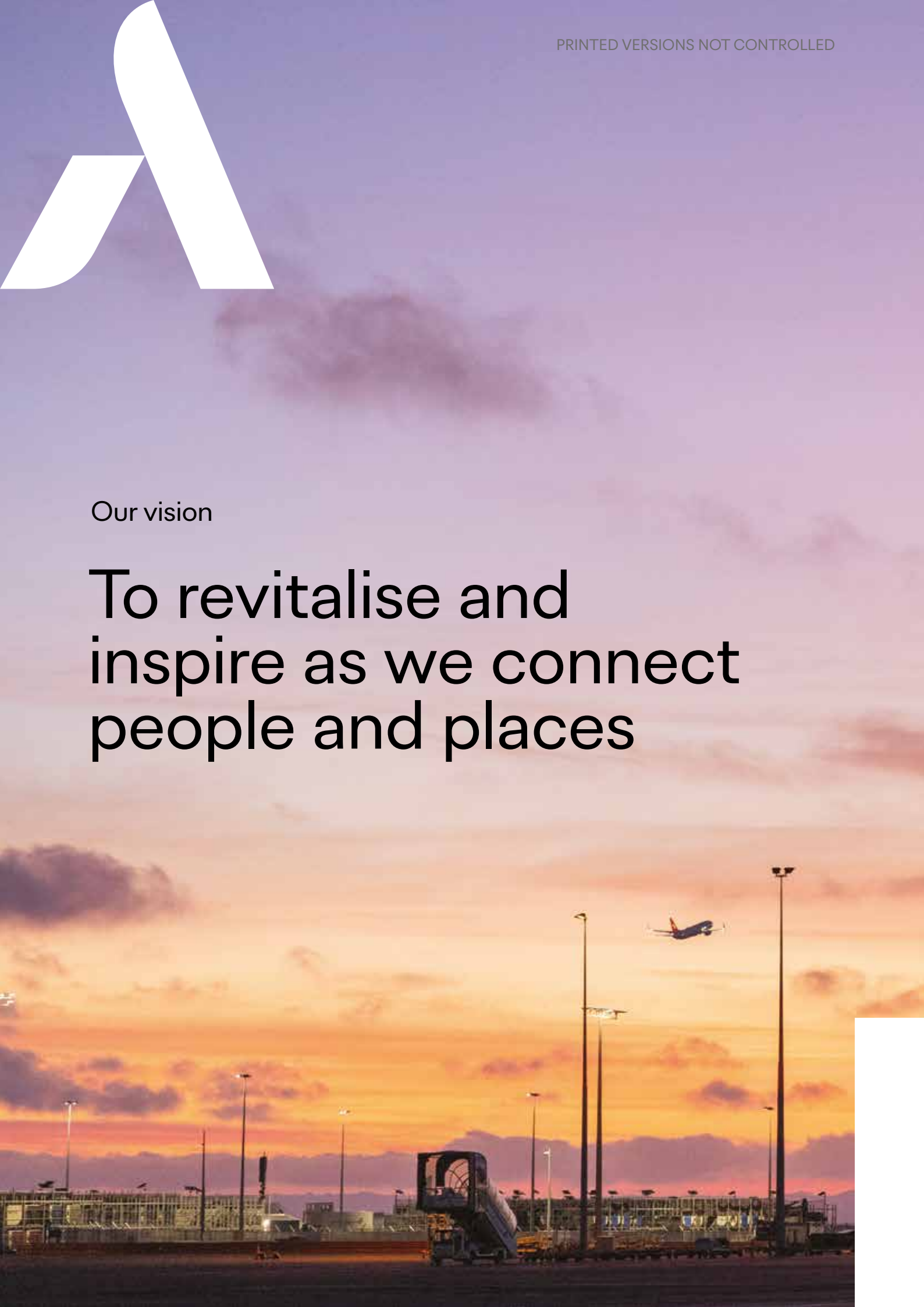
Auckland Airport

Draft Master Plan 2025

Our vision

To revitalise and inspire as we connect people and places



Auckland Airport

Carrie Hurihanganui,
Chief Executive, Auckland Airport

Julia Hoare,
Chair, Auckland Airport

We are pleased to share with you Auckland Airport's Master Plan 2025.

Auckland Airport's Master Plan is a blueprint for how we will manage journeys for decades to come. While it is a long-term view, we are underway with the biggest upgrade since the airport opened 60 years ago, across 400,000sqm of airfield infrastructure, transportation, and terminals. This Master Plan guides our path, ensuring we build what is needed, in the right place, and at the time it is needed.

The site of Auckland Airport on Manukau Harbour has always been a place of journeys, whether it be migratory seabirds that for millennia have come to our shores, the arrival of seagoing waka, or the waka rererangi – the aircraft – that have been a feature of this site for nearly 100 years.

Today, Auckland Airport is a vital enabler of Aotearoa New Zealand's economic and social potential. It is crucial to the nation's wellbeing and prosperity, hosting in this financial year more than 18 million travellers, managing over 150,000 aircraft movements, and moving about $26 billion in trade. This makes us not only New Zealand's largest airfreight port but the third-biggest trade port, behind Ports of Auckland and Tauranga, in terms of cargo value.

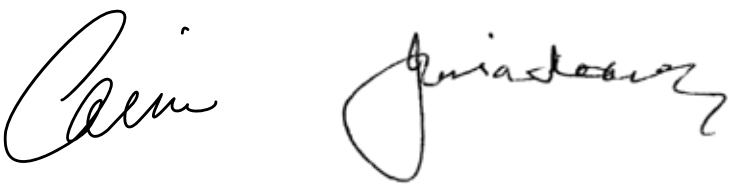
Auckland Airport is the nation's primary border, the place of arrival or departure for 90% of overseas visitors and voyaging New Zealanders. It's also where 25,000 people work on a 1500ha precinct that is the base for a multitude of aeronautical, logistics, commercial, retail and hospitality companies, supporting $35.1 billion in economic output.

This is a dynamic period for Auckland Airport as we transform the airport experience for travellers and create enduring value for New Zealand and for our aviation customers and partners.

Our infrastructure investment in future capacity will not only bring improvements for travellers – reduced delays and congestion, creating comfortable dwell spaces, and encouraging competitive airfares and greater choice of airlines – but is forecast to support $54.9 billion in economic output and $41.1 billion worth of trade by the early 2030s. It's a show of confidence in the long-term ambitions of our city, Tāmaki Makaurau Auckland, and our country.

We are on a journey of many stages. Our Master Plan will guide our pathway forward as we build resilient infrastructure.

E mahi ana mātou mō Aotearoa - we are working for New Zealand.



Contents

About this Master Plan

This Master Plan considers the Auckland Airport precinct and its operations holistically, with our aeronautical assets at the core.

It serves as a strategic framework for the long-term development of Auckland Airport, extending its vision to 2047.

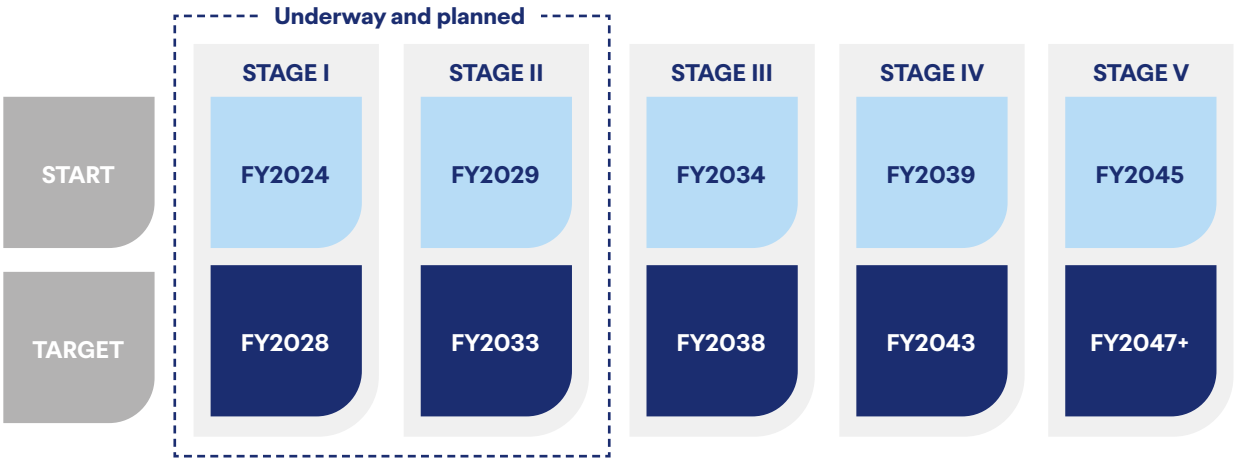
The Master Plan is structured into five-year increments ensuring a phased approach that balances immediate needs with long-term growth. This structure enables Auckland Airport to expand efficiently while staying adaptable to evolving demand projections and changing conditions

Developments are initially assigned to specific design horizons (FY28, FY33, FY38, FY42, FY47) based on projected demand and operational priorities. However, these timelines are flexible, allowing developments to shift between horizons as conditions evolve. This adaptability ensures that the airport can respond effectively to future demand while maintaining a sustainable and efficient growth trajectory.

This airport's infrastructure upgrades will have the capacity for about 38 million travellers by FY47. The five-year horizons align with Auckland Airport's internal capital planning cycles and will help structure and prioritise capital spending for each period.

The Master Plan is a guideline and should be treated as a living document, subject to regular revisions and updates. The proposed developments outlined in this Master Plan are designed to address evolving demands and regulatory changes. Consequently, the Master Plan does not represent a commitment to develop any particular development and the identified trigger dates are flexible and may be adjusted.

Figure 1: Master Plan planning intervals



Master Plan principles

The core principles established in the 2014 Master Plan continue to underpin the airport's development strategy: **terminal integration, a northern runway, pier development,** and **a mass-transport corridor** will be the key drivers shaping the future of the airport.

Auckland Airport's commitment to a dual-runway system is reaffirmed in this latest plan, which confirms the pathway to meet anticipated growth. The 2,983m northern runway, originally consented in 2002, will be on airport-owned land and without the need for any reclamation of the Manukau Harbour.

The timing for the northern runway has been reviewed several times, due to the change in airline fleets, passenger-demand projections, the ability to increase the number of movements on the existing runway, and the economic needs of the country.

A new principle has been identified and incorporated into the 2025 Master Plan, emphasising the importance of integrated development to achieve efficiency and prioritise safety. Implementing a **Cargo Precinct Area** has been recognised as a cornerstone to achieving best planning practices for integration, allowing optimised operations, and enhancing safety through strategic co-location.

Associated priorities are sustainability, carbon reduction and climate resilience, the wellbeing of our immediate community and of the city of Auckland, the application of new technologies, and the property needs of organisations within the aviation system and the land transport networks connecting Auckland Airport to the wider Auckland region. Any actions we take revolve around the needs of our aviation customers and the needs of travellers.

By incorporating these elements, along with a continued emphasis on leveraging existing assets, Auckland Airport is strategically positioned to meet the challenges and opportunities of the coming decades while maintaining its role as a critical infrastructure asset for the region and the nation.

Auckland Airport Master Plan 2025 - a snapshot

Building for the long-haul

This Master Plan looks at the development of Auckland Airport to FY47 segmented into distinct five-year target intervals that align with our capital planning cycles

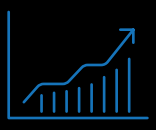
Airport growth Forecasts

Passenger forecasts are a critical component of an airport Master Plan, providing the foundation for developing a robust and efficient development pathway to accommodate future growth.

Master Plan considerations

In developing this Master Plan a range of factors have been considered that over the life of the plan will influence the airport's growth.

Drivers of passenger forecasts



Fleet developments

Energy transition & future fuel

Environmental management & sustainability

Digital & technology

Land use planning

This Master Plan looks at four distinct precincts with priority given to aeronautical-related activities

Airside precinct

Terminal precinct

Surface access

Non-aero precincts

The pillars that drive our planning

Strong foundations are essential for any organisation. The foundations of Auckland Airport are the five pillars of the Building a Better Future strategy.

THRIVING ENTERPRISE

This Master Plan positions Auckland Airport and its operators as a thriving enterprise by focusing on long-term growth, innovation and sustainability.

Initiatives and areas in the Master Plan that contribute to this vision:

Terminal precinct
- International & domestic operations under one roof (concept of integration).

Airside precinct
- Transition to a dual-runway airport based on demand triggers.

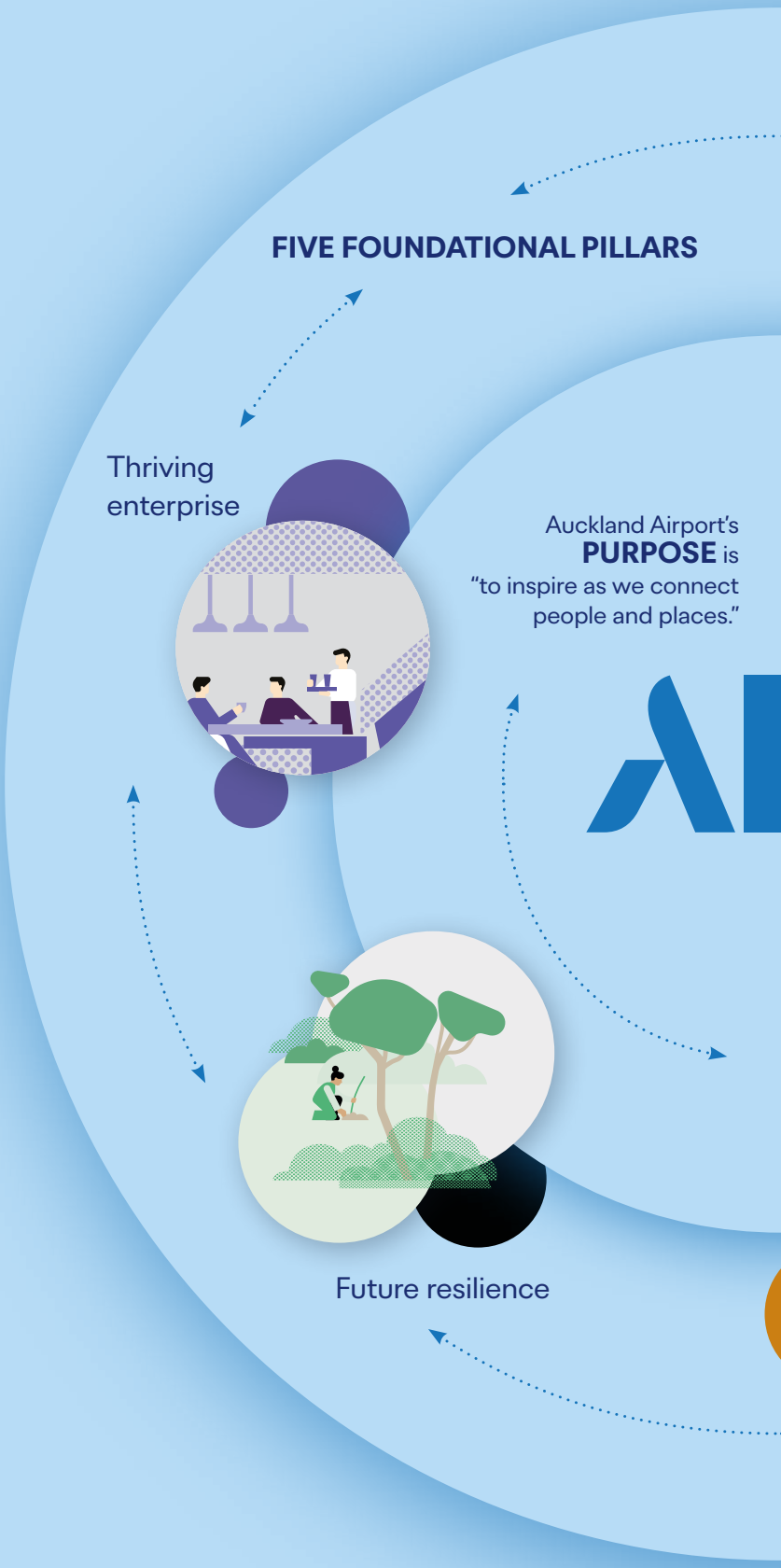
Surface access precinct
- Improve surface access roads, expand public transport options, and integrate with mass transport.

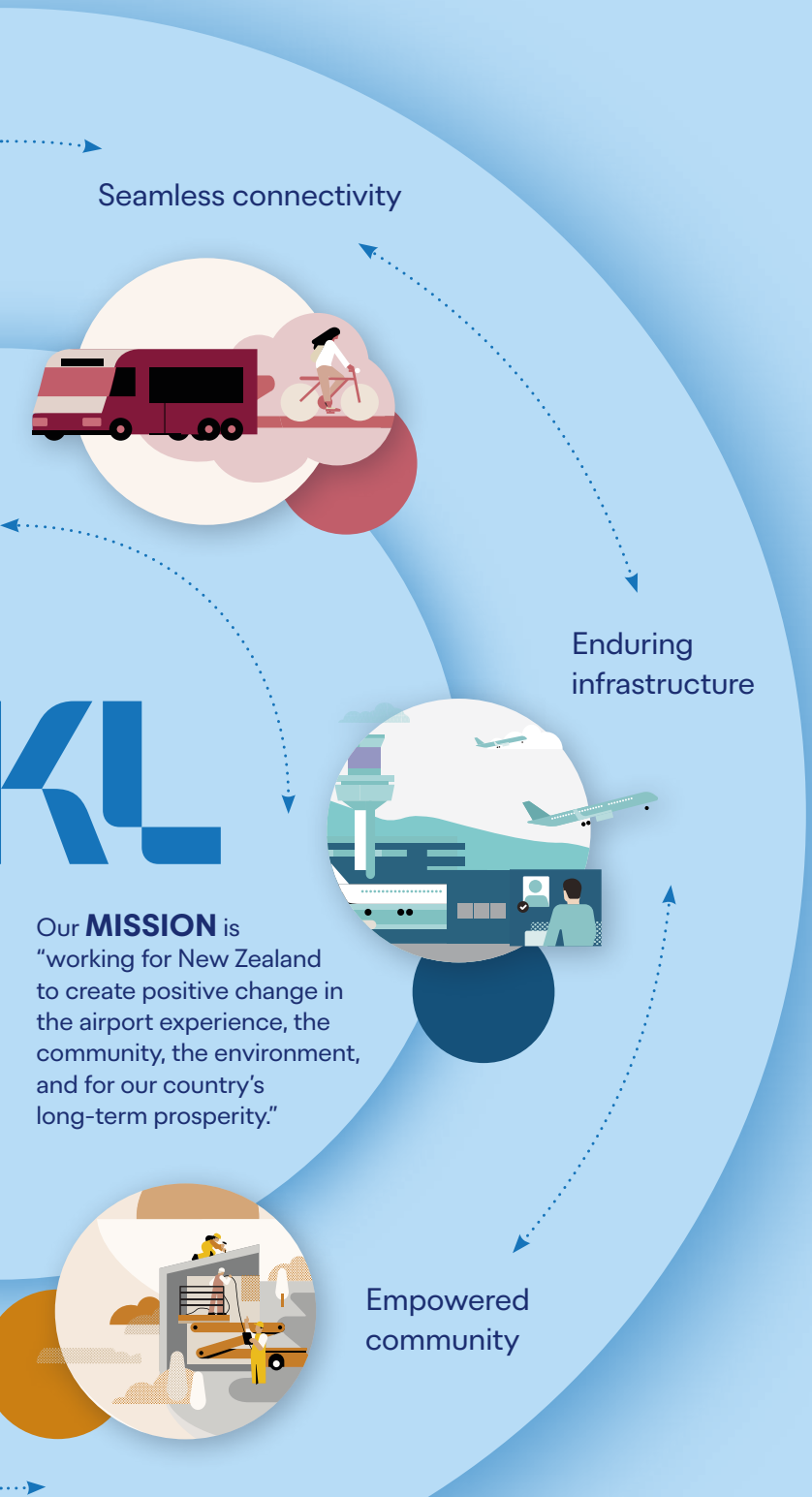
FUTURE RESILIENCE

The Master Plan prioritises adaptable infrastructure, sustainable practices, and scalable capacity to meet evolving passenger demands and operational challenges.

Terminal precinct
- Implement cutting-edge technologies, such as biometrics for seamless traveller processing and automated baggage handling systems.
- Create scalable designs that can accommodate future modification.

Airside precinct
- Optimise apron layouts by considering overall airfield operations and ensuring efficient use of the area.
- Optimise aircraft movement and incorporate new technologies to enhance efficiency.
- Incorporate infrastructure to build resilience to climate change.





SEAMLESS CONNECTIVITY

Integrating domestic and international operations, streamlining passenger transfers, and enhancing multimodal transport links to deliver a smooth and efficient travel experience.

Terminal precinct
- Interconnected terminals allowing travellers to transfer easily between terminals.
- Implement automated check-in kiosks and bag-drop systems enabling contactless processing.

Airside precinct
- Increase capacity and improve airside operations.
- Optimise apron layouts to support faster aircraft turnaround and efficient ground handling.

ENDURING INFRASTRUCTURE

Building resilient, sustainable, and adaptable facilities designed to support long-term growth and evolving operational needs.

Master Plan considerations
- Decarbonisation pathway to achieve a 90% reduction of direct emissions by 2030.

Airside precinct
- Ensure infrastructure is able to service new aircraft technologies, and is adaptable.

Surface access precinct
- Future-proof the transport network to enhance connectivity and provide for low-emission transport modes.

Utility and services
- Ensure infrastructure is able to cater for different fuels.
- Shift to electricity and away from fossil fuel consumption.
- Ensure infrastructure is resilient to climate change.

EMPOWERED COMMUNITY

Fostering strong partnerships, creating local employment opportunities, and engaging with stakeholders to ensure the airport's growth benefits the wider region.

- Improve regional connectivity by providing an enhanced travel experience for regional passengers.

Master Plan evolution and key developments

2014 Master Plan – by 2022 Phase

The 2014 Master Plan outlined the strategic vision for Auckland Airport's growth. It assumed that by 2022 several projects would already be completed.

- The Domestic Jet Terminal (DJT)
- Demolition of the existing domestic terminal (DTB)
- Expansion of the international terminal (ITB)
- Provision for a mass transport & changes to the roading network.

2014 Master Plan – by 2030 Phase

Looking ahead to 2030, the 2014 Master Plan anticipated additional critical development, including:

- Construction of the northern runway
- Further expansion of the ITB
- Additional aircraft stands

These developments and timing were driven by projected demand and infrastructure needs, and reflected a phased approach to ensure airport capacity was aligned with growing demand and evolving aviation trends.

Embedded within Auckland Airport's ways of working is the ability to adapt dynamically, respond to change and meet the evolving needs of customers. Hence, some of these projects have been revisited to account for a change in passenger forecasts as a result of COVID-19, technology advancements, a focus on efficiency, and the strategic optimisation of existing infrastructure.

Key achievements since the 2014 Master Plan

Since 2014, numerous developments have been successfully delivered. Alongside these projects, Auckland Airport implements an ongoing maintenance program—covering pavement renewals, buildings, and utilities—to ensure safe and efficient airport operations.

Terminal and Airside

Pier B non-contact stands

This 250,000 sqm development, now in its final construction stage, expands taxiway capacity and adds aircraft parking stands designed for large aircraft such as the Airbus A380. Commissioning is scheduled for late 2025.

LED runway lights

Six hundred new LED runway lights are in place on the 3.6km runway since November 2024. These lights have replaced the halogen lamp system.

New LEDs use up to 70% less energy and last 15 times longer than halogen lighting contributing towards Auckland Airport's strategy of investing in low carbon options as part of the infrastructure renewal programme.

Domestic terminal improvements

Auckland Airport enhanced the traveller experience in the domestic terminal by upgrading bathrooms, wayfinding, entry portals, and general areas, including ceilings, flooring, and seating. These improvements were part of ongoing efforts to ensure the terminal remains comfortable and functional for passengers.

International airside dwell space and Pier B extension

The new international dwell, which opened in 2017, introduced a variety of retail and food and beverage options, along with enhanced waiting areas for travellers preparing to board their flights. This development featured a mix of in-terminal restaurants, casual dining, grab-and-go outlets, and fast-food retailers, providing a comfortable and relaxed space for passengers without access to an airline lounge program.

Later in 2017, the Pier B extension was commissioned, adding two new gate lounges and airbridges to accommodate international flights.

Landside and Roading

George Bolt Memorial Drive and Laurence Stevens Drive upgrades

Since 2014, several upgrades have been made to the roading network to enhance traffic flow. These include optimising traffic light phasing and lane configurations at the intersection of George Bolt Memorial Drive and Tom Pearce Drive, updating lane configurations at the George Bolt Memorial Drive and Laurence Stevens Drive roundabout, and implementing a new transit lane system across the airport precinct between December 2017 and 2020 for buses and high-occupancy vehicles.

Park & Ride South

Park & Ride South opened in June 2024 and provides for 3,000 parking spaces. A free shuttle bus connects travellers and other users to/from the domestic or international terminal every 10 – 12 minutes. Six electric vehicles charging spaces are available to use.

Transport Hub

The 70,000sqm Transport Hub opened in April 2024 as the most significant advancement in the transport system at the international terminal.

The Transport Hub has been situated to service the new integrated domestic terminal and to accommodate any future mass rapid transit to deliver travellers directly to the airport terminal precinct. The building incorporates a 1.2MW solar array on its 14,000sqm roof that will supply energy to the car park building, EV charging and the commercial offices on its upper floors.

Non-aeronautical

Auckland Airport continues to expand the Landing business park, supporting the logistics, technology, and light industrial sectors. Several developments have received top industry accolades, recognising both individual buildings and the overall precinct design.

Near the terminal, Auckland Airport has developed hotels to accommodate both business and leisure travellers, with the Pullman hotel being the latest addition.

The Non-Aeronautical development section of this Master Plan provides additional information on these topics.

Stakeholder and community engagement

Our engagement journey

Because Auckland Airport is well underway with what will be the biggest upgrade of its infrastructure since the airport was built 60 years ago, extensive engagement with the aviation stakeholder community has taken place through established forums. The purpose of these forums has been to allow the exchange of information between the airport and these stakeholder groups regarding the FY24–FY29 projects identified in the Master Plan. The projects include but are not limited to Regional Pathway Minimal Technical Solution, Domestic Jet Terminal and Pier B Northern stands.

These forums include:

- **Monthly Aeronautical Capital Plan Airport Community Consultation (MACPACC)**

  This is an Auckland Airport-led forum for stakeholders in the aviation community, including airlines, joint border agencies and Airways New Zealand (Airways). It was set up to discuss the progress and status of the Aeronautical Capital Plan. It will also discuss new regulatory or requested future capital plan projects that will require comprehensive consultation in accordance with regulatory obligations under the Civil Aviation Act 2023.

- **Airline bilateral meetings**

  These meetings are between Auckland Airport and airline customers, and have a strategic focus on the various workstreams within the Aeronautical Capital Plan that may be more relevant to that specific airline. They also serve as a point of escalation for matters that are unable to be resolved at a project level.

- **Border Agency Governance Group (BAGG)**

  The purpose of the BAGG is to provide a collective governance platform for Auckland Airport and the border agencies to ensure that their specific requirements are captured, planned for, and incorporated into Auckland Airport's infrastructure development plan, and that any potential construction impacts on functional spaces and/or operations are addressed.

How the Master Plan supports engagement

Auckland Airport's Master Plan is a blueprint for how the airport will continue managing journeys into the decades to come. The Master Planning process allows the community and aviation stakeholders to understand and provide feedback on future stages and the longer-term vision.

Robust and transparent engagement and communication with the community and identified aviation stakeholders is a critical component of the Master Planning process. Under the Civil Aviation Act 2023 section 232, airport operators are required to consult with airlines and relevant government agencies on its Master Plan from 5 April 2025.

How we propose to engage

The Civil Aviation Act, does not specify the consultation period, so Auckland Airport proposes to engage its airline customers, relevant government agencies, identified stakeholder groups and community through a programme including:

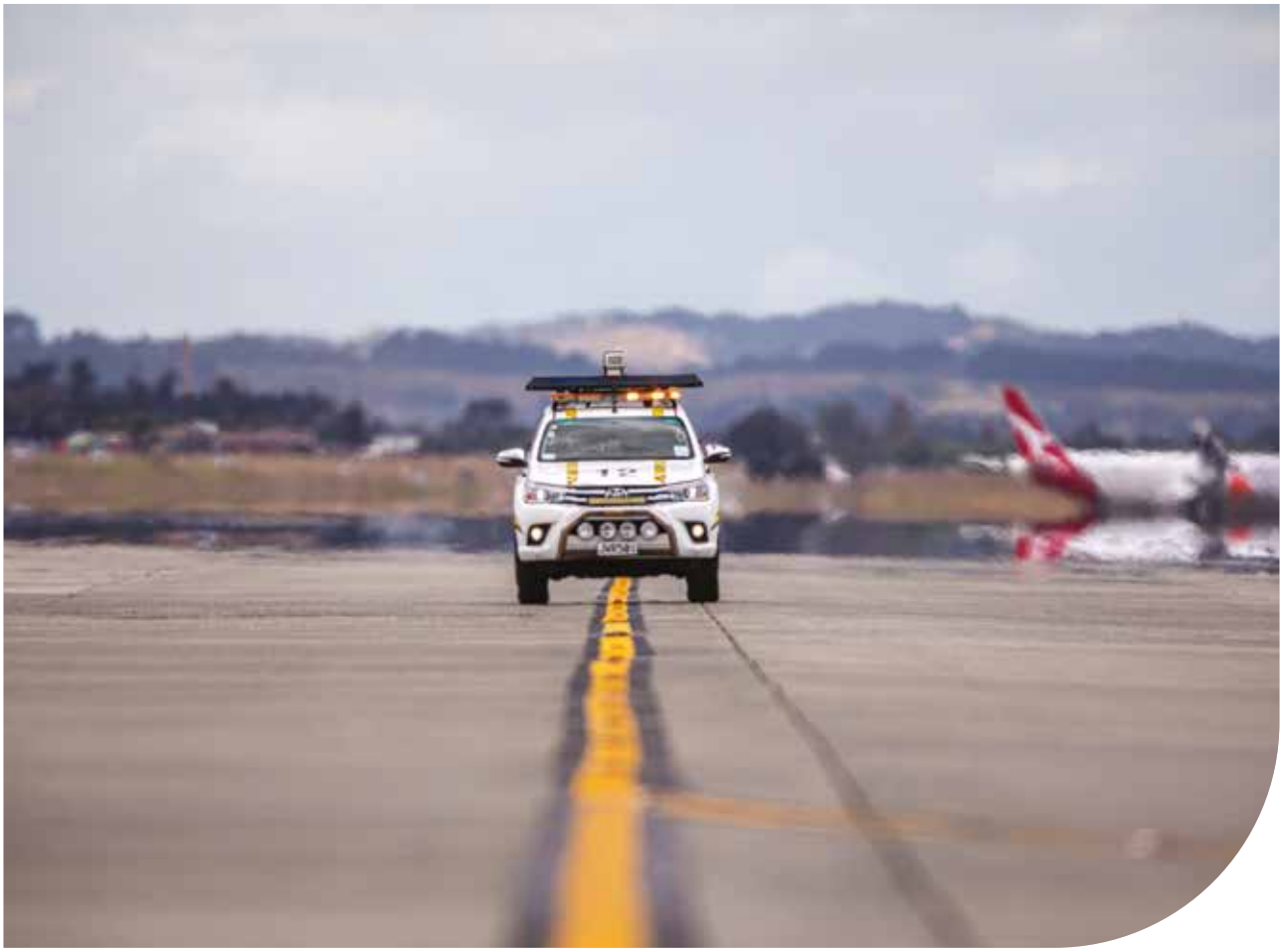
- A dedicated Master Plan hub on the airport's website providing accessible information on the plan
- An online platform that enables the community to seek information and provide feedback
- Digital engagement, media, editorial and social media
- A series of planned workshops (airline customers and relevant government agencies only)
- Presentations to other identified stakeholder groups
- Briefings and drop-in sessions (community)

The engagement programme will create awareness and understanding of the Master Plan, and encourage participation and feedback on our future vision.

Early engagement with Airways on existing runway capacity and timing of the northern runway

In developing this Master Plan, Auckland Airport identified the projected timing of the northern runway as a critical factor influencing various infrastructure projects. Early engagement with Airways on the present runway's capacity is essential to allow productive discussions with our airline customers during the Master Plan consultation period.

Early engagement with Airways aims to identify potential operational or infrastructure improvements that could increase the number of movements on the existing runway, thereby influencing the timeline for the construction of the northern runway.



Chapter 1

Auckland Airport today

1.1 Auckland Airport today

From the arrival of the first seagoing waka into the Manukau Harbour to the aviation pioneers who operated an aeroclub from a converted dairy paddock, Auckland Airport has always been a place of journeys.

In 1966 at the dawn of the jet age, Auckland Airport roared to life as a fully fledged international airport, and it has continued developing to meet New Zealand's growing air-connectivity and economic needs.

Auckland Airport is New Zealand's busiest international and domestic airport. More than 75% of international travellers, including 90% of long-haul travellers, arrive and depart New Zealand through here.

With a comprehensive network of domestic and regional flights, the airport supports trade, tourism, business, and local economies, facilitating connections to domestic and regional destinations.

Tourism is one off New Zealand's biggest export industries, directly contributing more than $16 billion to annual gross domestic product (GDP). Valuable air cargo capacity provided by passenger aircraft and freighters allows 90% of the country's air freight to flow through Auckland Airport, making it the country's third-largest freight port by value.

Every route and service is important. Over the course of a year, one daily international widebody flight into Auckland Airport will bring $150 million worth of tourism and more than $500 million in freight.

As Auckland Airport has welcomed global airlines, aeronautical assets have grown and developed to support airline customers. The original runway built in the 1960s is now 3,635m long, with taxiways, aprons and stands added over time to ensure the single runway operates as efficiently as possible.

Terminal infrastructure has expanded in stages to meet the demand. The original passenger terminal of the 1960s still operates as the airport's domestic and regional hub, albeit one that has expanded over time in step with the growth of air connectivity across New Zealand and changing service needs, such as security screening.

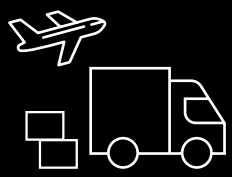
The staged growth extends to the international terminal. Opened in 1977, the building footprint has increased over decades to accommodate changes in aircraft and airport technology, border and security requirements, and demand for travel to New Zealand.

Auckland Airport is well on the way to bringing international and domestic jet services back under one roof with the construction of a new Domestic Jet Terminal integrated into the existing international terminal. Supporting infrastructure is being upgraded on our airfield, including digital systems, utilities and stormwater, as well as roading and transport networks.

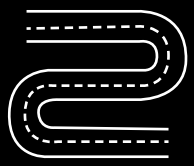
In addition to aeronautical facilities and operations, which include the runway, taxi ways, aircraft parking aprons, the control tower, passenger and freight terminal buildings, hangars, and other facilities that are directly related to and serve aircraft, travellers, and cargo, Auckland Airport hosts a world-class logistics and distribution hub located in 100ha of comprehensively planned development. Auckland Airport's diverse aviation precinct incorporates commercial office buildings, hotels, parking, and leisure and recreation facilities – more than over 260 businesses and organisations. This is in line with developments at major international airports worldwide, and reflects a common trend in aviation precinct planning.

Auckland Airport's journey to the future is one of transformation and growth, supporting employment for 25,000 people today – the second-largest employment hub outside the Auckland CBD. Many of these workers come from the airport's neighbouring communities in South Auckland, establishing themselves in rewarding, long-term aviation careers. Auckland Airport is proud of this transformation and the opportunities it creates.

While Auckland Airport's business is broad, its core purpose remains operating the airport. Auckland Airport is determined to deliver a high-quality experience for Kiwis to be proud of by re-imagining the interactions offered to every customer. Whether engaging with a traveller, an aviation partner, a worker, a greeter and fareweller, or a member of the local community, Auckland Airport strives to enhance the experience for all.



165,000t
cargo processed per year



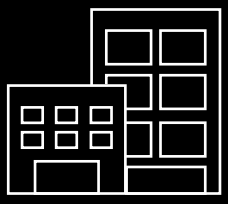
24km
of public roads

18.6m
passengers in FY24

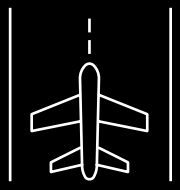
2
terminals

26 airlines
to 42 destinations

115
terminal retail tenancies



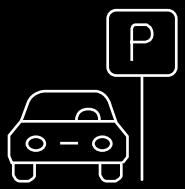
150
tenants outside the terminals



1.4m
square metres of runway and pavement

24/7
operation providing aviation, fire, medical, and marine search and rescue

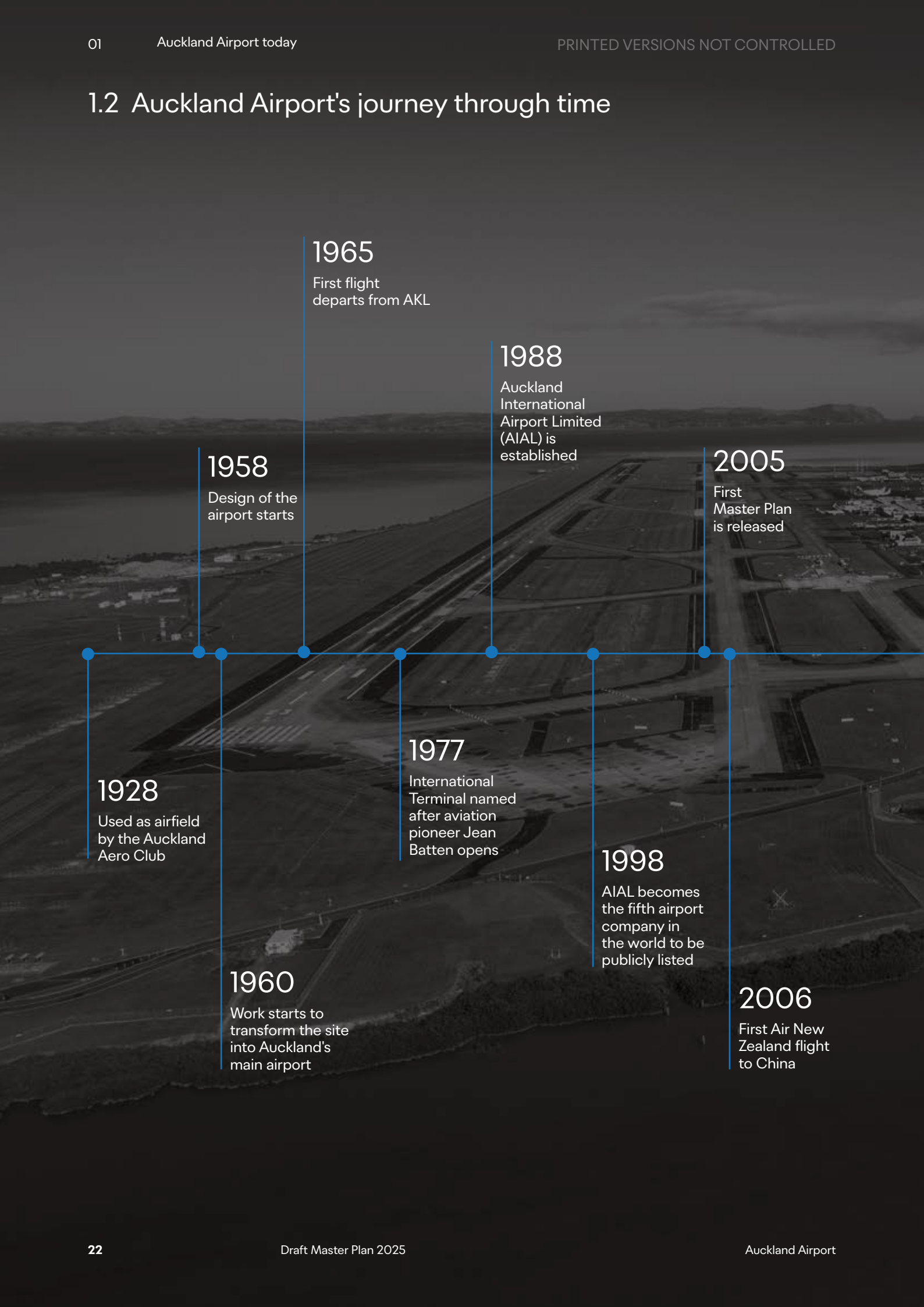
3
hotels and one more being developed



car parking
including about 7,500 parking spaces across multiple modes

$2.9bn
of logistics and distribution warehouses, office buildings, shopping centres and aircraft and freight real estate

1.2 Auckland Airport's journey through time



2008

Auckland International Airport Pier B construction begins

First A380 departs from AKL

2011

First Chinese carrier flies to AKL

2014

New Master Plan released

2016

Auckland Airport Pier B extended

2019

Integrated terminal building announced

2020

COVID 19 – NZ Borders closed

Pavement replacement of runway touchdown zones

Integrated terminal building paused

2022

Major roading upgrade of George Bolt Memorial Drive

2023

Test piling for new terminal begins

Waste facility delivered

New bag carousel opens

Te Ara Kōrako Drive opens

2024

Park & Ride South opens

Transport Hub opens

Mānawa Bay opens

1.3 Auckland Airport and Te Ao Māori (the Māori world)

Auckland Airport acknowledges the deep and profound Māori history of the area.

The design of Auckland Airport's spatial environments wthin the terminals artworks and imagery reflect both the history of the area and Māori narratives of journey, welcome and whenua (land). Te Reo Māori signage is used throughout our buildings, terminals and Transport Hub, and is prominent in welcoming visitors as they pass through the carved waharoa (gateway) on arrival.

Auckland Airport relationships with mana whenua (local people) focuses on engaging on environmental-consent matters and we work hard to ensure Māori views are understood and considered as part of our overall development aspirations. Regular meetings and reporting with mana whenua ensure that we maintain open communication that enables engagement across a wide range of projects and activities.

Auckland Airport is deeply proud of the successful joint partnerships with the Tainui iwi in the development of two hotels, Te Arikinui Pullman and Novotel Auckland Airport Tainui. In addition, Te Manukanuka o Hoturoa Marae is located within the precinct and serves as a cultural heart for the airport where all people will be welcomed under the tikanga (protocols) of Tainui. The marae is co-governed with representatives from Auckland Airport and Tainui.

Over the upcoming development we are committed to continuing our work with mana whenua and looking for ways to enhance, strengthen and deepen our airport operations and development. We are especially interested in exploring how Mātauranga Māori can influence our land and coastal management approaches.

1.4 Auckland Airport's Connections

Aviation connectivity is crucial to New Zealand's prosperity and wellbeing. This is a responsibility Auckland Airport holds dear as the owner and operator of the nation's most strategic infrastructure asset. It is singular, necessary, and irreplaceable.

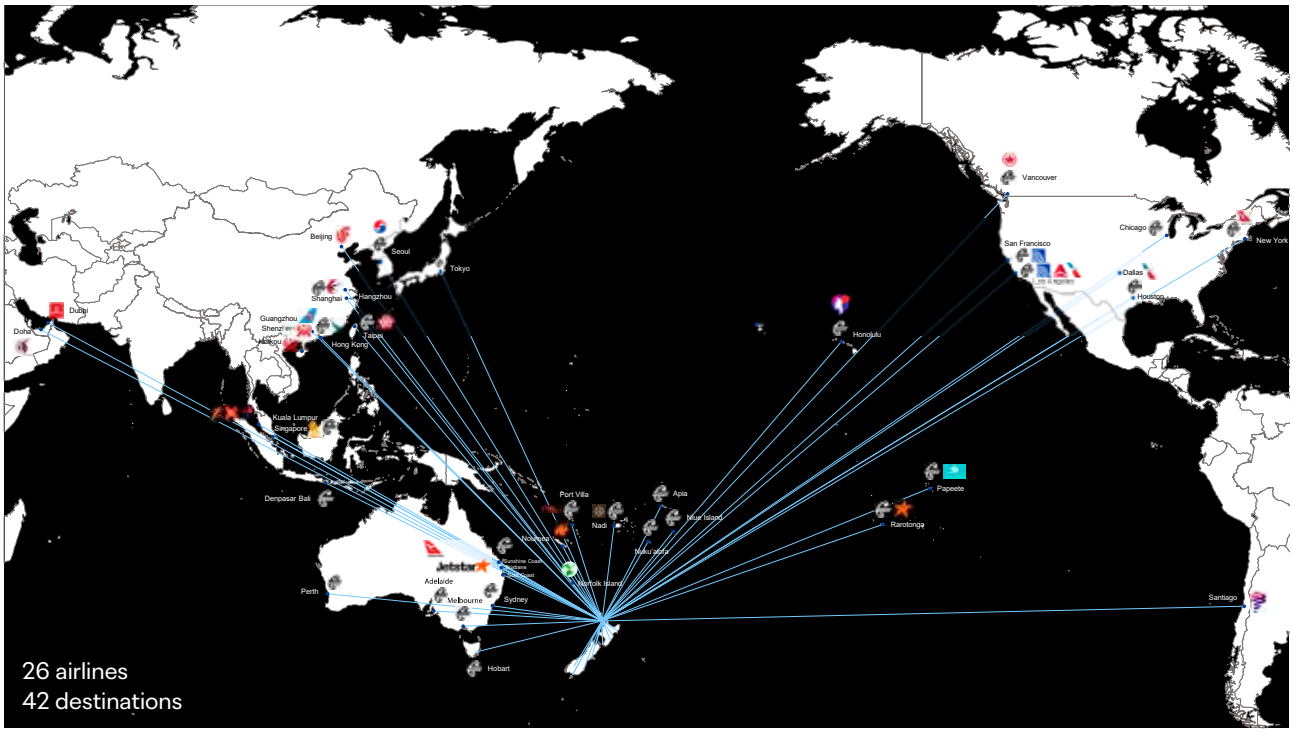
With an asset value of more than NZ$11 billion, Auckland Airport is the global and national hub for the national carrier Air New Zealand. In a globally competitive aviation market, 26 international airlines fly from Auckland Airport to 42 international destinations in Australia, the Pacific Islands, North and South America, China, and Asia. Nationally, airlines connect with 23 destinations from Auckland. Each day of the year an average of 75,000 people travel and work at the precinct.

