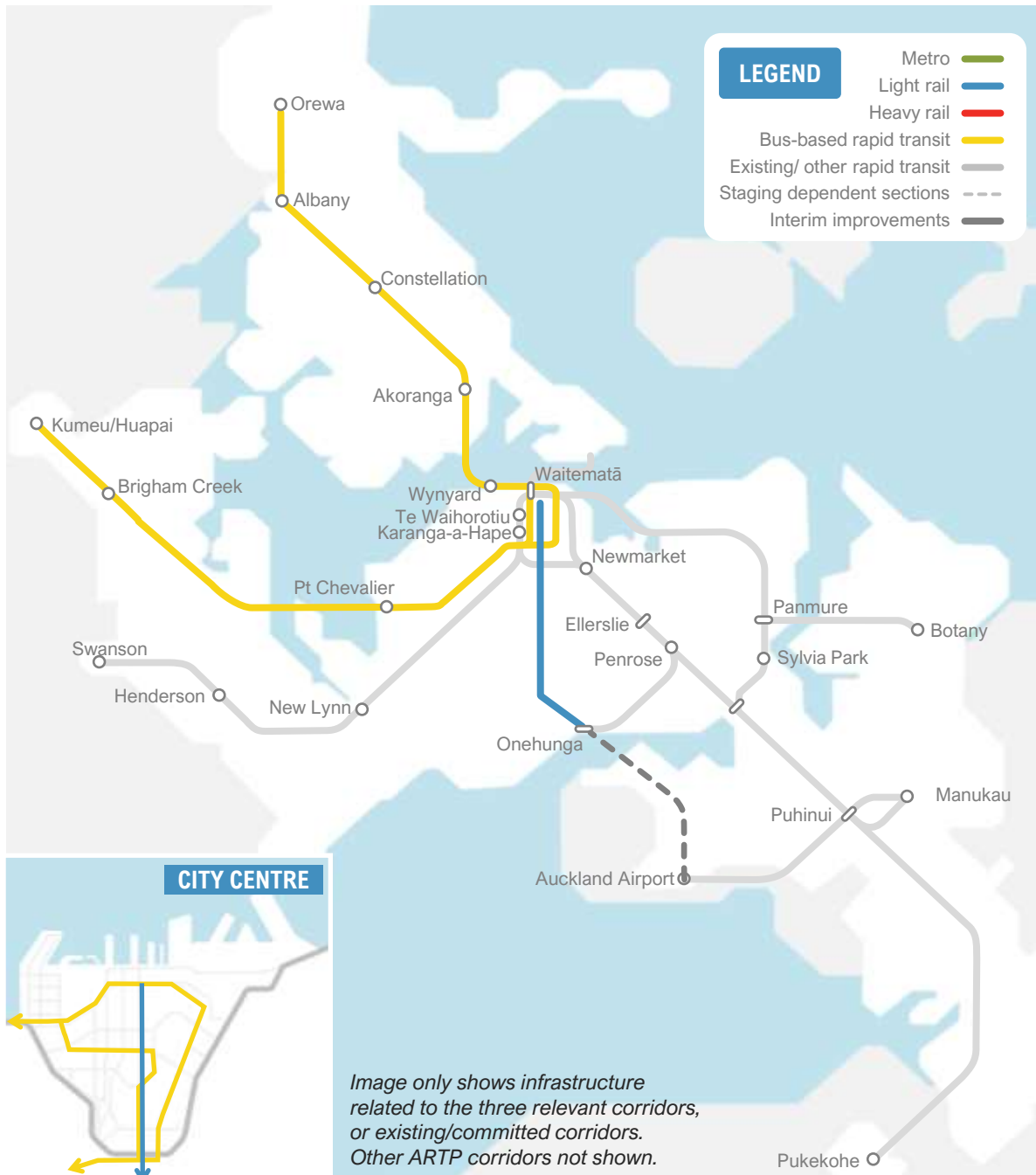
## PHASE 1 - CERTAINTY



- Progress the Northwest corridor as a busway (in stages to urgently address the greatest needs). A busway will be easier to stage and realise benefits, faster to deliver and extend over time, and has sufficient capacity for a long time.
- Also progress Northern Busway enhancements (city centre and station upgrades) as they are lower cost, have immediate benefits, and don't preclude future options. Look to through-route the two busways for further operational benefits.
- City centre bus constraints should continue to be addressed, through implementing the City Centre Bus Plan, to maximise ongoing capacity.
- Deliver targeted/interim bus improvements throughout the CC2M corridor (especially in Māngere and growing isthmus areas).
- As well as giving early benefits to the most disadvantaged users, this first phase has greater deliverability and stageability, which helps with affordability challenges.

