

**Asset Management Plan 2021
Summary**



Contents

Auckland's transport infrastructure	3
Role of the Asset Management Plan	5
Enabling Auckland's growth	8
Building the business case for asset management	10
Asset management problem statements	11
Asset deterioration	11
Road safety	12
Growth and intensification	13
Resilience	14
Our Climate Impact Statement	16
Mitigation: How we contribute to reducing emissions	16
Adaptation: How we adapt to the impacts of climate change	16
Our plan and targets	18
Our investment plan	22
Asset operations and maintenance	22
Asset renewals	24
Asset Management Improvements	25
Acknowledgements	26



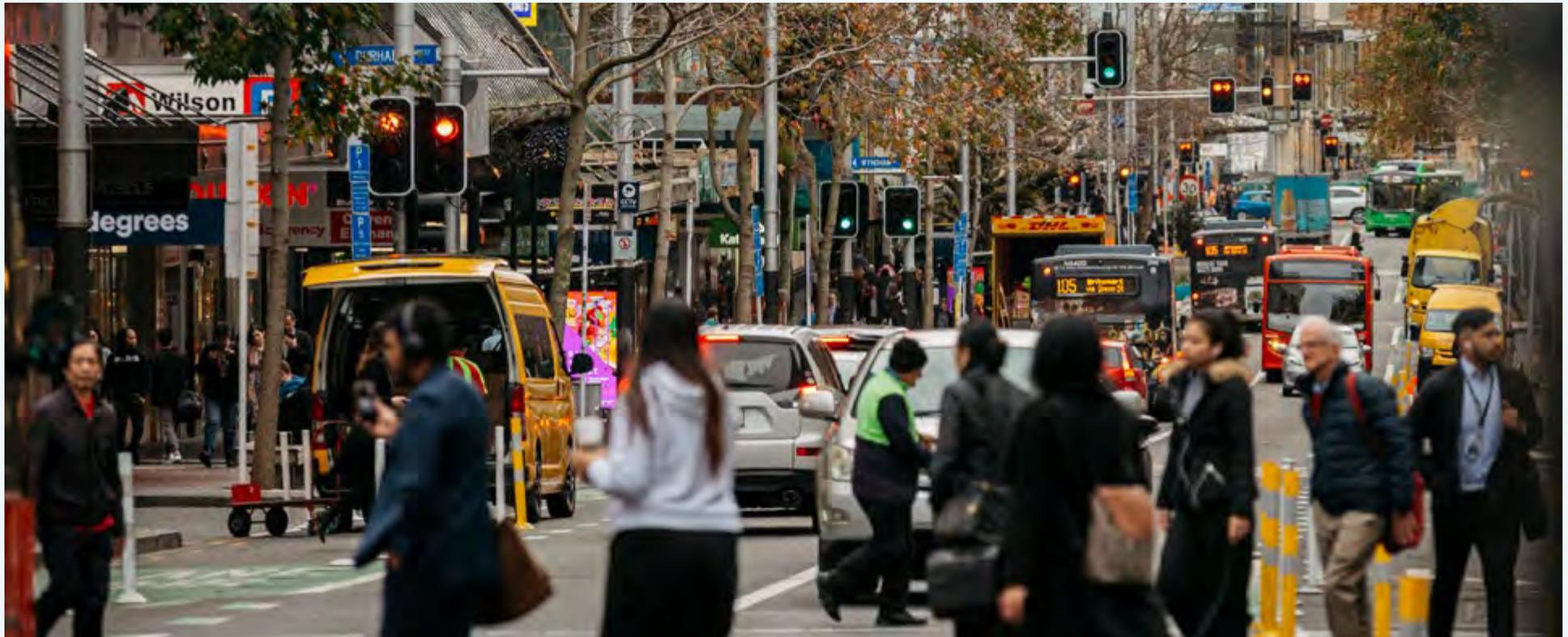
Auckland's transport infrastructure

The Auckland Council group is responsible for managing Auckland's public infrastructure, including the roads, water networks and community facilities that we use every day. Auckland Transport (AT) is part of the group and is responsible for roads, footpaths and public transport links.

This **Transport Asset Management Plan 2021** sets out how AT intends to manage its transport assets over the next 10 years, from 2021 to 2031. It describes the assets we manage, the activities we carry out, and what it all costs. It also looks at other factors that affect how we manage the assets, such as government strategy, growth and demand, and risks and constraints on investment, in particular the impacts of the Covid-19 pandemic.

AT is the regional guardian of

\$22 billion of publicly-owned assets



Strategic objectives

The Regional Land Transport Plan is prepared every 3 years by Auckland Transport with our investment partners. It must be consistent with the Government Policy Statement on Land Transport contribute to a safe, effective, efficient transport system in the public interest, in line with the purpose of the Land Transport Management Act. It represents Auckland region's 10-year investment programme undertaken by AT, Waka Kotahi New Zealand Transport Agency (Waka Kotahi), and KiwiRail to improve Auckland's transport system to deliver on the agreed objectives.

This Asset Management Plan supports the Regional Land Transport Plan by optimising the contribution of existing assets to these strategic objectives.

STRATEGIC OBJECTIVES OF THE 2021 REGIONAL LAND TRANSPORT PLAN, and asset management responses:

Make the transport system safe by eliminating harm to people

The latest road safety data shows a reduction in road trauma, but there is no room for complacency as we work with our Vision Zero partners towards a transport network free of death and serious injury.

Accelerate better travel choices for Aucklanders

Auckland's agreed strategy to improve urban transport is to move more people and goods within the footprint of existing roads. Over time, this strategy requires AT to transform the existing road network, from one where typically 80 per cent of road space is devoted to cars, to a multi-modal network which is safe for all pedestrians and cyclists, gives priority to buses, and creates great public spaces while still providing for vehicle access.

Better connecting people, places, goods and services

We put our customers first by implementing our Future Connect plans for road, freight, public transport, walking and cycling so customers experience an effective, reliable, connected transport network.

Enabling Auckland's growth through a focus on intensification in brownfield areas, with some managed expansion into emerging greenfield areas

Auckland's growth is a sign of success - people want to live and do business here. But growth does add to the cost of managing transport assets, to keep up with an expanding transport network and move more people and freight on existing assets and services.

Improving environmental resilience and sustainability of the transport system, and significantly reducing the greenhouse emissions it generates

We will prioritise actions that build resilience to current and future natural hazards, and that contribute to Auckland's emissions reduction and environmental sustainability goals.

INVESTMENT OBJECTIVE:

Ensuring value for money across Auckland's transport system through well-targeted investment choices

ASSET RELATED OBJECTIVE:
sound asset management in the face of increasing rates of asset deterioration, increasing costs and an expanding asset base in response to growth, and the increased risks of climate change .

Role of the Asset Management Plan

THE **ASSET MANAGEMENT PLAN** DEMONSTRATES HOW AT SUSTAINABLY MANAGES OUR COMPLEX TRANSPORT NETWORKS IN THE INTERESTS OF THE PUBLIC

It is one of a set of plans that guide how transport in the city is managed.