Auckland Airport plays a critical role in domestic and regional connectivity by serving as a central hub that links smaller towns and cities across New Zealand. As the country's busiest airport, Auckland Airport provides essential domestic connections to regional centres enhancing the New Zealand-wide tourism network.

Auckland Airport supports isolated and remote areas, offering critical air links that reduce dependence on long road journeys. This connectivity enables the timely transport of goods such as fresh produce, seafood and medical supplies to and from regional centres.

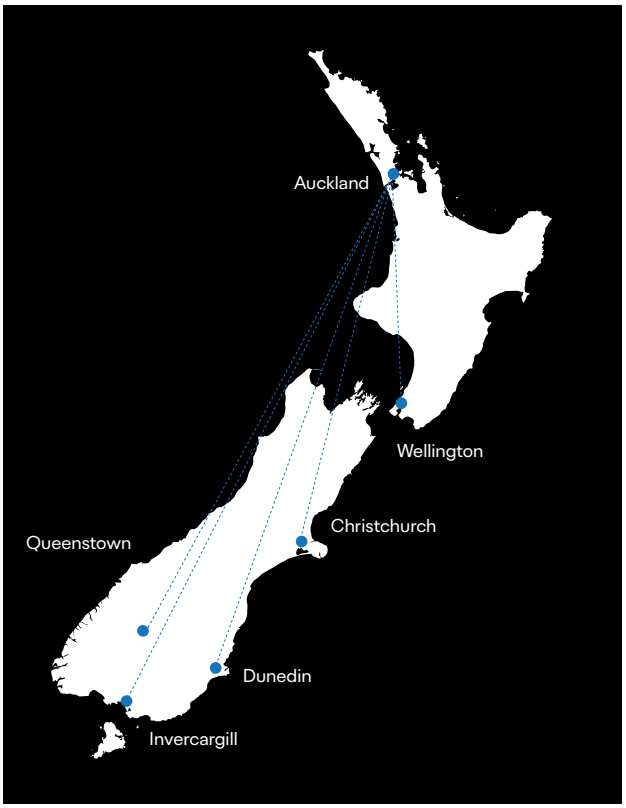
For businesses, Auckland Airport provides a lifeline for workforce mobility, allowing professionals, workers and entrepreneurs to travel efficiently between regional towns and economics hubs.

1.5 Overview of international connections

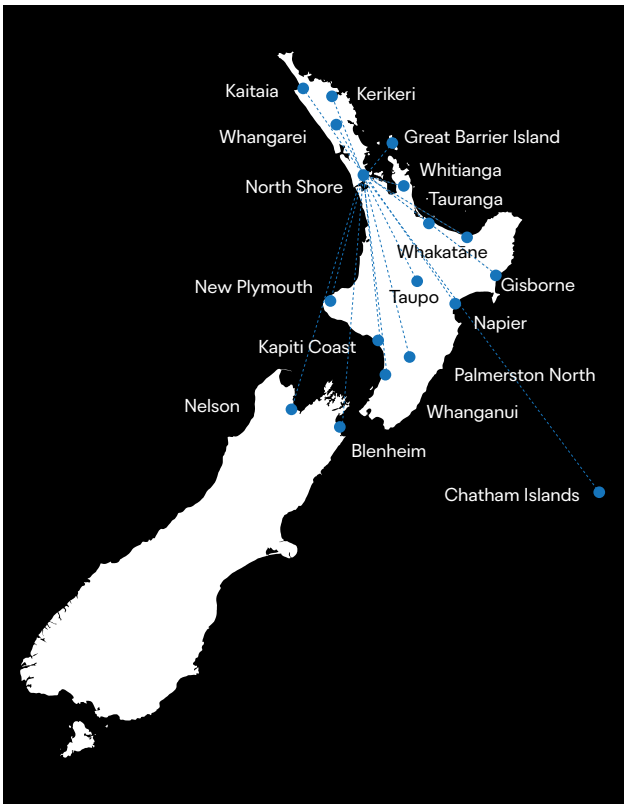


1.6 Overview of domestic and regional connections

Domestic connections



Regional connections



4 airlines operate **125** daily domestic flights to **23 destinations** in New Zealand

1.7 We are well underway

Progress on the 85 capital projects linked to horizons FY29 and FY33 are in planning, construction, or have been completed.

Pathway to a seamless integrated terminal and Pier A1

In the 2014 Master Plan, Auckland Airport confirmed the vision for integrated domestic and international operations under one roof. Construction of this vision is well underway with completion expected in FY29. Departing travellers will check in at the same hall and follow a unified path to the departure level on Level 1, where their journeys will then diverge. The combined check-in hall allows efficiency by sharing infrastructure such as kiosks and automatic bag drop to expedite traveller check-in, a new baggage handling system and improved building systems.

At Level 1, domestic travellers will enter the airside area through a new retail and food and beverage options, dwelling, and lounge spaces before boarding their flights from the new Pier A1. Pier A1 caters for 12 jet stands for domestic destinations, all equipped with boarding bridges, and a bus lounge for satellite operations if needed.

The ground floor of the new terminal will house the arrivals hall and baggage reclaim belts for incoming domestic travellers. A forecourt at the entrance will provide transport options for travellers.

Pier B Northern stands (international)

The construction of the Pier B Northern stands is proceeding at pace, with commissioning expected by the end of 2025. The six new stands are responding to a need for extra stands and associated taxiways (TWYs) to accommodate forecast international demand. The stands are Code F Multiple Aircraft Ramp Systems (MARS), able to accommodate two small narrow-body aircraft or one single wide-body aircraft.

This project will deliver stormwater pipework and treatment ponds to meet drainage consent requirements for the Pier B Northern stand development, the terminal precinct, future cargo development and north-western non-contact stands.

Enhancing the regional traveller's experience

Planning is underway to simplify the existing regional travel experience to ensure a smoother, more intuitive, and enjoyable experience for all users. At the heart of the proposed development is a new terminal in the early planning stages that will be future-proofed to respond to any regulatory changes such as security screening, and piers able to provide the required stand capacity. The first step to enhance the traveller experience is the expansion of the regional apron to allow growth in the regional network.

Future cargo precinct development

The dispersed locations of Cargo Terminal Operators (CTO) throughout the airport precinct poses operational challenges to the roading system. Pre-planning consultations are underway to relocate CTO functions to the area identified as the cargo precinct, accessible via Manu Tapu Drive. Co-locating similar functions in a purpose-fit area is a key driver. CTO activities will benefit from a direct landside/airside location, which will cut the driving time to/from aircraft and improve the efficiency and safety associated with the moving freight on the precinct.

Airfield pavements renewals

The airfield pavement renewals programme ensures the airfield pavement and associated infrastructure remains in a serviceable condition, and safeguards the Auckland Airport airfield system.

Ongoing upgrades to taxiway pavements are supporting Auckland Airport's 24/7 operations, now and in the future. The progress to date is positioning Auckland Airport to carry out necessary maintenance on the existing runway as pavement conditions require, while continuing operations.

Building climate resilience

The physical aspects of our changing climate are already being felt across New Zealand, and the Auckland Airport precinct is no exception. Physical inundation and flooding of assets, due to extreme weather events and to a lesser extent sea-level rise, is Auckland Airport's key physical climate-related risk. Auckland Airport is ensuing that it is mitigating against and adapting to this risk with comprehensive improvements to the airport's infrastructure underway or planned.

Chapter 2

Airport growth forecasts

Passenger forecasts are a critical component of an airport Master Plan and are the foundation for establishing a robust and efficient development path that includes infrastructure able to accommodate future growth.

Passenger forecasts also anticipate changes in traveller numbers, aircraft movements and cargo volumes, ensuring the airport can handle growth without sacrificing service quality, or compromising safety standards.

Accurate passenger forecasts also help determine the size and timing of airport expansions, such as runway additions or terminal enhancements, thus preventing over or under-capacity. Moreover, they inform financial planning and investment decisions, and can be used as a guide to allocate resources effectively in favour of the economic viability of the airport business, as well as stakeholders and communities.

In 2024 a revised set of passenger, aircraft movements, and cargo tonnage forecasts covering the Master Plan period to FY47 was produced taking into consideration existing challenges in the aviation industry linked to engine issues and delays in delivering orders.

The methodology used historical traffic, capacity developments, airline competition, and catchment areas, as well as economic, tourism and demographic data as the main inputs. These were used to create short/medium and long-term models, which were then reconciled to generate projections for passenger, cargo and aircraft movements based on historical trends and performance.

The resulting passenger forecasts provide insight into long-term infrastructure demand, and should be viewed as indicative trends. Activity levels over the short-to-medium term will differ as a range of external factors will result in fluctuation in actual demand in any given year.

2.1 Approach

Short/medium-term passenger forecast

Short/medium-term forecasts are based on planned route developments and projected airline seat capacity. Passenger load assumptions were also factored in, taking into account historical seasonal traffic patterns, economic development, and possible traffic evolution over the next three to five years.

The short/medium-term forecast closely evaluated the recovery from the COVID-19 pandemic. It foresaw a swifter recovery in domestic traffic, which was less-affected during the pandemic than international traffic that saw the delayed opening of some international borders and lingering regulatory constraints.

Long-term passenger forecast

Long-term annual passenger traffic growth is based on macroeconomic factors (e.g. GDP, tourism, demographics), while a regression analysis of dependable variables was conducted to refine the model's accuracy.

Aircraft movement forecast

The projection of commercial aircraft movements requires links between annual passenger traffic and aircraft movements.

This involves analysing historical passenger traffic and seating capacity to derive historical passenger load factors and average aircraft size. Assumptions were made regarding future load factors and aircraft size to project aircraft movements.

Cargo forecasts

Cargo forecasts were prepared for international freight using a combination of methodologies.

This included trend analysis and extrapolations, and judgment-based forecasts, while also benchmarking against independent industry forecasts.

2.2 Passengers

The impacts of the COVID-19 pandemic have been unprecedented in their duration, scope and magnitude, reaching a global scale.

While most international airports have already reached or even exceeded pre-pandemic traffic levels, recovery in New Zealand is anticipated to lag for three main reasons:

1. New Zealand was among the countries that isolated itself the most and the longest during the pandemic, even after vaccines became widely available. As a result, many markets around the world started to recover much sooner than New Zealand.
2. The airline market structure in New Zealand is highly concentrated with a very limited number of domestic airlines dominating the industry and constraining its growth.
3. Auckland Airport is the gateway to New Zealand with a significant portion of its demand being international travel. The decline in international traffic was significant and the recovery is taking longer.

Passenger volumes are expected to increase at an average annual rate of 3.7% between FY24 and FY29, and 3% between FY29 and FY47 when Auckland Airport is expected to reach about 38 million passengers.

It is anticipated domestic traffic will have recovered from the pandemic by FY27, but it will take another year for the international market to recover. This delay is attributed partly to supply chain challenges affecting the manufacture and maintenance of aircraft and parts, and partly to the location of New Zealand, which requires ultra-long direct flights from other regions.

Overall, international travel is anticipated to have fully recovered from the pandemic by FY28.

In the long term, traffic demand at the airport will be influenced by demand-side as well as supply-side factors. Long-term traffic demand is centred on growing economies, increasing disposable income, demographics shifts and tourism trends.

With regard to international transit passengers, Auckland Airport will continue to be the country's main hub. However, it is anticipated the share of transit passengers will experience a more modest growth compared to other traffic segments.

Table 1: Annual passenger growth for the Master Plan period

Route	Million passengers annually				
	FY28	FY33	FY38	FY43	FY47
Domestic-trunk	7.0	8.0	9.0	10.2	10.9
Domestic-regional	2.7	3.1	3.3	3.7	3.9
International short-haul	6.2	7.4	8.7	10.3	11.8
International long-haul	4.7	5.8	7.3	8.6	10.0
Transits	0.8	0.9	1.0	1.1	1.3
TOTAL	**21.4**	**25.2**	**29.3**	**33.9**	**37.9**

Figure 2: Summary of forecasts results

Passengers (mppa)*

FY24	FY29	**FY47**
18.6	23.0	**38.0**
	↑3.6% p.a. (FY24-FY29)	↑3.0% p.a. (FY29-FY47)

Movements ('000)

FY24	FY29	**FY47**
157.9	178.2	**260.8**
	↑2.5% p.a. (FY24-FY29)	↑2.1% p.a. (FY29-FY47)

Domestic passengers (mppa)*

FY24	FY29	**FY47**
8.5	10.1	**14.8**
	↑3.6% p.a. (FY24-FY29)	↑2.2% p.a. (FY29-FY47)

International passengers (mppa)*
(includes transit)

FY24	FY29	**FY47**
10.1	11.2	**21.8**
	↑3.6% p.a. (FY24-FY29)	↑3.5% p.a. (FY29-FY47)

*mppa = million passengers per annum.

2.3 Aircraft movements

In FY19, Auckland Airport facilitated about 180,000 total commercial and non-commercial Aircraft Movements (ATMs) on its single runway, the highest volume in its history.

The majority of these operations were commercial aircraft, which accounted for 93 percent of all operations. Freighter/ cargo flights represented 2 percent, while the remaining 5 percent were non-commercial flights such as general aviation, military and training.

Similarly to passenger volumes, international aircraft movements were the most affected by the COVID-19 pandemic and are not expected to fully recover to pre-COVID levels until FY29.

Non-commercial traffic is expected to recover to pre-pandemic levels in the same time frame and sustain moderate growth until the end of the Master Plan period. Most of the non-commercial traffic involves small narrow-body aircraft.

Growth in aircraft movements is expected to average 2 percent a year over the forecast period.

Figure 3: Aircraft movement split FY19

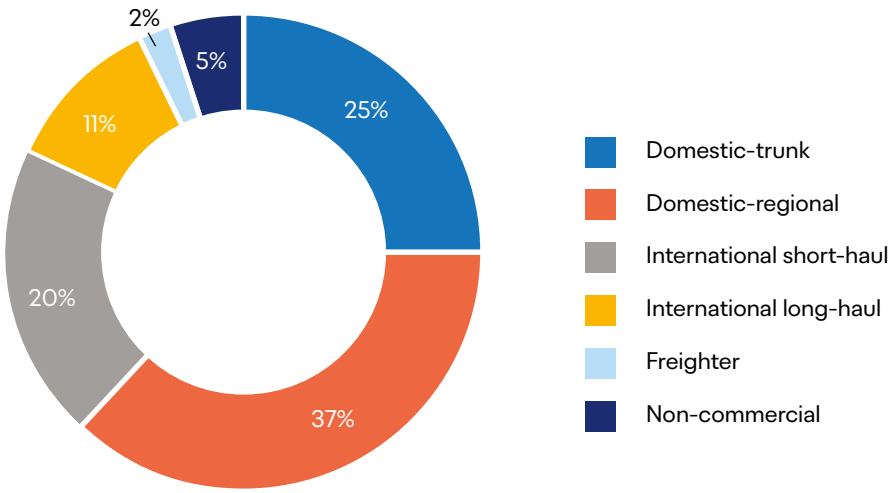


Table 2: Annual aircraft movement for the Master Plan period

Segment	Annual aircraft movements				
	FY28	FY33	FY38	FY43	FY47
Domestic-trunk	45,800	51,000	56,100	61,350	65,500
Domestic-regional	60,700	65,700	70,500	75,300	79,000
International short-haul	34,700	41,200	48,400	56,400	63,000
International long-haul	20,400	24,400	28,700	33,500	37,500
Total commercial	**161,600**	**182,250**	**203,700**	**226,550**	**245,000**
Freighter	6,800	7,400	7,950	8,480	8,900
Non-commercial	5,300	5,700	6,150	6,600	6,900
TOTAL	**173,700**	**195,400**	**217,800**	**241,630**	**260,800**

2.4 Cargo and freight

Overall international cargo volumes at Auckland Airport are small and peaked in FY19 with 190,889 tonnes. International cargo is well-balanced between inbound and outbound and, between FY10 and FY23, volumes increased annually by 0.8% on average.

During the pandemic, freight forwarders and cargo airlines experienced a surge in demand for air cargo as belly-hold cargo was transferred to dedicated cargo flights. The demand was primarily driven by personal protective equipment (PPE), medications, challenges in the ocean-shipping supply chain, and the sustained and robust growth in e-commerce.

Looking ahead, it is expected the majority of international cargo will continue to be handled by sea, with air cargo demand expected to remain a relatively minor activity at Auckland Airport.

International cargo volumes are projected to grow annually by about 1.4% until the end of the Master Plan period in FY47, when about 223,000 tonnes will be handled at the airport.

Table 3: Annual cargo tonnes for the Master Plan period

Segment	Cargo tonnes				
	FY28	FY33	FY38	FY43	FY47
Cargo	167,000	181,500	195,700	210,700	223,000

2.5 Busy-day forecasts

A key factor in any airport Master Plan is the conversion of annual traffic volumes into peak-hour values and busy-day profiles, because these are critical inputs when deriving future requirements for airport expansion and infrastructure enhancements. The peak-hour values help in sizing the facilities against specific levels of service targets, while the busy-day profile provides insight into the traffic patterns and profiles for each market segment.

The analysis is based on FY19, which was the last full year pre-pandemic and therefore presented more reliable traffic volumes and patterns.

Definition of passenger busy hour, runway busy day and runway busy hour

The passenger peak or busy hour is defined as the clock hour with the 30th-highest-ranked number of passengers during FY19, where the clock hour refers to the scheduled time.

For aircraft movements the runway busy day is defined as the 18th-highest number of daily aircraft movements for the airport in FY19, while the runway busy hour is the hour with the 30th-highest number of hourly aircraft movements, based on clock hour, in FY19.

There is no requirement to split busy hour and busy day movements between international and domestic movements or by direction. Instead, aircraft movements must be based on total airport activity, combining commercial and non-commercial flights.

Total passengers during the busy day are expected to show growth rates slightly lower than the annual traffic growth rate, attributable to seasonal (mostly international flights) and weekly spreads of traffic over time. This results from the airlines' attempts to stimulate off-peak travel with promotional fares to optimise aircraft use and maximise load factors. To meet growing demand during the busy day, airlines will open new routes, increase frequencies on existing routes, and/or deploy larger aircraft to maximise load factors and revenues.

Aircraft movements

Aircraft movements at Auckland Airport replicate the typical operation at an international hub. The operational profile shows a marked arrivals peak in the evening, driven by the combined international short-haul and domestic trunk arrivals for overnight parking. Conversely, a peak in domestic departures occurs early morning coinciding with arrivals of international long-haul flights.

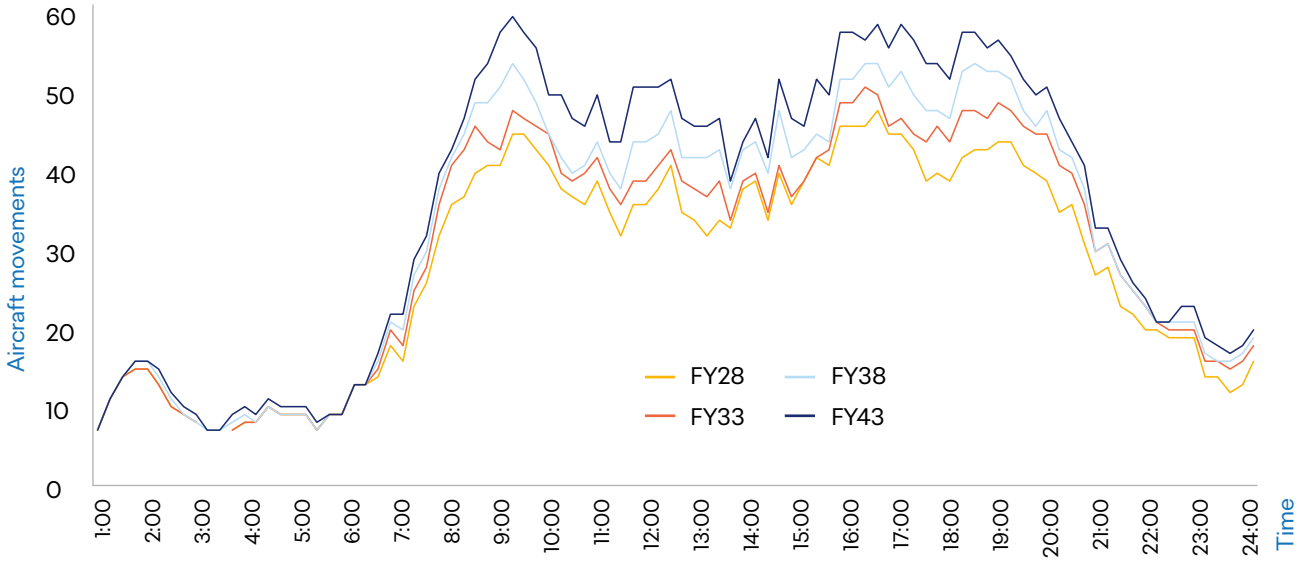
The overall aircraft peak occurs with the morning wave in a pattern that is repeated across every horizon. The predominance of international flights is mainly in the afternoon (international short-haul flights) and in the morning (mostly international long-haul flights). As expected, the window of operation for domestic flights is much greater featuring a more evenly distributed operational profile.

Table 4: Peak hour aircraft movements for the Master Plan period (FY28-FY43)

ATM per hour	FY28	FY33	FY38	FY43	FY47
Arrivals	22	24	27	30	32
Departures	23	25	28	30	32
Total commercial	38	42	45	48	50
TOTAL COMBINED (commercial and non-commercial flights)	**43**	**46**	**49**	**52**	**53**

* The total of departures and arrivals does not equal the total combined. The peak departure and arrival periods may occur at different time of the day, rather than within the same single hour.

Figure 4: Busy day aircraft movements profile for the Master Plan period (FY28-FY43)



Additional arriving flights are anticipated throughout the day, particularly during the peak hours. The peak hour for arrivals is projected to remain the same across all horizons at 17:00 with three other arrival peaks noted (morning, mid-day and mid-afternoon).

The profile of departure movements is different from the arrivals profile with a morning peak (at 08:00) and a late-afternoon peak (at 16:00). The morning peak is driven by domestic departures while the afternoon peak is a combination of domestic and international (essentially short-haul flights). By FY43 the morning peak is anticipated to spread across a wider period, extending to 07:00 and 09:00, and driven by increased domestic frequencies.

Note: The long-term forecast provides annual data until FY47. Busy-day schedules were created one for each five-year period i.e. FY28, FY33, FY38, FY43. it is expected to follow similar path for FY47.

2.6 Busy-hour passengers

Passenger figures include local passengers starting or ending their journey at Auckland Airport, together with those transferring or on transit.

Domestic-to-international are expected to represent the largest transfer segment with 11% of the traffic. International-to-international transit are expected to comprise 4.7% of the traffic volume.

Peak-hour passengers are anticipated to fall into three main peaks, namely in the morning (08:00), during middle of the day (11:00) and in the late afternoon (16:00). The afternoon peak is driven by domestic and international flights (mostly international short-haul); the mid-day peak is driven mostly by international long-haul flights while the morning peak is driven by domestic flights.

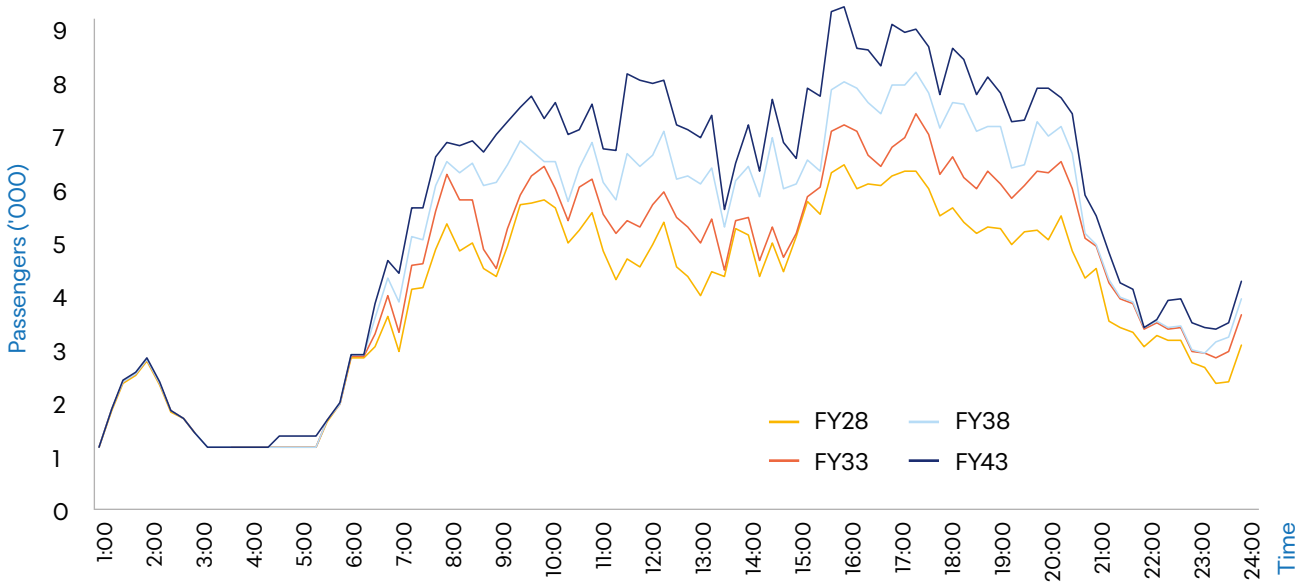
The hourly distribution of arriving passengers closely mirrors that of aircraft arrivals. Additionally, besides the peak hours, passenger growth is anticipated during other hours of the day. Conversely, for departures, the peak is expected to remain at 16:00.

Table 5: Peak hour passengers for the Master Plan period (FY28-FY43)

Passengers per hour	FY28	FY33	FY38	FY43	FY47
Total arrivals	3,102	3,541	4,003	4,498	4,906
Total departures	3,035	3,433	3,846	4,283	4,637
TOTAL COMBINED*	**5,409**	**6,078**	**6,763**	**7,481**	**8,056**

* The total of departures and arrivals does not equal the total combined. The peak departure and arrival periods may occur at different time of the day, rather than within the same single hour.

Figure 5: Busy-day passenger profile for the Master Plan period (FY28-FY43)



Note: The long-term forecast provides annual data until FY47. Busy-day schedules were created one for each five-year period i.e. FY28, FY33, FY38, FY43. it is expected to follow similar path for FY47.

Chapter 3

Master Plan considerations

Auckland Airport's Master Plan serves as a roadmap for the expansion of airport land and assets, and the development of aeronautical and non-aeronautical activities. Its preparation has recognised a range of factors that over the life of the Master Plan will influence the airport's growth.

The key considerations and how they influence the Master Plan are:

- Drivers of traffic growth
- Fleet developments and future aircraft concepts
- Energy transition and future fuels
- Environmental management and sustainability
- Digital and technology to influence innovation

3.1 Drivers of traffic growth

Auckland is New Zealand's busiest airport and serves as the main international gateway into the country for both passengers and air cargo.

Auckland Airport is also the country's largest domestic and regional hub. The airport is well positioned to serve business and tourism traffic as well as a wider outbound local population of about 2.9 million living in Auckland region and the upper North Island. Passenger growth at Auckland Airport is driven by demand-side as well as supply-side factors centred on socio-economics, demographics, tourism growth, trade, and decarbonisation.

Demand-side factors

New Zealand's economy has become increasingly diversified over the past few decades with less reliance on primary industries. The country has also been able to exploit to its benefit the intense globalisation during this period, which has seen growth in tourism and trade. New Zealand's gross domestic product (GDP) is projected to grow by 1.8% a year on average to 2047. Tourism forms a key part of New Zealand's economy, accounting for about 14% of the GDP.

Air transport is a key enabler for tourism as almost all visitors to New Zealand come by air. New Zealand's key source markets for tourist arrivals historically include Australia (39%), China (11%), USA (9%), UK (6%), Germany (3%) and Japan (3%). The tourism industry is anticipated to grow at 3.5% a year (FY26-FY47).

The growing middle class in several countries across Asia and their rising propensity for international travel make it a crucial market for New Zealand's aviation sector. Similarly, economic ties and tourism exchanges with the USA are boosting the demand for flights. India, with its large population is a market that is also expected to grow.

In terms of New Zealand's demographic trends, the nation's population is projected to slowly expand by 0.7% annually to reach 6.0 million by FY47, with Auckland and its surrounding area growing at a faster pace (0.9% annually) to reach 3.6 million. As such, Auckland's share of the nation's population, now about 58%, is projected to rise to roughly 61% by FY47.

Supply-side factors

It is expected that Auckland Airport will remain the main international gateway to New Zealand over the Master Plan period. However, its overall share of the international air transport market is expected to slightly decline over time as other New Zealand airports capture markets, aircraft technology evolves, and those airports successfully develop and attract new services, particularly in the international short-haul and trans-Tasman sectors.

Domestically, Air New Zealand is the main airline servicing Auckland Airport and provides the majority of flights both via jet and turboprop operations. In November 2019, Jetstar ceased turboprop-operated regional flights within New Zealand. Looking ahead, it is assumed Air New Zealand will compete with Jetstar only on domestic trunk routes, with Air New Zealand maintaining a near monopoly on regional routes. Airlines such as Air Chathams and Barrier Air are expected to continue their role in providing regional-only connectivity to a selection of destinations from Auckland Airport.

The international short-haul routes are primarily dominated by the trans-Tasman market. It is assumed that, in line with growing demand, the airlines now operating these routes will increase capacity. As frequencies reach a certain level, carriers are likely to deploy larger aircraft to increase capacity. Similarly, for the Pacific Islands in general, aside from the marginal increase in the number of destinations, carriers are also expected to boost frequencies and/or up-gauge routes to meet the growing demand.

The international long-haul segment will experience the strongest growth driven by economic factors (GDP, tourism, demographics and trade), which will naturally support the expansion of this network. Additionally, airline strategies and advancements in aircraft technology will significantly influence the development of long-haul traffic at Auckland Airport. As a result, most of the new routes are projected to be in the international long-haul sector, with India and China emerging as particularly promising markets. Mature inbound and outbound travel markets such as Australia, USA and the United Kingdom are also expected to continue to see ongoing growth.

3.2 Fleet development and future aircraft concepts

The aircraft manufacturing industry is undergoing significant change, with the need to balance the continuing surge in demand for air travel with the increased focus on sustainability and fuel efficiency.

In response to the carbon reduction challenge, manufacturers are exploring alternative propulsion systems such as hydrogen fuel cells, and the use of advanced light-weight materials to improve aircraft efficiency. Carbon reduction is also driving the advent of new aircraft concepts. These advancements are not only expected to revolutionise the way we fly, but may also necessitate modifications to airport infrastructure and operations.

Fleet development

Small aircraft with hybrid-electric propulsion are expected to enter service this decade, while regional aircraft could be available by the mid-2030s. Larger commercial aircraft might be introduced from 2040 onwards.

According to the latest data figures for the aircraft fleet at Auckland Airport, there appears to be a strategic balance between established workhorses and newer, more fuel-efficient models.

It is expected that during the Master Plan period, both domestic and foreign carriers will continue to operate a mix of narrow-body (Code C) and wide-body jets (primarily Code E and, occasionally, Code F) to support the domestic and international networks, with turboprops and the next generation of 'net-zero' aircraft serving the regional routes. It is also expected domestic carriers will average a higher number of seats per aircraft and load factors over time.

For instance, Air New Zealand has indicated its average fleet age is about nine years. It is anticipated the replacement of older aircraft, particularly the Dash 8-Q300, averaging 16 years, will likely be in the form of 'net-zero' aircraft as the next generation of regional aircraft becomes available and established over coming decades.

Air New Zealand has also announced the launch of the Next Gen Aircraft Programme, which aims to fly a commercial cargo-only demonstrator by 2026, looking at routes of about 150km.

The aviation industry has committed to achieving net-zero emissions by 2050, aligning with the Paris Agreement's goals to limit global warming. However, the path to 'net zero' by 2050 is complex and requires significant advancements in technology and infrastructure.

Additionally, advancements in aerodynamics and materials science are expected to produce more efficient, quieter and lighter aircraft, further reducing aviation's environmental footprint. The International Civil Aviation Organization's (ICAO) CORSIA initiative also aims to strengthen aircraft certification standards globally to guarantee a transition towards a new lower-emitting generation of commercial aircraft. These innovations are gathering pace – Airbus, for instance, is exploring the ZEROe project, which aims to introduce the world's first hydrogen-fuelled commercial aircraft by 2035.

In November 2023, Auckland Airport announced a collaboration with Heart Aerospace, joining the company's advisory board to help propel innovation in sustainable aircraft. Heart Aerospace is at the forefront of developing electric regional aircraft, such as the ES-30, which is designed for short-haul flights with lower environmental impact. This aligns with Auckland Airport's goals to reduce emissions and prepare for the future of green aviation. Auckland Airport will work with Heart Aerospace to share information as the technology develops, including around charging options and infrastructure.

Advanced air mobility

Advanced air mobility (AAM) represents an evolution in aviation technology, with the potential to significantly transform airport infrastructure and operations.

The integration of AAM, particularly electric vertical take-off and landing (eVTOL) aircraft, into an existing airport and urban ecosystem will require comprehensive planning and regulation. eVTOL aircraft require less space for take-offs and landings, enabling the development of vertiports, which are compact, versatile and can be integrated into urban environments.

For airports, the advent of AAM means adapting to accommodate a new class of air vehicles that are more energy-efficient, and potentially autonomous. Infrastructure modifications might include the installation of electric charging stations and dedicated vertiports, as well as new air traffic control systems to manage the increased airspace use. Auckland Airport will explore the feasibility of co-locating helicopter operations with e-VTOL operations once more information about the latter becomes available.

AAM also promises to reduce carbon emissions, because they are unlikely to cater for hydrocarbon-fuelled aircraft, and they are expected to be quieter.

In New Zealand, it is expected the ultimate goal will be to facilitate air taxi services, cargo and medical transport, and to enhance urban and regional connectivity. The viability in the context of Auckland Airport will rely on establishing a robust network of vertiports across urban and regional areas to fully leverage and support AAM connectivity.

As of 2025, eVTOL flight tests have already taken place in New Zealand to demonstrate the commercial viability and the safety of autonomous vehicles, because the country presents an attractive market for AAM developers due to its sparse population and the need for regional connectivity.

The success of AAM will depend on consumer acceptance, regulatory frameworks, operating costs, and the development of necessary infrastructure, such as vertiports. Although AAM is receiving interest from a number of players, existing technologies are not ready to be deployed at a larger scale. Auckland Airport is actively involved in the Aviation Council Working Group, focusing on fostering innovation and embracing new and emerging technologies that will benefit New Zealanders.

Blended wing aircraft

Blended wing aircraft are not yet a prominent feature in this Master Plan. Too little is known about their practical applications and performance. With research and development still in the early stages, uncertainties surrounding their feasibility and efficiency limit their inclusion in strategic planning. Auckland Airport will continue monitoring this trend.

3.3 Energy transition and future aircraft fuels

Aviation is a dynamic industry, continually evolving with technological advancements, economic progress and changing global needs. In the next 10-20 years, several key trends are expected to reshape the landscape of aviation and its entire ecosystem.

The path to decarbonisation includes a progressive fleet renewal, the adoption of disruptive propulsion technologies, such as hydrogen-fuelled and electric aircraft, operational efficiency improvements, increased use of sustainable aviation fuel (SAF), and carbon offsetting.

Demand for electricity at airports is on the rise with the electrification of various aspects of airport operations as part of the push to decarbonise the industry.

Energy efficiency measures and the integration of renewable energy sources will help balance the increased demand for electricity, but new generation and storage infrastructure will be required to support the electrification of airport and private vehicles, both airside and landside, as well as net-zero aircraft with new propulsion systems.

The industry is also exploring a shift towards alternative propulsion systems, such as hydrogen-fuelled and all-electric aircraft, to service shorter routes, though long-haul flights will likely depend on SAFs for the foreseeable future.

Sustainable aviation fuel

Sustainable aviation fuel is an important part of the solution to decarbonising global aviation. SAF – produced from sustainable feedstocks such as waste oils, plant oils, animal fat, energy crops, wood waste or algae, is estimated to reduce flight emissions by up to 70%-80% depending on its production methods, compared to traditional fossil-based jet fuel. However, the current challenge lies in its large-scale availability, concerns about sustainable sourcing, and its cost, prompting considerations for subsidies to increase production and reduce prices.

New Zealand's geographic location and reliance on long-haul aviation for trade and tourism means a consistent supply of SAF will be required to maintain connectivity. Because of this, New Zealand needs a clear strategy for SAF that seeks to contribute to global supply and secure a domestic supply, while being underpinned by international collaboration. Alignment with Australia and the Pacific will be an effective way to develop a regional SAF industry and maintain connectivity across the Pacific and beyond.

Electric and hybrid

While it is unknown at this stage if wholesale electrification of the aviation sector will be possible, there is scope for regional and domestic flights to be early adopters and make use of hybrid or electric aircraft in the short-to-mid-term to transport travellers and freight.

The plan to achieve an 80-seat electric aircraft may be technically and economically viable by 2035 according to the International Air Transport Association (IATA), whereas larger 180-seat commercial aircraft that could compete against today's narrow-body jets are not expected until the 2040s or beyond. Air New Zealand is actively pursuing its zero-emissions targets and plans to start operating a small electric fleet by 2030, focused on six-to-10-seat fully electric and hybrid aircraft concepts.

In this scenario, airports will need to be equipped with the right electrical charging infrastructure that is also smart, financially feasible and able to integrate with other distributed energy resources.

Some of the challenges around aircraft electrification relate to current battery technology, its cost, and the lack of electrical infrastructure to support future growing needs. This is particularly the case as electric aircraft will require powerful and efficient charging infrastructure to support and maintain operational efficiency through optimised turnaround times and rotations.

Auckland Airport will likely need to upgrade its electrical systems to handle the increased demand for high-capacity charging stations and a reliable power supply.

Hydrogen

Hydrogen-powered aircraft still are in the early stages of technological development and are expected to still require one or two more decades to mature into a viable concept.

There are a number of challenges to widespread adoption of hydrogen as an aviation fuel in New Zealand, ranging from aircraft technology and green hydrogen generation facilities, to transport and storage solutions. For an example, the World Economic Forum indicates such aircraft could require 600-1,700 terawatt/hour (TWh) of clean energy by 2050.

The first hydrogen-powered aircraft to be operated commercially will probably be smaller aircraft using very high-pressure gas. One of the key players in the hydrogen space, ZeroAvia, plans to implement hydrogen fuel cells into existing aircraft targeting their first commercial nine-to-19 seat aircraft by 2025, with larger aircraft brought to market by 2030. In the past ZeroAvia have worked with UK's Cranfield Aerospace, the only hydrogen aircraft developer included in Air New Zealand's recent agreements for hydrogen-powered aircraft concepts.

Longer term, larger commercial aircraft are likely to use liquid hydrogen in hybrid hydrogen-electric engines due to its improved energy density and performance.

3.4 Environment and sustainability

Auckland Airport is for the world we'll travel tomorrow – a world where we uplift the communities we connect, and protect the nature we explore.

This approach is embedded in Auckland Airport's operations and is a key consideration of the Master Plan. This is made even more important by the natural and cultural significance of our location on the Māngere peninsula and the shores of Te Manukanuka o Hoturoa (the Manukau Harbour), and our proximity to residential and business areas.

Auckland Airport's aspiration is to deliver best-in-class custodianship of natural assets.

Environmental planning controls including aircraft noise

Auckland Airport's activities and operations are governed by designations, resource consents and specific zone provisions in the Auckland Unitary Plan.

Designation 1100 covers most of the airport's landholding and authorises the use of land for aircraft operations, including the construction and operation of the proposed northern runway, and a range of aeronautical functions, subject to conditions.

These conditions include restrictions on aircraft engine testing and noise levels off-site, reflecting that Auckland Airport cannot fully internalise its noise effects within its landholdings. The restrictions, include:

- Noise from aircraft operations shall not exceed 65dB Ldn anywhere outside the High Aircraft Noise Area (HANA) and 60 dB Ldn anywhere outside the Moderate Aircraft Noise Area (MANA).
- Engine testing can occur only in defined areas and cannot exceed a seven-day rolling average of 55dB Ldn or 75dB LAmax between the hours of 22:00 and 07:00 at adjacent residential areas.

Additional noise conditions apply to the northern runway, namely:

- Jet and non-jet aircraft are not permitted to depart to or arrive from the east between 22:00 and 07:00 (except in a limited number of specified cases).
- For the first five years, noise from aircraft operations shall not exceed 58.5 dBA Ldn at State Highway 20 and the southernmost part of Naylors Drive.
- For the first five years, wide-body jet (Code D, E, and F) aircraft shall not depart to the west between 22:00 and 07:00.

The noise controls in Designation 1100 work in tandem with overlays in the Auckland Unitary Plan to manage activities sensitive to aircraft noise in areas of high aircraft noise and potential reverse sensitivity effects on the airport.

Designation 1101 authorises the use of land in the Renton Road area for aircraft operations and maintenance purposes, subject to conditions, but the range of activities is more restricted than under Designation 1100.

Figure 6: Aircraft noise contours

High Aircraft Noise Area 65+ dBA Ldn

Moderate Aircraft Noise Area 60-64 dBA Ldn

Designation 1102 contains a range of aeronautical safety restrictions, which include limits on:

- The height of obstacles through Obstacle Limitation Surfaces;
- The rate of air discharges through the aircraft final approach slopes;
- The location of buildings and the congregation of people in the Runway End Protection Areas; and
- Glare from non-aeronautical lighting.

Compliance with the designations is required on an ongoing basis, unless altered through the relevant regulatory process, and this is a consideration of aeronautical growth at Auckland Airport.

Nature enhancement and water quality

Auckland Airport's landholdings drain to three main waterbodies – Oruarangi Creek to the north, Pūkaki Creek to the east, and the Manukau Harbour to the south and west.

Protecting the ecological value of the Manukau Harbour requires putting aside land to enable nature enhancement and stormwater treatment and retention ponds so any discharges to the harbour meet best-in-class environmental standards.

Climate resilience

Auckland Airport is committed to being a climate-resilient, low-carbon gateway to New Zealand.

The physical effects of a changing climate are already being felt across New Zealand, and the Auckland Airport precinct is no exception. Physical inundation and flooding of assets, due to extreme weather events and to a lesser extent sea-level rise, is Auckland Airport's key physical climate-related risk.

As an inter-generational asset that is important to the region and the country, Auckland Airport is ensuring it is mitigating and adapting to these climate-related risks. Extensive modelling has provided a good understanding of the risks associated with stormwater, storm surges and sea-level rise, and comprehensive improvements to the airport's infrastructure are underway or planned to manage these risks.

Climate adaptation planning is also part of the airport's infrastructure development process to ensure identified solutions are adequate in future climate scenarios.

Decarbonisation

Auckland Airport is taking proactive steps to reduce its direct carbon emissions and has publicly disclosed a decarbonisation pathway to achieve a 90% reduction of direct emissions by 2030 compared to the 2019 baseline. This pathway includes phasing out natural-gas boilers, electrifying the vehicle fleet, using low global warming potential refrigerants, and transitioning to renewable energy sources.

Additionally, Auckland Airport is working with its airline, ground handling and air-navigation partners to improve operational efficiency and reduce the environmental impact by:

- Providing electric vehicle (EV) chargers on the airfield to serve low-emission ground-support vehicles.
- Installing ground power units (GPUs) and pre-conditioned air (PCA) equipment so aircraft can connect to a low-carbon electricity supply instead of burning jet fuel while at the gate.
- Ongoing work with Airways and airlines to reduce aircraft fuel burn by setting fuel-saving flight paths, allocating taxiways to minimise aircraft taxi time, and just-in-time pushback allowing aircraft to delay engine use.