# Updated LRT Network

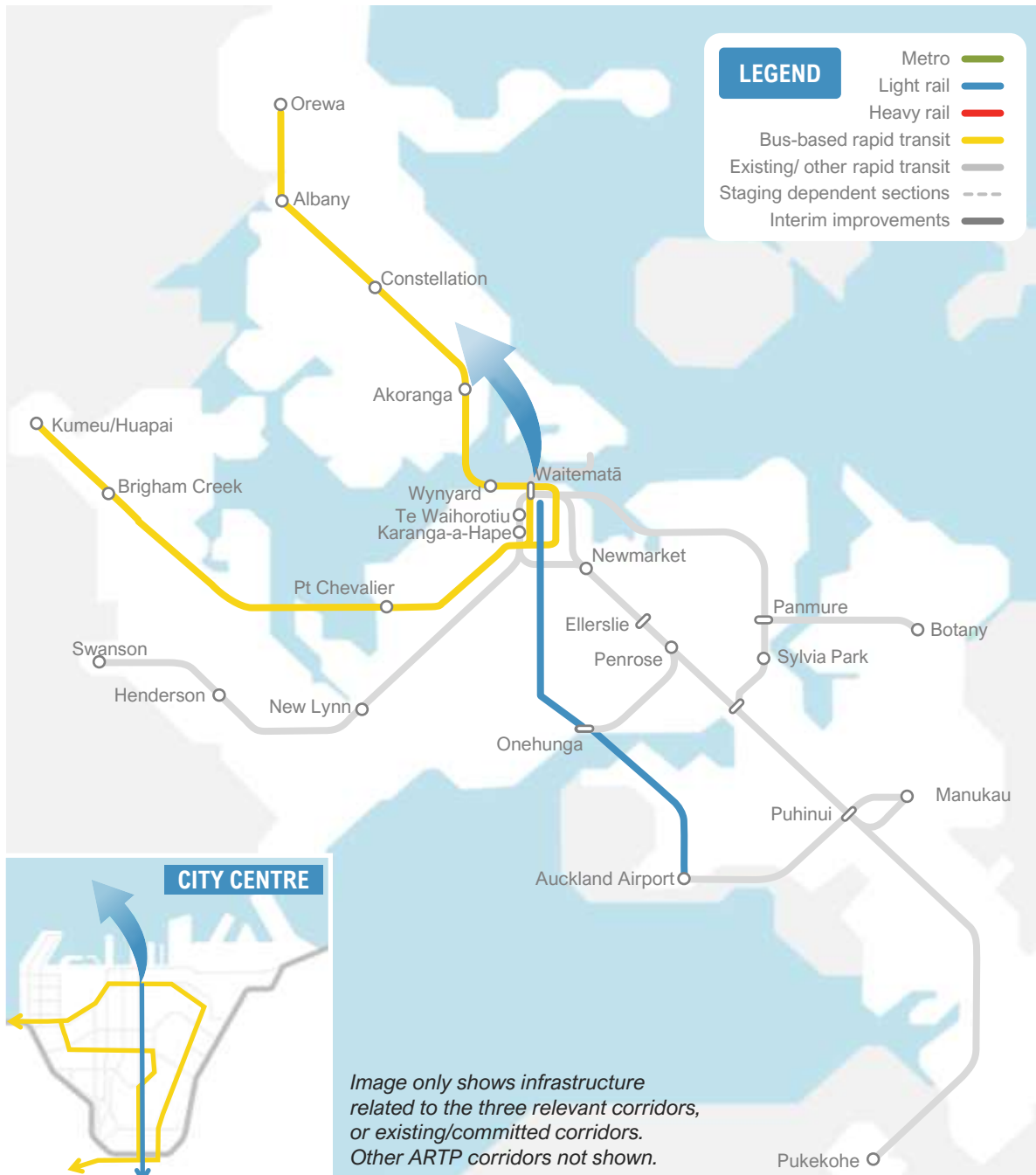
## PHASE 2 – REASONABLE CONFIDENCE



- Progress all three corridors – completion of full Northwest and Northern busways, as well as the first stage of CC2M.
- Although there is an option to pursue CC2M as light metro (as proposed by ALR Ltd), with an affordability lens (and if urban objectives are revised accordingly), we recommend CC2M progress as a single surface light rail line from a depot in the southern isthmus, along Dominion Rd to a terminus on Queen St (just south of Customs St).
- Terminating CC2M here avoids impacts on Customs St buses and allows for investigation into the timing, form and route of any onward extension (phase 3), noting a cross-harbour busway will also be delivered as part of WHC during phase 2.
- Consideration may be given during this phase to higher-capacity vehicles for the two busways.
- During this phase there is also significant investment in the heavy rail network, which affects the overall funding availability for investment in these three corridors.
- Although less than light metro, surface light rail can provide moderate additional patronage (with remaining demand served by ongoing bus services) and good opportunities for urban uplift, e.g. Dominion Junction.

# Updated LRT Network

## PHASE 3 – DIRECTION OF TRAVEL



We have confidence in the core of the network delivered in Phases 1 and 2. The specific elements of Phase 3 are less clear, but we consider this is acceptable given the long time before the need to determine these. A general ‘direction of travel’ is known, with certain choices to be made in terms of priority:

- Timing, form and alignment of the second North Shore corridor (this being affected by the longevity of Northern Busway enhancements) and the potential network benefits and challenges of connecting CC2M to it.
- Timing of CC2M light rail extension to the airport, including reconsideration of other modes
- Further improvements to the heavy rail network (such as the proposed Avondale to Southdown rail line) or other parts of the RTN (such as the Henderson to Constellation corridor) will also contribute to serving growing passenger volumes.
- Potential city centre capacity enhancements of the Northwest Busway (which could also assist the Northern Busway longevity), e.g. grade separation, additional higher capacity vehicles, etc.

# How does the new approach consider affordability?

- The selection of a network and prioritisation of stages should consider affordability as a factor.

***“Our project is very important and needs all the money”*** is not a good argument.

- Depending on the project parameters, some business cases do not adequately consider affordability as a factor, and rely on a positive BCR to justify investment.
- We need to consider the scale of investment, the time taken to start realizing benefits, and the scale of the benefits – and apply that with a network lens.