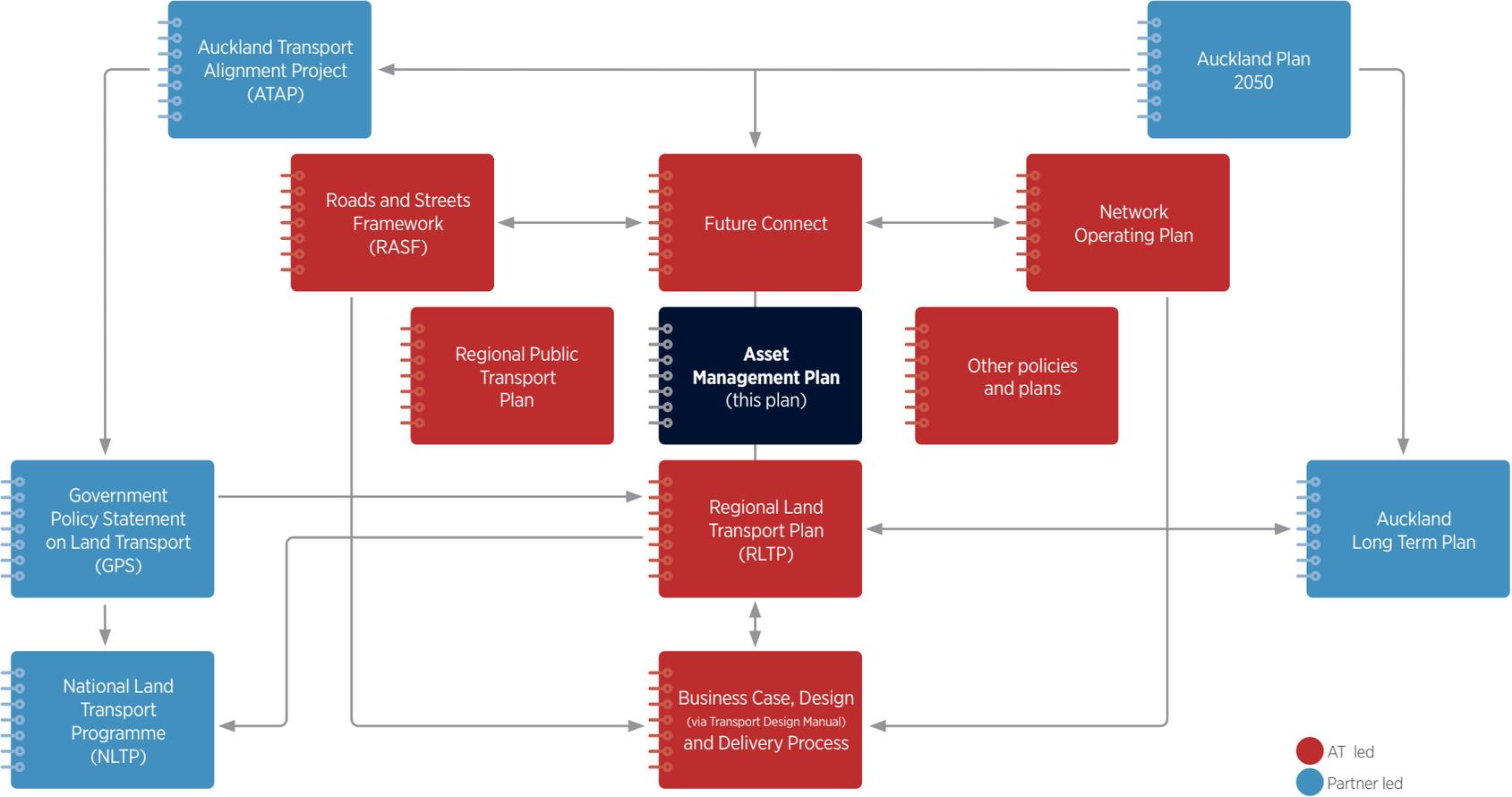


FIGURE 1: KEY TRANSPORT PLANNING DOCUMENTS

What we manage



Snapshot of our transport network



Road pavements

assets worth
\$9.6 billion

7,661 km of roads
6,843 km is sealed and
818 km is unsealed



Stormwater

assets worth
\$2.9 billion

13,542 km stormwater channel
89,141 catchpits



Bridges, walls and structures

assets worth
\$1.9 billion

1,248 bridges
4,461 retaining walls
307 km railings and fences



Footpaths and cycleways

assets worth
\$1.5 billion

7,460 km of footpaths
350 km of protected
cycleways



Street lighting

assets worth **0**
\$0.3 billion

122,347 street lights



Traffic systems, signs and markings

assets worth
\$0.2 billion

857 controlled intersections
163,004 signs



Parking

assets worth
\$0.5 billion

250 off-street parking areas,
11 parking buildings,
969 parking payment units



Public transport

assets worth
\$1.7 billion

7 bus stations,
1,482 bus shelters,
40 rail stations,
72 electric trains
23 ferry wharves

AT manages
\$22 billion
of transport assets,
including infrastructure
assets with a replacement
value of
\$18.6 billion

Our assets are
depreciating with time
and use at a rate of

\$338 million
per year or

\$1.1 million
per day

Asset inventory as at 30 March 2021.

Total asset value of \$22 billion includes land, corporate and IT assets.

Enabling Auckland's growth

Auckland Council has recently revised its growth forecasts to take into account data up to August 2020, including the impacts of Covid-19. The new forecasts anticipate that Auckland will grow by around 26,000 people (10,000 households) each year from 2021 to 2031. Compared with its 2018 forecasts, Auckland Council's new growth forecasts project similar population and household numbers, but are more optimistic about the economy, with employment growth revised upwards to over 10,500 new full-time jobs each year between 2021 and 2031.

To support this growth, AT is investing in new transport assets, and private developers also construct new roads in new growth areas.

AT forecasts that the transport asset base will grow over the coming ten years by:



74km new sealed roads each year
(1.1 per cent growth per year)

additional stormwater drainage, street lights and road structures in proportion to sealed road growth
(1.1 per cent)



104km new footpaths per year
(1.4 per cent)

10km new protected cycleways per year
(2.9 per cent)



15 new signalised intersections per year
(2.3 per cent).

These additional assets will have flow-on effects for future maintenance, operations and renewals requirements and budgets.

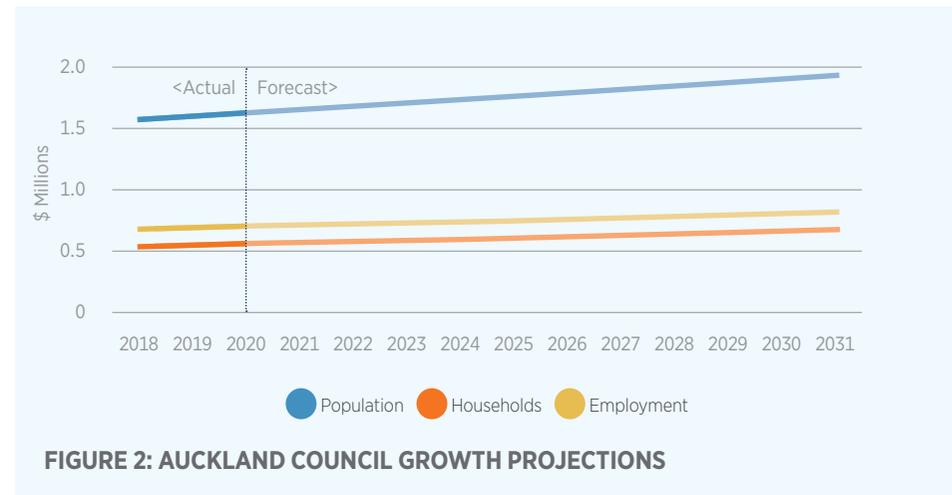


FIGURE 2: AUCKLAND COUNCIL GROWTH PROJECTIONS



FIGURE 3: AT PROJECTIONS OF TRANSPORT ASSET GROWTH

Services we provide



EACH YEAR, THE AT
TRANSPORT NETWORK CARRIES:

AND...