The most important role an airport can play in the decarbonisation of the wider aviation sector is to ensure the right ground infrastructure is in place to enable the adoption of future aircraft technologies and fuels as they become widely available, such as SAF, and electric and hydrogen-powered aircraft. So-called 'drop-in' SAF is already able to be delivered to aircraft via Auckland Airport's fuel hydrant system, and engagement is taking place with airline partners to understand their future requirements for alternative aircraft fuels and technologies.

Similarly, Auckland Airport is future-proofing its transport network to enhance connectivity and provide for low-emission transport modes. The Master Plan accommodates a variety of transport options and strategies, including active modes such as cycling and walking, mass rapid transit (bus and light rail), and the anticipated increase in EVs for both private and public transport.

Auckland Airport is also actively addressing 'whole of life' carbon emissions in the design and construction of infrastructure development projects.

These initiatives are part of a broader effort to reduce carbon emissions across the entire supply chain. They not only address the environmental challenges, but also set a precedent for innovation and leadership in sustainable aviation practices globally.

Auckland Airport progress to date to reduce direct carbon emissions and to support other airport users to reduce their emissions has been recognised with a Level 4 (Transformation) Airport Carbon Accreditation from Airports Council International (ACI), putting Auckland Airport among the world's leading airports in terms of sustainability.

airport carbon accredited
TRANSFORMATION

3.5 Digital and technology

This Master Plan recognises digital and technology as crucial factors in ensuring efficiency, security, and a seamless passenger experience.

As Auckland Airport expands to accommodate growing traveller volumes forecast to reach 38 million in 2047, integrating advanced digital solutions is vital for maintaining smooth operations while enhancing sustainability, revenue generation, and customer satisfaction.

Digital is the **mindset** that allows us to innovate and unlock new value. It's how we use technology and data to improve the experiences of our customers, staff and partners.

Digital and Technology

Technology is the **systems, processes and assets** that our business and experiences are built on.

Digital Infrastructure

Auckland Airport's Digital Strategy is built on three key principles:

To bring these principles to life several strategic digital infrastructure upgrades are required. One of the most significant is the installation of a new external communications cabinet that ensures reliable connectivity and serves as a key component of Auckland Airport's long-term expansion strategy, enabling future growth while maintaining seamless operations.

By integrating these digital advancements, Auckland Airport is not only enhancing operational efficiency and passenger experience, but also ensuring it remains adaptable to future technological breakthroughs.

Technology as an enabler of seamless travel

Auckland Airport is making a major shift by integrating physical and digital systems across the entire precinct, rather than operating in silos, to drive a complete operational transformation.

At the core of this transformation are robust technology infrastructure, reliable networks, and devices that boost efficiency and seamlessly support the airport's critical functions. Cutting-edge data and analytics platforms will provide a comprehensive operational view, enabling smarter, faster decision-making and improved situational awareness.

One of the most significant advancements in modern airports is the implementation of biometric screening and e-gates. These systems enable faster and more secure passenger processing by integrating facial recognition, fingerprint, and iris scanning.

Auckland Airport is actively embracing this shift, aligning with industry initiatives such as IATA's NEXTT and One ID programs, as well as ACI's Digital Transformation Handbook. These efforts are laying the groundwork for a fully connected and automated airport experience, where passengers move effortlessly through each touchpoint with minimal manual intervention.

The integration of smart digital tools, real-time wayfinding displays and AI-powered decision-making platforms, further enhances situational awareness, allowing for a more responsive and adaptable airport environment.

As a result, travellers will benefit from an enhanced experience with real-time digital tools and intuitive wayfinding displays for effortless navigation. These displays and digital signage will also provide real-time updates on flights, gate changes and baggage claim belts.

Security and operational efficiency are also being enabled by AI-powered technologies. Smart baggage and body-scanning systems enhance threat detection, while predictive maintenance, powered by Internet of Things (IoT) sensors and AI analytics, ensures airport infrastructure remains in optimal condition, preventing downtime.

Enabling smarter, data-driven airport operations

Auckland Airport is leveraging advanced traffic forecasting and data analytics to maximise runway and gate capacity. The integration of AI and IoT sensors enables airports to optimise operations, reduce delays, and proactively address maintenance needs.

By analysing real-time flight schedules, passenger flow and weather conditions, the airport can make smarter decisions to prevent congestion, reduce delays, and improve the allocation of resources.

Another critical application of technology is in predictive maintenance. By embedding IoT sensors throughout airport infrastructure—including runways, baggage systems, and HVAC systems—Auckland Airport will be able to detect potential issues before they become critical failures. This proactive approach reduces downtime, extends asset lifespan, and improves operational resilience. Auckland Airport is incorporating these technologies to enhance situational awareness and streamline airport operations, ensuring infrastructure remains in peak condition while minimising disruptions to travellers.

Auckland Airport is also implementing AI-powered decision-making platforms to enhance situational awareness. These platforms aggregate data from various sources, including weather forecasts, security feeds, and passenger flow metrics, to provide a comprehensive view of airport operations. By enabling more accurate and data-driven decision-making, Auckland Airport is improving efficiency while ensuring a smoother experience for passengers, airline partners, and ground operators.

Enabling security

Security is one of the most crucial aspects of airport management, and technology is playing an increasingly vital role in ensuring safe and efficient airport environments. AI-powered baggage and body scanning technologies improve threat detection while minimising wait times for travellers. These systems use machine-learning algorithms to analyse scanned images more accurately than traditional X-ray technology, reducing false alarms and expediting the screening process.

Cybersecurity is another critical area where technology serves as an enabler. As airports become more connected, the risk of cyber threats increases. Auckland Airport's Digital Strategy prioritises cybersecurity by ensuring a robust and resilient technology infrastructure. Secure networks, encrypted data transmissions, and real-time threat monitoring help protect sensitive passenger information, operational systems, and digital assets from cyber attacks.

Physical security is also being enhanced through AI-powered surveillance and drone monitoring. These tools provide real-time threat detection and response capabilities, allowing security teams to proactively address potential risks before they escalate. By integrating AI-driven analytics with traditional security measures, Auckland Airport is setting new standards for safety and resilience.

Enabling the future of air travel

Technology is a powerful enabler in the evolution of airports, driving efficiency, security and seamless travel experiences. Auckland Airport, through its strategic digital investments, is looking to set a high benchmark for innovation in airport operations.

By embedding automation, AI, and advanced analytics into every aspect of its master plan, the airport is ensuring it remains agile, resilient, and capable of meeting the demands of the future.

By merging physical and digital infrastructure, investing in next-generation technologies, and prioritising seamless connectivity, Auckland Airport is redefining air travel. The ability to enable smooth operations, rapid decision-making, and customer-centric innovation ensures the airport is not just meeting today's demands but also shaping the future of aviation.

Chapter 4

Land use planning

Airside precinct | Terminal precinct | Surface access precinct | Non-aeronautical precincts

Auckland Airport serves as a complex network of activities with unique requirements. For this reason, the airport land is divided into four precincts with individual purposes, objectives and development strategies.

This Master Plan looks at these distinct precincts which are listed according to the airport hierarchy giving priority to aeronautical-related activities.

In the short term, the land use plans ensure immediate operational needs are met without compromising safety or regulatory compliance. This includes managing noise levels, preventing the encroachment of incompatible structures, and safeguarding zones for potential expansion based on the approved controls and consents for the different zones within the airport.

For the medium term, the plans balance the growth of airport facilities with commercial interests, while maintaining alignment with environmental and community standards.

In the long term, the land use plans anticipate future aviation trends and technological advancements, laying the foundation for sustainable development that supports Auckland Airport's evolving role as a transportation hub and key economic driver.

The existing site

Figure 7: Existing Precinct Map

AIRSIDE:

- 1.1 RWY05R/23L
- 1.4 NAVAIDS
- 1.7 PIER B APRON
- 1.8 PIER A APRON
- 1.13 TWY B
- 1.14 TWY A
- 1.16 TWY L
- 1.17 DTB APRON

TERMINAL:

- 2.3 PIER A
- 2.5 PIER B
- 2.10 INTERNATIONAL TERMINAL BUILDING
- 2.11 DOMESTIC TERMINAL BUILDING

GROUND TRANSPORT:

- 3.1 TRANSPORT HUB
- 3.5 EXISTING PARKING
- 3.6 PARK & RIDE NORTH
- 3.7 PARK & RIDE SOUTH
- 3.8 VALET STORAGE PARKING
- 3.9 CAR RENTAL PARKING
- 3.11 WESTERN FORECOURT
- 3.12 INNER TERMINAL ROAD
- 3.13 MANU TAPU DRIVE
- 3.14 GEORGE BOLT MEMORIAL DRIVE
- 3.15 PUHINUI ROAD
- 3.17 TOM PEARCE DRIVE
- 3.20 CHECKPOINT B
- 3.22 CHECKPOINT D
- 3.24 CHECKPOINT C

ANCILLARY AERO & NON-AERO:

- 4.3 ARFF FACILITIES
- 4.4 LIVESTOCK FACILITIES
- 4.5 HONEY POT AND INTERWASTE
- 4.6 AIRNZ BASE
- 4.7 MRO FACILITIES
- 4.8 CHARLIE 1 HANGARS
- 4.9 AIR CATERING
- 4.11 ENGINEERING SERVICES
- 4.12 THE QUAD
- 4.13 THE LANDING
- 4.14 MĀNAWA BAY
- 4.15 TE MANUKANUKA O HOTUROA MARAE
- 4.16 ABBEVILLE ESTATE
- 4.17 PULLMAN, NOVOTEL AND IBIS HOTELS
- 4.18 ATC FACILITIES
- 4.19 AIR NZ AMENITIES
- 4.20 CARGO AND FREIGHTER
- 4.21 SHOPPING CENTRE
- 4.22 GSE MAINTENANCE AND AMENITIES

UTILITIES:

- 5.1 JUHI LOCATION
- 5.5 PC INTAKE
- 5.6 STORMWATER PONDS
- 5.7 POTABLE WATER TANKS
- 5.9 POWER CENTRE

4.1 Airside precinct

Purpose and activities

The airside precinct serves a critical role. Its primary purpose is to ensure the safe, efficient, and secure operation of the airside facilities and includes runways, taxiways, aprons, navigation aids and other aviation-related infrastructure. This precinct is further subdivided into airside land use, with limited access for non-authorised personnel, and ancillary land use including supporting functions for aeronautical activities often located landside.

Key activities in this precinct are essential to day-to-day operations including air traffic control, ground handling, Aviation Security, rescue and firefighting, fuel, aircraft maintenance, cargo, and catering. It also accommodates a range of utility networks and infrastructure including stormwater and energy.

Development objectives

- Provide safe, efficient and secure aircraft landing, take-off and taxiing operations.
- Provide compliant airfield and apron infrastructure, with flexibility to accommodate future needs.
- Integrate technological and operational advancements.
- Provide adequate ground handling operations and storage areas.
- Provide adequate aviation support facilities such as (but not limited to) navaids, radar and communications and air traffic control, as well as rescue and firefighting, wildlife management, and meteorological services.
- Safeguard for stormwater ponds and other flood-risk mitigations in alignment with Auckland Airport's climate resilience strategy.

4.2 Terminal precinct

Purpose and activities

The terminal precinct serves as the critical interface between the airfield and surface access precincts, accommodating the terminal buildings and associated facilities and services. Its purpose is to process and streamline international, domestic and regional passenger flows, manage baggage, and provide a range of services to enhance the experience of the airport customers.

Key facilities and activities within the terminal precinct include check-in, inbound and outbound baggage handling systems, security screening, retail and dining outlets, and boarding gates, as well as border control, Customs and biosecurity facilities.

Development objectives

- Provide safe, efficient and secure passenger, staff and baggage processing.
- Provide compliant terminal infrastructure, with flexibility to accommodate future needs.
- Act as the main physical gateway into New Zealand with a strong sense of place.
- Provide seamless, accessible and inclusive passenger journeys.
- Deliver a functional dwell and commercial experience.
- Integrate technological and operational advancements.
- Provide security and emergency services such as police and fire stations.

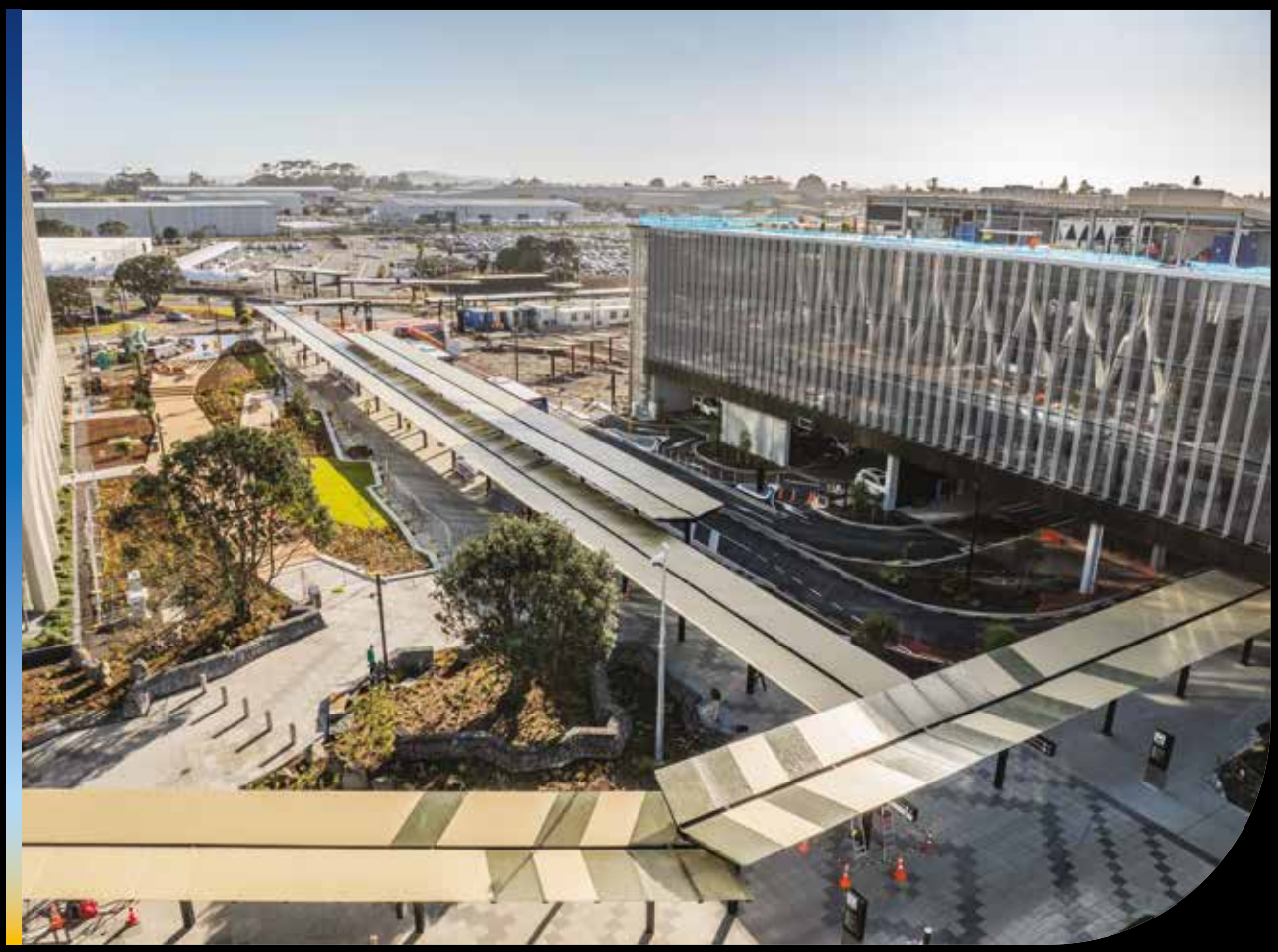
4.3 Surface access precinct

Purpose and activities

This precinct encompasses all transport activities and infrastructure that provide connectivity to, from and across the airport site. It includes the terminal pick-up and drop-off (PUDO) areas, car parks, waiting zones and the road network. This precinct must also support the seamless connectivity between private and public transport modes.

Development objectives

- Provide safe, efficient and secure vehicle flows and processing for on-airport and off-airport traffic.
- Provide compliant ground transport infrastructure, with flexibility to accommodate future needs.
- Reinforce the airport's role as a multi-modal transport hub.
- Provide seamless, accessible and inclusive vehicle journeys.
- Integrate technological and operational advancements.



4.4 Non-aeronautical precincts (interim use of the land)

The non-aeronautical precincts are designated areas within airport land that accommodate a range of commercial activities that complement the core aeronautical operations, catering for both the travelling and non-travelling public. Auckland Airport's commercial property portfolio comprises business and industrial parks, hotels and retail areas that are home to some of the world's leading businesses and brands. The main non-aeronautical precincts within the airport are The Landing and The Quad.

The Landing

Purpose and activities

The Landing sits in the northern area of the airport and accommodates activities that benefit from an airport-proximate location due to operational, security or cost considerations. The Landing provides world class environment for employees working on precinct and for the wider community to enjoy.

The predominant activities are related to the logistics, technology and light industrial sectors. These activities are located along strategic roads off the State Highway 20A, including Landing Drive, Te Kapua Drive and Verissimo Drive, which do not experience significant volumes of passenger-related road traffic. At the western end of The Landing, privileged airside frontage has been protected for key aeronautical businesses, such as air freighters and aircraft maintenance service providers.

Development objectives

- Capitalise on its direct road access and connectivity.
- Be activated in conjunction with the future northern runway.
- Accommodate large-scale industrial, business and logistics activities.
- Provide opportunities for employment-generating activities for the surrounding communities.
- Be compliant with aviation standards, local regulations and guidelines, particularly in terms of obstacle limitation surfaces.
- Serve logistics, freight-forward users, and activities that support the core airport functions.

The Quad

Purpose and activities

The Quad is the "town-centre" of the precinct, where people-centred activities are concentrated. It is located at the heart of the airport, to the east of George Bolt Memorial Drive and north of Tom Pearce Drive. It is a pedestrian-friendly precinct offering close proximity to the passenger terminals. It accommodates low-impact business and commercial activities, some with extended operational hours.

Development objectives

- Take advantage of its proximity to key airport activities and public transport networks.
- Protect existing recreational areas, and consider existing and future stormwater arrangements.
- Provide high-quality public spaces and landscaping, facilitating pedestrian and cycling pathways for connectivity across precincts.
- Centralise people and support functions for precinct workers.
- Enable Auckland Airport to support public services.
- Be compliant with aviation standards, local regulations and guidelines particularly in terms of obstacle limitation surfaces.

4.5 Land use plans

The following land use plans show the land use arrangement across the airport site in each planning horizon as infrastructure is implemented and opportunities are unlocked across the precincts.

The land use plans ultimately provide the guidelines for a compatible and complementary development of the different airport activities at Auckland Airport across its four main precincts. All the non-aeronautical development area is safeguarded for aeronautical use.

Figure 8: Land use plan for horizon FY28

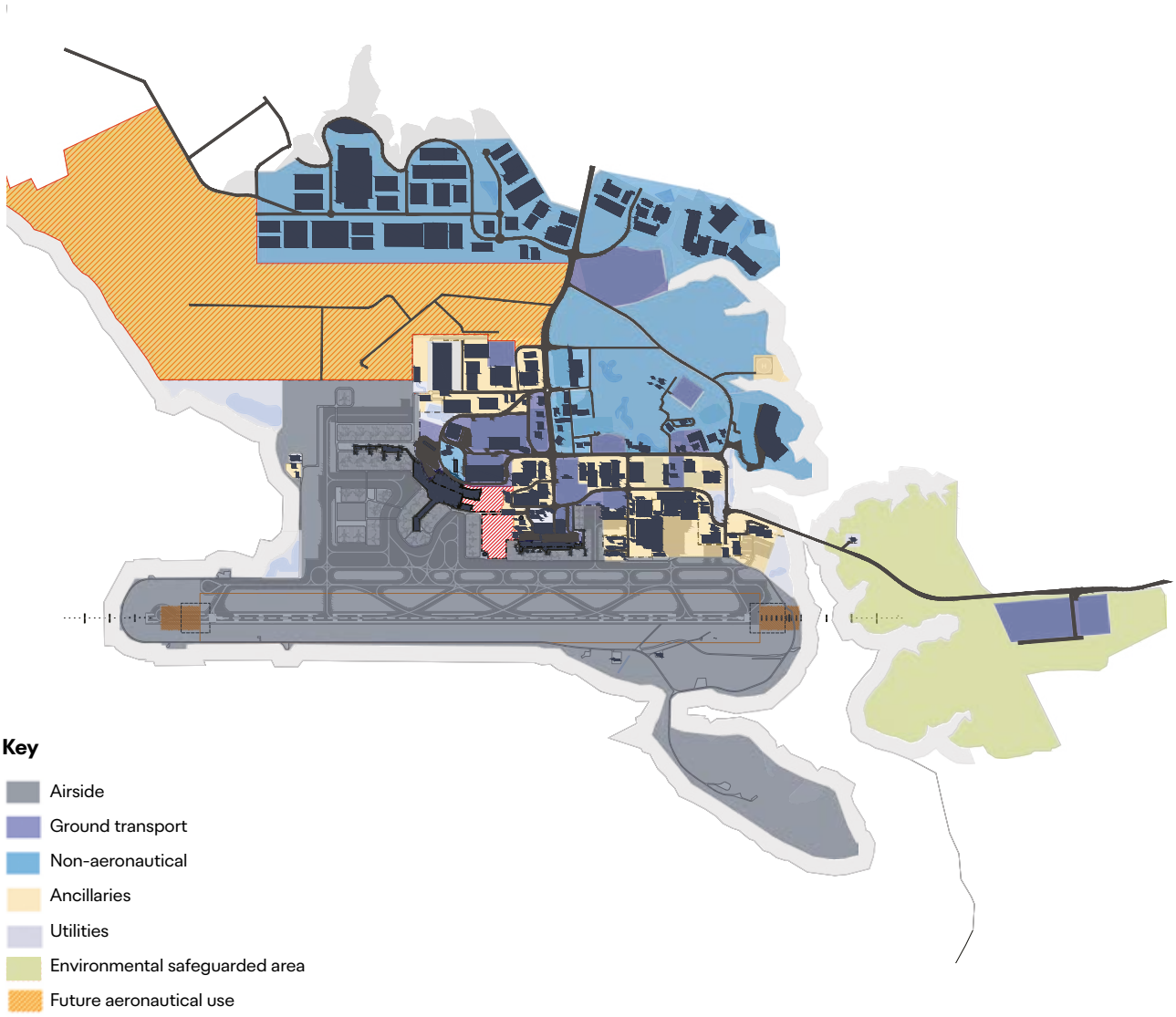


Figure 9: Land use plan for horizon FY33

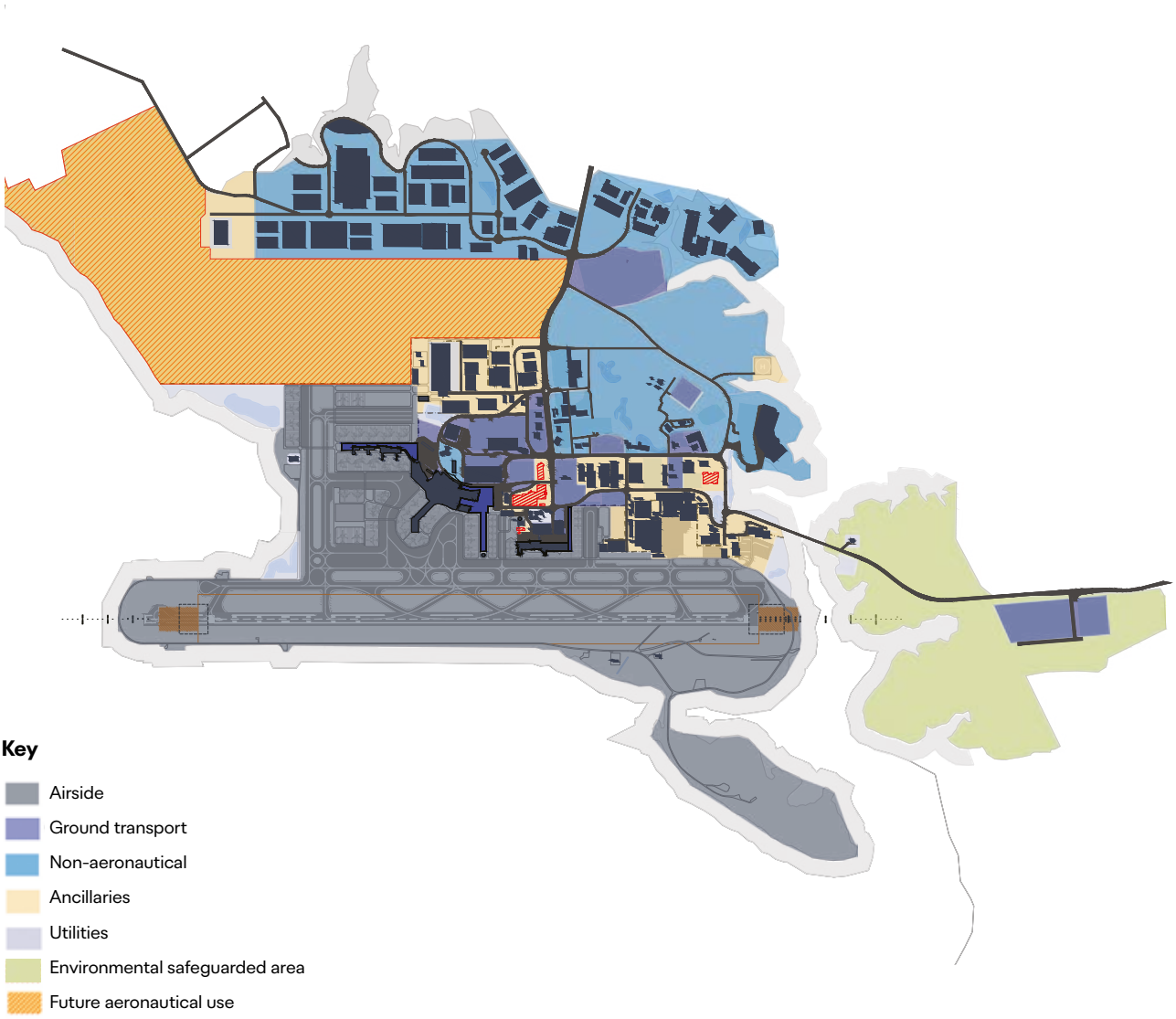


Figure 10: Land use plan for horizon FY38

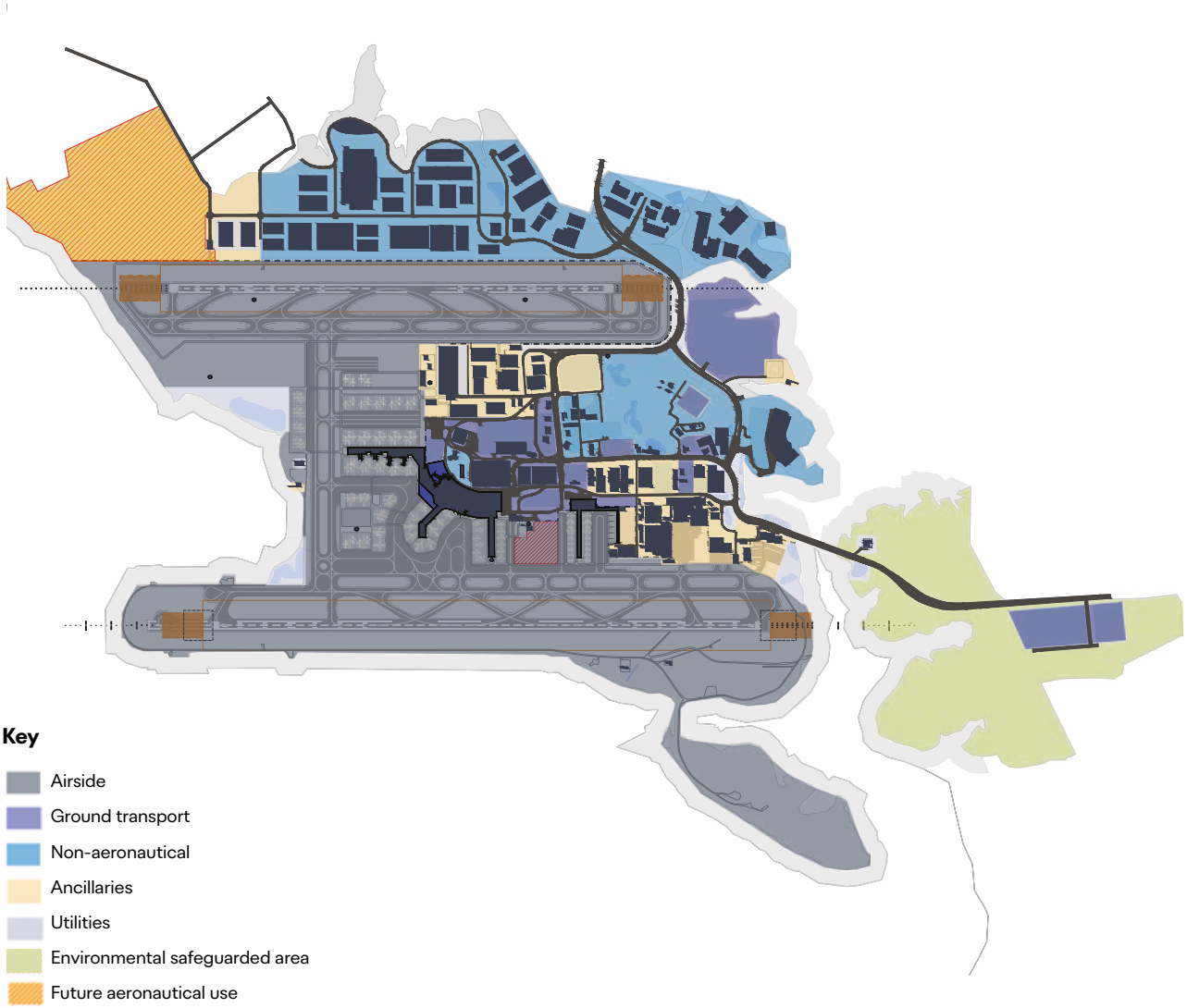


Figure 11: Land use plan for horizon FY43

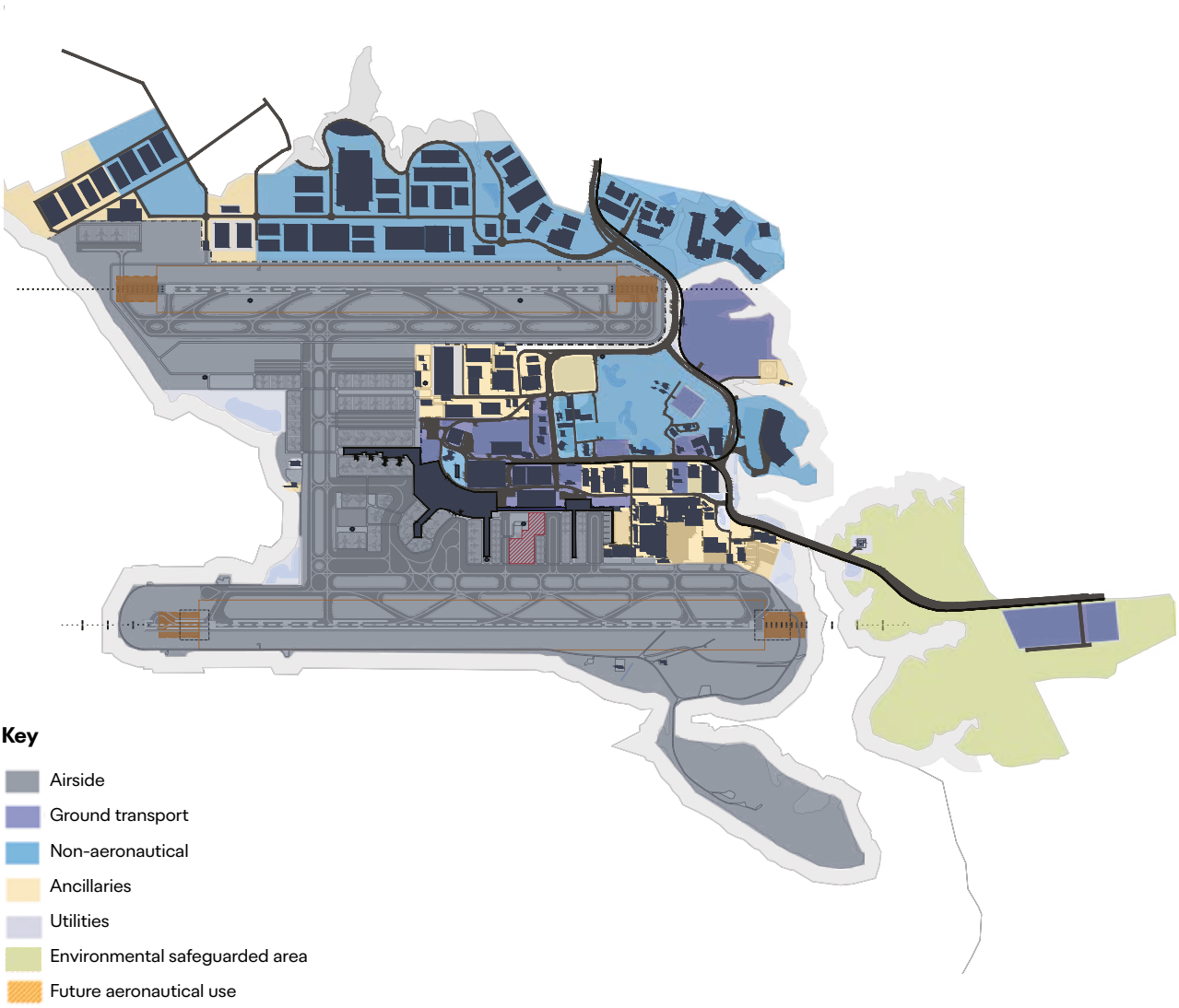
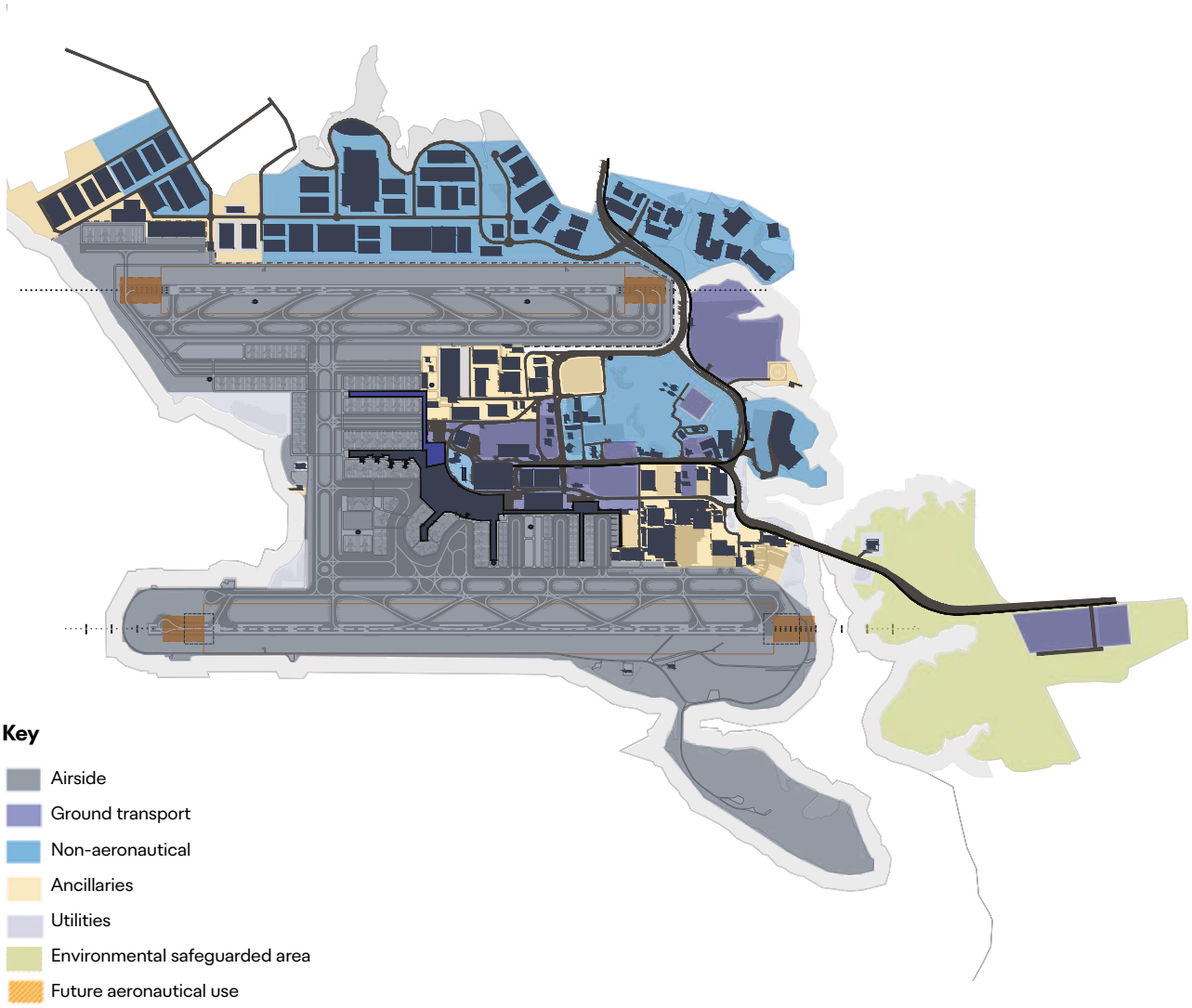


Figure 12: Land use plan for horizon FY47




Auckland Airport

Chapter 5

Airside precinct

The airside precinct accommodates the infrastructure, systems and surfaces required for the safe and efficient movement and servicing of aircraft on the ground.

Key infrastructure includes runways, taxiways, aprons, helipads, navigational aids, and other aviation-related facilities.

Guiding principles

Future airfield developments will adhere to the following key principles:

- Ensuring safe and efficient airport operations at all times.
- Incorporating aviation support facilities such as navigation systems, rescue and firefighting services, and ground service equipment areas.
- Safeguarding space for future innovations.
- Safeguarding for future expansions of aviation-related infrastructure.

Current airfield system

Auckland Airport includes a single runway, 05R/23L, which measures 3,635 metres by 75 metres (including shoulders) and is capable of handling Code F aircraft. The network of taxiways provides the airfield with access for a wide range of aircraft, from smaller eight-seaters to the A380.

The existing runway is served by TWY A, a full parallel taxiway that provides access to both the domestic and international aprons. The international apron is served by Pier A and Pier B, with the latter benefiting from the use of MARS stands, which can accommodate two narrow-body aircraft in the space of one wide-body aircraft.

Additionally, the international apron has non-contact parking positions served by bus lounges located at both Pier A and Pier B.

The domestic apron, located adjacent to the domestic terminal, provides parking positions for Code C jets and turboprop aircraft.

Figure 13: Current airfield map

5.1 Runway capacity

Existing Runway 05R/23L capacity

Airways New Zealand, New Zealand's air navigation service provider, advised that Auckland Airport's runway capacity (05R/23L) is in line with the tables below:

Table 6: RWY 05R/23L Optimum Capacity

Air Traffic Management Flow Setting	Capacity (movements per hour)
MCA	48
MCB	40
FOG	24

Note: Actual rates may at times be up to 10% lower depending on aircraft performance mix.

MCA = Observed meteorological conditions where the cloud base is not below 2,000ft and visibility less than 8,000 meters.

MCB = Observed meteorological conditions where the cloud base is below 2,000ft and visibility less than 8,000 metres.

FOG = Observed meteorological conditions requiring the use of approved low visibility procedures.

Scheduled peak-hour demand is expected to reach 53 ATMs/h by the end of the Master Plan period in FY47.

It is expected the dual-runway configuration will be sufficient to accommodate the expected demand for the Master Plan horizon up to FY47 under normal operational mode.

The Master Plan is therefore exploring Auckland Airport's airfield configuration as it transitions from a single-runway airport into a dual-runway airport.

Existing runway capacity study

Auckland Airport has undertaken a number of assessments to determine the maximum number of movements the existing runway can accommodate.

Before the COVID-19 pandemic, Auckland Airport conducted an initial study in collaboration with airlines and Airways as part of the Airfield Enhancement Group. The study simulated the single-runway operations at Auckland Airport, analysing the delays caused by increasing flight demand, to inform the decision on the northern runway opening date.

The outcomes suggested the northern runway would be required by FY28. The study also explored various mitigations to optimise the use of the existing runway and potentially defer construction of the northern runway to FY32. This work was, however, paused due to the pandemic.

Since then, Auckland Airport has refreshed the traffic forecasts as described in the "Airport Growth Forecasts" chapter, and worked with Airways to update the existing runway capacity model to capture current operational modes and assess potential future changes that could enhance runway capacity.

After validating the baseline model, Auckland Airport tested both the FY33 and FY38 schedules in both runway directions to identify constraints. The goal was to maximise the throughput while keeping the runway holding delay and airborne holding delay below an established threshold: 10 minutes during peak periods and five minutes during the operational day.

The FY33 schedule was modelled using the Divergent Missed Approach Protection System (DMAPS) separation standards provided by Airways and implemented at Auckland Airport in late 2024. The results demonstrate the FY33 schedule can be accommodated, with the average runway holding delay consistently well within the 10-minute delay criteria.

Runway capacity is projected to be exceeded by FY38 if same mode of operations is maintained. For this reason, this Master Plan identifies FY38 as the triggering horizon for the northern runway 05L/23R.

Auckland Airport recognises the importance of stakeholder engagement to refine the northern runway trigger point and would welcome the opportunity to reconvene the Airfield Enhancement Group to collaborate on this.

Runway configuration under contingent operations

TWY A is used as an operational runway named 05C/23C under contingent runway operations. The contingent runway is a non-precision approach runway, served by a combination of visual and non-visual aids for landing operations, and is restricted to aircraft up to Code E. This will be relevant while the airport continues to operate under a single-runway configuration, allowing for the safe landing and take-off of aircraft should RWY 05R/23L be unavailable. This operational contingency can be carried forward to the dual runway configuration to reduce the loss of runway capacity and provide extra resilience.

Figure 14: Contingent runway distances

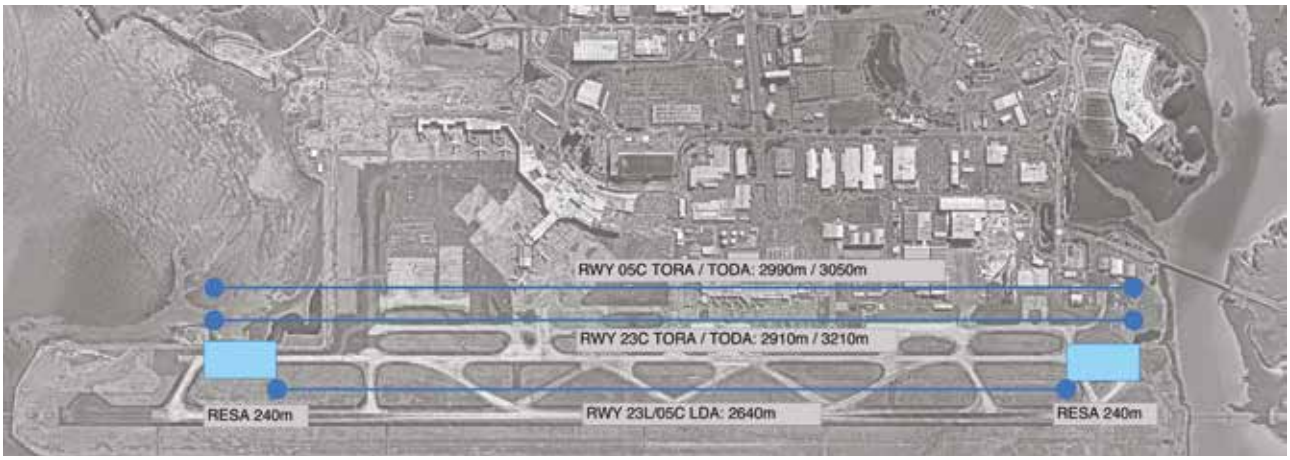


Table 7: Runway declared distances

	TORA (m)	TODA (m)	ASDA (m)	LDA (m)
RWY05R	3,230	3,443	3,230	3,292
RWY23L	3,535	3,710	3,535	3,292
RWY05C	2,990	3,050	2,990	2,640
RWY23C	2,910	3,210	2,910	2,640

Table 8: Runway declared dimensions

	Runway Dimensions (m)	Runway Shoulders (m)	Runway Strip (m)	SWY (m)	CWY (m)	RESA (m)
RWY05R	3,535 x 45	15	3,655 x 300	N/A	213 x 180	240 x 150
RWY23L	3,535 x 45	15	3,655 x 300	N/A	175 x 180	240 x 150
RWY05C	2,640 x 45	3*	2,760 x 150	N/A	60 x 180	240 x 90
RWY23C	2,640 x 45	3*	2,760 x 150	N/A	N/A	240 x 90

The Master Plan does not anticipate any changes to RWY 05R/23L infrastructure. During pavement renewals, the existing runway will be temporarily closed for maintenance necessitating the use of the contingent runway mode of operation.