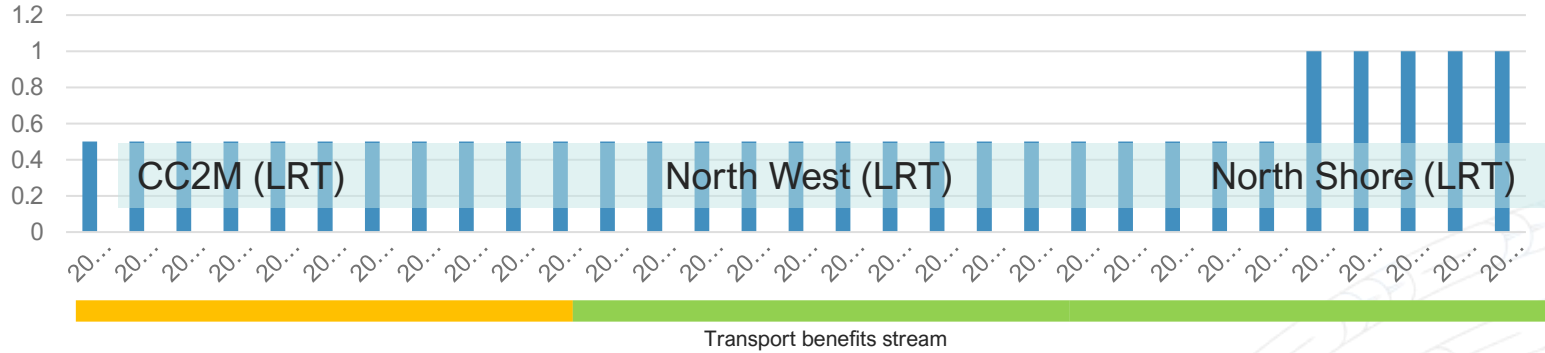
***“Our expensive project will deliver massive benefits but not for 15 years”*** is also not a good argument.