17%
of all vehicle
travel in NZ

(8 billion km
of vehicle travel)



60%
of all public
transport
trips in NZ

(100 million trips
in 2018/2019)



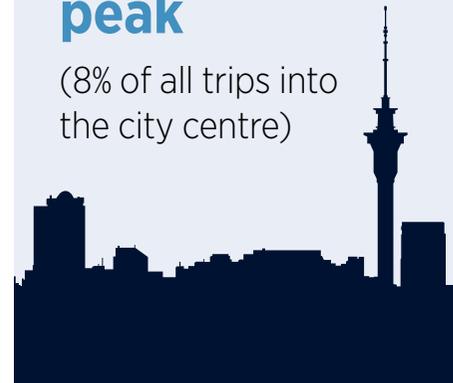
4,272 people
walk into the
city centre
each morning
peak

(8% of all trips into
the city centre)



We maintain
17% of all
cycleways
in NZ

(345 km of protected
cycleway and 211 km
of on-road cycleway)



WE ARE GUARDIANS OF INFRASTRUCTURE THAT ENABLES AUCKLAND TO GENERATE 38% OF NZ'S GDP.

Source: Waka Kotahi NZ Transport Agency, AT surveys

Building the business case for asset management

AT follows national and international best practice to develop a business case for investment in transport asset management activities. Preparing a business case helps ensure that AT is delivering maintenance and renewals activities in the right place, at the right time, to achieve a level of service that aligns with the outcomes the community requires.

A key step in any business case is to define the problems (or root causes) that create the need for change. We have identified four key problems that this plan needs to address if we are to play our part in delivering the agreed strategic objectives.



ASSET DETERIORATION

If AT does not address asset deterioration adequately, by maintaining and renewing assets in a timely and efficient way, then safety will be compromised, customer journeys will be affected, and significant problems will be created for the region and for future generations.



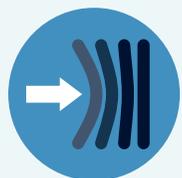
ROAD SAFETY

Deaths and serious injuries on Auckland's roads are high by national and international standards, especially pedestrians, cyclists and motorcyclists. Our Vision Zero goal is to eliminate harm to all road users.



GROWTH AND INTENSIFICATION

The network requirements to address the impacts of growth and intensification will be significant, and if not met, will accelerate asset deterioration and escalate costs.



RESILIENCE

The transport network lacks resilience in the face of future challenges, including climate change, increasing the potential for significant disruption.



Unlike a business case for building a new asset, there is no 'do nothing' option in this AMP. **Our role as kaitiaki or guardians of the transport network means we must look after the public assets that have been entrusted to us and we must plan ahead to ensure that transport networks are managed and maintained to face the challenges of the future.**

Asset management problem statements



ASSET DETERIORATION

Condition

Our central task as asset managers is to look after the infrastructure that the community relies on every day. To achieve this we need to understand the condition and performance of our assets. Assets that are in very poor condition will need to be renewed so they can again provide a fit for purpose level of service.

Currently AT has \$0.5 billion of assets in very poor condition, and this ten year plan provides for these assets to be renewed so that the network continues to perform well and the level of risk is managed within AT's risk appetite.

This plan also provides for AT to keep up with the inevitable deterioration of assets over the coming ten years, so the transport network as a whole continues to meet community needs.

Criticality

Asset deterioration is a problem for all assets, but is especially significant for critical assets because of the consequences if these assets fail.

AT has classified all of its assets, from Vital (Level 1) to Minor (Level 5) based on the number of customers using the asset and strategic networks including freight routes and lifeline routes.

AT's Risk Management Framework specifies that we have a low appetite for events which may adversely affect our critical assets. Vital and Major assets in poor condition represent 1% of our assets by value and are the highest priority for renewals.

FIGURE 4: ASSET CONDITION AND REPLACEMENT VALUE

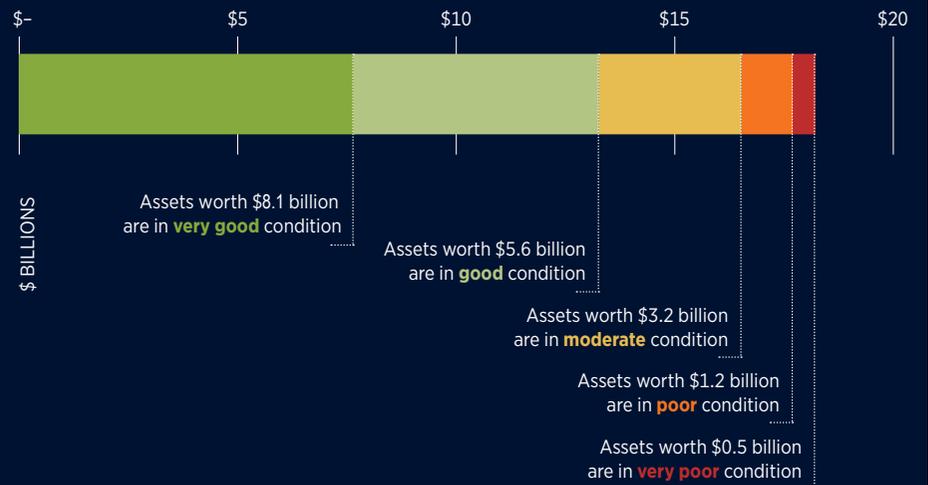


FIGURE 5: ASSET CONDITION AND CRITICALITY

	Asset Condition				
	Very good	Good	Moderate	Poor	Very poor
Level 1 - Vital	\$1.3	\$1.1	\$0.4	\$0.1	\$0.0
Level 2 - Major	\$0.6	\$0.5	\$0.3	\$0.1	\$0.0
Level 3 - Significant	\$1.2	\$0.8	\$0.5	\$0.2	\$0.1
Level 4 - Local	\$1.3	\$0.9	\$0.6	\$0.3	\$0.1
Level 5 - Minor	\$3.7	\$2.4	\$1.5	\$0.5	\$0.3
Total	\$8.1	\$5.6	\$3.2	\$1.2	\$0.5
Infrastructure asset replacement value (\$billions)					\$18.6



ROAD SAFETY

AT's Vision Zero approach requires us to be proactive about all opportunities to prevent crashes and to mitigate their impacts, including when other factors such as speed and road user behaviour are also contributing factors. This leads to different actions being required for urban and rural roads.

On urban roads the priority is to make the road network safer for pedestrians, cyclists and motorcyclists, recognising that people are vulnerable and will make mistakes.

As asset managers we contribute to a safe urban network by keeping footpaths and cycleways in good condition, maintaining the road surface so it is free of hazards like potholes, and keeping our urban roads well lit.

On rural roads we need to provide pavements with good skid resistance and ensure that hazards are either eliminated or, where this is not possible, are clearly visible and well signposted.