To prevent aircraft taxiing conflicts during contingent runway operations, pavement renewal is anticipated only after the Domestic Jet Terminal opening and post-TWY Bravo realignment, and will occur when necessary.

* Auckland Airport to apply for exemption for shoulders

5.2 Transitioning towards a dual-runway airport

The northern runway 05L/23R will run in parallel to the existing runway 05R/23L.

The entry and exit taxiways, number of parallel taxiways, declared distances, safety areas, and precise locations have all been confirmed in the Auckland Unitary Plan. These details were previously discussed and agreed with both internal and external stakeholders.

Runway configuration under normal operations

With a separation of 2,022m between centrelines, the future dual-runway configuration will provide Auckland Airport with segregated runway operations, capable of accommodating up to Code F aircraft under reduced visibility conditions (CAT III). This runway configuration will also allow simultaneous operations on both runways, without the need for increased aircraft separation or additional sequencing procedures.

Figure 15: Dual runway configuration under normal conditions

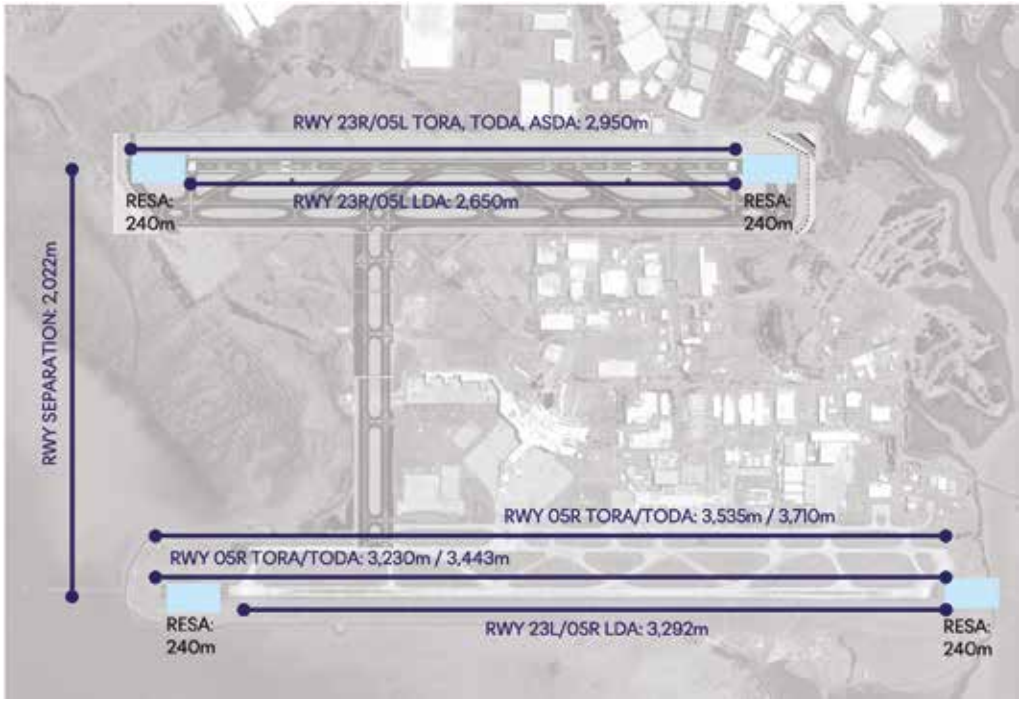


Table 9: Northern runway declared distances

	TORA (m)	TODA (m)	ASDA (m)	LDA (m)
RWY05L	2,950	2,950	2,950	2,650
RWY23R	2,950	2,950	2,950	2,650

Table 10: Northern runway declared dimensions

	Runway Dimensions (m)	Runway Shoulders (m)	Runway Strip (m)	SWY (m)	CWY (m)	RESA (m)
RWY05L	3,250 x 45	15	2,760 x 280	N/A	N/A	240 x 120
RWY23R	3,250 x 45	15	2,760 x 280	N/A	N/A	240 x 120

5.3 Runway performance

Runway length and payload

Auckland Airport serves a range of destinations and markets. The ability to serve these destinations with direct, non-stop flights is strictly related to the aircraft's payload-range performance and the runway distance available for take-off (TORA).

The existing runway 05R/23L features a TORA of 3,535m on its main RWY23L direction. This means long-haul destinations can be reached non-stop without any major payload restrictions, limited only by the aircraft's design characteristics and range limitations.

However, due to physical constraints at Auckland Airport, the northern runway's take-off distance available is 2,950m in each direction, which may translate into payload limitations for certain long-haul destinations.

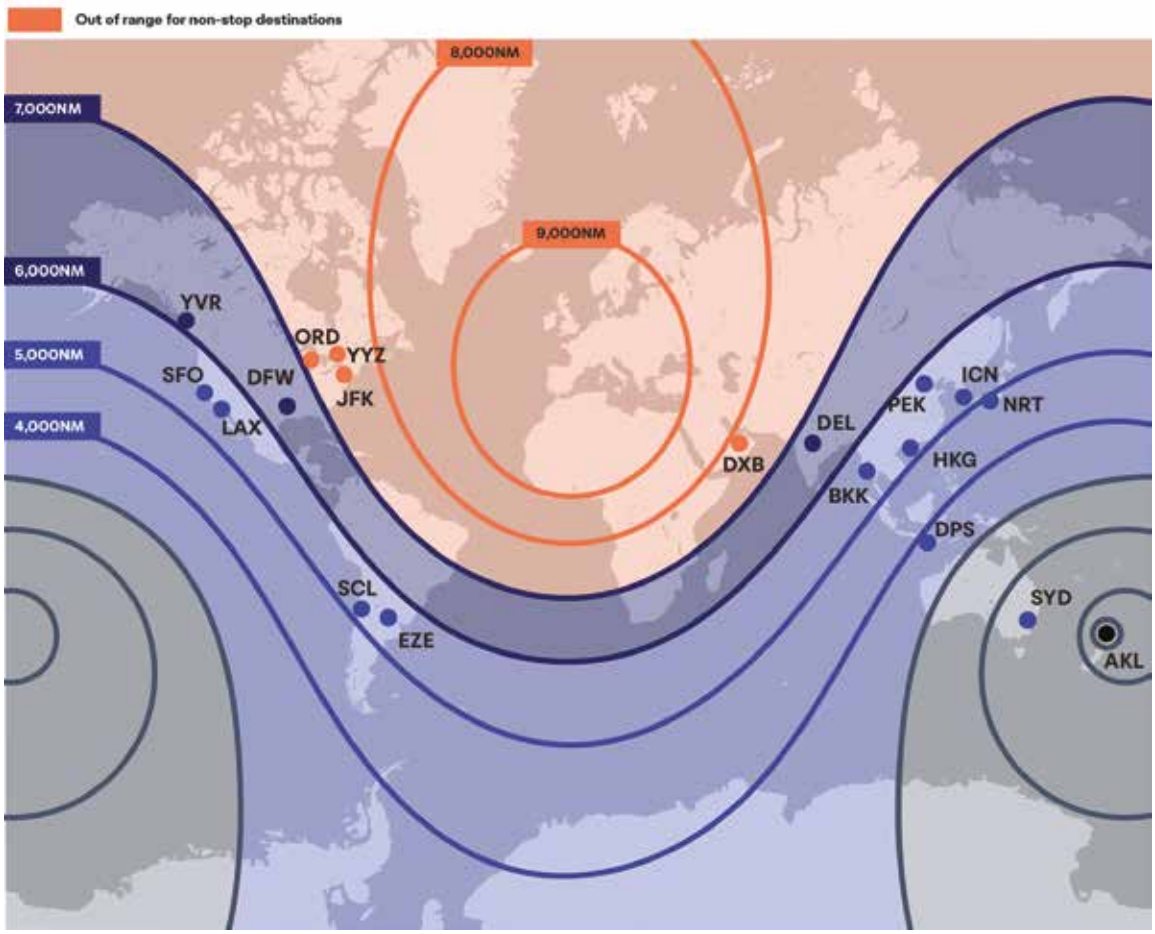
After a thorough assessment of various operational and economic factors, it has been determined the length of the present proposed northern runway is acceptable. Extending the runway further would not significantly reduce payload penalties.

The removal of payload penalties could only be achieved with substantial reclamation of the Manukau Harbour, which is not feasible from an environmental and cultural perspective.

When using the northern runway, main markets in the Tasman/Pacific Ocean and South-east Asia will be reached without payload restrictions while modern wide-body aircraft (e.g. A350-900, B787-900) will be able to reach key US West Coast destinations with slightly reduced payloads. Destinations beyond the 6,000 NM range may be assigned to depart from the existing runway to maximise performance.

Figure 16: Achievable ranges from the northern runway

90% passenger payload including baggage and 80% cargo payload. No runway slope, 15C° and 10% of headwind



Runway allocation principles

Once the dual-runway configuration is implemented, and in an effort to reduce taxi times, emissions and taxi delays in the airfield, domestic traffic will be assigned to the existing runway 05R/23L. International and cargo traffic, both long-haul and short-haul, will primarily be assigned to the northern runway 05L/23R. However, given the northern runway will have slightly shorter take-off distances compared to the existing runway, some long-haul flights may be assigned to the existing runway to maximise payload performance, depending on the flight range, payload, and aircraft model.

Runway entry/exit taxiways

The existing runway features three rapid exit taxiways (RETs) in each direction, with no changes or upgrades anticipated. Aircraft will use these according to the take-off run and landing distance requirements.

The future northern runway will feature multiple entry points for the prevalent direction (RWY23R), reducing to two entry points for the opposite direction (RWY05L), to allow efficient aircraft sequencing while minimising runway occupancy times and aircraft departure queues. RWY 05L/23R will also feature three RETs in each direction, placed in line with ICAO's 'three-segment method'.

The aircraft size capability of each RET has been optimised in line with the landing distance available; the innermost RET will be Code C capable, while the remaining two will be Code F capable.

The number and location of the entry taxiways and RETs were agreed in 2020 with major airlines and the Board of Airline Representatives New Zealand as part of ongoing conversations regarding the development of the future runway.

Northern runway landside/airside boundary

The airside/landside boundary for the northern part of the precinct will be modified to incorporate the development of the northern runway. A manned access gate will be installed on the perimeter fencing in the north, positioned in alignment with future airfield developments.

A perimeter intrusion detection system (PIDS) system will also be implemented and connected to the airport security control room. The PIDS will alert at an early stage when unauthorised individuals attempt to gain access through the perimeter fence.

5.4 Navigation aids (navaids)

Auckland Airport operates with a wide range of navigation aids and systems that ensure safe and efficient airspace and airfield operations under both precision and non-precision approaches.

Existing runway 23L operates with CAT II/III operation capability and CAT I capability for 05R runway direction. Direction 23L operates with Far Field and Near Field Localiser (LOC) monitors while direction 05R operates only with Near Field LOC monitors, both approaches operate with Instrument Landing System (ILS) GPS. In addition to the ILS system, RWY 05L/23R operates with a VOR/DME located in the Puhinui Peninsula and a DME directional antenna co-located with the ILS GP 23L.

Navaids for the future northern runway RWY 05L/23R will be developed to enable CAT III operations under extremely low visibility conditions, with the western approach RWY 05L configured to CAT I settings.

Future technological advancements, in particular Surface Movement Guidance and Control System (A-SMGCS) and Ground Based Augmentation System (GBAS), have been safeguarded for in the Master Plan. Both systems will play a crucial role in Auckland Airport's strategy to maximise movements on the existing runway. Auckland Airport aims to trigger the northern runway only when infrastructure or operational changes can no longer accommodate the growing number of flights without causing unmanageable delays.

The Automated Weather Observing System (AWOS) currently in place at Auckland Airport will require an update when the northern runway is implemented. As part of the AWOS upgrade, the implementation of sensors for precipitation solar radiation, sun duration and runway surface condition are also recommended.

Table 11: RWY 05L/23R Navaid and AWOS requirements

	Item	Requirement
Navaids	Localiser	(2x) For both runway directions
	Near Field Monitor LOC	(2x) For both runway directions
	Far Field Monitor LOC	(2x) For CATIII, course and sector
	Glide Path	(2x) For both runway directions
	Near Field Monitor GP	(2x) For both runway directions
	DME	(2x) For both runway directions. Directional antennas
AWOS	Central Data Unit	Update to include RWY 05L/23R
	Wind Sensor	(2x) For both runway directions
	Temperature Sensor	(1x) Single item for the northern runway
	Humidity	(1x) Single item for the northern runway
	Dew Point	(1x) Single item for the northern runway
	Pressure Sensor	(1x) Single item for the northern runway
	Cloud Height Sensor	(2x) For both runway directions
	RVR Sensor	TMZ, MID, END

5.5 Taxiways

Taxiway configuration

Auckland Airport serves a mix of aircraft sizes, including a range of turboprop and narrow-body jet aircraft for regional and short-haul operations, and wide-body aircraft for long-haul services.

Wide-body aircraft are mostly represented by Code E aircraft (B787, A350, B777, A330), but certain long-haul routes are operated by the largest commercial aircraft, the A380 (Code F).

The airfield has been planned considering Code E as the design aircraft type. However, to safeguard for continued Code F operations and bidirectional flows between runways, TWY L & M will be Code F – capable along their full length. Full parallel taxiways serving the northern runway will replicate the configuration of the existing RWY 05R/23L, by providing a single Code F – capable parallel taxiway. This arrangement will provide a cost-effective solution that will still be in line with the expected aircraft mix. In case of taxiway downtime, Code F aircraft will be diverted to the runway with available Code F capability.

Taxi-lanes serving aprons with MARS stands will feature a multi-centreline arrangement allowing for parallel and simultaneous taxiing of aircraft up to Code C, or single wide-body taxiing.

Wide-body aircraft centrelines will match the maximum aircraft stand size of the apron being served, either Code E or Code F. This dual-taxiway arrangement will be replicated at cul-de-sacs where only narrow-body aircraft are expected to operate.

To ensure efficient aircraft movements on the airfield, while maintaining infrastructure resilience and cost-effective developments, the following operational principles will guide the implementation of new taxiway infrastructure:

- Taxiways and taxi-lanes will be developed for the most restrictive aircraft type expected to operate in that area. No safeguarding will be provided for larger aircraft if not required.
- Cul-de-sac arrangements served with single taxi-lanes will be limited to a maximum of 10 stands to avoid aircraft delays at the entry or exit.
- Taxiways and taxi-lanes will encourage uni-directional aircraft flows to reduce the number of aircraft conflicts on the airfield and potential for opposed-flow occurrences.
- Resilience across the existing and future taxiway system will be a key driver to minimise operational disruption during infrastructure downtime.
- Taxiways and taxi-lanes will be in line with ICAO Annex 14 and Civil Aviation Authority (CAA) NZ-AC139-6 guidelines.

Taxiing under normal operations

Once the northern runway is commissioned, and based on the normal runway mode of operation, international traffic generally will use the new RWY 05L/23R while domestic traffic will continue using the existing runway 05R/23L.

The resulting aircraft flows are described for westerly operations, the most prevalent, and for easterly operations:

- This arrangement will keep all international departures taxiing south to north along TWY L and onto the inner full parallel taxiway. Departing Code F aircraft will use the outer full parallel taxiway from TWY L towards the runway entry taxiways in the east (for westerly operations) or west (for easterly operations).
- Arriving international aircraft will exit through their available RET and onto the outer full parallel taxiway. Aircraft will taxi north to south along TWY M towards their corresponding apron. To avoid opposed flows around the Pier A and Pier B area, flows along TWY K will be kept as south to north, and east to west on TWY F. Flows in the north western non-contact stand apron will be kept as east to west both for arrivals and departures.
- Domestic arrivals will taxi west to east along TWY A into their corresponding cul-de-sac.
- Domestic departures under westerly operations will follow the same direction along TWY B, TWY A will keep a west to east flow for its full length, while TWY B will have an east to west flow between TWY J and TWY L to allow for international aircraft to reach the northern runway. On the other hand, for easterly operations, aircraft will taxi east to west along TWY B and into their corresponding taxiway entry, TWY A will keep a west to east flow for its full length, except for the segment between TWY M and TWY A10, while TWY B will keep its west to east flow along the full length.

No instances of opposed flows are expected for arriving and departing aircraft other than at the entrance of the international apron cul-de-sacs. Despite the proposed arrangement, opposed flows between active movements and towed aircraft may occur, which will be mitigated through operational solutions and active ground coordination.

The easterly mode of operation will keep taxiing flows along TWY L and TWY M unchanged between runway directions. Taxiing flows will also remain constant along TWY A and apron taxi-lanes. However, taxiing flows along TWY B and the RWY05L/23R full parallel taxiways will switch between runway directions. For those taxiways and taxi-lanes where aircraft flows are not expected to switch between runway directions, vertical and horizontal signalling can be provided to avoid instances of potential conflict.

Figure 17: Westerly operation aircraft flows. Combined ARR and DEP

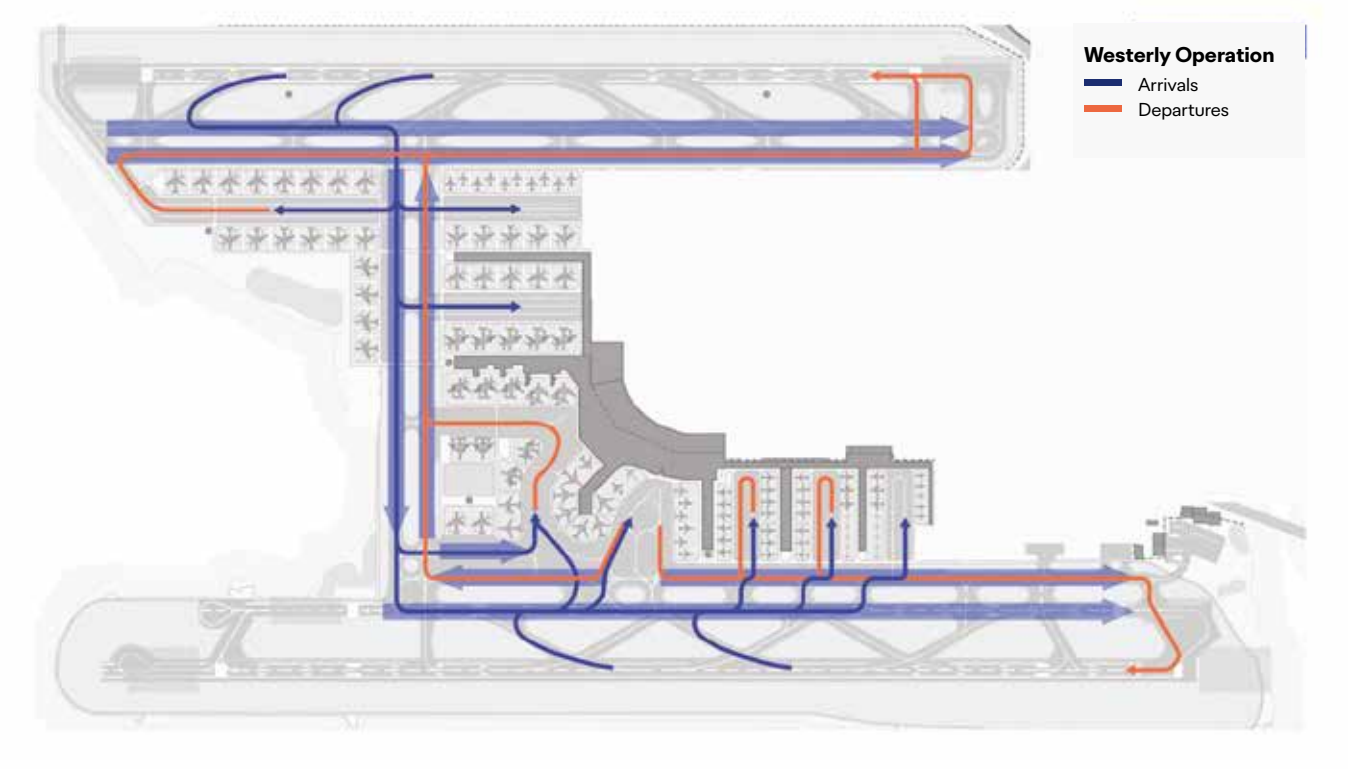
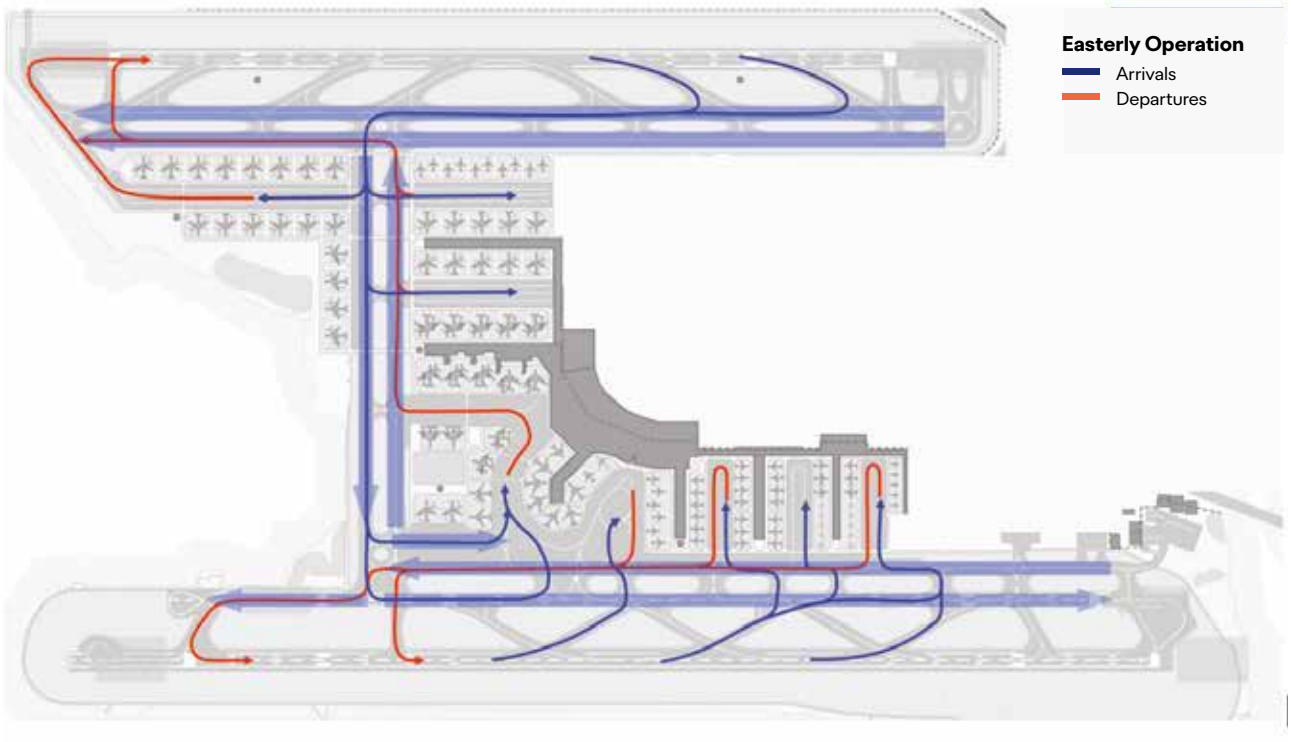


Figure 18: Easterly operation aircraft flows. Combined ARR and DEP



TWY Bravo limitations

Existing taxiway clearances between TWY A and B do not allow for parallel wide-body taxi along TWY B and TWY A respectively. This also has implications on the contingent runway mode of operation, because it will not allow for concurrent parallel wide-body taxi along TWY B during active wide-body operations on RWY 05C/23C (TWY A). To mitigate this, TWY B will be fully realigned to allow full parallel processes during both normal taxi and contingent runway operations.

The construction of the Domestic Jet Terminal is the first step towards the demolition of the existing domestic terminal building to mitigate the delays during contingent runway operations and increase the runway capacity.

Taxiway development in alignment with other airfield projects

Taxiway infrastructure will be developed and enhanced in conjunction with other airfield infrastructure, primarily the new runway as well as the new apron and piers.

The new taxiways should enable simple and efficient aircraft movements on the ground, offering redundancy and resilience to avoid disrupting aircraft operations when taxiway maintenance is required.

5.6 Apron

Aircraft parking positions

To support efficient aircraft parking and facilitate safe operations for travellers, staff, baggage and ground vehicles, new apron infrastructure will adhere to the following principles:

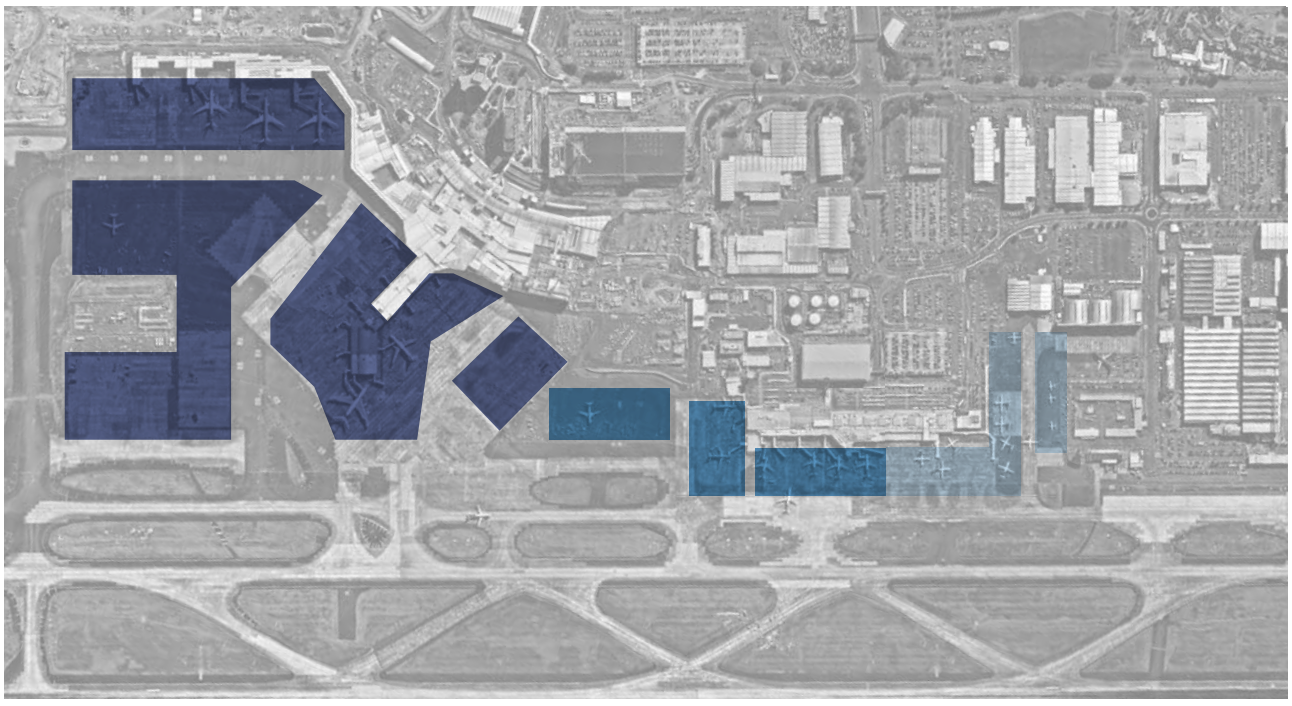
- Deliver a cost-effective apron expansion that maximises the use of existing infrastructure.
- Maximise traveller experience through adequate levels of pier-served operations and reduced distances for bus journeys to non-contact stands.
- Safeguard for future flexibility and infrastructure resilience.

Apron allocation principles and configuration

Auckland Airport's apron is divided into three main areas linked to the traffic segment each terminal serves. With the opening of the new Domestic Jet Terminal and the eventual closure and demolition of the existing domestic terminal, the apron dynamics and allocation principles are set to change.

Aircraft parking positions are assigned to the apron matching the traffic segment of each flight, though some restrictions are applied across the apron based on operational or regulatory requirements. In the future, these will be lifted to improve efficiency. Cargo aircraft do not have a dedicated apron and are allocated to non-contact stands.

Figure 19: Existing apron arrangement



KEY

International apron **Domestic apron** **Regional apron**

As the infrastructure improves and new passenger processing methods are implemented in the terminal buildings, the apron allocation rules will be revisited in conjunction with the objective to continue delivering an outstanding passenger experience in a safe apron environment.

Flexibility and the ability to respond to changes remain two key principles of apron allocation. These principles ensure the management of apron space remains efficient and adaptable, allowing smooth operations even in the face of unexpected challenges.

If regional screening is introduced and segregation is required between Tier II and Tier III regional destinations, this will impose a hard rule in terms of allocating regional aircraft to specific apron stands, at least until the regulatory framework changes and such restrictions are lifted.

Each apron will be configured according to the expected traffic and the aircraft that are expected to operate the flights. The most prevalent aircraft types at Auckland Airport are Code C jets, such as the Airbus A320 family and Boeing B737 aircraft.

Apron stand dimensions are compliant with ICAO and CAA NZ design guidelines, facilitating safe and efficient ground operations. Flexibility has also been considered through the use of a MARS configuration, which features multiple centrelines enabling the parking of a wide-body aircraft or two narrow-body aircraft in parallel. This ultimately improves stand use and leads to cost-effective and optimised requirements.

Engine testing

Aircraft engine testing is conducted at designated locations, which must be approved by the Apron Tower. The specific site used depends on the aircraft and the type of testing required, ensuring effective management of noise and jet-blast impacts. The locations of engine testing will be taken into consideration as the development of the airport progresses.

Pier service level

The volume of operations served through contact stands is a key indicator of passenger experience and service quality at the airport, as pier-served stands offer improved accessibility and better protection against inclement weather for travellers and staff. This metric is referred to as pier service level (PSL).

As agreed with its airline partners, Auckland Airport is committed to guarantee a 90% annual PSL, meaning 90% of travellers will depart and arrive onto contact stands over the course of the year. All other operations will be handled through non-contact stands, whether for passenger flights via buses or for other uses such as cargo, towing or overnight parking.

To maintain the PSL, aircraft that remain on the ground for long periods will be towed across the apron to free up sought-after contact stands.

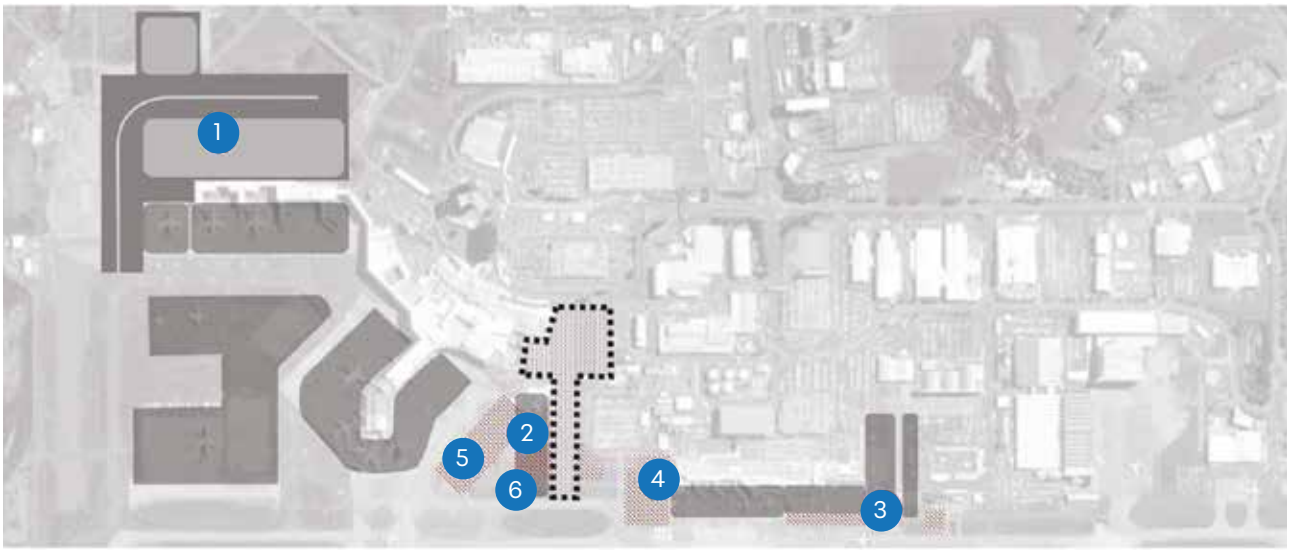
Availability of apron stands in the short term

Aircraft parking requirements are the result of the evolving aircraft demand against the existing stand provision under the described allocation principles.

Ongoing and confirmed capital projects are factored in as part of the available base stand supply:

1. Six x new Code F MARS non-contact stands on Pier B Northern apron by end of 2025.
2. Five x new Code C non-contact stands on Pier A1 West by FY28. To be turned into contact stands by FY29 together with Pier A1 East, totalling x12 Code C contact stands.
3. Permanent closure of stands 24, 40, 43, 45 in the DTB post Domestic Jet Terminal opening and TWY B realignment.
4. Temporary closure of stands 20-22 in the DTB during the construction for the Domestic Jet Terminal and Pier A1, available again in FY29.
5. Permanent closure of cargo stands 82, 83, and 84 post Pier B Northern Apron opening.
6. Permanent closure of domestic non-contact stands 70, 71, 72, and 73 by FY28.

Figure 20: Base stand supply



Future requirements for aircraft stands

Based on traffic forecasts, the future apron requirements will be planned with the following considerations:

Regional stands: Additional stands will be provided near TWY C5, aligned with Piers A3 and A4.

Domestic stands: Expansion will focus on the development of Pier A2.

International stands: Capacity will be enhanced through the development of Pier C and western non-contact stands.

Cargo operations will continue to be carried out from commercial parking positions in the vicinity of the cargo precinct, until the implementation of the northern runway 05L/23R unlocks the possibility of a dedicated apron adjacent to The Landing business park.

With regard to the 90% pier-service level, the requirements for contact stands will be met by gating existing non-contact positions in front of the terminal piers, as is the case in the international apron, or by triggering new infrastructure, as is the case in the regional apron.

MARS configuration will be used where appropriate to optimise the use of pavement areas.

On top of the base demand, additional aircraft parking positions will be required for contingency purposes to compensate for stand downtime events caused by maintenance, delays or other factors. One additional Code E position is considered as a requirement across all planning horizons.


Emirates
QC
AXA POWER
AXA POWER

5.7 Ground support equipment

The availability of ground support equipment (GSE) storage and staging areas on the apron is critical to ensure sustainable, safe and efficient ground operations.

Ground support location

Existing GSE areas will be affected during the construction of the new Domestic Jet Terminal building, which will trigger the relocation of GSE across multiple construction stages. However, this provides the opportunity to relocate these areas closer to commercial stands as the airfield expands towards the north.

Figure 21: Existing GSE and ULD areas

GSE/ULD Storage areas

GSE Storage/staging areas affected by developments

GSE Staging areas (by the gates)

GSE Maintenance areas

Ongoing and planned construction work will require the relocation of the unit load device (ULD) storage area from the area adjacent to stands 82-84 and 70-73, to the land available between the international non-contact stands. This relocation will remain in effect until the airfield expands further north, at which point the space will be repurposed for GSE storage. The ULD storage area will be then moved closer to the new international stands.

The planned construction will also necessitate relocating one of the ground handlers' GSE maintenance spaces located by the control tower, creating the opportunity to co-locate GSE maintenance in one area.

It is also proposed to relocate the Air New Zealand amenities base as soon as TWY L and M become operational to avoid crossing active taxiways. GSE storage and staging locations are safeguarded across all horizons as the airfield and apron infrastructure expand. GSE storage areas will be placed at locations that avoid the crossing of active taxiways, particularly as aircraft flows increase over time. A provision is also made for more GSE maintenance facilities, to be used by ground handling operators.

The new stands will feature dual-lane head and back-of-stand roads, ensuring fluid and safe circulation of GSE vehicles without interfering with aircraft operations.

Ground support electrification

As part of Auckland Airport's drive for a low-carbon airfield and our aviation partners' decarbonisation strategies, electric GSE vehicles will gradually replace the existing GSE fleet.

A number of projects related to eGSE charging infrastructure are planned or have already been implemented to enable this transition.

Provision for eGSE charging infrastructure will be made as aprons expand in the future, allowing for two charging points per stand staging area, in line with long-term developments.

Table 12: Existing and planned eGSE charging locations

Location		Type of GSE	Charger Provision	Time frame
Pier B	Gate 18	Small / Medium	14	Existing
	Gate 19	Pax Stairs	2	Existing
	Gate 15 & 16	Large / Medium	14	Existing
	Contact stands	Large	5	Existing
	Non-contact stands	Mixed	15	FY2025
Pier A	Pier A undercroft	Small	8	Existing. Option to increase to 16 units.
	Gate 4	Large	2	Existing
	Pier A West	Small	2	Existing
Pier A1	Contact stands	Mixed	14	FY2029
	Terminal ground floor	Pax stairs/Small GSE	12	FY2029
	End of Pier	Small/Medium	27	FY2029
Pier A3	Pier A3 end	Mixed	9	FY2029


416500
KALMAR
MOTOR AB
TBL-190
Electric
KALMAR
413604

Figure 22: Apron staged development (FY28-FY47)

FY28

- INT Apron interventions
- DOM Apron interventions
- REG Apron interventions
- GSE/ULD Storage areas
- GSE Maintenance areas
- Under Construction

1. Pier B North Stands
2. Pier B North Stand – parking bay
3. Code C non-contact in Pier A1 West
4. Code C/TP contacts at the end of TWY C5
5. GSE/ULD Storage
6. GSE Maintenance
7. Livestock

FY33

- INT Apron interventions
- DOM Apron interventions
- REG Apron interventions
- GSE/ULD Storage areas
- GSE Maintenance areas

1. Code F MARS made contact in Pier B
2. Code E MARS non-contact in Pier C South
3. 4 Code E MARS non-contact in TWY M West
4. Pier A1 stands all contact
5. Existing stands 20 21 22 (DTB) available as non-contact stands
6. Domestic Terminal Building stands reconfigured into Code C turboprop power out.
7. All REG on C5 aligned to final location
8. Relocation of ULDs to the vicinity of Checkpoint D. Reconfiguration of ULD 1.0 & 2.0 into GSE storage.
9. GSE area locations
10. Air New Zealand GSE and amenities relocates close to the Air New Zealand CTO area

FY38

- INT Apron interventions
- REG Apron interventions
- GSE/ULD Storage areas

1. Code E MARS non-contact in Pier C South
2. Code E MARS non-contact in Pier C North
3. Code C jet and 5 Code C turboprop contacts in Pier A3 West
4. Code C turboprop - Pier A4
5. GSE storage

FY43

- INT Apron interventions
- REG Apron interventions
- GSE/ULD Storage areas
- CARGO Apron interventions

1. Code E MARS in Pier C North
2. Code E MARS in the southern bank of the north-western non-contacts
3. Code C jet non-contact in Pier A2 East
4. GSE storage
5. Code E MARS by the northern cargo precinct

FY47

- INT Apron interventions
- REG Apron interventions
- GSE/ULD Storage areas

1. 5 Code E MARS made contact in Pier C South
2. 3 Code E MARS remotes on the southern bank of the north-western non-contacts
3. 4 Code E MARS on the northern bank of the north-western non-contacts
4. 3 Code C jet remote in Pier A2 East
5. GSE storage at the end of the northern bank of the north-western non-contacts

FY47+

- INT Apron interventions
- DOM Apron interventions
- REG Apron interventions
- GSE/ULD Storage areas

1. 5 Code E MARS remotes along RWY05L/23R inner full parallel
2. 4 Code E MARS remotes in the northern bank of the north-western non-contact
3. 5 Code C jet contact in Pier A2 West
4. Pier A2 stands
5. GSE storage

5.8 Cargo precinct

Cargo has been introduced as a new and foundational principle in the opening chapter of this Master Plan, highlighting its pivotal role in shaping the long-term future of Auckland Airport.

A key feature of this new approach is the integration of a dedicated cargo precinct area. This precinct is seen as essential to delivering best-practice planning outcomes — creating an environment that supports the safe, efficient, and sustainable handling of freight. Through strategic co-location, the precinct will reduce logistical complexity, minimise on-airport traffic movements, and enhance safety by clearly separating freight, aircraft maintenance and passenger operations.

The current cargo environment at Auckland Airport is characterised by a diverse range of operators, each with their own distinct infrastructure, processes, and future growth trajectories. This diversity, while a strength, also presents challenges in terms of coordination and scalability.

In response, this Master Plan outlines a cohesive, forward-looking strategy that aims to accommodate these requirements while aligning with the broader goals of operational efficiency, resilience, and capacity growth. By proactively planning for the changing nature of cargo — driven by e-commerce, time-sensitive goods, and emerging technologies — Auckland Airport reinforces its position as the third-biggest trade port behind Port of Auckland and Port of Tauranga.

This Master Plan caters for specific needs for these operators::

- Regulated air cargo agents (RACA) are certified organisations under CAA Part 109 that are responsible for examining, clearing and securing air cargo to be loaded onto an aircraft. A RACA is not responsible for physically moving freight to/from an aircraft but must ensure all cargo to be shipped is safely stored and not tampered with on its way to the cargo terminal operators (CTO). An approved RACA will need to comply with CAA requirements and processes, and will have Customs-controlled areas within their site, and can be based off the airport precinct.

- CTOs are responsible for handling cargo to and from the aircraft in compliance with Customs and Ministry for Primary Industries (MPI) requirements. This process includes the receipt, storing and transferring of air cargo through the import and export process. Existing CTOs at Auckland Airport include Air New Zealand and Menzies.

- All-cargo carriers, such as Texel Air and Airwork, offer scheduled airport-to-airport air cargo and freight services using container aircraft.

- Integrated-express carriers such as FedEx and DHL provide door-to-door shipment services including the collection of goods, transport via air/truck, and delivery. They operate a hub-and-spoke model using a dedicated fleet of freighter aircraft.

A centralised cargo location, with a dedicated cargo apron, would provide optimal operational synergies for all carrier types in the medium and long term. This setup would enhance operations and capitalise on economies of scale. However, certain short-term limitations require an interim cargo strategy.

Consolidating operations in the cargo precinct

Manu Tapu Drive has been identified as the preferred location for a cargo precinct, and development plans are already underway to relocate cargo operations from their present location on Cyril Kay Road and Ogilvie Crescent to the new designated cargo precinct.

The main benefits of the chosen location are:

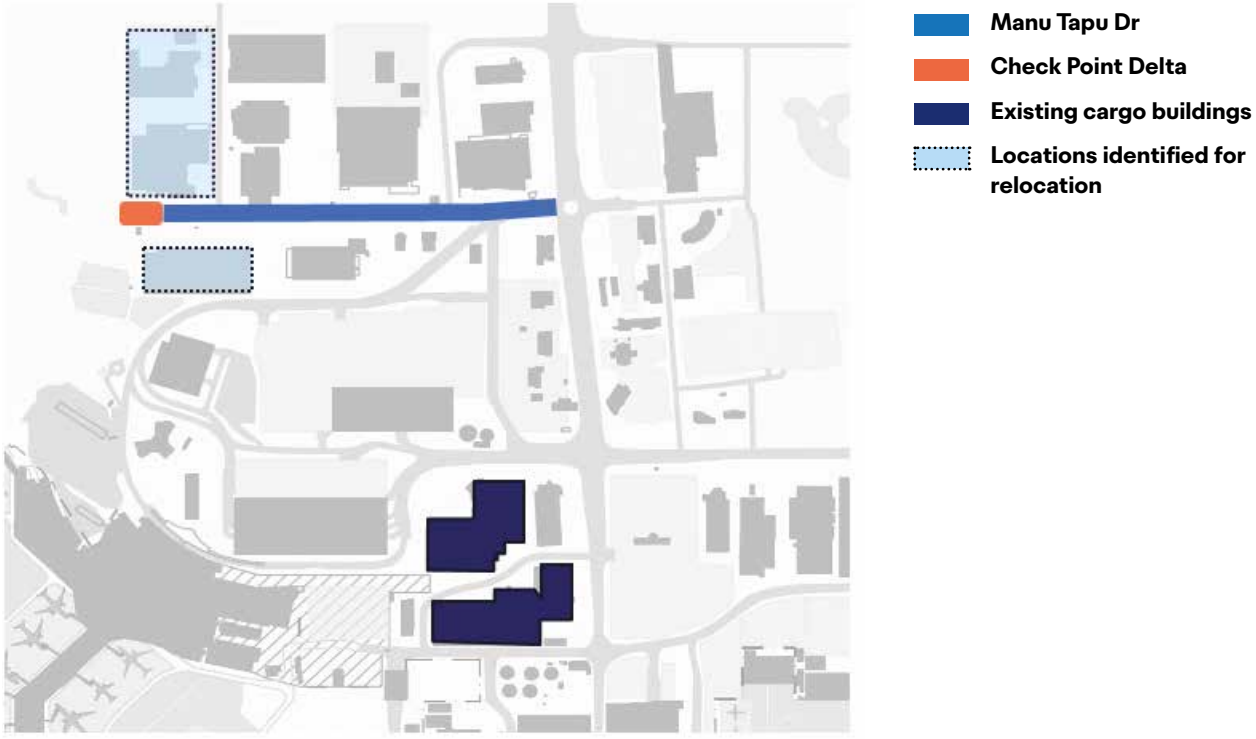
- Excellent connectivity with landside and airside
- Limited conflicts with passenger's flow
- Possibility of expansion
- Well-positioned to cater to international and freight traffic
- Airside connectivity to the domestic apron
- Enhanced safety on the roading network.