# Indicative investment levels and transport benefits realisation

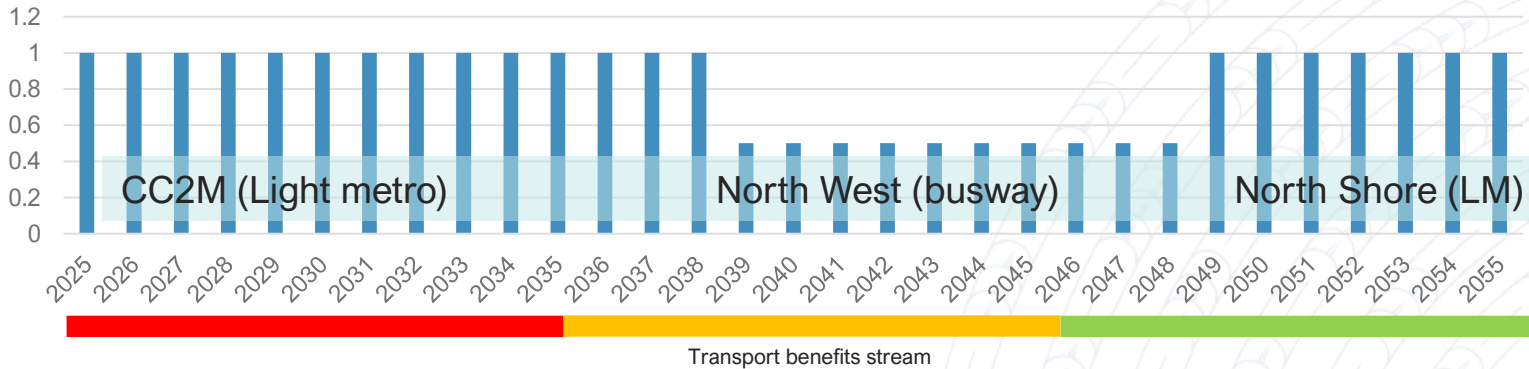
\$B/year

**Previous ARTP network**  
North West benefits not achieved till later.



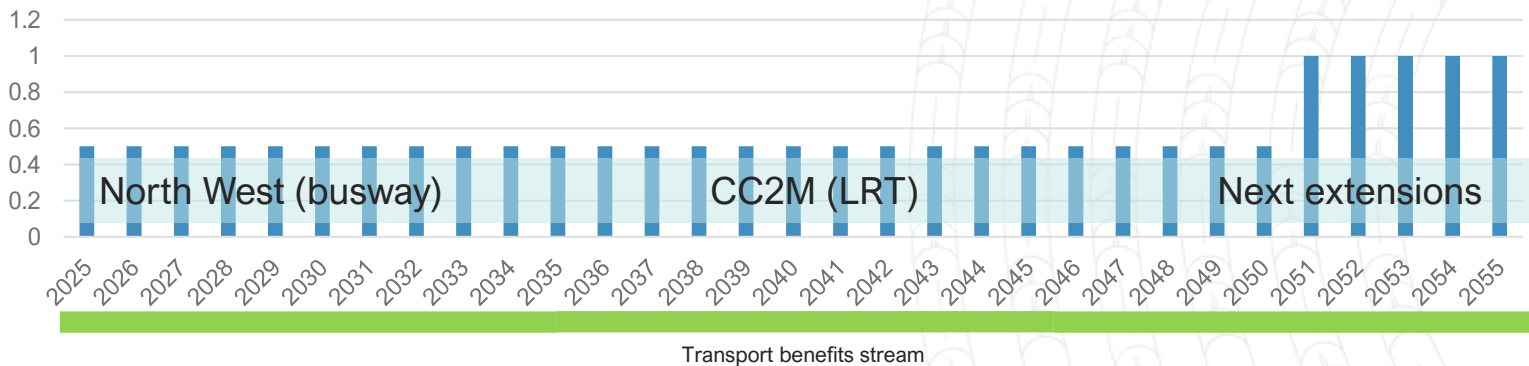
Nominal \$0.5B/year spend. CC2M and NW take a decade each. North Shore has higher cost later.

**Emerging business case network**  
Higher upfront costs. North West and full CC2M benefits not achieved till later.



Nominal \$1B/year spend for light metro parts. CC2M takes 15 years. High costs other than when NW built.

**Proposed updated network**  
North West benefits achieved first. Other benefits staged as needed



Nominal \$0.5B/year spend. NW and CC2M take a decade each. Higher costs for extensions are later.

# How does the new approach consider flexibility

- By leaving later phases open (to different modes or staging or – in some cases – alignments) it allows flexibility for the network to adapt to changing circumstances (e.g. demand, funding, land release, interdependent infrastructure)
- The North Shore corridor's mode and alignment has changed three times in the last six years, due to changing views. So rather than try to lock it in, it is prudent to identify the long-term need for the second corridor, but leave open the key corridor decisions until we have sufficient certainty on core inputs.
- Caveat – some network decisions have to be locked in (e.g. heavy rail investments) and we should be wary of using future uncertainty as an excuse to prevent any interim progress.



*Test for your plan: Is it flexible enough? Does it still make sense if key inputs (like growth or key dependencies) change?*

# Proposed network tested against new ARTP decision-making principles

|   | Previous ARTP network  | Emerging business case network  | Proposed new network  |