FIGURE 6: DEATHS AND SERIOUS INJURIES ON AUCKLAND LOCAL ROADS



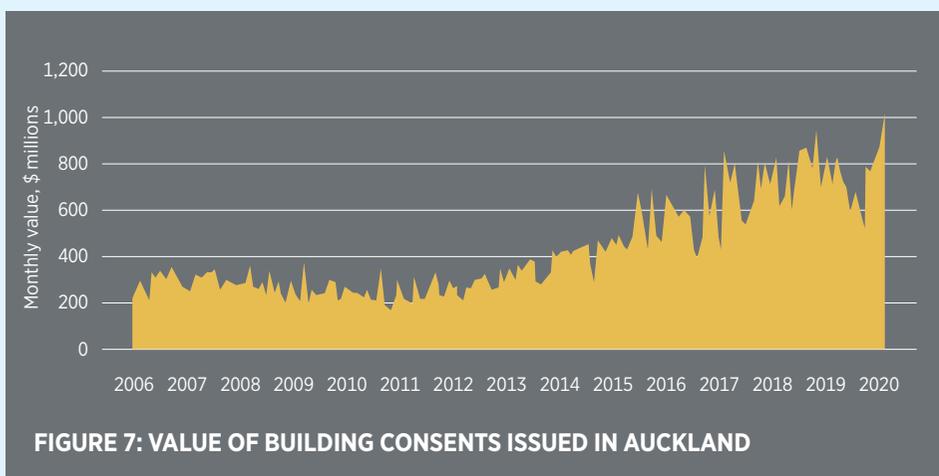
GROWTH AND INTENSIFICATION

Auckland is experiencing a construction boom, with around 10,000 new homes built each year, in addition to commercial development. To support this growth, 74 km of roads, 104 km footpaths and 10 km of cycleways are added to the network each year, as well as more drainage assets, street lights and traffic signals.

Although construction dipped in 2020 due to Covid-19, recovery has been swift. In September 2020, the value of building consents issued in Auckland in a single month exceeded \$1 billion for the first time.

Growth affects the maintenance and renewal of transport assets in four main ways:

- More assets are added to the transport network, creating consequential maintenance, operations and renewals costs.
- More people and goods are travelling on the existing network.
- The sheer weight of material being transported by road in order to construct new homes and buildings has a physical impact on road pavements.
- The unit costs for aggregate, labour and other items that AT purchases are increasing, because demand is high and supply is limited.





RESILIENCE

Some parts of Auckland's transport network can lack resilience, especially at peak times. Small incidents can cause significant disruption to customer journeys, because the road network is close to capacity and there are few alternative routes.

We have a low tolerance for risks that could impact on our critical assets, because of the consequences for the whole transport network if these assets fail.

Our overall approach to asset risk management is based on how likely a risk is, and the consequences if it occurs.



Natural hazards that our networks are exposed to include hazards that are forecast to become more frequent and severe with climate change: Storms and wind, flooding, sea level rise, coastal inundation and wildfires. Other natural hazards including earthquakes, tsunamis and volcanic eruption are also a concern.

AT cannot control extreme events, but we can make our assets less vulnerable to being damaged. Resilience improvements in this AMP include:

- Seismic strengthening of gantries and bridges
- Slope stabilisation on slip-prone roads
- Resilience improvements on roads prone to flooding, including on Tamaki Drive
- Including climate change impacts and natural hazards in AT's infrastructure planning process.

FIGURE 8: CRITICALITY OF LOCAL ROADS IN THE CITY CENTRE

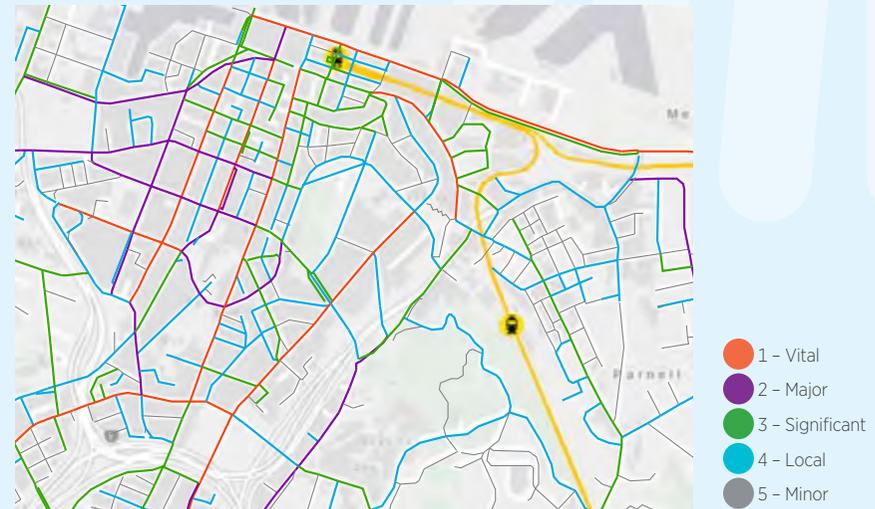
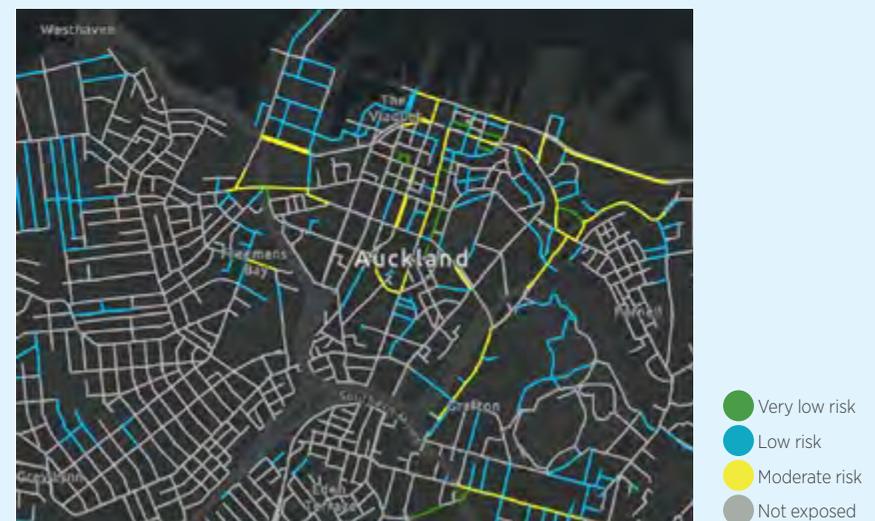


FIGURE 9: CITY CENTRE LOCAL ROADS EXPOSED TO FLOODING RISK





Our Climate Impact Statement

Mitigation:

How we contribute to reducing emissions

Auckland Transport is committed to tackling climate change under Auckland Councils Climate plan and welcomes the challenge of contributing to halving Auckland's greenhouse gas emissions by 2030 – within the ten years of this AMP. But we do not underestimate the scale of the change required.

Most of Auckland's transport emissions are from private vehicle travel, although trucks and buses also contribute. We can reduce transport emissions by:

- Travelling less (reducing vehicle km travelled)
- Travelling in more fuel efficient vehicles and/or using electricity and other sustainable fuels



Over the past ten years, vehicle use in Auckland has grown by 20%, or roughly the same rate as population. Because of better fuel efficiency, emissions grew at less than half that rate, by 9%. Looking forward, we hope to influence vehicle use by encouraging public transport, walking and cycling, and we expect further gains in fuel efficiency and more electric vehicles, but we also expect that population will continue to grow. [Our own modelling suggests](#) that total emissions will increase over the ten years of this plan unless fundamental shifts are made that are out of AT's control.