This plan has undergone extensive consultation and has broad acceptance from the cargo operators. For the short-term, the cargo precinct will host a mix of belly-hold and integrated-express operations.

To facilitate airside operations, CTOs located along the boundary of the cargo precinct will benefit from direct airside access with an airside road network running along their façade. Other cargo handlers on the site will proceed through the future Checkpoint Delta at the western end of Manu Tapu Drive before accessing any restricted airside areas.

However, the cargo precinct area by Manu Tapu Drive will not be sufficient to relocate all cargo-related facilities located along Laurence Stevens Drive. As a result, these will remain in place until the construction of the northern runway unlocks the opportunity for relocation.

Figure 23: Short-term cargo strategy

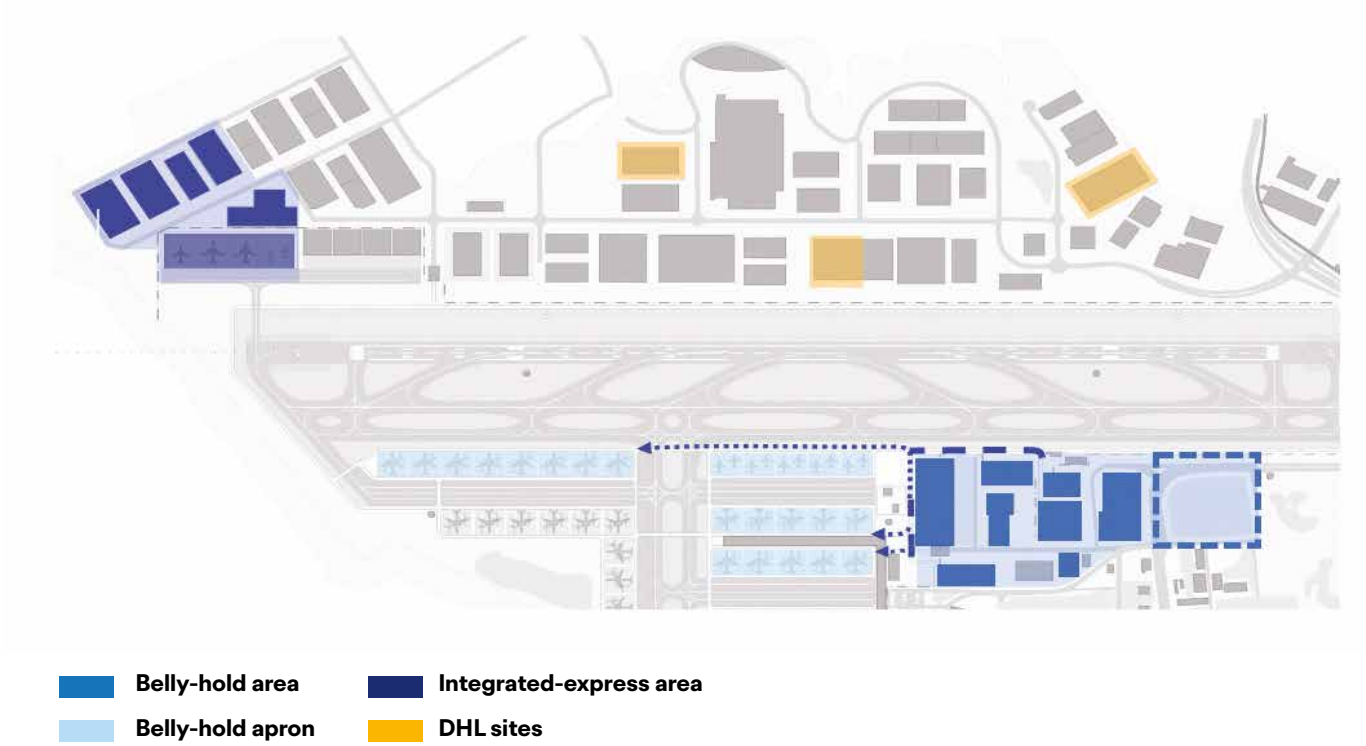


Long-term development of aeronautical activities in The Landing precinct

Once the northern runway 05L/23R is commissioned, the opportunity for a secondary cargo area and a dedicated cargo apron will be explored, noting that Auckland Airport is providing flexibility in this location. This precinct has the potential to serve integrated-express operators by providing a dedicated apron and co-location with already-established operators in the area. The benefits of this approach are twofold: it will remove aircraft with longer turnarounds from the commercial apron, and it will divert heavy-vehicle road traffic away from the central landside road network.

Auckland Airport planning allows for the flexibility to support air freighter operations if demand arises. The cargo precinct will be reconfigured to consolidate all belly-hold cargo operations, taking advantage of its proximity to both the domestic and international commercial aprons.

Figure 24: Long-term cargo strategy



Future cargo area requirements

Historic cargo metrics at Auckland Airport indicate about 75% of the cargo is transported as belly-hold on passenger aircraft. The remainder is handled by Integrated-Express and All-Cargo carriers. This split drives the future cargo requirements for the two cargo sites identified within the short-term and the long-term strategy.

The sites and buildings identified as dedicated to cargo activities and located within the cargo precinct amount to a total area of 116,000sqm, sufficient to accommodate the total requirements for belly-hold cargo throughout the Master Plan period.

Integrated-express and all-cargo carriers may be relocated to The Landing, where sufficient space is reserved for activities such as a cargo apron, warehouses, truck parking and GSE storage areas.

It is important to note that ultimately The Landing is reserved for aeronautical use, and all the buildings have been built with flexibility in mind.

5.9 Support facilities

Support facilities provide secondary aeronautical services complementary to commercial passenger operations.

These facilities include:

- Cargo
- Aircraft maintenance
- Fixed-base operators
- Heliport
- Air traffic control
- Rescue and firefighting
- Wildlife
- Air catering
- Airside access checkpoints .

Maintenance, repair and overhaul

Auckland Airport does not provide a differentiated maintenance, repair and overhaul (MRO) service at the airport. Some carriers have their own dedicated facilities on site in which they service their fleet and offer the service to other operators.

Air New Zealand has the most significant maintenance base and holds a perpetual lease on the land where additional hangars will be built in the near future. Air Chathams, serving as a regional carrier, has a dedicated MRO area within the Charlie 1 apron.

However, there is a perceived potential for future developments and prospective markets prompting the need to safeguard infrastructure. This aligns with increased interest from existing and future MRO operators at Auckland Airport. The preference leans towards broad MRO service providers capable of catering for multiple operators, as opposed to dedicated facilities.

Fixed-based operators

There are currently two Fixed Based Operators (FBO) at Auckland Airport, providing private jet services and light maintenance. ExecuJet and Swissport, operates from their respective facilities at Charlie 1 and Charlie 5. Common-use stands are available in front of both locations.

The Master Plan safeguards the use of the Charlie 1 Apron for FBO operations, and considers the possibility of activating and developing the area within The Landing precinct, which is designated for aeronautical purposes.

Heliport

As a result of current development works, the heliport located at Ray Emery Drive ceased activities in June 2023. Auckland Airport recognises that there is a desire to continue helicopter operations at the airport in another location, if that location can be secured and operated safely in compliance with the airport's noise obligations, and doesn't affect other operations or uses.

A preliminary location has been identified on the eastern side of the airport land to accommodate future helicopter operations while ensuring instrument clearance requirements for the existing runway 05R/23L. High-level consideration has been made for the integration of the future northern runway 05L/23R.

The potential integration of helicopter and electric Vertical Take Off and Landing (eVTOL) operations using a hybrid heliport-vertiport, forms part of our planning, and future locations will be identified as required.

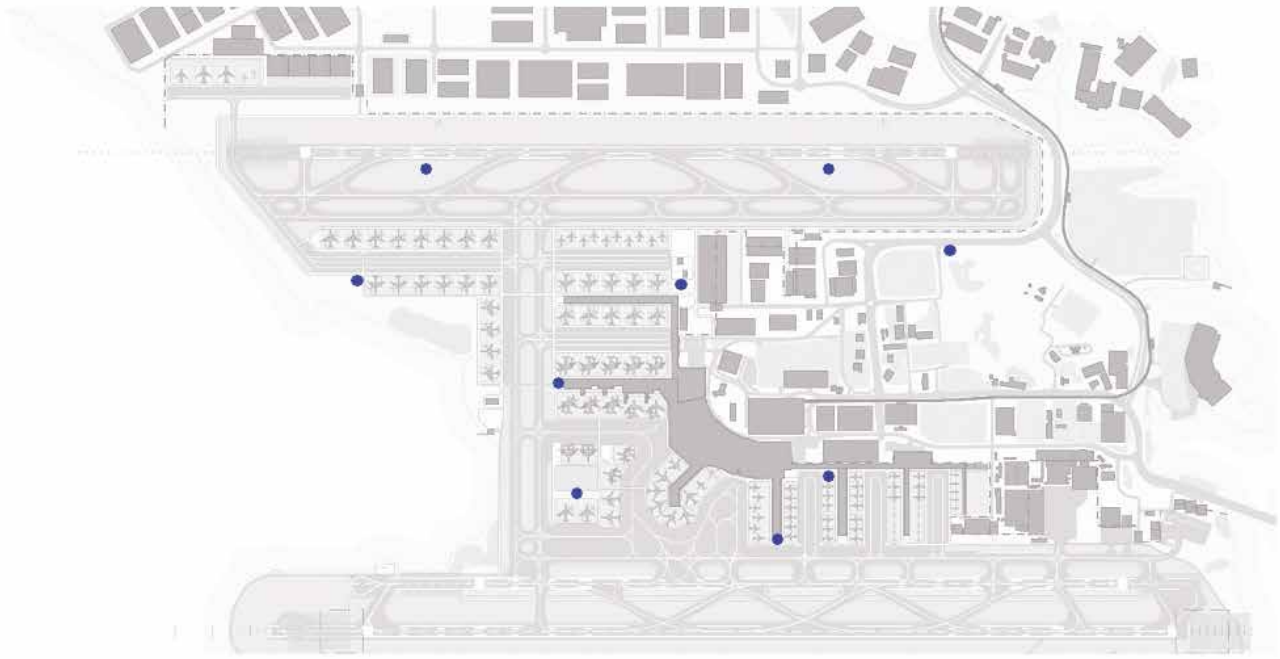
Air traffic control

Airways New Zealand provides air traffic control services to ensure safe and efficient airspace operations and management. Standing at about 36m tall, the existing air traffic control tower (ATCT) is located towards the north-west of the existing domestic terminal. The tower is expected to be demolished by FY38 in preparation for future developments in the area such as the new domestic and regional terminals and piers.

Airways is exploring transitioning from a physical control tower into a hybrid-digital environment, which will require the installation of multiple camera masts across the airfield, with associated security and utility requirements. This will solve the potential blind spots in the line of sight from the existing tower. A number of locations have been safeguarded throughout the master planning period.

Mast characteristics will be compliant with obstacle limitation surface (OLS) requirements and other regulations.

Figure 25: Indicative digital ATCT network (FY28-FY47)



Aviation rescue and fire-fighting

As the airfield expands towards the north, the location of the existing aviation rescue and fire-fighting (ARFF) station will not meet the required response times to parts of the new non-contact stands and northern runway thresholds. To address this and ensure compliance, a new ARFF station will be developed to serve the northern part of the airport site and operate alongside the existing station in the south. The existing ARFF facility will be relocated because its current location will also be affected by airfield developments.

Besides its aeronautical response duties, Auckland Airport's emergency services team is an Industry Fire Brigade a nd an Allied Emergency Service with Fire and Emergency New Zealand (FENZ) and St John Ambulance. This arrangement extends Auckland Airport's areas of responsibility beyond the specific aviation response zones to include the following:

- Landside northbound: George Bolt Memorial Drive to Montgomery Road (not including).
- Landside eastbound: Puhinui Road to Prices Road (not including).
- Landside westbound: Ihumatao Road to Renton Road (not including).
- Airport crash zone: Involving an aircraft crash on the airfield or within 2km from either end of the runway and 2km to the north or south of the runway axis.
- Local crash zone: An aircraft crash outside the airport crash zone within a rectangular area 10km from either end of the runway and 4km north or south of the runway axis.
- Remote crash zone: An aircraft crash en-route to or from Auckland Airport but outside of the local crash zone .

These extended response zones require landside response capability from one of the ARFF stations. Additionally, boat/ hovercraft ramps to meet crash zones will be required.

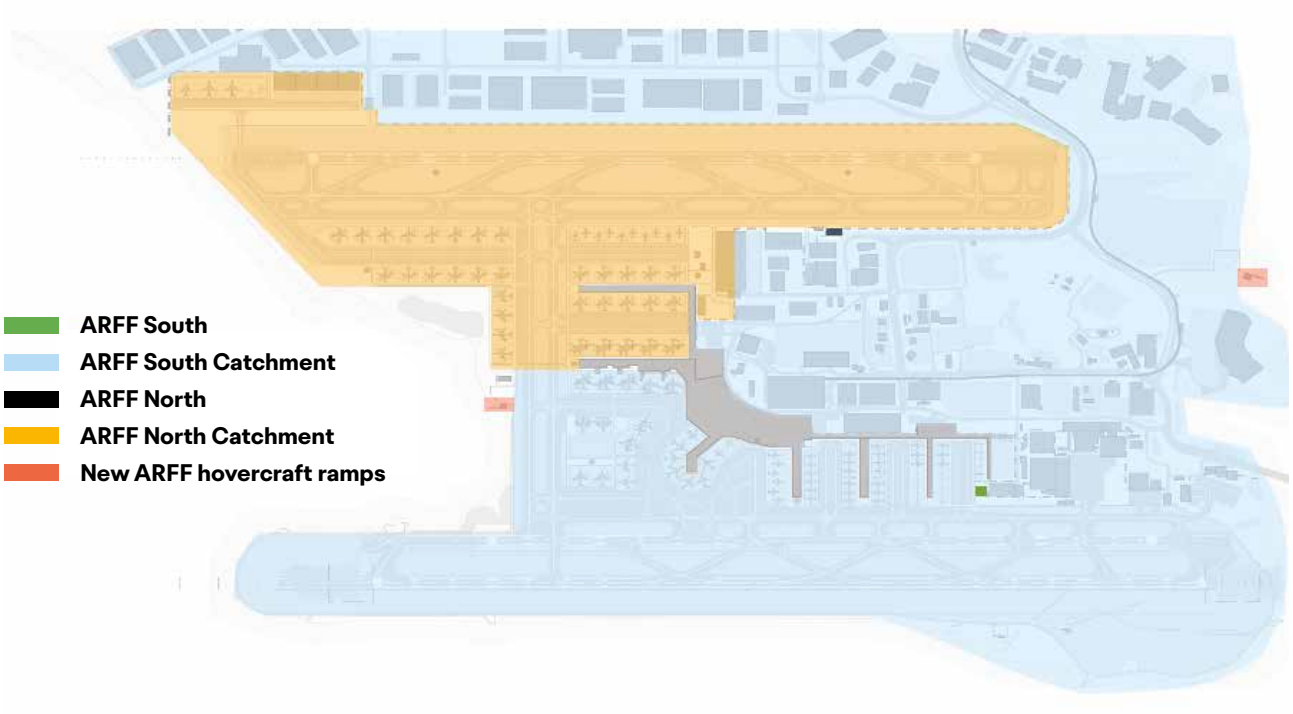
Future facilities will be in line with CAANZ AC139-6, CAANZ Part 139, ICAO Annex 14 and ICAO Doc 9137 Part 1 requirements. Due to the nature of traffic to be served from the airport, Auckland Airport's ARFF facilities will be upgraded to cater for CAT 10 operations and extinguishing agents. This leads to the north and south ARFF to cater for the following:

- ARFF North: CAT 10 extinguishing agents, five HRET Panther 8x8 bays, one command and control vehicle and one people mover equating to 35m of building frontage.
- ARFF South: CAT 10 extinguishing agents, eight HRET Panther 8x8 bays equating to 60m of airside building frontage. An additional seven bays for landside response and support vehicles equating to a minimum of 76m of landside building frontage.

These two sites will operate with the required ground floor coverage of 1,600sqm in ARFF North and 1,900sqm in ARFF South, and the required airside frontage indicated above. These calculations are based on the capability to provide other building requirements on elevated floors.

As runway 05L/23R is introduced, two new hovercraft ramps will be introduced in the Pūkaki Creek area and west side of TWY M to attend any possible crash zone on the sea.

Figure 26: New ARFF sites and response catchment areas



Wildlife management

The wildlife management service will also require relocation so it can better service and monitor runway 05L/23R once it is developed. To deliver economies of scale and operational synergies, the wildlife ranger facility will be co-located with the new ARFF North station:

- About 15m of building frontage has been safeguarded for a safe room for firearms and ammunition, a workbench, a rest room, and covered parking for two ranger vehicles.
- Most functions of the wildlife ranger are linked to airside, removing the need for direct landside access. Access will be via Checkpoint Delta once implemented.

Air catering

Auckland Airport has two operators based on site: LSG Sky Chefs serving 80% of the market including carriers such as Air New Zealand, Qantas, Emirates, Singapore Airlines and Qatar Airways; and Gategourmet serving the remaining carriers. These facilities are approaching their operating capacity and will require relocation in the medium term to allow expansion or because of interfacing projects. No additional catering providers are expected.

It is planned that future catering operations will be through a consolidated facility with two operators, located in The Landing precinct with direct airside access connectivity to aircraft:

- Gategourmet will relocate to a new 22,900sqm facility in The Landing as the existing lease expires. The existing facilities are likely to require a 1,900sqm expansion before the relocation is due, with an opportunity for the operator to temporarily relocate non-aeronautical services off airport land to mitigate this.
- LSG Sky Chefs are located on Air New Zealand's leased land, so any infrastructure expansion within the site will become a private negotiation between the parties. In any case, about 20,000sqm area is safeguarded in The Landing for LSG Sky Chefs in case expansion within the current site is not feasible or cannot be agreed upon.

All aircraft will be serviced from The Landing site using the airside road system once the northern runway 05L/23R is commissioned. Until then, catering providers and vehicles will use the landside road system and Checkpoint Delta due to open late 2025 as the main access route to the airfield.

Airside access checkpoints

The location of airside checkpoint access will evolve over the years as they are displaced by interfacing infrastructure, and the operational strategy of ancillary services is optimised. It is expected the forecast growth in air passengers and workers by 2047, as well as future airside works planned, will increase demand for airside/landside access.

Currently, Checkpoint Charlie and Checkpoint Bravo are regulated entrance points to the airside.

The relocation of the cargo precinct will result in increased activity along Percival Gull Place and the broader Manu Tapu Drive area. To support this, a new checkpoint, Delta, will be built at the end of Manu Tapu Drive, aligning with the development of the new cargo precinct.

The development of a new cargo apron along The Landing Drive, together with the relocation of Air Catering Services and potential future development of MRO facilities will require an additional checkpoint at this location.

Figure 27: Access checkpoint locations and indicative catchment areas


AIR CANADA

5.10 Aerodrome safeguarding

Long-term, effective safeguarding is critical to ensure safe and viable aeronautical operations, and to manage the impact of developments or activities taking place around the airport.

This is achieved by implementing a series of obstacle limitation surfaces (OLS) that define the limits to which physical objects interact with the airport's airspace and operational procedures.

OLS essentially establish a height restriction for any fixed obstacles or structures around the airport's vicinity, which otherwise would be a risk to safety. Exceptions may occur under specific circumstances and for the less-critical limitation surfaces, where fixed or temporary obstacles are allowed to penetrate the airport's OLS with adequate mitigations in place.

Obstacle limitation surfaces are defined in detail by CAA's NZ-AC139-6 regulations.

The two critical surfaces that determine the height restrictions of existing and future development on airport land or near it are the approach surface, and the transitional surface.

These have been revised for the confirmed runway arrangement for all Auckland Airport's existing and future runways: RWY 05L/23R, RWY 05C/23C and RWY 05R/23L.

- The most limiting will be a height restriction of 10m-15m on the southern side of The Landing Precinct, at its closest point to RWY 05L/23R. Developments on the northern side of The Landing will be largely unaffected, with height restrictions gradually increasing to about 40m. Buildings at the cargo precinct will be limited to 30m in their most restrictive northern end.

- Existing buildings in the Timberly Road subdivision may be affected by the RWY 05L/23R approach surface once it is implemented. This will be subject to terrain elevation differences.

- Limitations derived from RWY 05C/23C's transitional surface safeguarding will lead to a maximum height allowance of 10m for any buildings located along TWY B on its most restrictive line. This restriction will also apply to the southern ends of Piers A1, A2 and A3.

- Approach surfaces from RWY 05C/23C and RWY 05R/23L will impose height restrictions on any development between Park & Ride South and the Puhinui Bridge, with increased restrictions due to the elevation differential between the Puhinui Peninsula and the runways.

- Buildings and structures not falling within the transitional and approach surfaces limitations, but still located within the airport site, should never exceed 45m in height as required by the inner horizontal surface unless agreed otherwise by a dedicated risk assessment study.

It must be noted that recent changes to ICAO Annex 14 allow for a reduced strip width of 280m for instrument approach runways, leading to less restrictive OLS limitations. CAA NZ has not yet captured these updates in its regulation ,but they are expected to be introduced during the time frame of this Master Plan. The latest international regulatory framework has been implemented in this Master Plan.

Where obstructions infringe OLS surfaces, an aeronautical safety study will be carried out to determine the need to remove, reduce in height, or mark and light infringements.

New infrastructure will incorporate OLS restrictions in its design, and aeronautical safety studies will apply to existing infrastructure only.

It is important to note that ICAO is developing a new concept for the OLS, which is expected to be implemented in the late 2020s. Auckland Airport will incorporate these changes once they are put into effect.

Figure 28: OLS affected buildings along TWY B

Figure 29: OLS impact on the Puhinui Peninsula

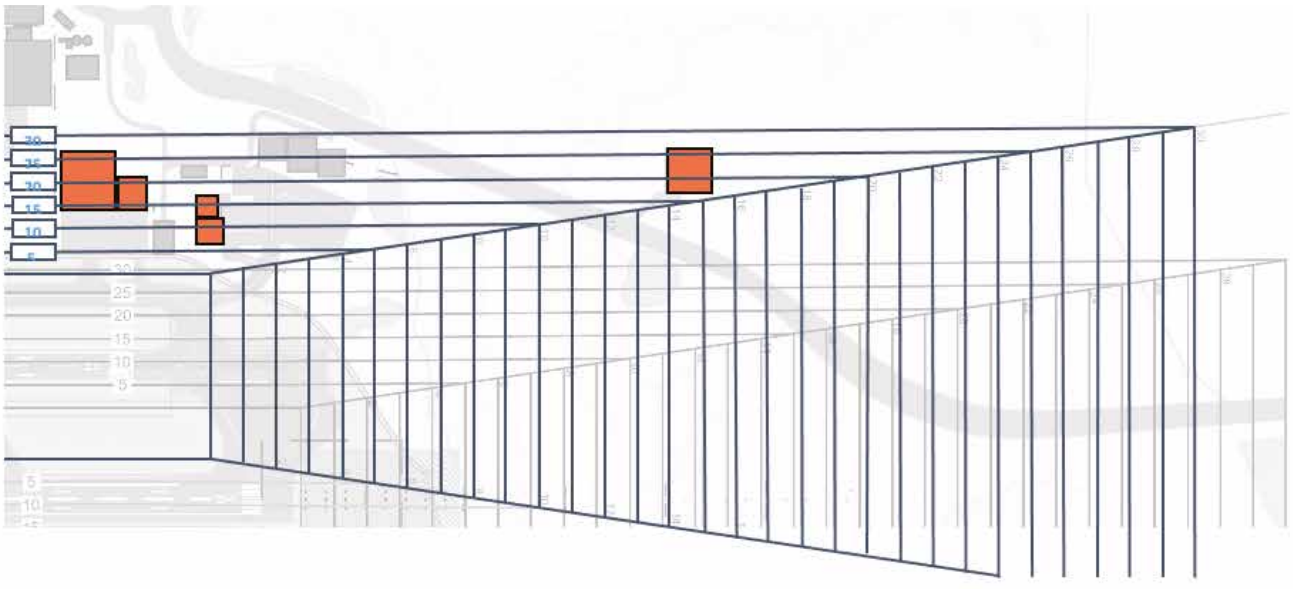
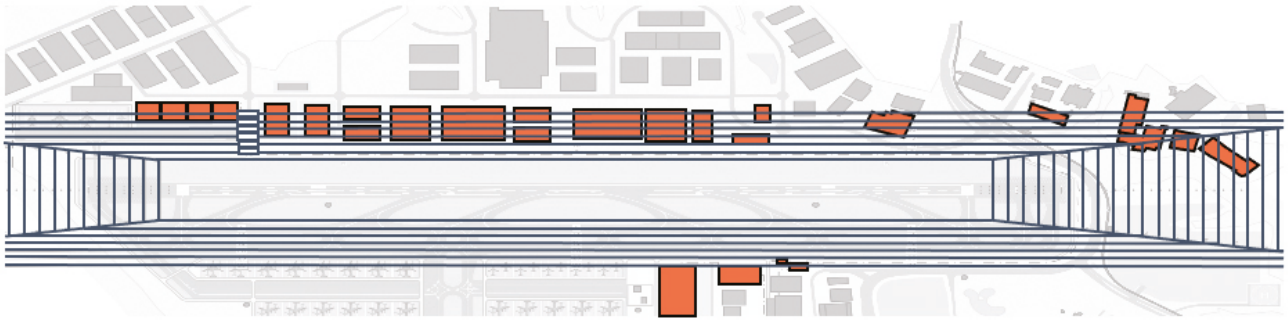


Figure 30: OLS affected buildings on The Landing and Cargo Precinct area



Chapter 6

Terminal precinct

The terminal precinct serves as the critical interface between the airfield and surface access precincts, accommodating the different passenger terminal buildings.

Its purpose is to process and streamline international, domestic and regional traveller flows, manage baggage, and provide a range of services to enhance the experience of airport customers.

Guiding principles

Auckland Airport is New Zealand's main gateway and is a key hub connecting Australasia and the Pacific Rim, and the passenger terminals should deliver a uniquely New Zealand 'sense of place' while facilitating efficient departing, arriving and transfer journeys.

Future terminal developments will follow these key principles:

- Traveller experience will remain at the forefront of terminal developments by following IATA international level of service guidelines, and providing sufficient area and equipment to ensure a comfortable environment, while minimising waiting times at key processes.
- Reducing minimum connecting times will be a priority to strengthen and grow Auckland's position as an attractive hub ahead of other airports in the Pacific region.
- Implementing new technologies, with process automation at its core, leading to seamless traveller journeys with more efficient and less-intrusive processes.
- Providing a compelling and engaging retail experience that delivers the best of New Zealand and the world, and highlights Auckland Airport as an attractive destination and layover option.
- Introducing cost-effective infrastructure developments, favouring where possible operational efficiency, technology enhancements, and the repurposing of facilities over new infrastructure build.

6.1 The present dual-terminal system

Auckland Airport operates under a dual-terminal arrangement, with one building dedicated to international traffic and the other terminal catering to domestic and regional flights.

International terminal

The international terminal is located near the centre and west of the airfield and is serviced by two international piers, Pier A and Pier B, as well as a number of non-contact stands. The stands can serve a range of international aircraft from Code C to Code F.

In FY23, the terminal facilitated 7.2m travellers (10.5m in FY19) and 42,000 air traffic movements (57,000 in FY19).

Travellers check-in at ground level, using a mix of traditional check-in desks, self-service kiosks and automated bag drops. Departure processing is at Level 1 with Customs processing followed by Aviation Security screening to a computer tomography (CT) standard. Travellers then move through to a high-quality retail and food and beverage offering that was delivered as part of the expansion of the international departures area in 2017.

Auckland Airport provides three dedicated airline lounges and one pay-per-use lounge.

Travellers then proceed to gate lounges on Pier A and Pier B to board their aircraft. Auckland Airport also provides bus lounges on both piers to facilitate bus services to non-contact stands during peak periods.

Arriving international travellers, complete primary-line immigration processes (via e-gates or manned booths) at Level 1 and then go down to baggage reclaim, before completing secondary processing for Biosecurity and Customs before exiting into the landside arrivals area. Secondary processing is risk-profiled and includes multiple pathways including express lane (low risk), x-ray (medium risk) and full search (high-risk).

For travellers transiting between international flights, an airside transit facility with CT screening is provided, which enables seamless connectivity into the main international airside area.

Domestic terminal

Domestic and regional operations at Auckland Airport are handled through the domestic terminal, a legacy building that opened in 1966 and has served Auckland Airport well, but is approaching the end of its useful life.

In FY23, the domestic terminal facilitated 8.1 million travellers (9.6 million in FY19) and 102,000 air traffic movements (122,000 in FY19). Domestic jet travel represents about 70% of the terminal's travellers, but only 41% of its air traffic movements.

Air New Zealand and Jetstar operate domestic jet services from the terminal. Domestic jet operations are based in the centre and western end of the terminal, with Air New Zealand's operations located in the centre and Jetstar's at the western end, with separate check-in and baggage systems (inbound and outbound) for each airline.

Domestic jet operations are mainly serviced via contact stands and airbridges, with all travellers needing to complete Aviation Security processing before travel. There are 10 contact stands equipped with airbridges that can accommodate Code C jet aircraft. There are also four non-contact stands, but these are predominantly used for overnight parking.

Regional services operated by Air New Zealand, Air Chathams and Barrier Air and are based at the eastern end of the terminal. Regional services range from six-seat propeller aircraft to 68-seat turbo-prop aircraft. Regional services require a walk out to the aircraft via covered walkways. Travellers are not security screened for regional services.

Air New Zealand has two airline lounges: one airside for domestic jet customers and one landside for regional customers.

The majority of retail and food and beverage offerings at the domestic terminal are provided landside and are available to both domestic jet and regional customers. There is also a limited offering available airside for domestic jet customers.

Travellers connecting between regional and domestic jet services, can do so within the terminal. Regional and domestic travellers connecting to international services, must either walk the Green Line to the international terminal (a partially covered 800m walkway) or catch the inter-terminal bus.

This operation is expected to be in place for domestic jet and regional travel until the Domestic Jet Terminal opens in FY29. At that point, the domestic terminal will convert to regional services only. Regional services are forecast to operate in the terminal until a purpose-built facility is available no earlier than FY33.

6.2 Evolving the dual-terminal concept

Future terminals

While the existing terminal configuration has served Auckland Airport for many years, it hinders connecting journeys from secondary domestic cities to major international destinations, creating two different service standards, forcing the duplication of services and resources, and preventing a cohesive and balanced expansion strategy for the longer term.

The 2014 Master Plan introduced a clear terminal development strategy to integrate domestic and international operations under one roof. This ambition will be delivered through the new Domestic Jet Terminal, a landmark project that, once operational in FY29, will transform the existing international terminal into the integrated terminal building.

After domestic jets move to the integrated terminal, the existing domestic terminal will be reconfigured in the short term to serve regional operations. This will enable the staged development of future regional piers and a new fit-for-purpose terminal.

Regional operations will eventually move to the new, dedicated regional terminal for a streamlined process, reduced walking distances, and a cost-effective development.

This plan is captured under the 'Regional Traveller's Experience' project.

The adjacent plans highlight how terminal operations will evolve into a significantly improved offering that delivers valued outcomes for Auckland Airport and its customers, and enhances the overall traveller experience.

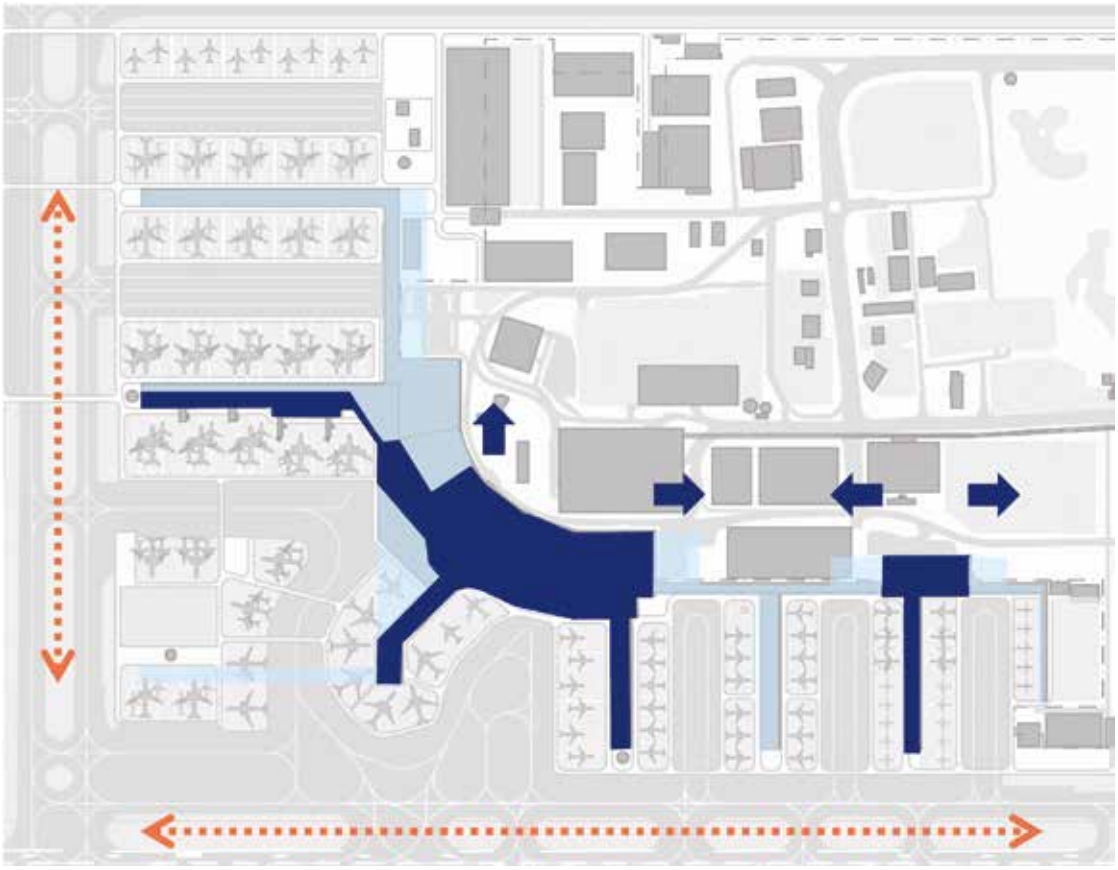
Figure 31: Dual-terminal concept evolution

The future two-terminal configuration unlocks a more cohesive development path for expanding terminal facilities along the Laurence Stevens Drive–Ray Emery Drive axis. In doing so, increases in terminal footprint will also be minimised.

Expansion of international facilities will be northbound towards the future northern runway 05L/23R, including the development of the north-side of Pier B and a new Pier C, while domestic and regional operations will extend east and west, respectively to include a total of four domestic and regional piers.

In its maximum planned extent, the integrated terminal will connect with the new regional terminal via an airside pedestrian bridge, allowing seamless airside connections between terminal buildings, for both travellers and baggage.

Figure 32: Key spatial moves



Terminal envelope

Potential expansion

Key spatial moves

6.3 Future trends and technologies

Automation and robotics

Automation is redefining airport operations, enabling airports to function more efficiently while reducing the strain on human resources. Autonomous ground vehicles, including baggage tugs and shuttle systems, are improving logistics by streamlining baggage handling and traveller transport. AI-driven air traffic control support systems are helping optimise flight scheduling and minimise delays.

Robotics is another emerging technology enabler, with the potential to revolutionise various airport services. AI-powered robots are being explored for roles such as retail assistance, food and beverage delivery, and even sanitation. These robots enhance passenger convenience while reducing operational costs for airport vendors. Auckland Airport is closely monitoring these developments, recognising the role robotics could play in the future of airport service delivery.

The integration of immersive digital technologies, such as augmented reality (AR) and the metaverse, is also on the horizon. These innovations could allow travellers to virtually explore the airport, access interactive wayfinding assistance, and even experience virtual duty-free shopping before arrival. Auckland Airport is positioning itself to adapt to these advancements, ensuring it remains at the forefront of digital innovation.

CUSTOMER EXPERIENCE

- Improved airport navigation with **digital signage and real-time** flight information
- Proactive operations **minimise customer disruptions** and flight delays
- **Instant flight updates** transform customer support
- Retail and travel experiences are **tailored to customer preferences**
- **Contactless technology** enables more seamless check-in, security and boarding processes

PARTNER EXPERIENCE

- Provide partners with **accurate data** that fulfils their requirements
- **Integrated data platforms** enable partners to access information easily
- Seamless **data sharing**
- **Anticipate partner needs** using predictive data and analytics
- **Digital signage and communication tools** that improve the customers' experience of engaging with airline partners

STAFF EXPERIENCE

- **Automation of manual tasks** saves time
- **Culture of innovation** drives staff engagement
- **Task management applications** deliver improved productivity and efficiency
- Talent upskilling through interactive and engaging **digital training modules**
- Staff **communication tools** enable greater collaboration

Automation and self-service

Automation and self-service technologies have the power to revolutionise airport operations by reducing staff-dependent processes and optimising space requirements for facilities. The result is a more seamless, efficient, and hassle-free traveller experience. These innovations also allow airports to focus resources on helping travellers who require extra support.

From automated systems for bag drops and boarding pass control to streamlined Customs and boarding processes, the future of air travel is becoming increasingly user-friendly.

Auckland Airport is already embracing this shift with forward-thinking initiatives such as the Check-in Hall Extension and Reconfiguration Programme. This project is transforming the check-in process by replacing traditional equipment with state-of-the-art self-service kiosks (SSKs) and automated bag drops (ABDs), making the journey faster and more convenient for travellers.

6.4 The integrated terminal

The integrated terminal is a unified facility that accommodates both domestic and international travellers under one roof. By consolidating services and facilities that would otherwise be spread across separate terminals, the concept of integration improves operational efficiency, enhances passenger convenience, and promotes long-term sustainability.

Passenger processing areas

Key processes and areas in the integrated terminal include:

Departures journey

- Public departures hall
- Check-in and automated bag-drop
- Baggage handling system (outbound)
- Access and boarding pass control
- Passenger security screening
- Outbound border control (emigration)
- Departure lounges and dwell areas

Arrivals journey

- Inbound border control (immigration)
- Baggage reclaim
- MPI and Customs controls
- Public arrivals halls
- Transfer screening and controls.

Departures journey

Public departures hall

Auckland Airport provides space at Level 1 for friends and family to farewell travellers, as well as retail and food and beverage offerings for both travellers and farewellers. The footprint is not expected to change during the Master Plan period, but the layout may evolve.

Auckland Airport will encourage travellers to move through to airside areas as soon as they are ready, to improve on-time performance, enable efficient departures processing, and to use the world-class airside retail and food and beverage offerings that will be available in both the domestic and international dwell areas.

Table 13: Public departures hall future operational strategy

FY28	FY33	FY38	FY43	FY47
Farewell space including retail and food and beverage provided at Level 1.	Farewell space including retail and food and beverage provided at Level 1.	Farewell space including retail and food and beverage provided at Level 1.	Farewell space including retail and food and beverage provided at Level 1.	Farewell space including retail and food and beverage provided at Level 1.
International travellers only.	International and domestic jet travellers.	International and domestic jet travellers.	International and domestic jet travellers.	International and domestic jet travellers.

Automation and self-service

Automation and self-service have the potential to reduce the number of processes requiring airport staff and optimise area requirements for each facility. This will result in a less intrusive and more convenient traveller experience, and focus resources on airport users requiring enhanced assistance. This development includes automated systems and equipment for bag-drop, boarding-pass control, outbound and inbound Customs, and boarding processes.

How Auckland Airport is already considering this trend:

- The Check-in Hall Extension and Reconfiguration programme is replacing all check-in equipment with self service kiosks (SSKs) and automated bag drops (ABDs).

Remote processing

Off-airport and remote processing could allow travellers to carry out part of the necessary checks and processes ahead of their trip, which would reduce the time required for their processing at the airport. This includes online check-in and the use of digitalised boarding passes, and bag tags on mobile devices and bag radio-frequency identification (RFID), off-airport baggage pick-up and collection, and border control and Customs declaration forms.

Remote processing at the airport also includes activities such as virtual queueing and click-and-collect shopping from the airside retail units. This informs and empowers travellers, while facilitating a more enhanced and streamlined traveller experience.

How Auckland Airport is already considering this trend:

- Off-site check-in and bag-drop across the airport precinct, including the Transport Hub and Park & Ride areas, is under consideration and may be implemented in the coming years.
- Auckland Airport welcomes new technologies to enhance traveller experience and deliver efficiency. Working with airlines and operators is crucial to provide the best outcome.

Table 14: Check-In future operational strategy

FY28	FY33	FY38	FY43	FY47
Centralised integrated check-in	Centralised integrated check-in	Centralised integrated check-in	Centralised integrated check-in with an expansion option to the west	Centralised integrated check-in with an expansion option to the west
Self-service kiosks and ABDs	Self-service kiosks and ABDs	Self-service kiosks and ABDs	Self-service kiosks and ABDs	Self-service kiosks and ABDs
		Biometric & touchless travel	Biometric & touchless travel	Biometric & touchless travel
		Smart tags & permanent bag identification	Smart tags & permanent bag identification	Smart tags & permanent bag identification
		E-tag integrations	E-tag integrations	E-tag integrations


Scan passport
(face-down)
AKL

Baggage handling system

As part of the integrated terminal building project, the baggage handling system (BHS) will be upgraded to solve existing capacity constraints, achieve international security standard compliance, prepare the system for combined international-domestic operations, and enhance the airside baggage transfer capability for domestic-to-international connections.

The upgraded BHS system will feature: an integrated individual carrier system (ICS); a new early baggage store (EBS) system; hold baggage screening (HBS) Level 3 compliance; and inbound baggage offloads to feed the future domestic baggage reclaim hall. Work is already underway to implement the first stages of the planned BHS upgrade programme.

The existing international terminal layout provides a path to solve the capacity constraints identified in the EBS and the domestic reclaim subsystems. These will expand over the eastern truck dock and within the domestic reclaim hall, respectively.

As demand increases, the building envelope will extend over Stand 1 to expand the western make-up area.

Additional BHS requirements will be aligned with the dual-terminal arrangement with the integrated terminal and new regional terminal buildings. For example, once the airside pedestrian bridge is developed by FY43, an ICS high-speed connector will be implemented to improve baggage transfers between the two terminal buildings. In addition, new piers may trigger localised make-up offloads for reduced delivery times to aircraft, and a westbound shift of operations.

IATA Resolution 753 is a significant mandate to enhance baggage tracking. It requires airlines to track baggage at four key points in the journey: check-in; loading onto the aircraft; transfer; and arrival. The importance of this resolution lies in its ability to reduce baggage mishandling, improve customer satisfaction, and lower the costs associated with lost or delayed baggage.

How Auckland Airport is already considering this trend:

- The implementation of an integrated ICS system as part of the BHS upgrade programme will include full sorting and EBS equipment, allowing for full-cycle baggage tracking.

Table 15: Baggage handling system future operational strategy

FY28	FY33	FY38	FY43	FY47
Integrated ICS baggage system	Integrated ICS baggage system	Integrated ICS baggage system plus western make-up area expansion	Integrated ICS baggage system plus western make-up area expansion	Integrated ICS baggage system plus western make-up area expansion

Access and boarding pass control

Boarding pass scanners will be provided at the entrance to international departures. These will be future-proofed for biometrics.

Table 16: Boarding pass control future operational strategy

FY28	FY33	FY38	FY43	FY47
Boarding pass scanners Biometrics under consideration	Boarding pass scanners Biometric or similar	Biometric access control	Biometric access control	Biometric access control

Passenger security screening

The integrated terminal will reverse the order of Emigration (Customs) and Aviation Security. This will ensure all travellers have completed security checks before they reach Customs processing, and will also deliver a more efficient flow through departures with the slower process, Aviation Security, completed first.

A co-located security process will initially be implemented in the integrated terminal to facilitate side-by-side security screening of domestic jet and international travellers. A review is being undertaken by the CAA to consider harmonised screening for domestic jet and international travellers. The departures design has retained the flexibility to convert the security screening space to a single harmonised screening facility if security harmonisation is approved.

CT scanners will serve a crucial role in enhancing threat detection capabilities for carry-on baggage. This technology allows the automatic detection of explosives and other prohibited items without having to remove them from the hand luggage, therefore streamlining the security process and potentially reducing the need for manual inspections. The roll-out of this technology will also allow the eventual standardisation of screening requirements across traffic segments, which will in turn create the opportunity, if possible, to merge international and domestic flows and remove the need to screen transferring travellers on their arrival. Travellers will benefit from an expedited process and a less intrusive experience.

