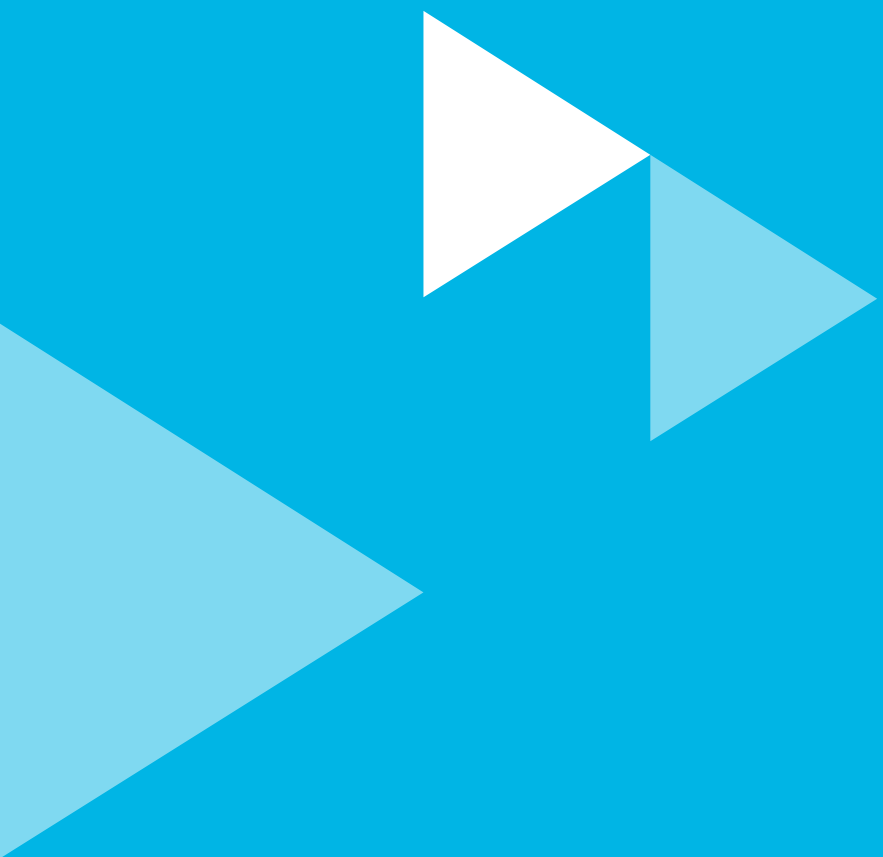
AIRWAYS
making your world possible

CONSULTATION DOCUMENT

AIRWAYS' PROPOSED PRICING FOR THE 2019-2022 PERIOD

Deadline for submissions: 15 March 2019



Contents

Consultation process

AIRWAYS IS FOCUSED ON PROVIDING AIR TRAFFIC MANAGEMENT SERVICES THAT ENABLE AIRCRAFT TO NAVIGATE SAFELY AND EFFICIENTLY ACROSS NEW ZEALAND.

Understanding your business and priorities is important to Airways, as it enables high-quality services to be provided as effectively as possible.