This AMP makes a small but important contribution to reducing emissions, by:

- Supporting a shift to more walking, cycling and public transport by maintaining these assets at a high level of service
- Maintaining Auckland's fleet of electric trains and supporting the implementation of the [Low Emission Bus Roadmap](#)
- Looking after the assets we already have, recognising that building new transport assets is a very energy-intensive activity.

More needs to be done to understand the whole of life climate impacts of asset management decisions. This is a priority in our improvement plan.

Adaptation:

How we adapt to the impacts of climate change

AT's approach to planning for climate change is to look first at the current likelihood of natural hazards, and then to adjust that likelihood over time based on the latest climate change science.

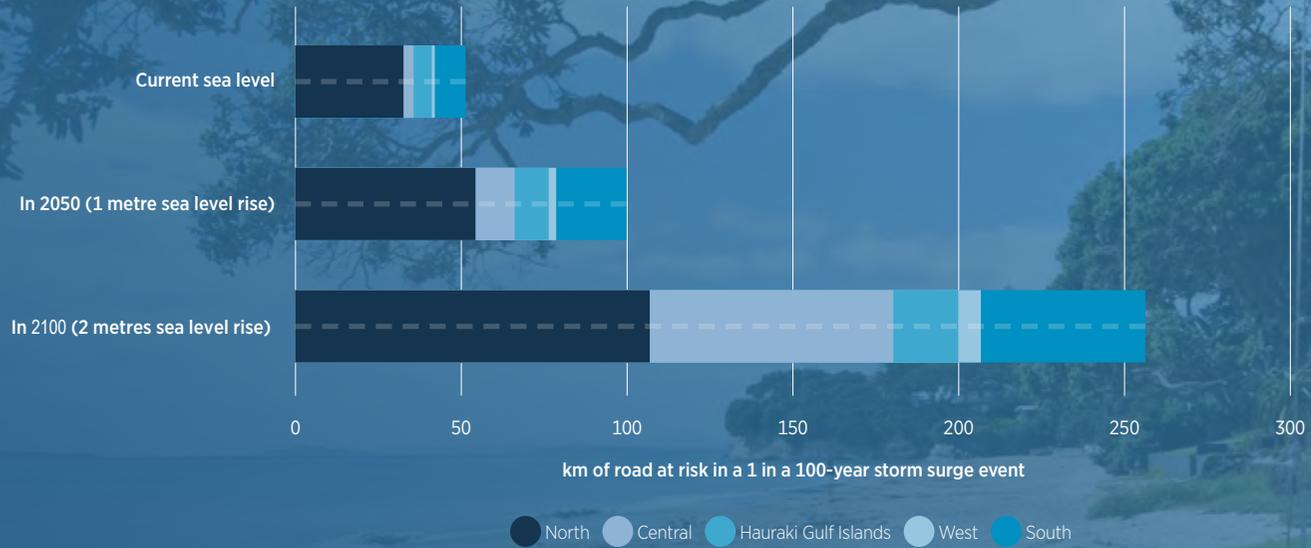
Some natural hazards, including high winds, flooding and coastal storm surges, are forecast to become more common and more severe due to climate change.

We use the latest Auckland-specific climate change projections to identify where critical assets are at risk and what can be done to reduce the vulnerability of these assets.



FIGURE 10: AT HAS RAISED THE HEIGHT OF THE TAMAKI DRIVE SEAWALL TO IMPROVE RESILIENCE TO SEA LEVEL RISE

FIGURE 11: AUCKLAND ROADS AT RISK OF COASTAL INUNDATION

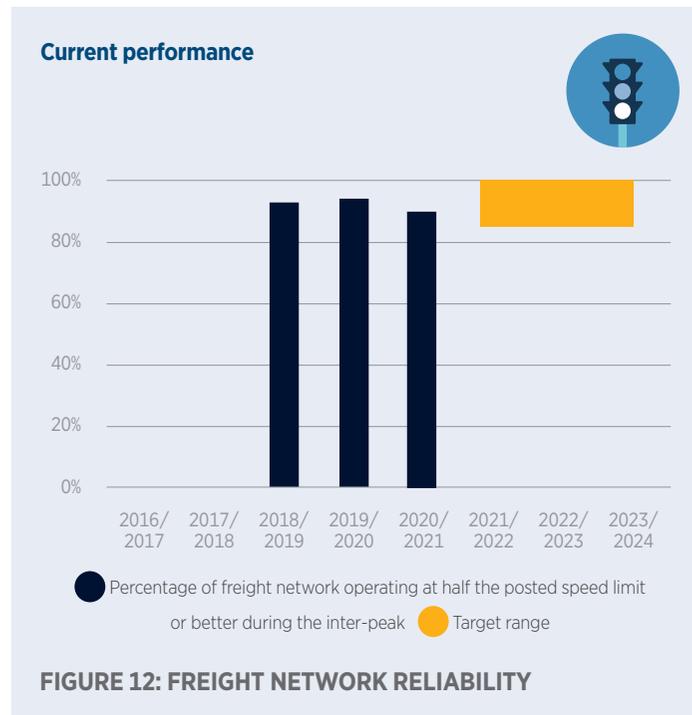


Our plan and targets

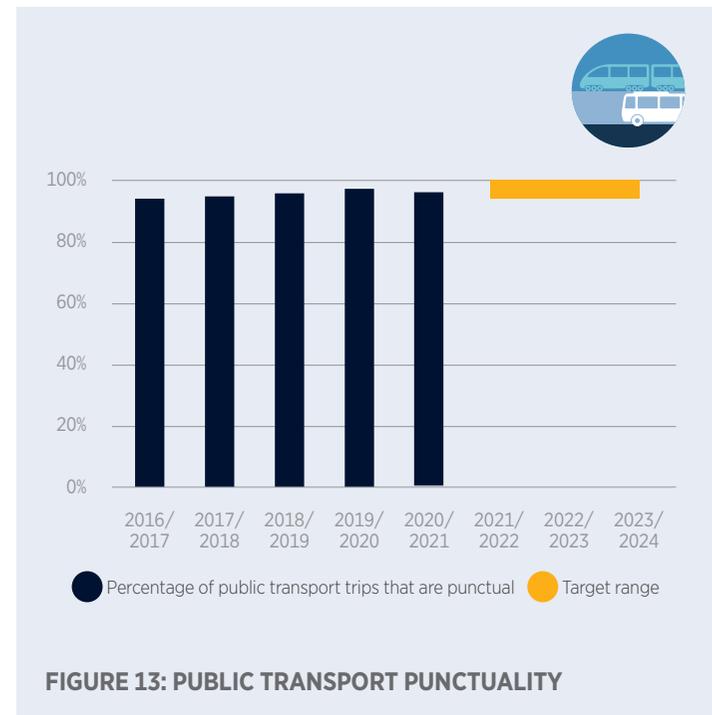
OUR ASSET OPERATIONS, MAINTENANCE AND RENEWALS ACTIVITIES WILL CONTINUE TO SUPPORT CUSTOMER JOURNEYS AND WILL CONTRIBUTE TO NATIONALLY AND REGIONALLY AGREED [BENEFITS](#).