How Auckland Airport is already considering this trend:

- CT scanners have already been implemented for the international segment, and domestic scanners and non-passenger screening will also be replaced with CT.

Table 17: Passenger security screening future operational strategy

FY28	FY33	FY38	FY43	FY47
Centralised non-harmonised CT-CBS screening and body scanners	Centralised non-harmonised CT-CBS screening and body scanners	Centralised harmonised CT-CBS screening and body scanners	Centralised harmonised CT-CBS screening and body scanners Expansion under consideration to the east	Centralised harmonised CT-CBS screening and body scanners Expansion under consideration to the east

Outbound border control (emigration)

Outbound border control will continue to be facilitated by a mix of e-gates and traditional desks. E-gate eligibility is expected to continue to expand, and the majority of travellers are expected to be able to be processed through e-gates in the future.

Automated border control systems - outbound

Automated border control systems leverage the increased adoption of biometric passports. They present a compelling case for enhancing security and streamlining passenger processing by significantly reducing wait times and improving the overall efficiency of border control operations. The mutual agreements between governments facilitate a more seamless integration of these systems, allowing a standardised approach to identity verification and a stronger collaborative effort in maintaining border integrity and international security standards.

The use of biometric-enabled systems will eventually remove the need for physical travel and identification documents such as boarding passes and passports, or at least reduce the number of instances these need to be shown to staff and authorities at the airport. The main application is to integrate the travellers' travel details with their unique biometric features to expedite their processing through the airport for a more seamless journey.

How Auckland Airport is already considering this trend:

- We have increased the list of authorised countries for e-gate use through bilateral agreements. This includes potential agreement between New Zealand and Australia that will eventually see the reciprocal removal of inbound/outbound checks between these two countries. To be implemented, this arrangement may require improved biometric technology.

Table 18: Outbound border control (emigration) future operational strategy

FY28	FY33	FY38	FY43	FY47
Centralised passport control – e-gates and desks Increase in e-gate eligibility.	Centralised passport control – e-gates and desks Increase in e-gate eligibility Biometric/single token	Centralised passport control – e-gates and desks Increase in e-gate eligibility Biometric/single token	Centralised passport control – e-gates and desks Increase in e-gate eligibility Biometric/single token	Centralised passport control – e-gates and desks Increase in e-gate eligibility Biometric/single token

Departure lounge and dwell spaces

International

International gate lounges and dwell spaces will grow to the north and the west, aligned to the development of the airfield. Gate lounge and dwell expansion will initially be delivered via the development of the north side of Pier B to connect the non-contact stands delivered in late 2025. This is forecast to be required in FY33, with Pier C forecast to be delivered to meet demand in FY47.

An expansion of the dwell spaces is forecast to be delivered in FY38 to deliver incremental baggage capacity and also provide the opportunity for additional airside dwell spaces in the area between Pier A and Pier B.

Table 19: Future operational strategy – International

FY28	FY33	FY38	FY43	FY47
Pier A and Pier B (south)	Pier A and Pier B (north & south)	Pier A and Pier B Plus airside dwell expansion	Pier A and Pier B	Pier A, Pier B and Pier C

Departure lounge and dwell spaces

Domestic

Domestic jet operations are forecast to move to the integrated terminal once commissioned, and will operate from 12 Code C contact stands on Pier A1.

Incremental domestic jet gate lounge capacity will be delivered via the development of Pier A2.

Additional non-contact stands will be required to meet FY38 and FY43 demand.

Table 20: Future operational strategy - Domestic

FY28	FY33	FY38	FY43	FY47
DTB	DJT and Pier A1	DJT and Pier A1	DJT and Pier A1	DJT Pier A1 & Pier A2

Retail and food & beverage (F&B)

The variety in the retail and F&B offering, and the disposition and convenience of the dwell areas, play a critical role in enhancing the traveller experience both landside and airside.

Space requirements for each retail segment are driven by demand projections and the estimation of traveller spending, adjusted for economies of scale derived from the internal configuration of the integrated terminal. In addition, traveller occupancy at key dwell locations informs the requirements for additional seating and support functions, such as storage.

Retail and F&B are not only major contributors to the overall airport experience and its perceived quality, but they are also key differentiators in a competitive airport proposition. They aim to provide an outstanding traveller experience while creating a genuine 'sense of place.' At a high level, the retail offering is designed to deliver commercially successful, meaningful, and rewarding environments that connect with people and place, enhancing both passenger satisfaction and the airport's commercial appeal. As a proposition, the retail & F&B offerings are to deliver the best of New Zealand and the world; delivering on both functional needs and emotive needs.

The retail proposition for international travellers aims to enhance the journey by providing a well-designed curated environment that inspires customers to make time to explore and engage, showcasing an effective arrangement of retail units/dwell areas and processes that smoothe the way and enable participation through ease of access, time, knowledge, clarity and confidence.

Existing retail areas in the existing international terminal will be progressively adjusted as the integrated terminal expands in the future, to capture the new centre of gravity of the building.

Domestic and regional retail propositions will enable an intuitive, seamless and direct operation, that underpins a connection to Auckland and New Zealand, while providing essential travel needs and experiences that are interesting, distinctive and uplifting.

These propositions will be achieved using the following principles:

- Pier/satellite retail arrangements will be avoided, aiming for the consolidation of dwell, F&B, airline lounges and retail outlets in one primary zone for as many travellers as possible.
- Design of areas will enable travellers to seamlessly navigate through the terminal and always feel connected to the next step of their journey, meeting travellers' needs as people move through spaces.
- The number of direction changes will be minimised, always keeping travellers moving forward whenever possible.
- Landside retail will be limited to travellers' needs, because these areas will be designed to be functional and enable travellers to progress to airside quickly and intuitively. However, a curated offering for welcomers and farewellers will be available in the terminal buildings' landside areas, namely the departures and arrivals halls, offering ample seating, selected food and beverage options, and easy access to essential travel services.

Table 21: Future commercial strategy – international and domestic

	FY28	FY33	FY38	FY43	FY47
Landside	DTB (DOM and REG) INT departures (L1) INT arrivals	INT + DOM departures (L1) INT arrivals DOM arrivals	New regional terminal (REG) INT + DOM departures (L1) INT arrivals DOM arrivals	New regional terminal (REG) INT + DOM departures (L1) INT arrivals DOM arrivals	New regional terminal (REG) INT + DOM departures (L1) INT arrivals DOM arrivals
Airside	DTB departures (L1) INT departures INT arrivals	DOM departures INT departures INT arrivals	DOM departures INT departures INT arrivals	DOM departures INT departures INT arrivals	DOM departures INT departures INT arrivals

Logistics and storage

All activities within the airport environment necessitate careful logistics planning, so sufficient area in the back-of-house (BOH) must be provided for on-site storage, BOH operational offices, recycling and waste management. Retail and F&B logistics routes and BOH are both landside and airside.

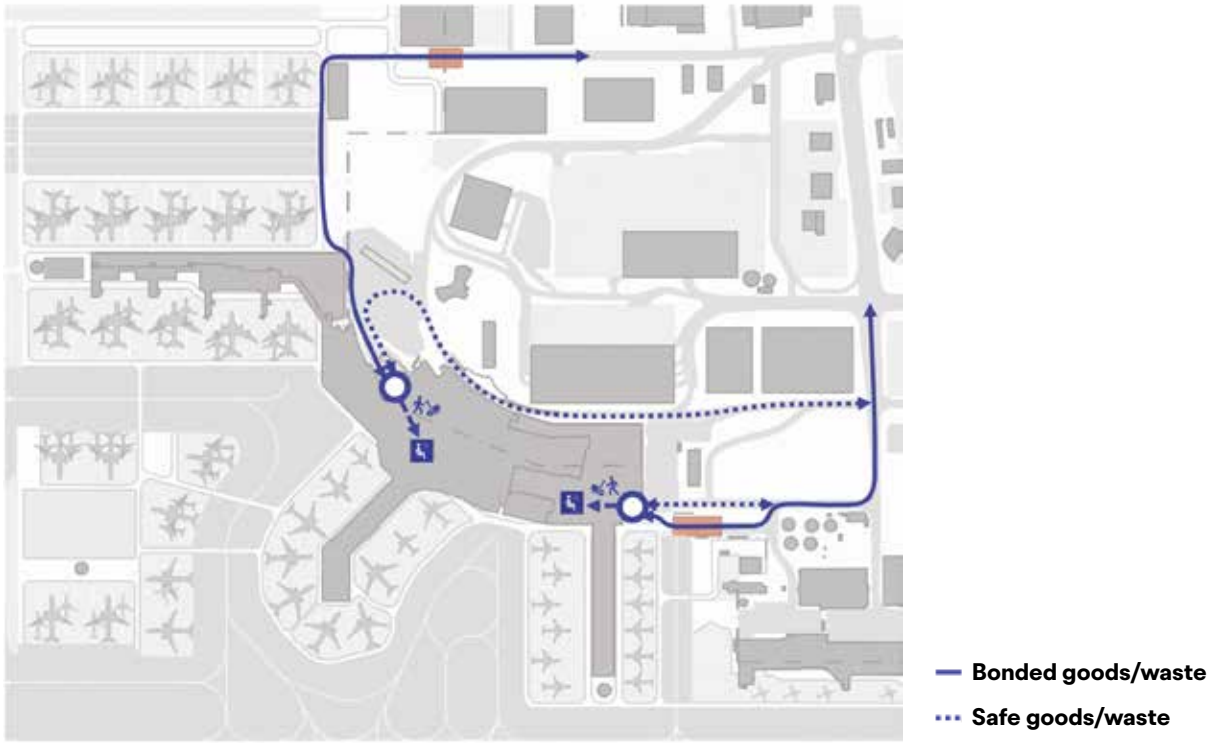
Existing logistics operations require all waste and goods to be channelled through Checkpoint Charlie and the eastern truck dock. Only some goods are bonded-to-bonded (such as Customs-controlled products like duty-free); others are not bonded and need to be screened if going airside. As the terminal expands westward and with the addition of Checkpoint Delta in the cargo precinct, a new western truck dock will be provided to allow reduced distances for good deliveries inside the terminal building, and to facilitate a split of goods in/out operation between international and domestic traffic. The new regional terminal will also have a dedicated truck dock to serve airside deliveries once it enters into operation.

Moreover, the proximity of the future western truck dock to the cargo precinct creates an opportunity to provide off-site storage facilities and reduce the storage inside the terminal building's BOH areas. This could in turn generate more available space for front-of-house services, while allowing a secure space for bonded goods in the cargo precinct.

Table 22: Logistics and storage future operational strategy

FY28	FY33	FY38	FY43	FY47
Western truck dock Eastern truck dock (in construction – open when DJT is commissioned)	Western truck dock Eastern truck dock	Western truck dock (new) – delivered as part of arrivals expansion Eastern truck dock	Western truck dock Eastern truck dock	Western truck dock Eastern truck dock

Figure 33: Integrated terminal building logistics strategy



Airline lounges

Airline lounges cater for high-valued customers who represent around 8% to 18% of all departing travellers.

Key airlines at Auckland Airport already have lounge facilities in the existing domestic and international terminals, while the international terminal also includes Auckland Airport's pay-for-use lounge that provides a lounge product for all departing travellers.

Under the proposed terminal development strategy, the existing airline lounges will be retained and, in some cases, expanded or even relocated, to reduce walking distances for an improved passenger experience. New airline lounges will be provided to meet requirements in line with terminal expansions, locating them on the upper floors and away from the main flows.

Airline lounges will also be provided for in the upper levels of the terminal building. As the terminal envelope grows, additional areas and relocation opportunities for these facilities may be unlocked.

For interested parties, space for domestic and international lounges will be provided facing the airfield on the second floor of the integrated terminal, while Strata will also benefit from a new dedicated lounge on the domestic side of the second floor.

Table 23: Airline lounges future operational strategy

FY28	FY33	FY38	FY43	FY47
International Four dedicated airline lounges One pay per use airline lounge. **Domestic (DTB)** Two dedicated airline lounge (one airside, one landside)	**International** Four dedicated airline lounges One pay per use airline lounge. **Domestic (DJT)** One dedicated airline lounge Domestic (DTB)	**International** Four dedicated airline lounges One pay per use airline lounge. Opportunity for lounge expansion at international dwell or Pier B **Domestic (DJT)** One dedicated airline lounge	**International** Four dedicated airline lounges One pay per use airline lounge. Opportunity for lounge expansion at international dwell or Pier B **Domestic (DJT)** One dedicated airline lounge	**International** Four dedicated airline lounges One pay per use airline lounge. Opportunity for lounge expansion at international dwell or Pier B **Domestic (DJT)** One dedicated airline lounge

Arrivals journey

Automated border control - Inbound

A risk-based assessment (RBA) may be implemented at security, border and Customs controls taking into account the behaviour and characteristics of travellers, creating a unique risk profile for them based on a detailed risk-threat analysis. For instance, high-risk profiles may be subjected to more stringent checks, while lower-risk profiles might see a more streamlined process. This allows a more efficient allocation of staff, resources and technology, potentially reducing wait times for travellers without compromising operations.

Similar to the outbound journey, automated border control systems use the growing adoption of biometric passports. Agreements between governments enable a smoother integration of these systems, facilitating identity verification and strengthening collaboration to uphold border integrity and international security standards.

How Auckland Airport is already considering this trend (as per outbound journey)

- Increased list of authorised countries for e-gate use via bilateral agreements. This includes potential agreement between New Zealand and Australia, which will eventually see the reciprocal removal of inbound/outbound checks between the two countries. To be implemented, this arrangement may require improved biometric technology.

Table 24: Inbound border control (Immigration) future operational strategy

FY28	FY33	FY38	FY43	FY47
E-gate and desks at Level 1. Increase in e-gate eligibility.	E-gate and desks at Level 1. Increase in e-gate eligibility. Biometric/single token	E-gate and desks at Level 1. Increase in e-gate eligibility. Biometric/single token	E-gate and desks at Level 1. Increase in e-gate eligibility. Biometric/single token	E-gate and desks at Level 1. Increase in e-gate eligibility. Biometric/single token

Baggage reclaims and inbound baggage

The journey for arrivals bags differs for international and domestic/regional passengers. For domestic and regional travellers terminating their journey at Auckland or connecting on to another flight, without through-checked luggage, the traveller will collect their bags from dedicated baggage reclaim belts. For travellers connecting to flights with through-checked bags, the baggage transfer will be completed airside.

All arriving international travellers, including travellers transferring to domestic and regional flights, are required to collect their bags from international baggage reclaim and complete a risk assessment process to determine the need for any secondary screening. Secondary screening can include both Customs and biosecurity checks. New Zealand has a unique and delicate eco-system, with heavy economic reliance on its agriculture industry, so the secondary screening process, particularly the biosecurity processes required by the Ministry for Primary Industries (MPI), are stringent and can change rapidly in response to biosecurity threats.

Future arrivals spaces therefore need to be planned and designed to be flexible and accommodate both high and low-risk pathways. Pre-COVID, MPI was exploring a back-of-house screening solution for bags including the use of biometric algorithms. However, this solution was infrastructure and space-heavy and would likely require the development of an inbound baggage system at Auckland Airport. The airport would prefer the exploration of the pre-clearance of inbound bags at the originating port, but this would require commitments from other jurisdictions and is unlikely to be a viable option for all originating ports.

Detailed technical studies are being undertaken beyond the ongoing BHS upgrade programme to evaluate the implementation of these strategies and plans. This Master Plan is limited to identifying viable expansion pathways, aligned with future terminal area requirements, that can provide additional BHS capacity and safeguard for new operational arrangements.

Table 25: Baggage reclaim and inbound baggage future operational strategy

FY28	FY33	FY38	FY43	FY47
International Back-to-wall belts	**International** Back-to-wall belts	**International** Back-to- wall belts	**International** Back-to- wall belts	**International** Back-to-wall belts
Domestic (DTB) Back-to-wall belt (dedicated to airline)	**Domestic (DP)** Up-and-over belts (common use)	**Domestic (DP)** Up-and-over belts (common use)	**Domestic (DP)** Up-and-over belts (common use)	**Domestic (DP)** Up-and-over belts (common use)
Regional (DTB) Back-to-wall belt	**Regional (DTB)** Back-to-wall belt	**Regional (New terminal)** Back-to-wall belt	**Regional (New terminal)** Back-to-wall belt	**Regional (New terminal)** Back-to-wall belt

Ministry for Primary Industry (MPI) and Customs – secondary screening

The joint border agencies (JBA) area provides space for MPI and NZ Customs to carry out the processes necessary to ensure incoming travellers are fully screened before entering New Zealand. The hall is a flexible space able to accommodate changes in queuing requirements, screens and search processes.

JBA offices are a series of spaces that support front-of-house MPI and NZ Customs operations.

Auckland Airport continues to work closely with border agencies to develop the future concept of operations (CONOPS) for arrivals. This could consider a number of options including pre-clearance, back-of-house inbound baggage screening, low-risk pathways, e-gate and biometric pathways (evolution of NZTD), and a common trans-Tasman border.

Arrivals expansion space therefore needs to be flexible to be able to respond to change, including the risk of increased biosecurity control in response to a biosecurity threat (e.g. Queensland fruit fly).

Table 26: MPI and Customs control future operational strategy

FY28	FY33	FY38	FY43	FY47
Ground floor processing including additional footprint delivered by the first stage of the arrivals expansion	Ground floor processing	Ground floor processing Second stage of arrivals expansion delivered	Ground floor processing	Ground floor processing

Public arrivals hall

Arrivals meet-and-greet is an area that allows special moments for travellers and meeters and greeters. While the area is important, Auckland Airport will encourage dwell in this space to be minimised with a curated offering for welcomers including ample seating, selected food and beverage options, and easy access to essential travel services. Travellers will be encouraged to follow intuitive wayfinding from arrivals to the next stage of their journey (car park, public transport, commercial transport, rental car).

Table 27: Public arrivals hall future operational strategy

FY28	FY33	FY38	FY43	FY47
		Public arrivals hall expansion delivered		

Further terminal expansions

The integrated terminal provides the airport, airlines, ground handlers and agencies sufficient space for operational support, as well as circulation, mechanical, plant and structural elements. For the purpose of this Master Plan, a 40%-60% increase has been factored into the sizing of future terminal requirements to avoid capacity shortfalls as the requirements adapt to future demand and changes in aviation trends. The 40%-60% mark-up is a typical international best practice planning approach to ensure the airport's facilities remain adequate and functional as traffic and operational needs grow, without requiring significant redevelopment.

A reconfiguration-first approach will be adopted for the short-term requirements (up to FY33) for the integrated terminal, focusing on optimising existing processes to meet expansion needs while using areas with adequate capacity. For the long-term expansion requirements (from FY33 onwards), the focus will shift to determining the range of processing facilities necessary to accommodate projected passenger volumes, in line with IATA's Optimum Level of Service standards. This will involve assessing the maximum number of required facilities—such as equipment, spaces and contingencies—without applying optimisation, reflecting a conservative scenario based on maintaining the current operational framework.

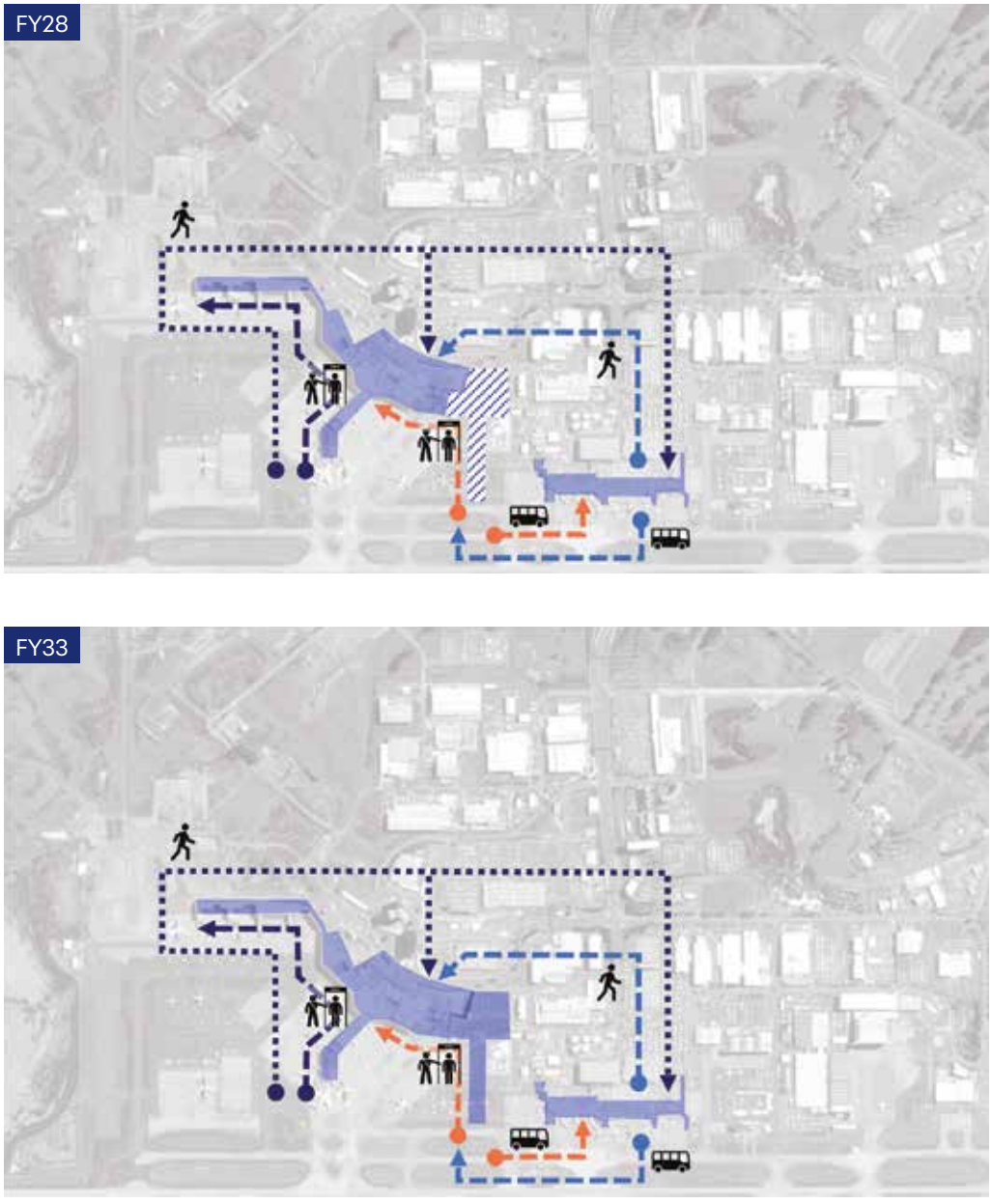
6.5 Improving transfer journeys

Reducing minimum connecting times (MCT) between all traffic segments remains a key objective for Auckland Airport and is a key driver for the updated two-terminal concept.

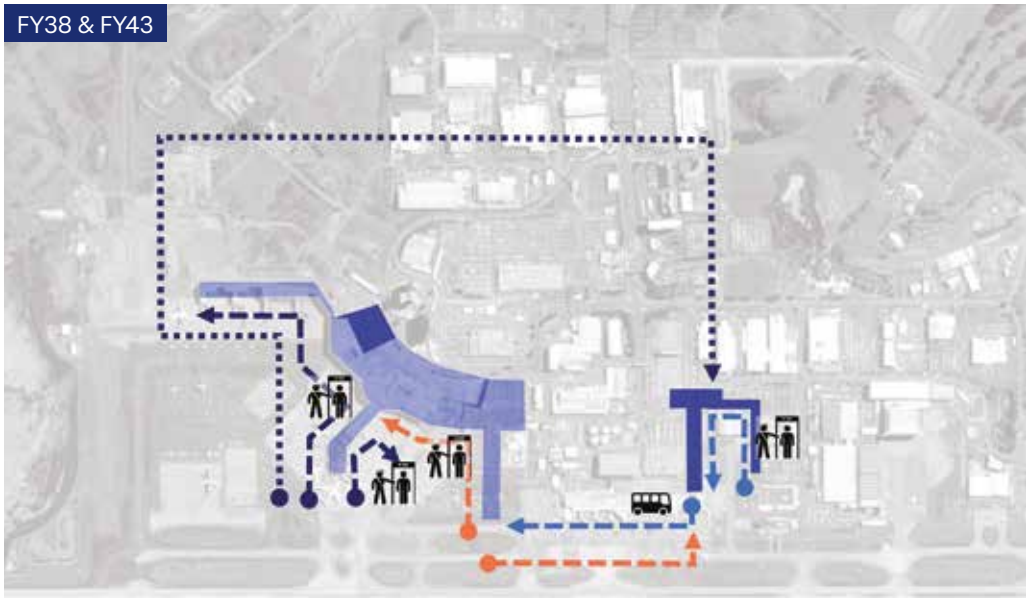
At present, all connections, except for international-to-international transfers, must be fully or partially carried out landside due to current regulations or the existing terminal and airfield layouts. This leads to higher connection times, longer walking distances, and a poorer traveller experience.

Auckland Airport's ambition is to reduce landside transfer journeys to a minimum. While there is no assurance regulatory changes in this space will occur, the Master Plan considers a number of scenarios that could unfold if current checks and processes for connecting travellers are progressively simplified or eliminated. The implementation of the integrated terminal is a critical first step towards fulfilling that ambition, with more upgrades planned beyond FY28 that will significantly improve the transfer journeys at Auckland Airport in the future.

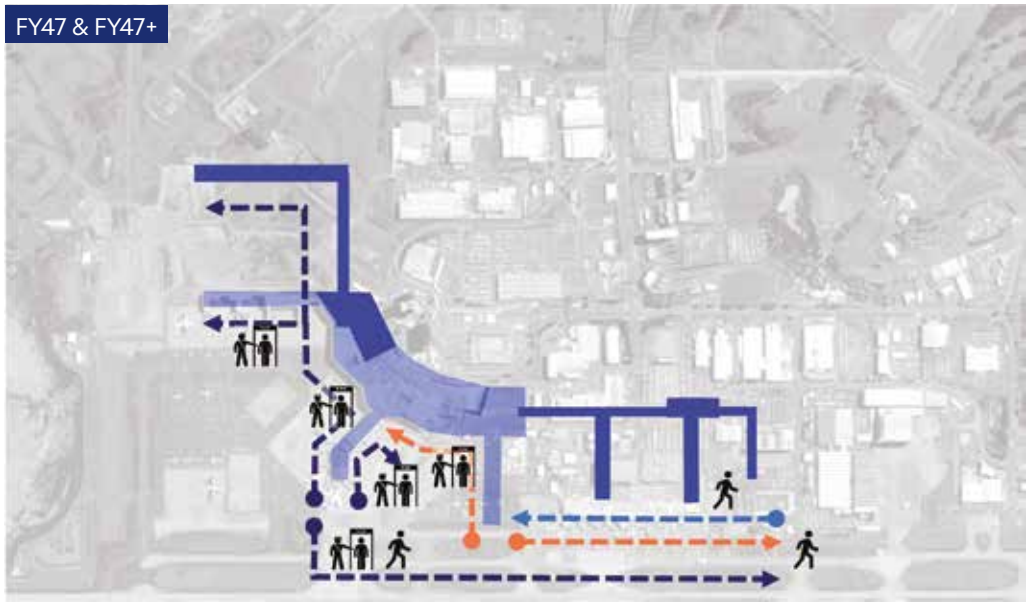
Figure 34: Transfer products for each traffic segment



FY38 & FY43



FY47 & FY47+



International transfers

Domestic transfers

Regional transfers

Under construction

Identified development

Table 28: Transfer journey summary – International

Transfer journeys	Description and ambition
International to international	• INT-INT transfers will remain unchanged with travellers having to go through security screening on arrival at Auckland Airport. Additional secondary screening locations may be introduced as the existing facility reaches capacity and additional international piers are required. • The future implementation of the one-stop security (OSS) framework could potentially eliminate the need for extra security screenings for travellers arriving at Auckland Airport from certain destinations. This will effectively allow international connecting passengers to be treated as part of the domestic flow.
International to domestic	• INT-DOM transfers will continue collecting their baggage for MPI screening until Customs and biosecurity processes are integrated with the BHS for back-of-house screening. This shift remains an aspiration and it will be introduced only when agreement with MPI is reached. • Auckland Airport is open to explore the introduction of an MPI screening point for INT-DOM transfers at departures level that will remove the need for travellers to retrieve and recheck their luggage.
International to regional	• INT-REG connections are expected to follow a similar process as INT-DOM transfers, involving the full international arrivals cycle to complete MPI checks and then travel to another terminal via landside. This process is not expected to change until the dedicated transfers MPI screening process and the pedestrian bridge linking both terminals are implemented.

Table 29: Transfer journey summary – Domestic

Transfer journeys	Description and ambition
Domestic to domestic	• DOM-DOM through-checked transfers do not require any additional screening or process, therefore, travellers are able to connect to their secondary flight directly airside.
Domestic to international	• DOM-INT travellers will no longer be required to carry out the full landside circuit as they do today once the Domestic Jet Terminal starts operating in FY29. • Once DJT opens, DOM-INT travellers with through-checked baggage will use a transfer screening process located at the level of the DJT, followed by an outbound Customs check, before entering the international departures lounge area. DOM-INT travellers without through-checked luggage will need to collect their baggage in the DP arrivals area and transfer internally at the ground floor level to re-check baggage in the integrated check-in area. This process is anticipated to remain unchanged throughout the Master Plan period.
Domestic to regional	• Short term (FY25-FY29): DOM-REG travellers will continue to be processed as per today's operations. • Post DJT opening (FY29): Travellers will connect from the new Domestic Jet Terminal. A shuttle bus service will be provided until the pedestrian bridge is built post FY43.

Table 30: Transfer journey summary – Regional

Transfer journeys	Description and ambition
Regional to regional	• Connections between regional flights will depend on the security settings. If regional screening is introduced for Tier II airports, customers will follow two different flows depending on their airport of origin. Arriving travellers from Tier II airports will not need to be rescreened on arrival, whereas transfers from Tier III airports will need to go landside and be security screened before departing. • The differentiation between Tier II and Tier III will be removed if passenger screening standards are harmonised. This is subject to regulatory change.
Regional to international	• Short-term (FY25-FY29): REG-INT transfers will continue to be processed landside as per today's usual operations. This includes retrieving their luggage and rejoining the international departure processes in the integrated terminal. • Post DJT opening (FY29): This will eventually provide the option for an airside bus connection from the existing domestic terminal. • Once the new regional terminal is implemented (post FY33): If a distinction between Tier II and Tier III is requested, Tier II connections could benefit from an airside shuttle bus to connect to Pier A1, from which they will follow the same process as DOM-INT transfers. Tier III connections will follow the departure security screening in the new regional terminal and then rejoin the Tier II REG-INT transfer flows as described. These flows will be reviewed once more clarity on the process is available. If the harmonisation of passenger screening standards eventuates, both regional tiers will use an airside shuttle to rejoin the DOM-INT flow, without the need for additional security screening. • Long-term (post FY43): the airside shuttle service will be replaced with the pedestrian bridge linking Piers A1, A2, A3 and A4.
Regional to domestic	• REG-DOM connections will follow the present process within the domestic terminal until the Domestic Jet Terminal until goes live in FY29. However, similar to the REG-INT journey described above, the opening of DJT will eventually provide the option for airside connection. • If the harmonisation of passenger screening eventuates, REG connecting travellers will have a direct airside connection from the new regional terminal to the integrated terminal without any additional processes, either by shuttle or via the pedestrian bridge.

6.6 New regional terminal

The limited remaining useful life of the domestic terminal, forecast demand, and the desire to progressively develop the pier and terminal infrastructure to align with the Master Plan, will see the expected requirement for the new regional terminal to cater for regional services. Designs for this new terminal are still preliminary and subject to review in line with the outcomes of this Master Plan.

The operational model the new terminal will operate is still unclear, the main complexity is whether screening will be introduced for regional services by FY33.

For planning purposes, Auckland Airport has assumed regional screening will be introduced at all Tier II regional airports by FY33, and the design for the new regional terminal will be developed on this basis, but with the flexibility to operate as an unscreened facility if regional screening is not introduced, or if it is introduced at a later date.

It is assumed all outbound regional travellers and baggage will be screened at Auckland Airport. However, regional arrivals will need to be separated, because only regional travellers from Tier II airports are expected to have been screened at their port of origin.

Travellers travelling to/from Tier II airports are expected to operate from Pier A3, whereas travellers traveling to/from Tier III airports are expected to operate from Pier A4.

Future regional terminal requirements have not been fully developed, so the following section provides a high-level description of each processing area based on current assumptions.

Passenger processing areas

Processes in the new regional terminal will include:

- Public departures hall
- Check-in and automated bag-drop
- Baggage handling system (outbound)
- Access and boarding pass control
- Passenger security screening
- Departure lounges and dwell areas
- Baggage reclaim

Public hall (combined)

Landside dwell will be minimised, because these areas will be designed to be functional and enable travellers to progress to airside quickly and intuitively. However, a curated offering for welcomers and farewellers will be available in the terminal buildings' landside areas, namely the departures and arrivals halls, offering ample seating, selected food and beverage options, and easy access to essential travel services.

Check-in and automated bag-drop

Check-in is expected to use self-service kiosks and automated bag drops where valued biometric technology may be considered. A full common-use check-in will provide the most efficiency, however this is yet to be discussed with regional airlines.

Baggage handling system

The baggage handling system is expected to be a simple conveyor-based system. It is assumed regional screening of bags will be required from when the facility opens, so all design will be based on the provision of hold-stow screening. It is also assumed all outbound bags will be security screened at Auckland Airport (i.e. there will be no differentiation between Tier II and Tier III regional destinations).

Access and border pass control

Access to airside areas will be controlled by boarding pass scanners or biometric checks. Only travellers with a valid boarding pass will be able to travel airside

Passenger security screening

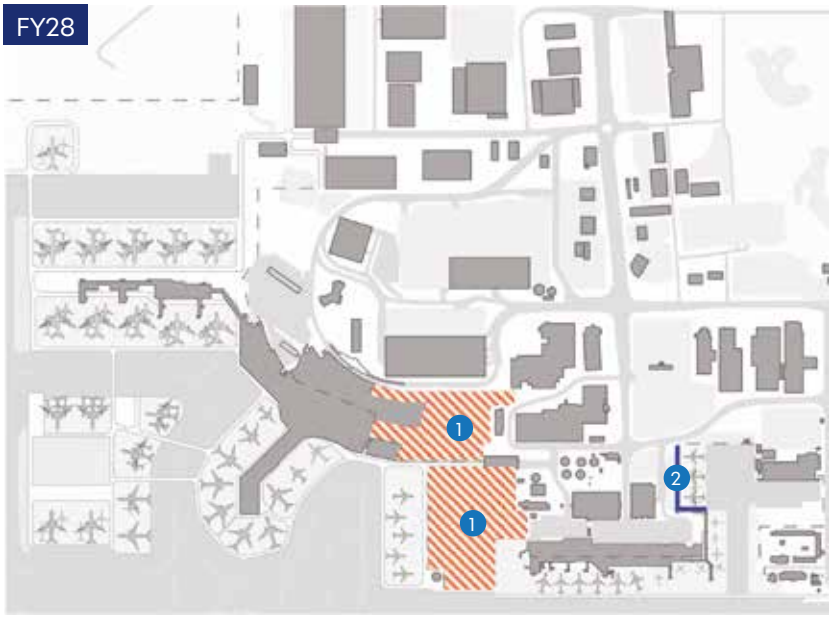
It is assumed that regional screening of passengers and cabin baggage will be required from opening. It is assumed that all regional passengers will be screened outbound at Auckland, including the provision of body scanners and full-length screening lanes with CT-CBS equipment.

Departure lounge, dwell and piers

Regional operations are expected to be based on a call-to-gate operation from the new regional facility headhouse. Flights to/from Tier II regional airports will operate from Pier A3, and flights to/from Tier III airports will operate from Pier A4. Pier A3 is expected to be a narrow pier with some seating and amenities, whereas Pier A4 is expected to be a simple covered walkway.

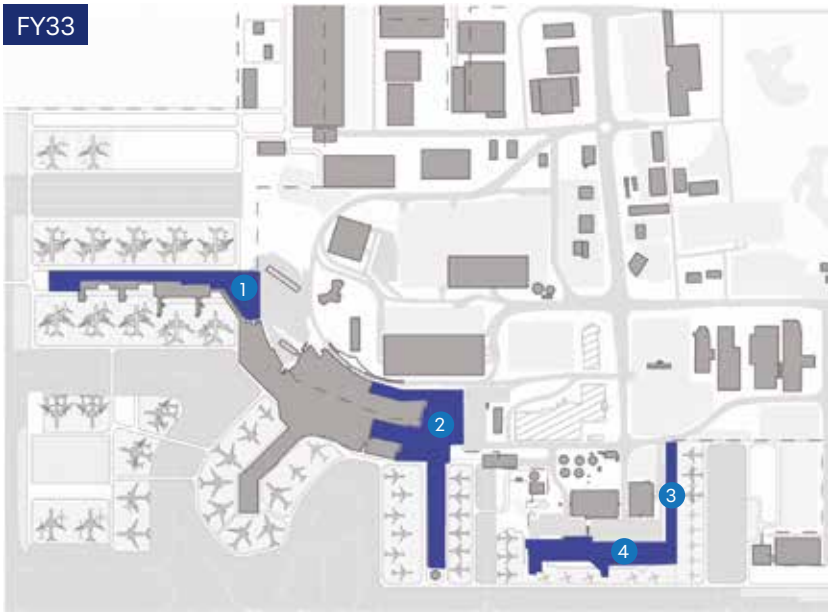
Figure 35: Terminal precinct evolution throughout the Master Plan period

FY28



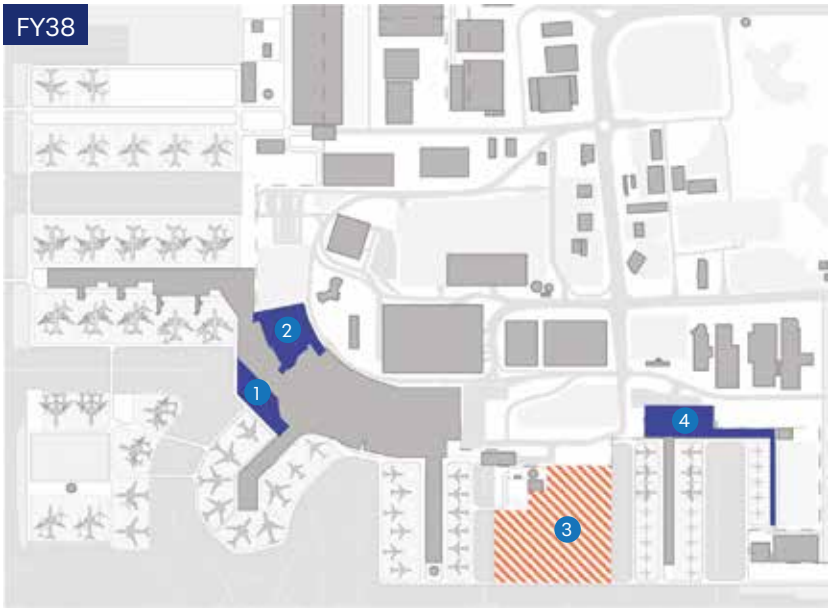
1. **Domestic processor construction still in process.**
2. **Pedestrian walkways for walk-out contact operation to the new regional stands.**

FY33



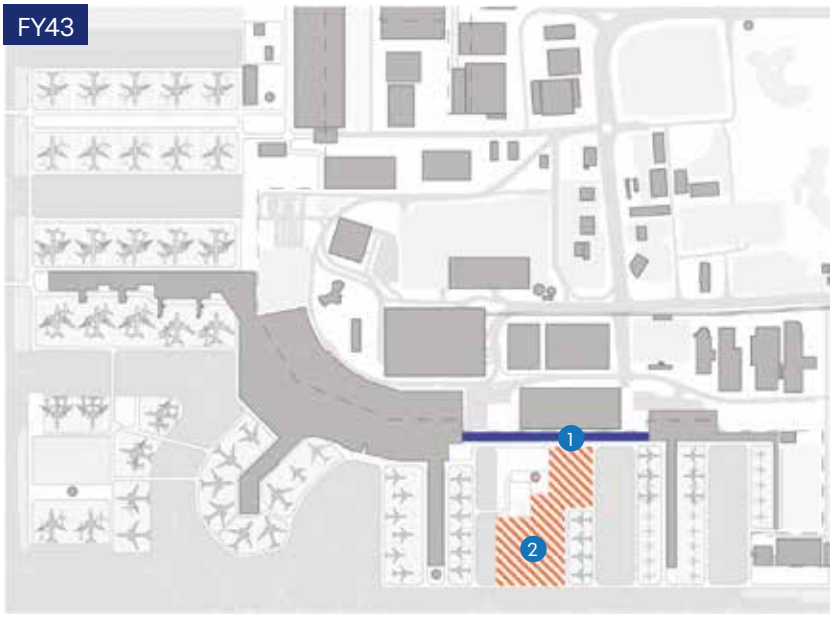
1. **Pier B widened to serve contact positions in the north & pier end.**
2. **Domestic processor in operation by FY29.**
3. **Pier A3 fully developed and linked to the DTB.**
4. **DTB internal reconfiguration and stands reconfigured as power-out turbo prop.**

FY38



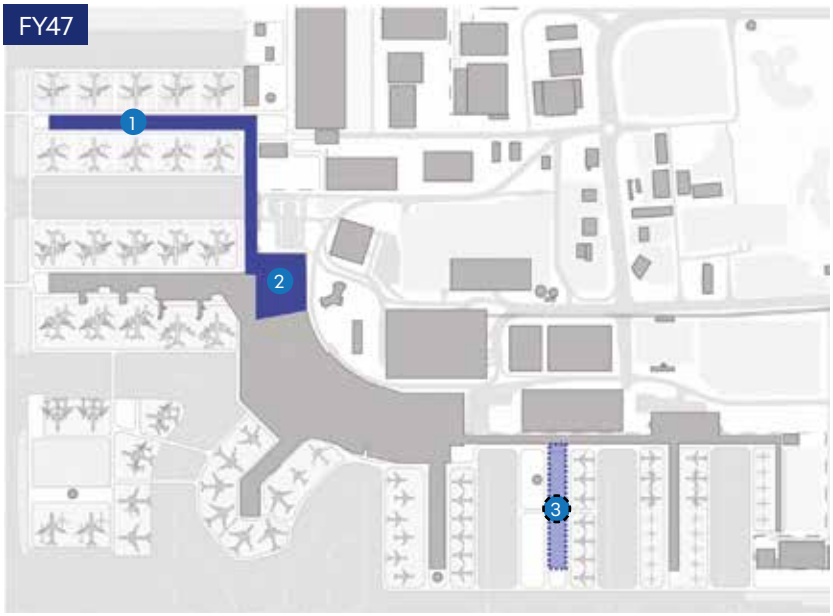
1. **Terminal extension to accommodate for additional baggage make-up area.**
2. **Terminal extension to accommodate for MPI and international arrivals hall.**
3. **DTB building, aircraft stands, and landside road system decommissioning commences.**
4. **New regional terminal and Pier A4.**

FY43



1. **Pedestrian bridge connector between the integrated terminal and new regional terminal.**
2. **DTB building, aircraft stands, and landside road system decommission continues.**

FY47



1. **Pier C implementation.**
2. **Northbound extension of the integrated terminal.**
3. **Pier A2 construction commences.**

FY28	FY33	FY38	FY43	FY47
Domestic processor construction still in process. Pedestrian walkways added to the DTB for walk-out contact operations to the new Code C stands at the end of TWY C5	Pier B is expanded to serve contact positions in the north and pier end. Domestic processor in operation in FY29. Pier A3 fully developed and linked to the DTB; boarding gates only on its eastern side. DTB reconfigured and linked to Pier A3 with all walk-out gates.; reconfigured stands as power-out turboprop remotes	Mini-wedge extension for baggage area with potential lounge relocation. Northbound extension of the integrated terminal for MPI & international arrivals hall. DTB, stands, & road system decommissioned; Pier A2 stands construction begins. New regional terminal and Pier A4 added.	Pedestrian bridge linking the Integrated and new regional terminal. To include horizontal transport to aid transfer passengers and ICS for baggage transfer. DTB, aircraft stands, and landside road system decommission ongoing. Pier A2 stands construction underway.	Pier C: Southern façade contact positions added; northern ones pending as required for FY2047. Northbound extension of integrated terminal available for reconfigurations on the first & ground floors, including lounge, dwell, and arrivals functions. Pier A2 to be added later as not required in FY47, flexible for use domestic and regional.

Chapter 7

Surface access

As the Auckland region's third road controlling authority, Auckland Airport owns and operates about 24km of roads accommodating more than 80,000 vehicle movements a day.

Within the airport precinct, the system encompasses:

- Roads, parking and terminal forecourts.
- Sustainable transport including public transport infrastructure and paths for walking and cycling.