|---|--|---|---|
| <b>Whole-of-life affordability and cost-effectiveness</b>       | Lower cost in early stages and overall   | High cost in early stages and overall, likely affordability challenges  | Lower cost in early stages, higher investment deferred until later stages                   |
| <b>Staging to deliver effective and timely benefits</b>         | Most urgent needs not addressed first. North Shore corridor doesn't deliver many additional benefits | Full benefits of first stages not realized for some time. Affordability challenges risks delays to addressing most urgent needs | Most urgent needs addressed first, ongoing work to refine solutions for subsequent problems |
| <b>Flexibility and adaptability to future changes in demand</b> | No flexibility in mode choice, only timing or staging  | Inability to choose lower cost mode for two corridors is desired  | First stages do not preclude changes in subsequent stages                                   |

# Conclusion

- The ARTP's LRT network needed to be updated with a greater focus on affordability, stageability and flexibility.
- As the tiaki (custodians) of the network, AT with other agencies, led the update.
- The new approach – based on levels of certainty over time – allows progress to be made in delivering the initial stages of the network, while still allowing the work needed to get greater confidence in later stages.
- This has allowed a more affordable and flexible approach to be taken, which allows for delivery in stages that can adjust to changing future circumstances.
- This should make the network as a whole more resilient to future changes in funding, demand or other factors.







**Ngā Mihi**  
**Thank you**