Investment benefits
Impact on system reliability

Performance or service measure
The road and public transport networks offer a reliable level of service



92% of strategic freight routes **operate reliably** in the inter-peak



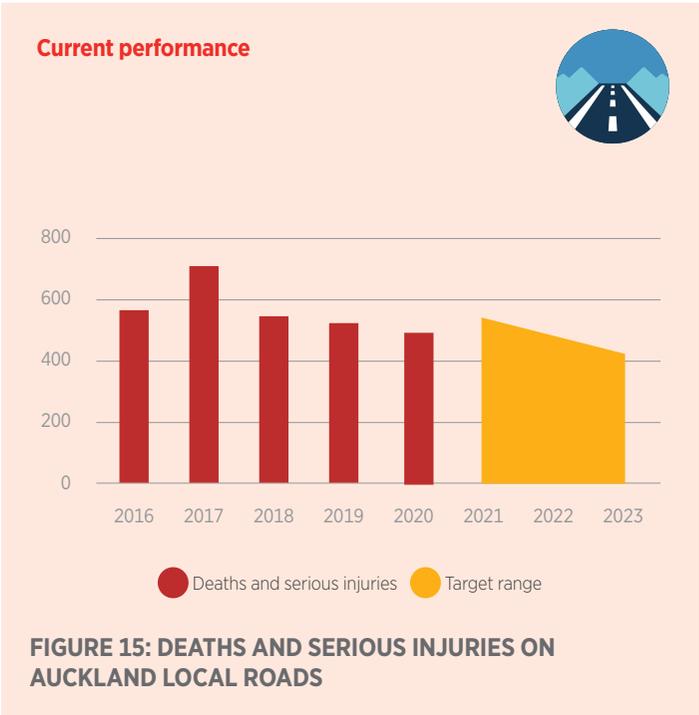
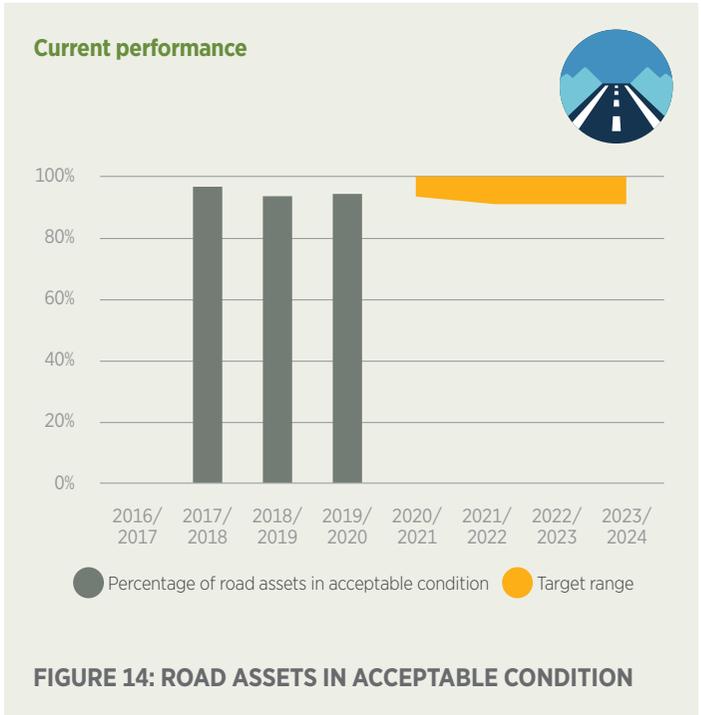


Investment benefits
Impact on social cost and incidents of crashes

Performance or service measure
Deaths and serious injuries on Auckland local roads reduce

Investment benefits
Impact on system reliability

Performance or service measure
Assets are in a fit-for-purpose condition



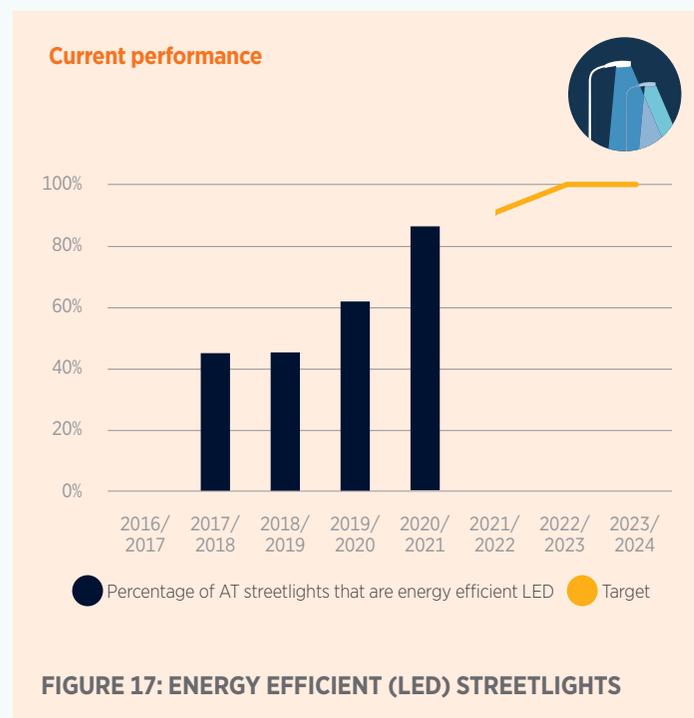
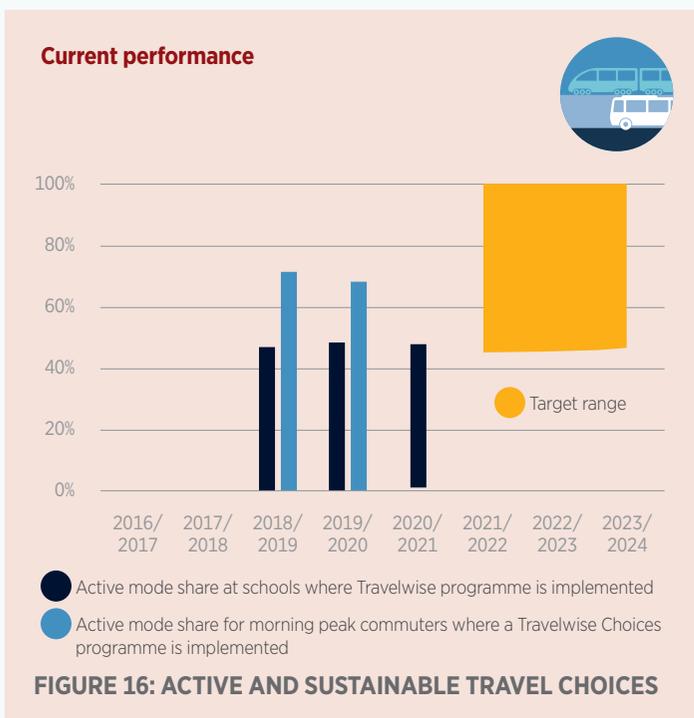
85% of AT streetlights are **energy efficient LEDs**

Investment benefits
Impact on mode choice

Performance or service measure
Active and sustainable mode share at schools and workplaces where Travelwise programme is implemented

Investment benefits
Impact on resource efficiency

Performance or service measure
Percentage of AT street lights that are energy efficient LED



65%

of residents **are satisfied** with the surface of sealed roads in the Auckland region