The vision

Auckland Airport's overarching surface access vision for its network is 'connecting people and place through seamless journeys', underpinned by the following objectives:

- Customer experience: Providing seamless access across the precinct to create positive travel experiences for all.
- Reliable: Ensuring reliable travel within the precinct for all modes, to provide confidence that people, goods and services will reach their destinations safely and on time.
- Better travel choices: Deliver a multi-modal network that encourages travel choices.
- Environmentally sustainable: A system that seeks to reduce vehicle emissions.
- Resilient and responsive: Ensuring redundancy in the system to cater for unforeseen events, and to adapt to climate-change impacts.

Guiding principles

Auckland Airport takes a 'terminal-first' approach to planning its roads, parking, forecourts, and sustainable transport, guided by the following principles:

- Setting the foundation for an accessible and well-connected airport, supporting its role as a key regional and international transport hub.
- Creating a robust, efficient and sustainable transport network that meets the needs of air travellers, employees, businesses on the precinct and in the wider community.
- Managing surface access in and around Auckland Airport to ensure people and freight travelling to/from the airport precinct reach destinations on time and safely.
- Being able to accommodate the growth in travellers, freight and commuter movements expected over the Master Plan horizon.

7.1 Wider context

Historic growth and its influence on the network

Over the last 30 years, Auckland Airport's surface access network has grown in response to precinct expansion.

For example, the increase in Auckland Airport's footprint and offering has led to the creation and realignment of roads, the introduction of shared paths, and the delivery of multiple car parks and forecourts across the site so air travellers can easily access terminals.

Transport infrastructure external to the precinct has also evolved over this period, most notably, the completion of SH20A (Kirkbride Road Interchange - The Landing Intersection) and SH20B (Puhinui Interchange - Orrs Road) by the New Zealand Transport Agency Waka Kotahi (NZTA).

Having these connections with the South-west Motorway (SH20) and the completion of the Western Ring Route around Auckland in 2023, has changed the way people access the airport.

Summary of progress since the 2014 Master Plan

Since the adoption of the last Master Plan, Auckland Airport improved access and choices for people travelling to/from the airport through investment, including:

- Strengthening the northern and eastern accesses by providing more lanes, more efficient intersections, transit lanes and shared paths.
- Developing a freight bypass route to divert traffic away from the critical terminal accesses.
- Improving forecourt and terminal access, with a one-way road system and a new terminal exit road.
- The opening of the Transport Hub for public pick-up and drop-off, valet parking, rental car outlets and more than 2,000 car parking spaces.

7.2 The existing network

Roads, parking, and forecourts

Auckland Airport's 24km of roads accommodates more than 80,000 vehicle movements a day with about 7% heavy vehicle movements. Auckland Airport's roads, car parks and forecourts have been designed with the primary goal of getting air travellers safely and efficiently to and from the terminals.

Access to the airport is provided primarily via the state highway network, with SH20A connecting to the South-west Motorway (SH20) from the north, which caters for about 62% of vehicle movements, and SH20B connecting to South-west Motorway (SH20) from the south-east, carrying about 38% of vehicle movements.

Together, these three state highways connect Auckland Airport and surrounding areas to the wider region, supporting economic growth and productivity, and providing local access to employment, social and other opportunities. The significant improvements to the state highway network have also led to increased development around the airport precinct. Local and central government need to consider further transport infrastructure and public transport services to retain reliable and efficient access to the airport on critical transport links.

Within the precinct, George Bolt Memorial Drive and Tom Pearce Drive link the state highway network to the international and domestic terminals, while also providing access to various destinations across the precinct and supporting airport operations.

The precinct offers more than 18,500 car parks for the public, staff, and tenants, excluding those within developments at The Landing. Travellers can choose from a variety of parking options near the terminals, including valet, premium, and standard parking. Additionally, two affordable Park & Ride facilities are available: one off Verissimo Drive in the north and another off Puhinui Road in the southeast, both offering free regular shuttle services to the terminals.

Public pick-up and drop-off and dedicated facilities for buses, shuttles, taxis and rideshare are provided adjacent to the terminal buildings.

Sustainable transport

Two public transport routes serve Auckland Airport, both operated by Auckland Transport (AT):

- The AirportLink to/from Manukau City Centre, via Puhinui Station. This connects to both the Eastern (Waitematā Britomart - Manukau) and Southern (Waitematā Britomart - Pukekohe) rail lines.
- Route 38 to/from Onehunga Town Centre, via Māngere.

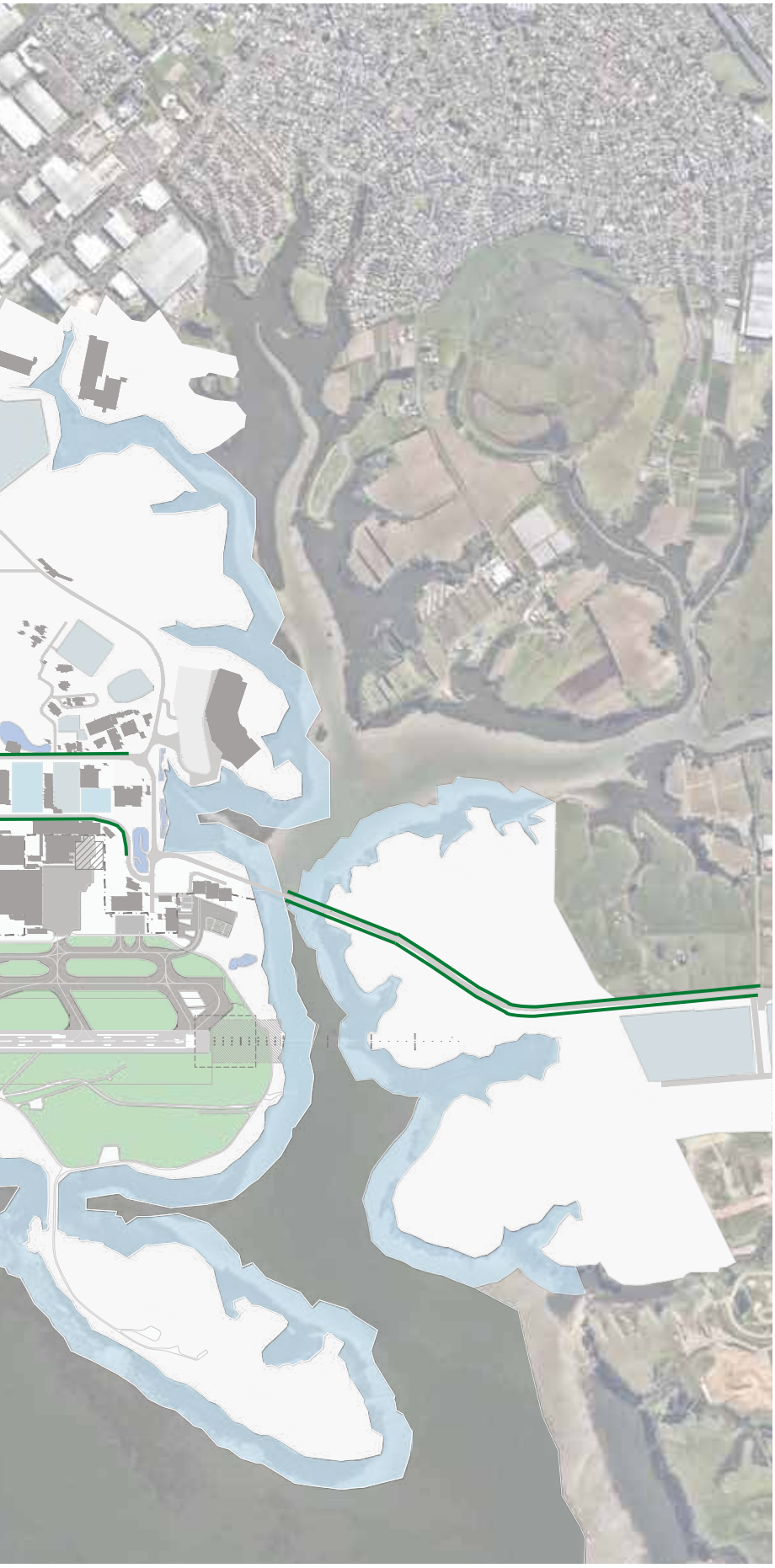
Auckland Airport caters for a variety of services transferring people across the precinct to and from destinations in the region. These include:

- SkyDrive: A direct coach service operating between the airport and the Auckland City Centre.
- Shuttle operators: Providing services between the Airport and off-precinct Park & Fly providers, hotels and direct door-to-door services.
- Tour coaches transferring passengers between the airport and tourist destinations.

Auckland Airport also shuttles people across the precinct and to nearby hotels using the "Yellow bus", Park & Ride shuttles, and the inter-terminal shuttle.

Most areas are accessible for walking across the precinct including a dedicated inter-terminal walkway (the 'Green Line') for those who wish to transfer by foot. Facilities for cycling are developing, with shared paths connecting The Quad with SH20A and facilities provided in The Landing Business Park. It is intended to progressively develop a connected network through the Master Plan period.

Figure 36: Existing network



Public transport, shuttles, small passenger service vehicles only (Commercial transport)

Special vehicles lane

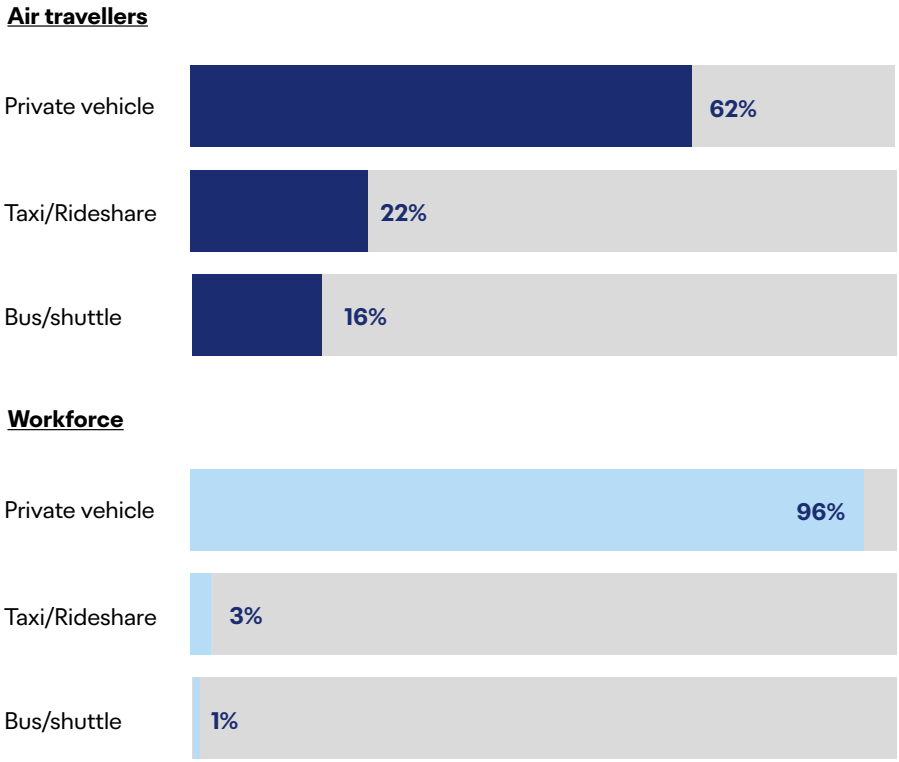
Mode share

For both air travellers and the airport's workforce, a private vehicle (a car, motorbike or van, a rental, or as a passenger in someone else's vehicle) is the most popular way to travel to or from the airport.

The higher use of buses and shuttles for passenger travel reflects the competition and variety of services on offer that cater for the needs of passengers. However, the mode share of non-private vehicle travel for workers is low, is reasonably consistent with the outer urban areas of Auckland[1] and reflects that the alternatives on offer do not meet the needs of the workforce. This in turn affects the ability for Auckland Airport and surrounding destinations to be 'first choice' for prospective employees, making it more difficult to attract and retain the workforce[2].

Auckland Airport wants to see better transport options provided, particularly for the workforce, while also ensuring those who must access the airport using a private vehicle are able to do so in an efficient manner.

Figure 37: Auckland Airport mode share 2023



1. AT Census Analysis
2. Southwest Gateway (Airport Access) Programme Business Case

7.3 Future challenges and opportunities

A growing airport precinct

By 2047, Auckland Airport is expected to process up to 38 million travellers annually (up from 20 million travellers processed in 2019). Across the same period, the precinct workforce is also expected to exceed 30,000 people.

Across the Master Plan horizon increases in traveller, employee, commercial and other trips to Auckland Airport are projected to generate in the order of 135,000 vehicle movements a day, taking into account investment in mass transit from the north and the east[3].

Investment in the road network and connecting parking products within the precinct and on the surrounding network will contribute significantly to accommodating the demands for travel. However, at the forecast levels of vehicle demand, a significant uplift in public transport patronage, vehicle occupancy and active modes will be required to move people and freight more efficiently over the Master Plan period.

Reliability/availability of public transport services

Auckland Airport has the second-highest employment density in the Auckland region, and there is an opportunity to accelerate the uptake of better travel options.

To contribute to accommodating the growth in both travel and employee demand, the airport precinct will need to be supported by a combination of Auckland city and regional infrastructure and services including:

- Mass transit.
- Shuttle buses and on-demand services to improve access for workers.
- More public transport services reaching a wider range of areas.
- Infrastructure that ensures the reliability of these services.

Auckland Airport is committed to continue working closely with local and central government to improve public transport serving the precinct.

New technologies

The surface access system has evolved and will continue to evolve as new or enhanced technologies are implemented.

Across the Master Plan horizon, it is expected the following may influence the time people arrive and the way people travel to and from the airport:

- Continued rise of ride-sharing, shared-ride and on-demand services.
- Mass transit modes and technologies.
- Remote check-in facilities / services (if introduced).
- Time-of-use charging and road user charging regimes.
- Connected autonomous vehicles.

3. A2B 20Connect Business Case, MSM (website)


Auckland Airport

7.4 Planning a network suitable for the future

Infrastructure

Auckland Airport and the wider roading network need to be able to accommodate the growth in demand that is expected to occur across the Master Plan period, while also ensuring a continued 'terminal-first' approach to planning.

Providing and catering for different travel choices and parking products is crucial in meeting the overall demand for travel, while being able to provide resilient, and reliable services.

Building on the wider context and the existing network, as well as taking advantage of future challenges and opportunities, four areas for development have been identified:

- Improving network management and operations.
- Strengthening access to and from the terminals.
- Enabling mass transit and public transport services.
- Making it easier to cycle and walk.

Alongside infrastructure interventions, a range of proportionate behaviour-change initiatives will also be required to help achieve Auckland Airport's surface access vision of 'connecting people and place through seamless journeys'. These will be determined by demand across the Master Plan horizon, and will need to be underpinned by better public transport options, and may include:

- Workplace travel plans.
- Behaviour change information campaigns.
- Carpooling schemes.
- Promotion of infrastructure and/or services.
- Public transport fare incentives.
- Ride-to-work benefit schemes.

7.5 Strengthening access to and from the terminals

Improving network management and operations

How the network develops and is future-proofed will have a critical impact on its operational efficiency, as well as customer experience. For the road network, Auckland Airport will continue to align its levels of service with AT's Auckland Network Operation Plan (2021) and NZTA's One Network Framework (2023), which were developed from international best practice.

The application of these levels of service will ensure the principles of prioritising time-critical travel, public transport, freight and high-occupancy vehicles is followed through the Master Plan horizon. Overlaying operational requirements with cost-effectiveness will ensure investment in the airport's surface access network will deliver the optimal balance between experience, operational efficiency and costs.

Processes to better manage the network may include:

- Improving the efficiency of public pick-up and drop-off areas.
- Providing a range of parking products to air travellers, from low-cost through to premium options.
- The use of technology for parking management and enforcement.
- The use of an intelligent transportation system (ITS) for dynamic wayfinding.
- Developing a network of Special Vehicle Lanes.
- Introducing dynamic lanes where appropriate.
- Implementing strategically located, low-cost products for staff and travellers to support reduced congestion within the precinct.

Continuing a 'terminal-first' approach to planning

Improving vehicle access to and from terminals is vital for operational efficiency and for traveller convenience. A well-designed road network with adequate traffic management is essential for facilitating vehicle flows and reducing congestion, contributing to more reliable, safer and resilient travel across the precinct.

Strengthened access will involve:

- Targeted road capacity and intersection improvements across the precinct, and major capacity improvements connecting with SH20A to the north and SH20B to the south-east.
- Expanding parking capacity and options at and near the terminals with clear wayfinding and efficient payment systems.
- Dedicated facilities outside the terminals for buses, ride-sharing services, shuttles and taxis.
- Improving the capacity of access and egress at the terminals and forecourts.

7.6 Corridor protection for mass transit and public transport services

Auckland Airport will continue to work with AT and NZTA to secure mass transit to the airport from both the north and the south east. Whilst the timing of mass transit is not known at this stage, land corridors within the airport precinct have been identified to accommodate the Airport-to-Botany Rapid Transit project (A2B) and future mass transit from the north.

To demonstrate the airport's commitment in supporting AT and NZTA in the delivery of mass transit, the airport will:

- Provide and protect land corridor(s) for mass transit.
- Future-proof the next stage of the Transport Hub to accommodate an integrated mass transit station connecting with the international terminal.
- Provide and protect land for a station near The Quad that will also provide access to the future regional terminal.
- Continue working with Auckland Transport and NZTA to identify if they need to protect more land for additional stations across the airport precinct.

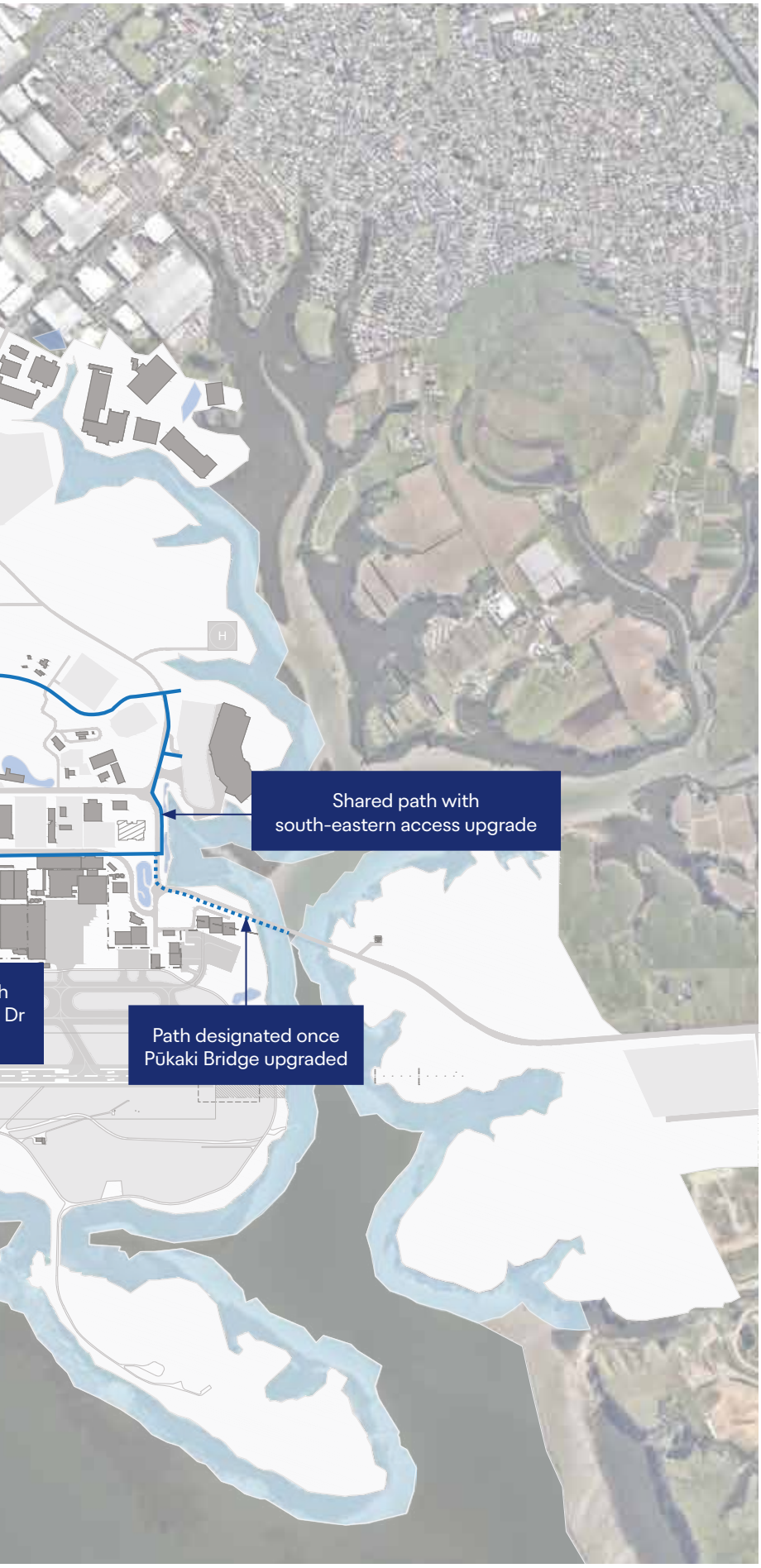
7.7 Making it easier to cycle and walk

Better active-mode connections for better journeys

To meet the increasing demand for travel choices and to promote sustainability, Auckland Airport is working to progressively expand our network for walking and cycling. Through the Master Plan horizon, various initiatives are expected to be delivered as Auckland Airport grows including:

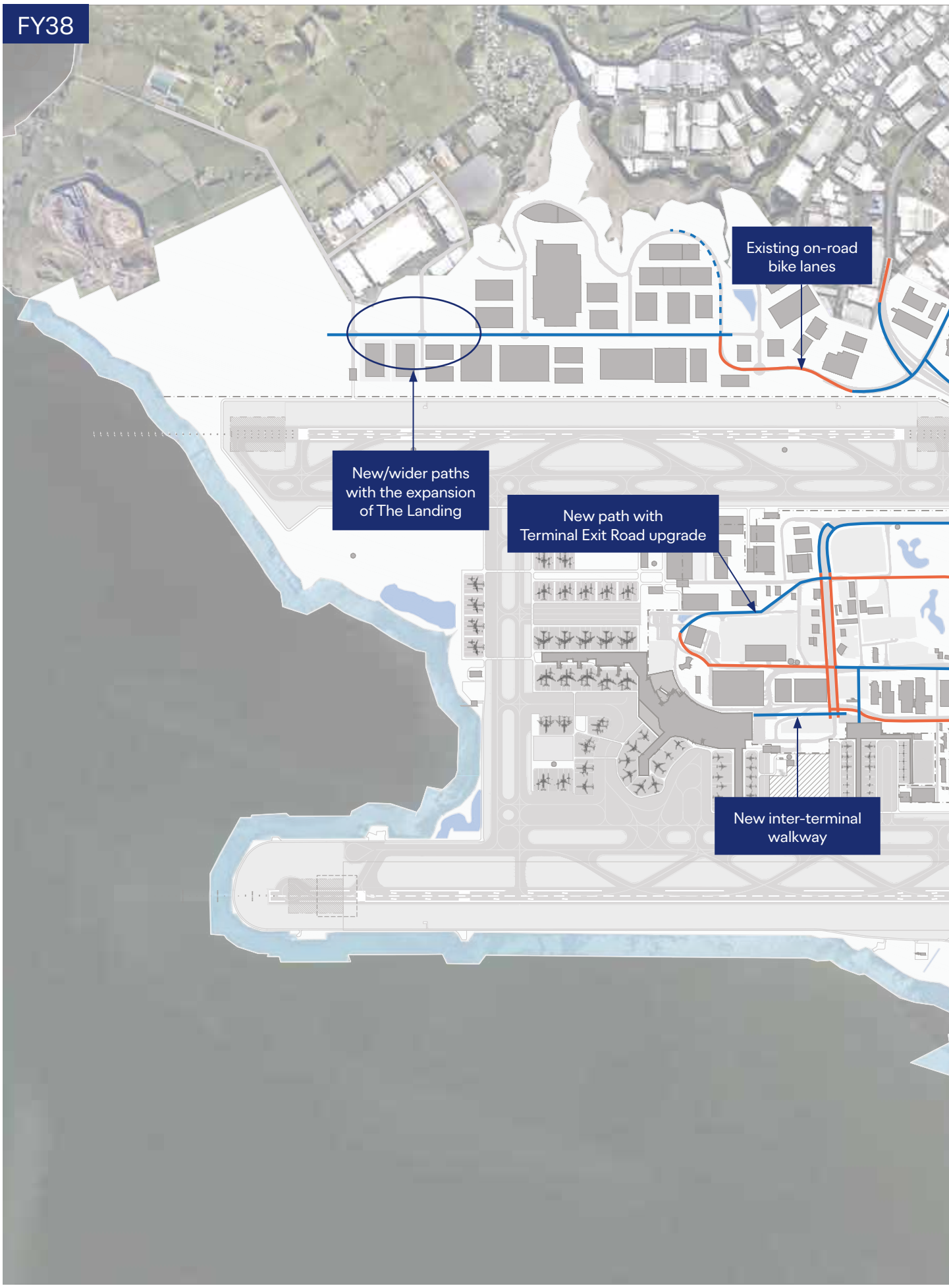
- Progressively developing a shared-path network connecting the paths on SH20A and SH20B to the terminals and other destinations across the precinct.
- Improving crossings to ensure safety and easier movement across busy roads, between areas and to public transport connections.
- Implementation of appropriate wayfinding, lighting, and signalling to provide a better environment, particularly for trips internal to the Airport precinct.
- Implementation of end-of-trip facilities.

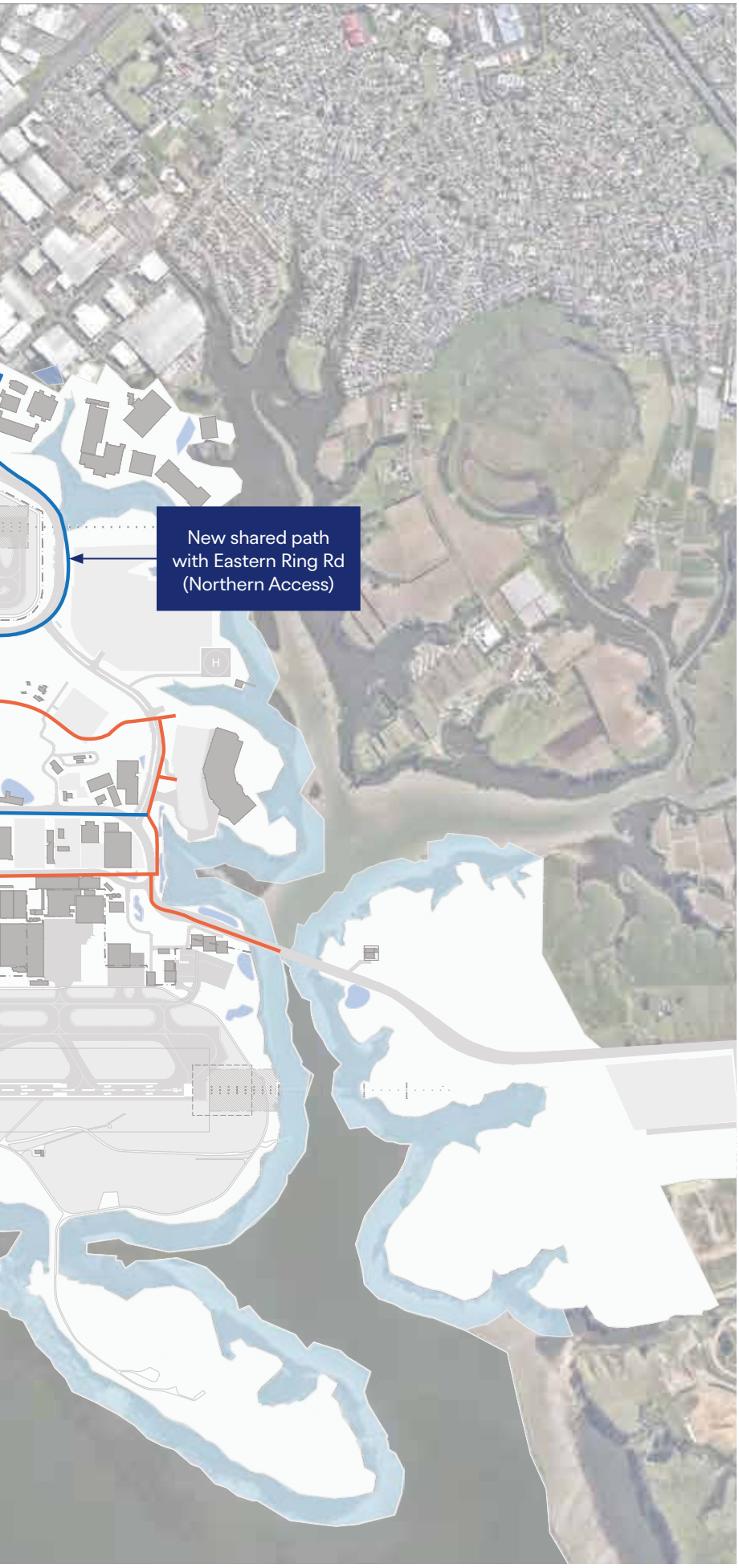
Figure 38: Cycle and walking paths throughout the Master Plan period



Existing shared paths

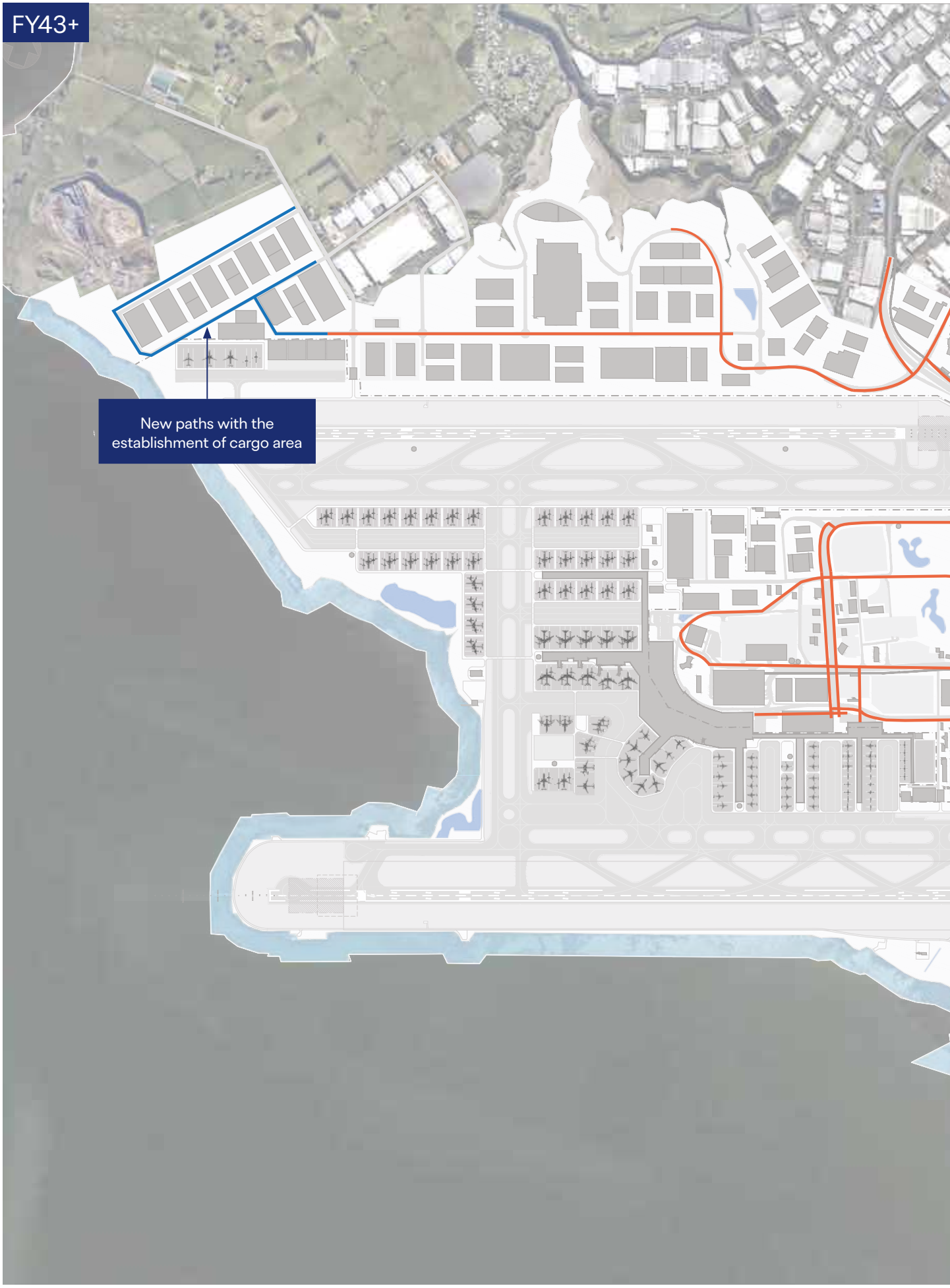
Upgraded or new shared path

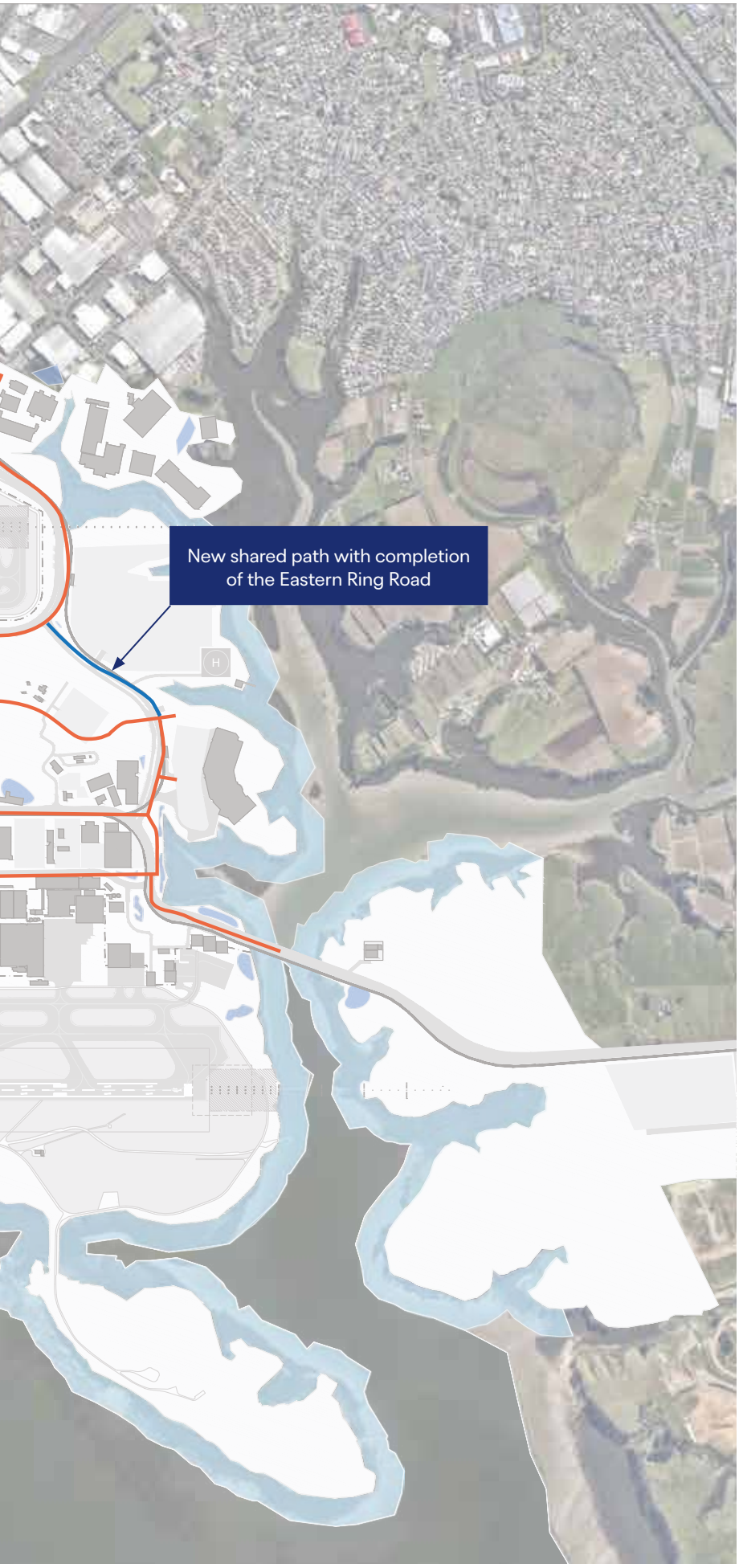

FY38
Existing on-road bike lanes
New/wider paths with the expansion of The Landing
New path with Terminal Exit Road upgrade
New inter-terminal walkway



Existing shared paths

Upgraded or new shared path

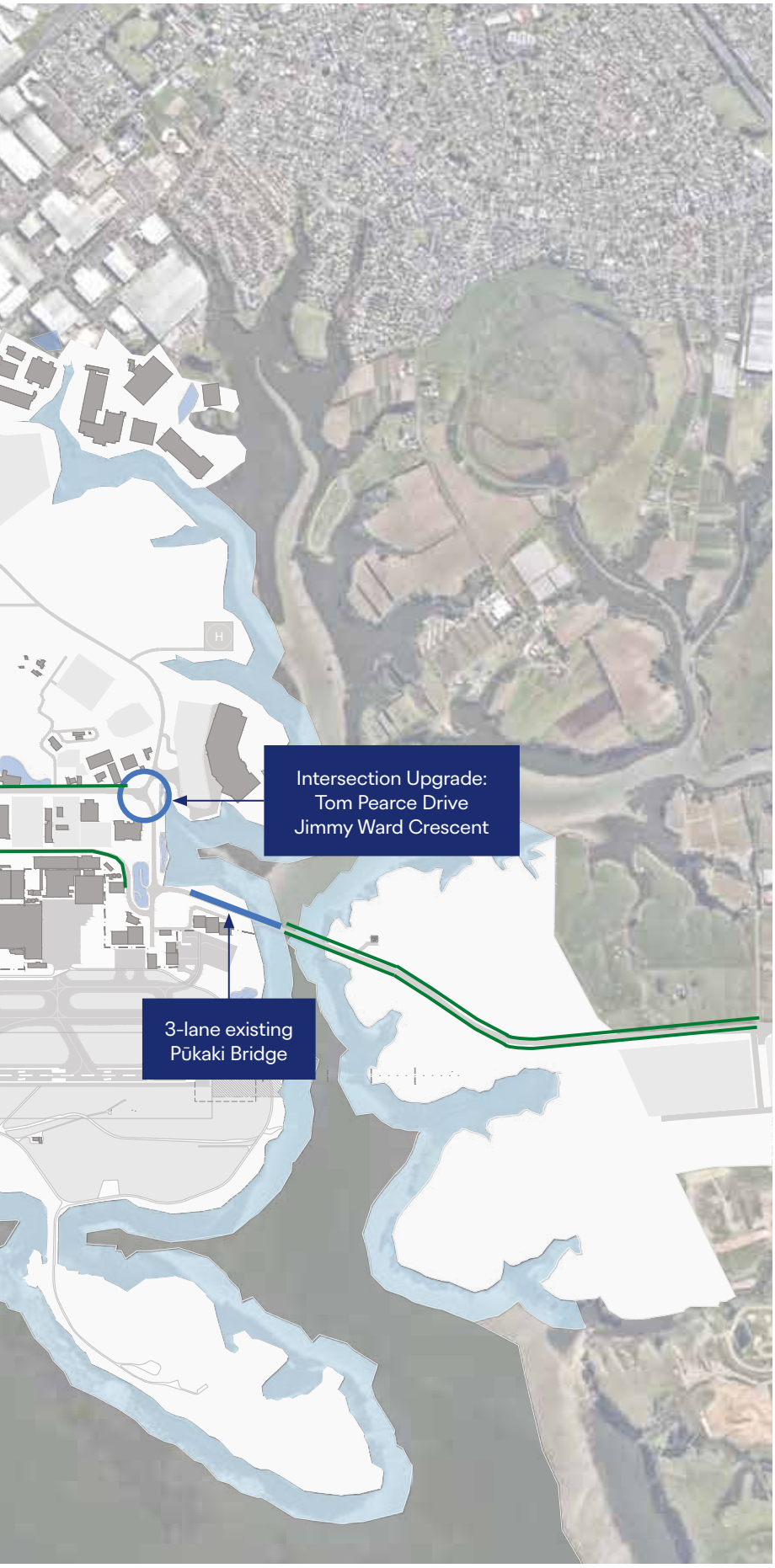

FY43+
New paths with the establishment of cargo area



Existing shared paths

Upgraded or new shared path

7.8 Changes to the surface access through the Master Plan period

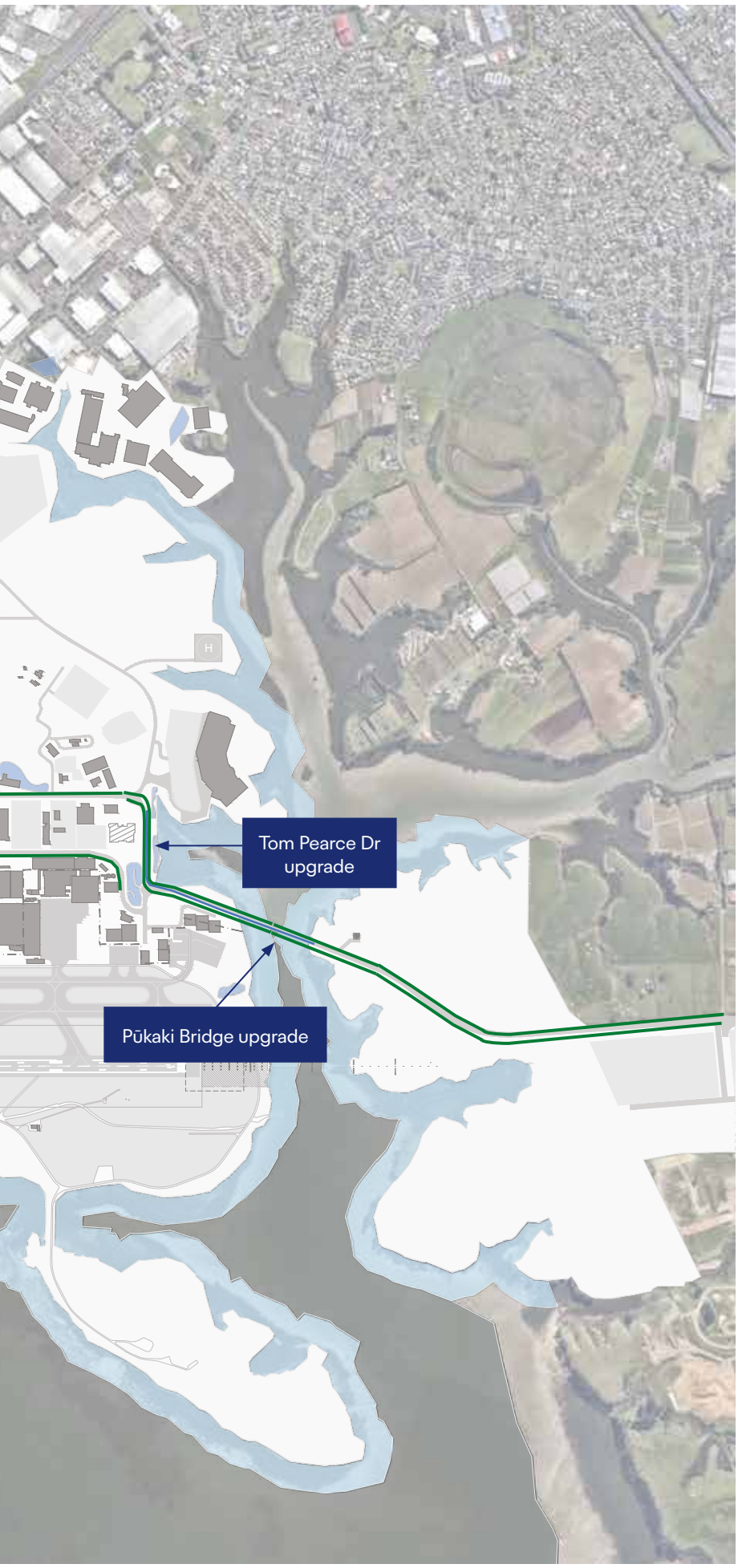


Public transport, shuttles, small passenger service vehicles only (commercial transport)