Investment benefits
Impact on user experience of the transport system

Performance or service measure
Road roughness, as measured by smooth travel exposure for urban and rural roads

Current performance

FIGURE 18: CUSTOMER SATISFACTION – SURFACE OF SEALED ROADS

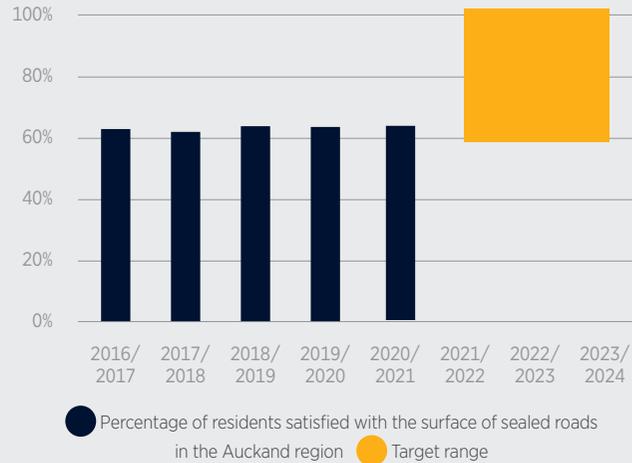
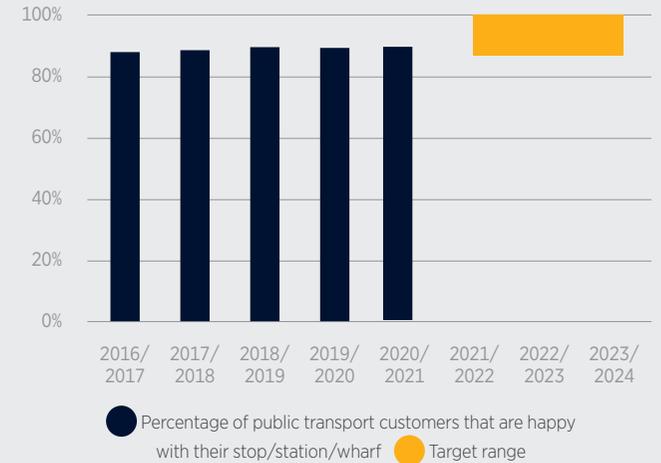


FIGURE 19: CUSTOMER SATISFACTION – PUBLIC TRANSPORT ASSETS



Current performance

FIGURE 20: RIDE QUALITY (SMOOTH TRAVEL EXPOSURE) – URBAN

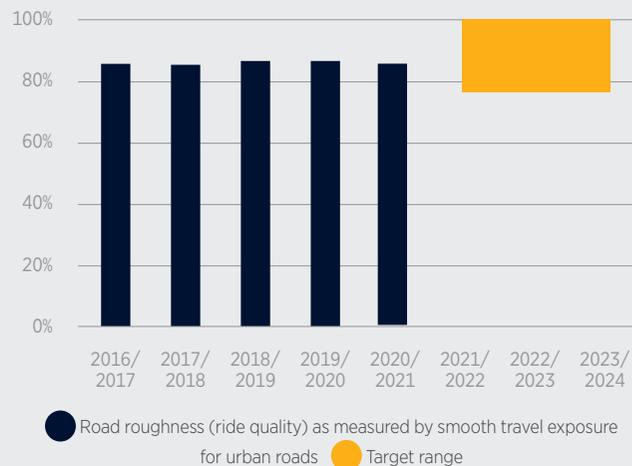


FIGURE 21: RIDE QUALITY (SMOOTH TRAVEL EXPOSURE) – RURAL



Our investment plan

THE ASSET MANAGEMENT INVESTMENT PLAN SET OUT IN THIS AMP COMPRISES TWO PARTS:

- an asset operations and maintenance investment plan
- an asset renewals investment plan.

Asset operations and maintenance

Asset operations and maintenance are AT's second largest item of operational expenditure (the largest is the cost of operating public transport services). Effective operations and timely maintenance is especially important when funding is short, as neglecting these issues can exacerbate safety risks and accelerate long term asset damage.

Major items covered by operations and maintenance budgets include:

- maintaining the road pavement surface, for example by filling cracks and patching potholes
- maintaining road markings and replacing damaged road signs
- operating street lights and optimising traffic signals to improve network performance
- operating and maintaining rail and bus stations, ferry wharves and bus shelters.

The costs of maintaining and operating Auckland's transport network will increase steadily as Auckland grows and new assets are added to the network. These costs, including inflation, are forecast to be \$228.2 million in 2021/2022, increasing to \$290.8 million in 2030/2031. Most of this increase is the consequential costs of maintaining and operating new assets built or vested in AT over the 10-year period.

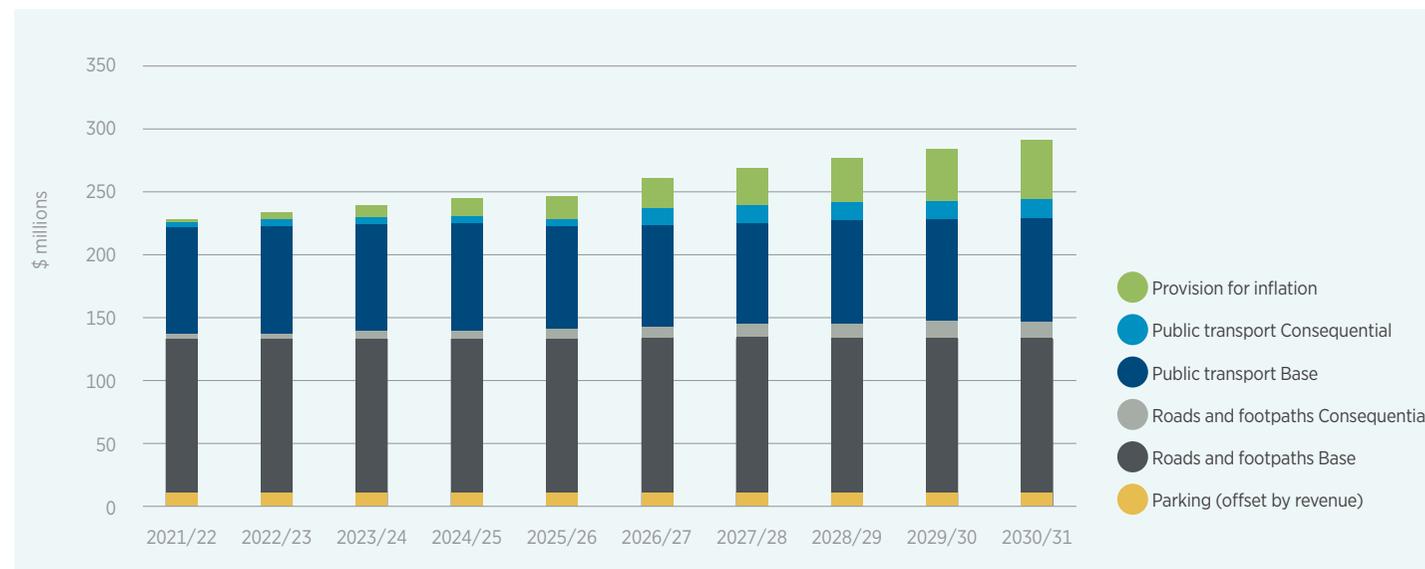


FIGURE 22: ASSET OPERATIONS AND MAINTENANCE INVESTMENT REQUIREMENTS

Investment benefits

The maintenance and operations programme to be funded by this investment will help address the problems identified in our business case:



- **Asset deterioration** will be addressed by providing adequate maintenance budgets so AT can find and fix small problems early. The programme is expected to significantly reduce long-term costs.



- **Road safety** can be partly be addressed through maintenance budgets. This is especially the case on rural roads, where clear signs and markings, skid resistant pavements and well-maintained road shoulders and sightlines can save lives. For urban roads, this plan provides for maintenance of new urban safety assets including midblock crossings and protected cycleways.



- **Impacts of growth** are the main reason for increased operational costs. There will be more roads and related assets, and existing road assets will be used more intensively. The public transport network needs to grow even faster than the road network, as the only way to increase the capacity of certain key roads in the network is by moving more people in fewer vehicles.

Operational costs related to the [City Rail Link](#), which is due for completion in late 2024, are not included in the above recommendation.



Our investment plan cont.

Asset renewals

The asset renewals investment plan has been developed in two stages:

- an asset renewal needs investment plan – this plan sets out our recommended optimal renewals programme: it balances cost, risk and levels of service, before constraints on funding are taken into account.
- a constrained renewals investment plan – this second plan has been developed with input from AT executives. It has lower costs and, as a result, a higher level of managed risk and some targeted changes to levels of service.

Transport investment needs have outstripped available funding for many years, and the Auckland Transport Alignment Project (which AT is part of) has been searching for more sustainable funding sources since 2018. Covid-19 has reduced available funding even further, but without having any great effect on our costs.

Taking into account funding constraints, AT is recommending the constrained renewals investment plan. In this plan, total investment (inflated) in renewals over 10 years is **\$3.93 billion**, detailed in Figure 23. The constrained renewals investment plan is less than the asset renewal needs.

In future years, renewals expenditure will need to increase to improve our ability respond promptly when road pavements are damaged, including in new growth areas and intensification areas. From 2024/2025, recommended budgets include additional funding to ensure that renewals complement other works; for example by arranging for kerb and channel, footpath and cycleway assets to be improved as part of road pavement rehabilitation projects, and to deliver priority asset renewal needs that have been identified by local boards.

Investment benefits

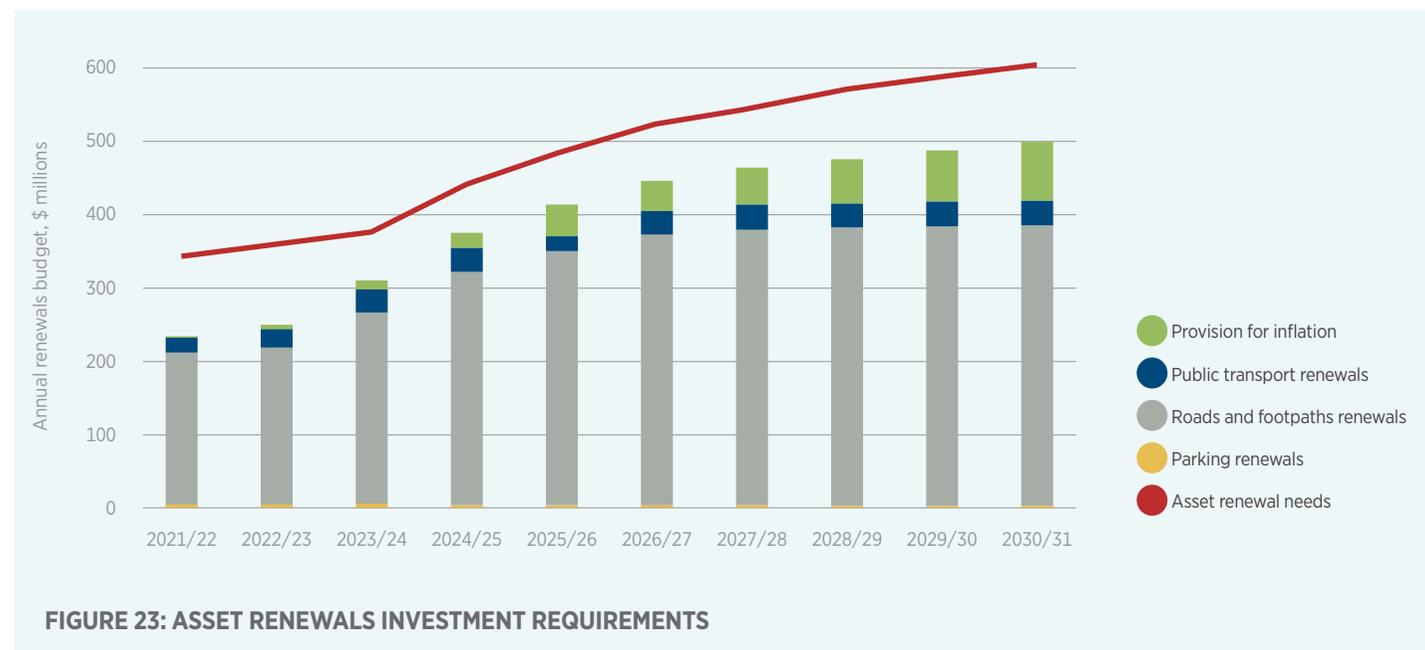
The constrained renewals investment plan will help address the problems identified in our business case:



- **Asset deterioration:** This plan will:
 - restrict the impacts on levels of service to less critical assets
 - ensure that assets are safe and serviceable
 - avoid additional costs caused by unexpected asset failure.



- **Resilience:** will be improved through:
 - Considering climate change at the planning stage of all infrastructure projects, including renewals
 - seismic retrofitting for bridges and gantries
 - slip repairs for retaining walls.



Asset Management Improvements

WE WILL CONTINUE TO IMPROVE OUR MANAGEMENT OF AUCKLAND'S TRANSPORT ASSETS BY:



1 Putting safety first in everything we do

- We will ensure that renewed assets meet the latest safety standards
- We will seek opportunities to integrate renewals with safety improvements
- We will keep staff, contractors and the public safe.

2 Quantifying what our decisions mean for Climate Change

- We will improve our understanding of the whole of life climate impacts of asset management choices. This includes investigating lower carbon construction targets.

3 Enhancing our understanding of the costs of growth

- We will get better at forecasting future demand on transport assets.
- We will develop better tools to track growth in traffic, especially heavy trucks
- We will improve our systems for tracking the impacts of growth on existing assets.

4 Comprehensive assessments of critical assets, risk and resilience

- We now know where our critical assets are, and where natural hazards could put them at risk
- We need to develop and cost the actions that will make our assets less vulnerable to damage
- We need to prepare for the impacts of climate change on transport assets.

5 Continuing to improve our data on asset condition and performance

- We will continue to collect data, and will do more to put the data to good use in making decisions
- We will use new technologies to better understand and manage our assets.

6 Systems, processes and relationships

- We aim to be recognised as leaders in asset management
- We will build trusting relationships within AT and with our consultants and contractors
- We put our customers at the centre of our approach.

Acknowledgements

The 2021 Asset Management Plan was developed at the requirement of Mark Lambert, Executive General Manager of Integrated Networks by the Asset Management team of Auckland Transport, comprising:

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Carmela Tamayo

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