Special vehicles lane

Road interventions

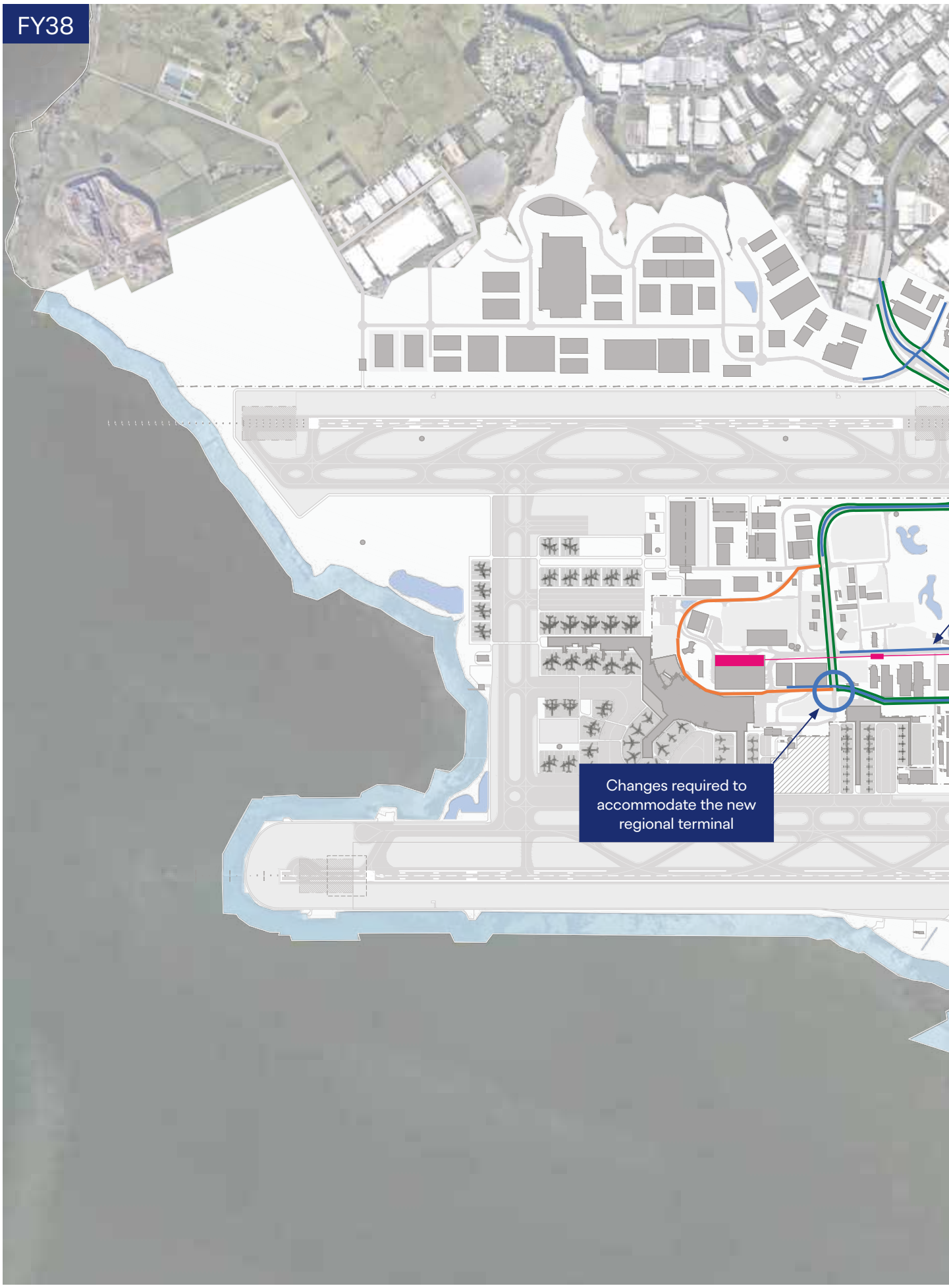

FY33
Intersection upgrade

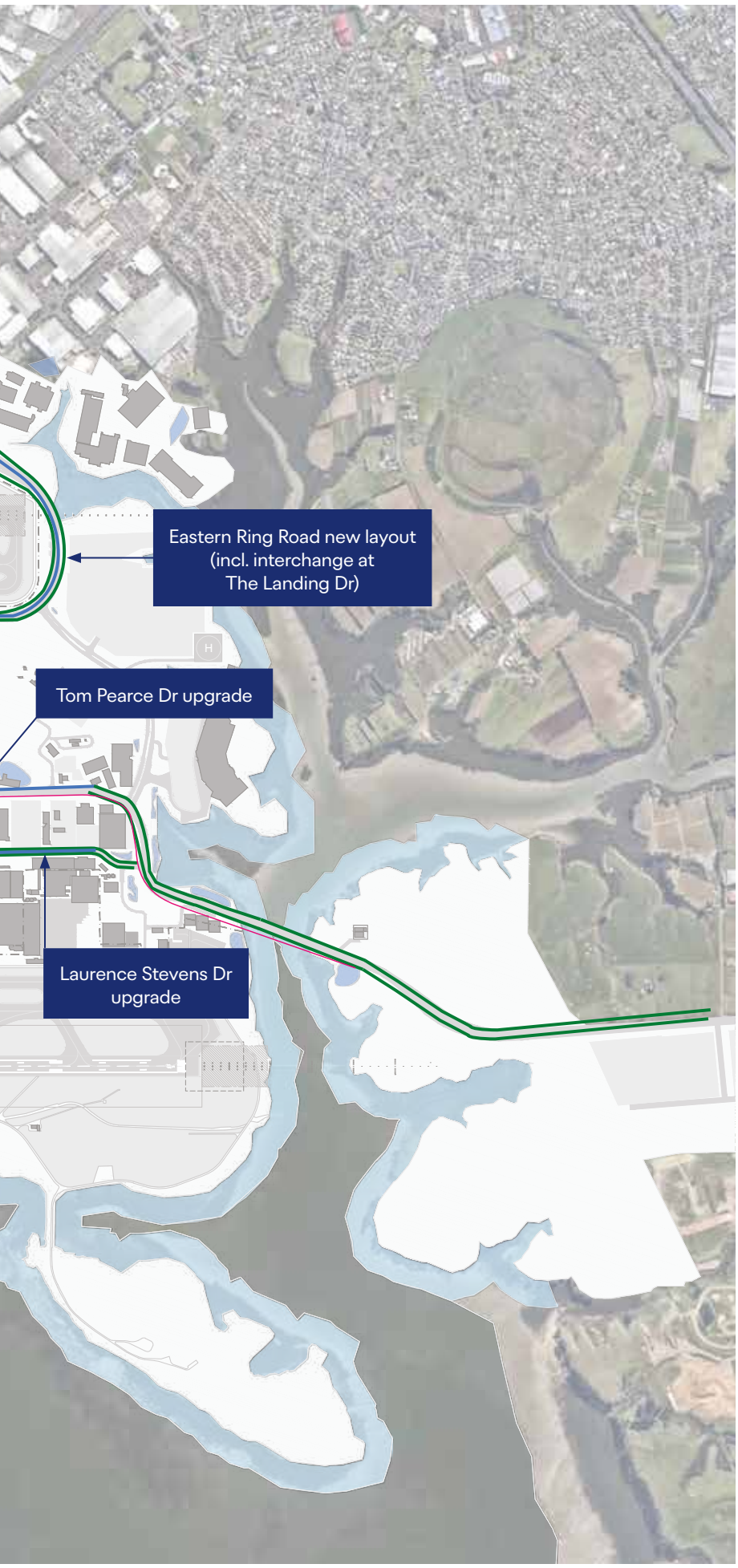


Public transport, shuttles, small passenger service vehicles only (commercial transport)

Special vehicles lane

Road interventions


FY38
Changes required to accommodate the new regional terminal



Public transport, shuttles, small passenger service vehicles only (commercial transport)

Special vehicles lane

Road interventions

Mass transit


FY47+
Intersection upgrade

Public transport, shuttles, small passenger service vehicles only (commercial transport)

Special vehicles lane

Road interventions

Mass transit

Chapter 8

Utilities and services

Utilities and services are distributed across the airport site, providing essential support to existing infrastructure and future developments. Utility upgrades are key to building climate resilience and are an integral part of Auckland Airport's decarbonisation strategy.

Current context

Auckland Airport owns the main utilities and networks serving the key assets across the airfield, terminals, ground transport and support facilities at the airport, including:

- Aircraft fuel
- Electricity and power (high voltage network only)
- Information and communication technology
- Gas
- Potable water, wastewater and recycled water
- Stormwater.

Auckland Airport actively monitors, enhances and upgrades its utility infrastructure to ensure it remains resilient and capable of adapting to evolving needs and challenges, and provides a robust foundation for sustained growth and reliability.

The staged development of Auckland Airport's land and infrastructure, as outlined in this Master Plan, is reflected in the utilities development plan (UDP), aligning the required services with future infrastructure needs.

The UDP also provides safeguards for future technology transitions, while avoiding redundant infrastructure provision. This alignment avoids constraining the development of critical airport infrastructure, while safeguarding and catering for the organic growth of the airport.

A number of projects in the UDP are referenced in this Master Plan given their advanced design stage. These projects have been considered as hard spatial constraints in the development of infrastructure for the different Master Plan horizons.

8.1 Aircraft fuel distribution network plan

The existing joint user hydrant installation (JUHI) features five tanks for Jet A1 fuel with fuel transported to the aircraft via an underground hydrant system or in tankers. A hydrant pipeline services international stands, while the domestic aircraft stands are tanker-fed.

Sustainable aviation fuel (SAF) can be transported using the existing pipelines, hydrant systems and/or refueller tankers, and used in existing fleets without modifications. This is possible because SAF is a 'drop-in' fuel manufactured to the same standards as conventional Jet A1 fuel, which means it can be blended with kerosene-based fuel. As a result, handling SAF does not require any extra infrastructure. Pre-blended SAF parcels, arranged by individual airlines and their fuel suppliers, has already been delivered to aircraft via the existing hydrant system. Airlines are also not precluded from arranging their own SAF refuelling requirements with their fuel supplier by road tanker deliveries.

The lease period of the existing JUHI is set to expire in FY35, allowing for its relocation away from the central airport area.

Its relocation will allow future terminal expansion and the eventual introduction of Pier A2 in horizon FY47. The relocation process will also enable the expansion of the JUHI thus improving system flexibility and resilience, and resolving the vulnerability of the existing hydrant system due to the single supply line feeding every aircraft stand.

Future apron developments will expand the hydrant network to domestic parking positions; but, tanker capabilities will be retained to service regional traffic. A new fueller facility has also been identified as part of the relocation process.

The relocation of the JUHI will require the selection of a new site with sufficient area to host long-term fuel requirements and provide a safety buffer away from areas of public and staff occupancy. This will lead to significant area requirements and spatial limitations that will constrain developments of interfacing infrastructure.

Two alternative locations are under consideration for the new JUHI:

- **Option 1:** Located between Tom Pearce Drive and Laurence Stevens Drive.
- **Option 2:** Located on the Puhinui Peninsula at the end of Orrs Road, adjacent to Pūkaki Creek.

The final site selection is still under discussion.

8.2 Electrical distribution network

Auckland Airport's electricity requirements are sourced via Vector's 33kV electricity network to the north of the airport precinct.

Power Centre Intake (PC Intake), located in The Quad precinct, is the demarcation point between Vector's electricity network and the Auckland Airport 11kV embedded network. Vector owns and manages the two existing 25MVA transformers on the site. Supply from the two transformers is transferred to two 11kV switchboards (PCI-A and PCI-B) owned by Auckland Airport.

Due to projected organic electricity demand and the delivery of new infrastructure projects, Auckland Airport forecasts the electrical load at PC Intake will reach the capacity of the transformers in 2028-29 to coinciding with the Domestic Jet Terminal opening.

Planned network capacity expansion is underway to increase the capacity with more transformers to be completed in 2027. This is set to provide sufficient capacity to the network for the whole Master Plan period, including the allowance required for ongoing capital projects such as the Domestic Jet Terminal and electrically powered ground-support equipment (eGSE), electric vehicle charging, and other commercial building developments.

In addition, Auckland Airport's decarbonisation strategy will increase the reliance on electricity away from fossil fuel use for various services. These include:

Ground support equipment transition to eGSE

- Gradually replacing the existing diesel GSE fleet with electric vehicles will require multiple charging points on existing and future aprons, as well as upgrades to the underground cabling network.
- The total power requirement once fully implemented is expected to reach 2MVAs.

Electric vehicle charging locations for private passenger vehicles, car rental, staff and public transport

- A centralised private vehicle charging hub is planned for the commercial area in The Quad by The Warehouse, initially with 10 charging bays. More bays could be added as a second stage. Private-vehicle charging is being installed at Mānawa Bay and charging points are available in the Transport Hub. It is estimated the total power demand precinct wide for EV charging could reach 2 MVA.
- Bespoke solutions are provided at car rental locations. At present individual charging points are provided at tenant locations but as the car rental offering evolves, outlets will be centralised to a single location in a centralised charging location.
- Staff will also be able to use the centralised passenger charging hub, with the potential for secondary chargers in each tenant's precinct.
- Charging locations for public bus transport have been provided for.

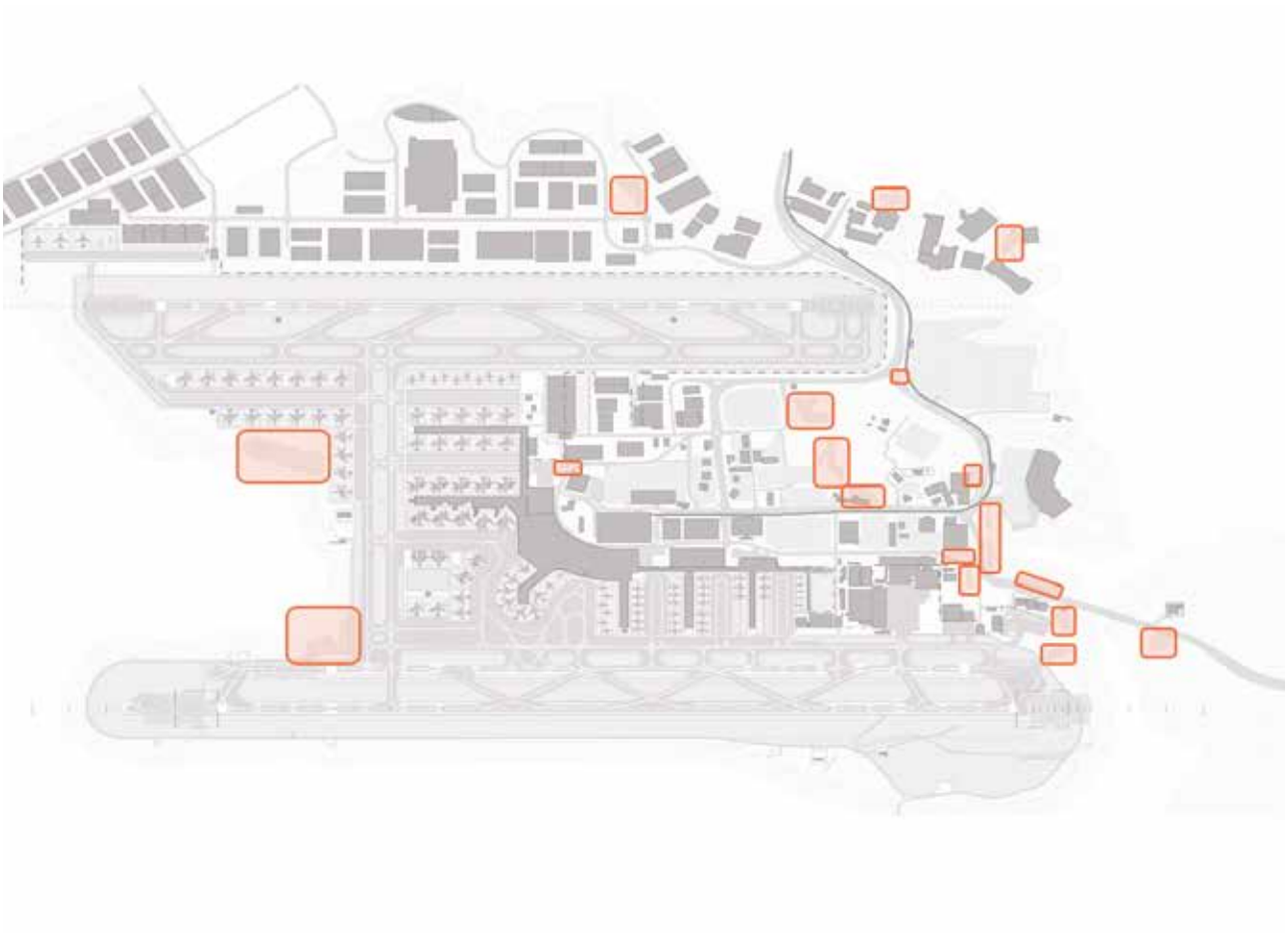
8.3 Stormwater

Upgrades to Auckland Airport's stormwater infrastructure will provide extra capacity for stormwater treatment and management, and additional resilience during times of extreme weather.

Stormwater ponds, both new and existing will use coupled wetland biofilter technology, a water treatment system new to New Zealand that uses an innovative method to treat up to three-times the volume of water compared to traditional stormwater ponds. A native-plant wetland works to remove contaminants through natural processes like sedimentation and plant uptake, with a small stormwater pond biofiltration system providing additional treatment and temporary storage during heavier rain. The biofilter pond will be covered with bird-proof netting to ensure it doesn't become a habitat for wetland birds, which could pose a risk to aircraft. The expansion of the airfield to add taxiways and seven remote stands includes New Zealand's first coupled wetland biofilter system.

The Master Plan layouts display the final stormwater pond and biofilter network given these act as hard constraints for infrastructure expansion.

Figure 39: Stormwater pond and biofilter network at the end of the Master Plan period



8.4 Wastewater

The upgrade plans for the wastewater network across the airport involve the expansion, upsizing and upgrading of the existing network to cater for growth in demand, and the construction of new pumping stations to facilitate the expansion of the network. This will involve the decommissioning and removal of sections of the network across the airport site, as follows:

- Pipework around Ray Emery Drive, Laurence Stevens Drive, Cyril Kay Road and within the airfield at the location of the new regional and domestic piers.
- Decommissioning of pump stations in the Pier B area, in an airside location and in the Pullman Hotel area.

The removal of these pump stations and rearrangement of the network will ease future terminal expansion towards the north. Despite this, some limitations for infrastructure development remain. The existing pump station by Car Park K has been safeguarded within the network, because it provides a four-day storage capacity for waste coming from the terminal buildings. Developments in this area will avoid any interference with the infrastructure.

8.5 Digital and fibre

As discussed in the Master Plan considerations chapter, Auckland Airport's digital strategy is grounded in three key principles - building resilient technology, developing an experience led mindset, and modernising infrastructure.

Auckland Airport has developed and constantly reviews the utilities development plan, which outlines several strategic interventions required to maintain the overall precinct system, while ensuring resilience and capacity for future growth.

These interventions include the addition of new distribution points, pathways, and communication cabinets.

One of the most significant upgrades is the installation of the external communications cabinet PC-63 on the western side of the future TWY M. This critical placement not only supports the airport's ICT infrastructure but also guides future development, limiting southbound expansion of the western remote stands for TWY M and paving the way for the creation of the north-western remote apron instead.

8.6 Outlook to the future

Aircraft electrification

Air New Zealand has embarked on a journey called Flight NZ0 with the commitment to reach net-zero carbon emissions by 2050. The technology is still in development, and it is assumed its application will be limited to regional and domestic traffic. Consequently, Auckland Airport's strategy is to plan for future developments with flexibility and future-proofing in mind, ensuring the airport can adapt to these emerging technologies and sustainability goals.

Independent studies suggest a secondary power centre will be required exclusively for supplying aircraft electrification. In addition, appropriate ducting and cabling will need to be provided on the apron to reach the transformer charging equipment on the head of stand.

Two potential locations have been safeguarded in the Master Plan for the power centre required to cater for electric aircraft energy requirements. Additionally, PC12 located in the old cargo building in Car Park K will be retained, making the location a hard constraint for future developments.

Hydrogen

Because hydrogen cannot be combined with existing aviation fuel, its implementation will require separate transport and storage infrastructure, triggering major developments at Auckland Airport. Onsite hydrogen production or liquification has not been considered at this stage.

A high-level hydrogen storage study has been completed to calculate hydrogen demand under three scenarios: low, base and high. This study was purely theoretical and aimed to identify the area required for hydrogen storage in the Master Plan, should this need arise.

With regard to aircraft technology and potential fleet replacements:

- No significant replacements are expected before 2035 for the current turboprop aircraft fleet such as DH8C and ATR72. This technology will allow for ranges between 300-1,000km.
- Until 2035, hydrogen technology is likely to be deployed only for nine-seat aircraft and below in the form of test flights with ranges between 200-400km. Larger aircraft (30-50 seats) before 2035 may involve hybrid gas turbine and electric concepts.

It is considered the only airline capable of this technology transition will be Air New Zealand, due to its comparative size in relation to the other domestic carriers and its significant presence at Auckland Airport. Within Air New Zealand's network served by aircraft susceptible to replacement, only a few domestic destinations (Wellington, Christchurch, Invercargill, Dunedin, Queenstown, Palmerston North, Nelson, Napier, Blenheim and Gisborne) are deemed as viable destinations at least until FY43.

By FY47, it is assumed any flight within Air New Zealand's domestic and regional network will be able to be served by hydrogen aircraft regardless of aircraft size, due to widespread improvements. This can potentially be extended to short-haul international flights if similar technologies are available at the destination airport.

Based on the above considerations, two main scenarios have been defined:

- **Initial transition period (FY28 and FY33)**
  - Aircraft powered with compressed hydrogen using fuel cell technology (GH2).
  - Implementation of hydrogen in test flights of the future nine-seat C208 aircraft.
  - Hydrogen generated and compressed off-site, supplied by road tankers to the airport.
- **Consolidation period (FY38, FY43 and FY47)**
  - Aircraft powered with liquid hydrogen (LH2).
  - An estimated hydrogen demand for each year is considered for turboprop-type replacement aircraft for 300km range flights.
  - Hydrogen generated and liquefied off-site, supplied by road tankers to the airport using direct combustion technology.

Potential hydrogen demand scenarios at Auckland Airport

Considering GH2 demand and the lower number of flights, the simple distribution scenario for GH2 refuelling is to have a stationary refuelling station. To avoid unnecessary expenditure, this facility will be located landside with the refuelling process carried out by trucks, making future upgrades for new hydrogen technologies easier.

For LH2, the stored hydrogen will supply the distribution system and is sized to meet airport demand. A refuelling truck could be used to refuel the aircraft, the same as the jet fuel refuelling method, with an updated distribution network to maintain the cryogenic temperature. The actual hydrogen buffer storage will depend on the certainty and resilience of supply, together with the risk analysis of the impact of fuel disruption.

Truck refuelling is likely to be the preferred delivery option in the initial years of hydrogen aircraft operation due to the lower capital cost, regardless of the state hydrogen is transported in. However, when bowser operations begin a dedicated H2 hydrant system may be required to minimise congestion at the refuelling point and on the internal airport road network.

Chapter 9

Non-aeronautical precincts

The non-aeronautical (interim use) precincts support the airport's growth by delivering financial sustainability through the diversification of revenue streams, while enhancing the economic impact of the airport at a local, regional and national level.

This entails leveraging airport-owned property for commercial activities that are generally unrelated to serving travellers or aeronautical operations. It acts as a gateway for freight forwarders entering New Zealand.

Guiding principles

Auckland Airport's property portfolio encompasses a diverse range of commercial ventures that support all aviation services for travellers and employees, serve neighbouring residents, and facilitate logistics.

Moreover, Auckland Airport continually explores new partnerships and business models to support future developments. This initiative is driven by the need to accommodate new business partners and to develop facilities for established partners who now prefer an on-airport location.

As airports continue to evolve into multifaceted businesses, the role of non-aeronautical land development will be crucial in shaping Auckland Airport's future, contributing to a more robust and resilient airport business model for New Zealand's premier hub.

The development of the non-aero precinct will adhere to the following key principles:

- Guarantee the possibility of future expansions of aviation-related infrastructure, which will encompass aviation infrastructure, support facilities, and various aviation related land uses such as logistics, bulky goods, and warehousing activities.
- Safeguard space for future innovations.
- Protect the airport's long-term viability.
- Locate activities that do not require terminal location.
- Provide diversify stream of revenue sources.

9.1 Overview

The Quad and The Landing are non-aeronautical precincts that combine one of New Zealand's newest sought-after mixed-use business precincts, offering world-class facilities set in a stunningly landscaped environment as part of a rapidly growing commercial and recreational precinct.

With the advent of new technologies and business models, opportunities may also emerge for new types of developments that support economic and employment growth at local, regional and national levels.

To maintain market relevance and reinforce flexibility in the medium and long term, the type of potential developments and activities for each precinct should not be interpreted as exclusive or limiting.

Auckland Airport may also consider interim land uses that meet specific criteria and are compliant with applicable regulations and consents.

Interim uses will be planned in a manner that ensures the locations are available when required, limited to short-term leases or developments, to be renewed only if the area is not immediately required for aeronautical or other intended long-term land use. Interim uses will also focus on activities requiring minimal infrastructure support and with rapid decommissioning.

9.2 The Quad

This office campus is ideally suited for private organisations looking to locate adjacent to the airport land and benefit from the synergies and enhanced connectivity.

The Quad has been planned to follow a town-centre concept to create a vibrant, mixed-use hub that integrates retail, commercial, and public spaces to encourage activity and engagement. It prioritises walkability, accessibility and public transport, promoting a diverse range of activities.

Central to the office campus strategy for The Quad are the Quad 5 and Quad 7 office buildings. Located in the heart of the precinct, they provide excellent location, proximity and good profile exposure, as well as connectivity to Auckland Airport's terminal buildings.

The Quad currently accommodates Auckland Airport's corporate offices and is home to various companies including Jetconnect, Ministry of Business Innovation and Employment, Regus, Airways New Zealand and Panasonic. The retail district within The Quad also features well-recognised brands including Woolworths, Chemist Warehouse, The Warehouse, KFC and Taco Bell, among several cafés and restaurants.

The Quad also includes the Te Manukanuka o Hoturoa Marae and the Abbeville Estate heritage area.

Development opportunities are available within the Quad should decentralised Auckland Airport-based businesses consider relocating within the vicinity of Auckland Airport's corporate offices.

At its opposite end, the Mānawa Bay shopping centre has been built with a strong emphasis on sustainable design principles and robust, long-lasting materials with minimal energy requirements. Auckland Airport is deemed to be the first custom-built 5 Green star retail development and includes the country's largest rooftop solar array.

The name Mānawa Bay reflects the airport's unique location on the Māngere Peninsula and the historical and cultural significance of this area to tangata whenua. In te reo Māori, Mānawa means mangroves – a coastal plant species that have long featured in the waterways surrounding the land Auckland Airport sits on, and provides a habitat for native birds and fish.

Mānawa Bay offers premium fashion, athleisure, lifestyle and homeware brands as well as contemporary food and dining options, which supports Auckland Airport as a destination over time. The facility features a 37,000sqm building and 100,000sqm of land, which includes an allowance for 1,400 car park spaces, recreational and outdoor areas, and a waterfront edge.

9.3 Hotels

Auckland Airport houses three hotels on precinct, the Pullman, Novotel and the ibis for a total of about 950 rooms.

The Te Arikinui Pullman Auckland Airport is the most-recent addition to Auckland's hospitality scene, and is the only 5-star hotel in the precinct. It is designed to meet the growing demand for upscale accommodations near the airport. Its history is tied to the expansion of Auckland Airport as a global gateway and reflects a commitment to blending modern luxury with local cultural significance.

The hotel is named Te Arikinui in honour of Dame Te Atairangikaahu, the first Māori Queen, reflecting the commitment to acknowledging and celebrating New Zealand's Māori heritage.

The design and ethos of Te Arikinui Pullman Auckland Airport incorporates Māori elements to create a sense of place for guests. Art, décor, and storytelling within the hotel reflect New Zealand's unique heritage, creating an environment that is both globally sophisticated and locally grounded.

The Novotel, opened in 2011, is a 4.5-star hotel, with a modern restaurant and bar, and meeting and conference room facilities. Located just a short walk from the international terminal and next to the Te Arikinui Pullman, it makes it incredibly convenient for early-morning flights, layovers, or business meetings.

The ibis Budget Auckland Airport is located further from the terminal building, near the Quad 7 area. Auckland Airport's development includes another hotel that was under construction before the COVID-19 pandemic. Work will recommence as soon as it is deemed viable.

9.4 The Landing

The Landing is an expansive 146ha business park located north of the proposed northern runway, about 10km (14 minutes) from Manukau City Centre to the south and 21km (30 minutes) to the heart of Auckland City to the north.

The Landing is home to a number of the world's largest third-party logistics (3PL) and logistics companies including Hellmann Worldwide Logistics, Toll, DHL, Fonterra, Fuji Xerox, CEVA DSV, Bunnings, Foodstuffs North Island, and EBOS.

Since 2012, Auckland Airport has undertaken new developments in The Landing at an average of 35,000sqm a year. About 63ha is already in use or under construction and a further 41ha of future development land is already divided into a range of variably sized sites, contingent on the extension of Te Kapua Drive.

This precinct will be further developed, driven by specific market opportunities for light industrial activities from private businesses and parties, including:

- Logistics
- Warehouses and distribution
- Aeronautical support function (Government Agencies Offices)
- Temperature-controlled facilities
- Technology
- Light manufacturing
- Other interim uses

In addition to the non-aeronautical development in The Landing, 20ha of land is safeguarded for aeronautical use.

Future aeronautical activities based in The Landing will benefit from the significant airside frontage once the new runway 05L/23R is implemented in FY38, as well as the synergies resulting from the co-location of air freight services and the already-established 3PL and logistic companies.

Permitted aeronautical activities in two specific locations are aircraft maintenance, cargo freight, and aeronautical support functions

Figure 40: The Landing future development plan and uses

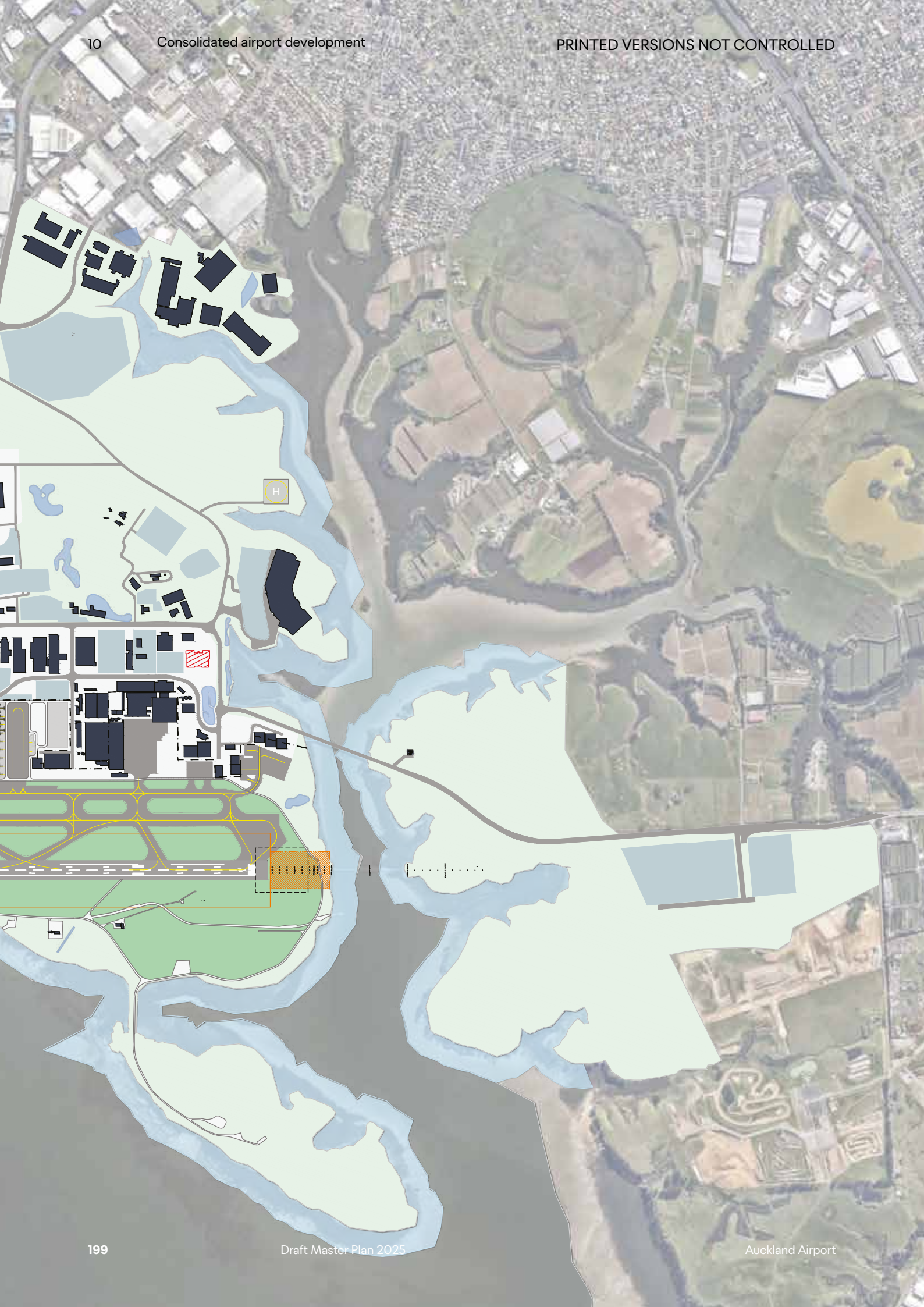
Chapter 10

Consolidated airport development

FY25

FY28

FY33


H

FY38

FY43

FY47


H

End state

Abbreviations & glossary

Abbreviations

AAM	Advanced Air Mobility
AANA	Aircraft Noise Notification Area
ABD	Automated Bag Drops
ACI	Airports Council International
ARFF	Aviation Rescue and Firefighting
ASAN	Airport Surface Access Network
ASDA	Accelerate-Stop Distance Available
A-SMGSC	Surface Movement Guidance Control System
ATC	Air Traffic Control
ATCT	Air Traffic Control Tower
ATM	Aircraft Movements
AUP	Auckland Unitary Plan
AVSEC	Aviation Security
AWOS	Automated Weather Observing System
B2B	Business to Business
BARNZ	Board of Airline Representatives New Zealand
BHE	Blenheim Airport
BHS	Baggage Handling System
BOH	Back of house
CAA	Civil Aviation Authority
CAT I	Category I instrument landing systems
CAT II	Category II instrument landing systems
CAT III	Category III instrument landing systems allowing landing in low visibility conditions.
CHC	Christchurch Airport
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CT	Computer tomography
CTO	Cargo Terminal Operators
CWY	Clearway
DME	Distance Measuring Equipment
DOM	Domestic
DOM-REG	Domestic to Regional
DOM-DOM	Domestic to Domestic
DOM-INT	Domestic to International
DMAPS	Divergent Missed Approach Protection System
DP	Domestic Processor
DTB	Domestic Terminal Building
DUD	Dunedin Airport
EBS	Early Baggage Store
eGSE	Electrically powered Ground Support Equipment
EV	Electric Vehicle
eVTOL	Electric Vertical Take-Off and Landing
F & B	Food and Beverage
FBO	Fixed-Base Operator
FENZ	Fire and Emergency New Zealand
GBAS	Ground-Based Augmentation System
GDP	Gross Domestic Product
GH	Ground Handling
GH2	Compressed Hydrogen
GIS	Gisborne Airport
GPU	Ground Power Unit
GSE	Ground Support Equipment
H2	Hydrogen gas
HANA	High Aircraft Noise Area
HBS	Hold Baggage Screening
HRET Panther	Rosenbauer Panther 8x8 HRET (High Reach Extendable Turret) fire truck
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICS	Individual Carrier System
ICT	Information and Communication Technology

ILS GP	Instrument Landing System Glide Path
ILS	Instrument Landing System
INT	International
INT-DOM	International to Domestic
INT-INT	International to International
INT CON	International Contact stand
INT - REG	International to Regional
INT REM	International Remote stand
IOT	Internet of Things
ITB	International Terminal
IVC	Invercargill Airport
JET A1	Aviation Jet Fuel
JUHI	Joint User Hydrant Installation
LDA	Landing Distance Available
LH2	Liquid Hydrogen
LOC	Localiser
LOS	Level Of Service
MANA	Moderate Aircraft Noise Area
MARS	Multiple Aircraft Ramp System
MCT	Minimum connecting times
MPI	Ministry for Primary Industries
MRO	Maintenance, Repair, and Overhaul
MVA	Megavolt-Amperes
Navaids	Navigational Aids
NPE	Napier Airport
NSN	Nelson Airport
OLS	Obstacle Limitation Surfaces
OSS	One Stop Security
PC Intake (PCIA/PCIB)	Power Centre Intake
PCA	Pre-Conditioned Air
PIDS	Perimeter Intrusion Detection System
PMR	Palmerston North
PPE	Personal Protective Equipment
PS	Pump Stations
PSL	Pier Service Level
PUDO	Pick-Up and Drop-Off
RACA	Regulated Air Cargo Agents
RBA	Risk-based assessment
REG	Regional flight
REG-DOM	Regional to Domestic
REG-INT	Regional to International
REG-REG	Regional to Regional
REG CON	Regional Contact stand
REG REM	Regional Remote stand
RESA	Runway End Safety Area
RETs	Rapid Exit Taxiways
RFID	Radio-frequency identification
RMA	Resource Management Act
RVR Sensor	Runway Visual Range Sensor
RWY	Runway
SAF	Sustainable Aviation Fuel
SAFS	Sustainable Aviation Fuels
SSKs	Self Service Kiosks
SWY	Stopway
T2	Terminal 2
TH	Transport Hub
TODA	Take-Off Distance Available
TORA	Take-Off Run Available
TP	Turboprop
TTTA	Trans-Tasman Travel Arrangement
TWY A	Taxiway A
TWY B	Taxiway B

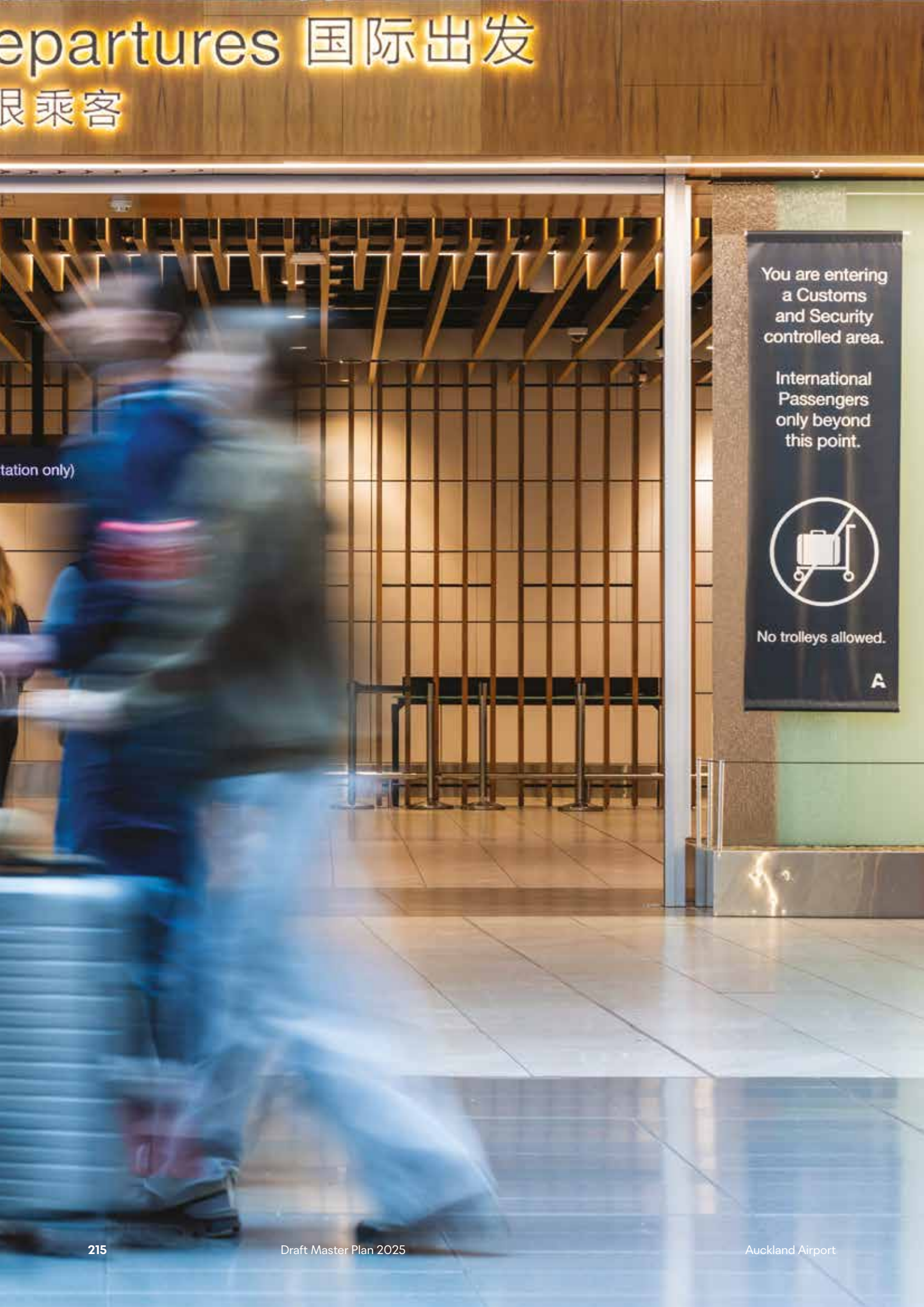
TWY C5	Taxiway C5
TWY D1	Taxiway D1
TWY J1	Taxiway J1
TWY J2	Taxiway J2
TWY L	Taxiway L
TWY M	Taxiway M
UDP	Utilities Development Plan
ULD	Unit Load Device
VFR	Visual Flight Rules
VOR/DME	VHF Omnidirectional Range /Distance Measuring Equipment
WLG	Wellington Airport
ZQN	Queenstown Airport
3PL	Third-Party Logistics

Glossary

Air catering	Services providing food and beverages for flights
Airfield	The area encompassing runways, taxiways, aprons, and related facilities at an airport.
Approach Surface	A defined area leading to a runway where obstructions are controlled to ensure safe landings
Aprons	Areas where aircraft are parked and service, loaded/unloaded, boarded/disembarked
Belly-hold	The cargo area in aircraft underneath the passenger cabin used for storing luggage, cargo, and freight during flights.
Busy-day	The second-busiest day in an average week of the busiest month of the year (IATA).
Busy-hour	The clock hour with the 30th-highest-ranked number of passengers
CAT 10	Level of protection provided at an aerodrome for rescue and firefighting
Contact stands	Gates where aircraft can park with a jet bridge for passenger boarding
Crash Zones	Areas designated for emergency landings or crashes
Cul-de-sac	Dead-end taxiway or area
Displaced threshold	A threshold not located at the extremity of a runway
Drop-in SAF	A type of sustainable aviation fuel (SAF) that can be used without modification to aircraft or infrastructure
Far Field LOC monitors	Monitors the localiser signal from a distance
Headwind	Wind blowing directly against the direction of flight
Heliport	Area intended to be used for the arrival, departure and surface movement of helicopters
HRET Panther	Rosenbauer Panther 8x8 HRET (High Reach Extendable Turret) fire truck
IATA's NEXTT	International Air Transport Association's New Experience in Travel and Technologies initiative.
IATA's One ID	International Air Transport Association's One ID initiative
Landing Area	Part of a movement area intended for the landing or take-off of aircraft
Low visibility conditions	Weather conditions where visibility is reduced
Narrow-body aircraft	Type of commercial aircraft designed with a fuselage wide enough to accommodate one passenger aisle
Navigational aids (navaids)	Systems or devices aiding in the navigation of aircraft
Near Field LOC monitors	Monitors the localiser signal close to the runway
Net Zero	Zero-net emissions
Non-jet aircraft	Aircraft that use propellers rather than jet engines
Non-visual aids	Navigational aids not relying on visual cues.
PC Intake (PCIA/PCIB)	Power Centre Intake
Non-contact stands	Parking areas for aircraft that do not have direct access to terminal buildings
Runways	Area on a land aerodrome prepared for the landing and take-off of aircraft

RVR Sensor	Runway Visual Range
Take off	The phase of flight where an aircraft accelerates down the runway to become airborne
Taxiing	The movement of an aircraft on the ground under its own power
Taxiways	Area used for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another
Contingent runway	An operational mode for an auxiliary runway
Tier II and Tier III	Represent levels or categories of regional destinations
Transitional Surface	A surface along the sides of the approach and take-off climb surfaces to prevent obstructions
Wide-body aircraft	Type of commercial aircraft designed with a fuselage wide enough to accommodate two passenger aisles
ZEROe Project	An initiative by Airbus to develop hydrogen-powered aircraft, aiming for zero carbon emissions in aviation.


International de
Passengers only 只
You are entering a Customs and Security controlled area.
International Passengers only beyond this point.
No trolleys allowed.
A
Lane (by invi


epartures 国际出发
乘客
tation only)
You are entering a Customs and Security controlled area.
International Passengers only beyond this point.
No trolleys allowed.
A


Auckland
Airport