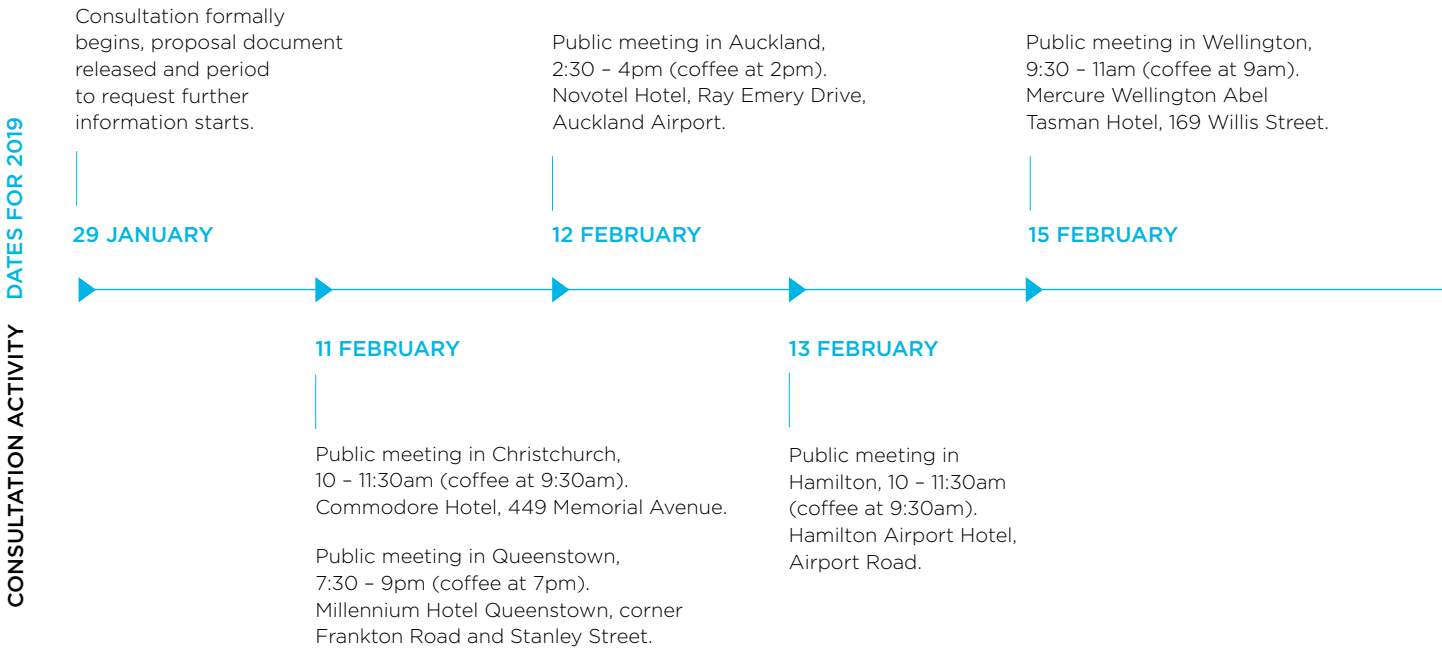
Airways believes the initiatives and pricing presented in this proposal reflect a sensible balance between the need to invest in New Zealand's aviation network, while recognising the effect price increases have on your activities.

Airways is committed to an open and transparent price-setting process to ensure services and prices meet your expectations. Airways welcomes your feedback on the proposed prices and investments presented in this proposal document.

The consultation period begins on 29 January 2019 and the final day for submissions is 15 March 2019. Airways will be hosting public roadshows during February 2019 in Auckland, Hamilton, Wellington, Christchurch and Queenstown. The consultation process includes a one-month period for you to request further information which ends on 1 March 2019.

The roadshows and period to request further information provide you with the opportunity to clarify your understanding of the pricing proposal and assist in the development of your submission. Airways will consider all feedback before making a final pricing decision. The final prices and responses to your feedback will be published in May 2019. The consultation timeline is presented in figure 1.

Figure 1 – Public consultation timeline



Guide to making a submission

AIRWAYS HAS HIGHLIGHTED A SERIES OF FEEDBACK QUESTIONS THROUGHOUT THIS DOCUMENT TO HELP YOU DEVELOP YOUR SUBMISSION AND HELP US UNDERSTAND YOUR FEEDBACK.

You are welcome to comment on other topics. To further assist in making submissions, a pricing consultation feedback template is available on the Airways' website at:

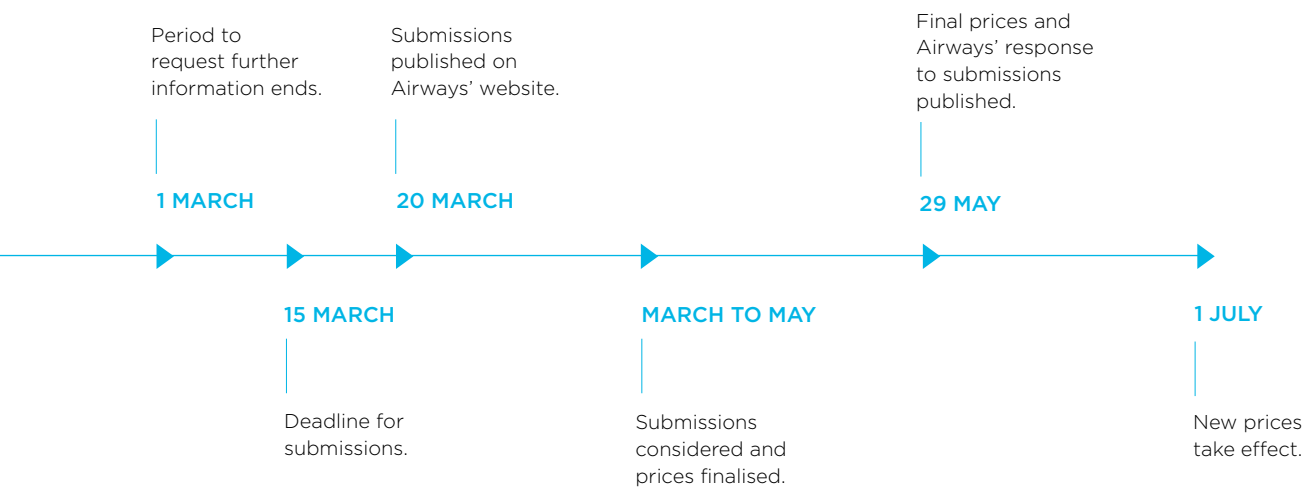
www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/current-public-consultation

To make a submission please respond in writing by 15 March 2019. You can email your submission to **submissions@airways.co.nz**

Alternatively, post your submission to:

Airways' Pricing Consultation
Airways Corporation of New Zealand
PO Box 294
Wellington
New Zealand 6140

CONSULTATION ACTIVITY DATES FOR 2019



Executive Summary

This document outlines Airways New Zealand's (Airways') proposed prices for the three-year period from 1 July 2019 to 30 June 2022. Airways is proposing an average price increase of 6.3% p.a. for airline customers to ensure the continued safety and resilience of the aviation network, while preparing for the aviation network of the future.

For General Aviation (GA) customers operating aircraft less than five tonnes, Airways is proposing an average inflationary price increase of 2.4% p.a.

Proposed prices for airlines

Airways is proposing a revenue increase of $54.1 million over the 2019-2022 pricing period. After applying volume growth this results in a proposed price increase of 18.9%, or an average increase of 6.3% p.a. This revenue would fund:

- Investments in digital towers, a flexible contingent runway in Auckland and Unmanned Aerial Vehicle (UAV) detection and management that will lay the foundation for the aviation environment of the future.
- The continuance of Airways' business transformation programme and Air Traffic Management (ATM) platform replacement to add resilience, responsiveness and flexibility to the services you receive.
- A carefully considered capital programme that is designed to maintain the resilience of New Zealand's existing aviation network.
- Changes in Airways' operating cost base, including inflationary uplifts and collective employment settlements.

The drivers of the proposed revenue and price increase are summarised in figure 2.

Figure 2 – Drivers of the revenue and price increase

	$ Revenue change				% change			
	FY20	FY21	FY22	Total	FY20	FY21	FY22	Total[1]
1. Enhanced services	6.5	4.7	4.4	**15.6**	3.5%	2.0%	1.8%	**8.2%**
2. Business transformation and ATM platform	9.0	5.6	(1.7)	**12.9**	4.7%	2.5%	(0.7%)	**6.8%**
3. Capital to maintain current services	2.9	0.1	1.8	**4.8**	1.5%	0.0%	0.8%	**2.5%**
4. Changes to operating costs (including inflation)	15.0	0.6	5.2	**20.8**	7.8%	0.4%	2.3%	**11.0%**
Total increase	**33.4**	**11.0**	**9.7**	**54.1**	**17.5%**	**4.9%**	**4.2%**	**28.5%**
5. Volume growth								
Opening volume adjustment					3.2%			**3.2%**
Annual volume growth					4.0%	1.0%	1.0%	**6.4%**
Total price change					**10.3%**	**3.9%**	**3.2%**	**18.9%**

1. Total % column includes the compounding effect of the changes.

Enhanced services

Airways' proposed prices include funding for investments in new technology and infrastructure that anticipate and plan for the new realities of air traffic management. The new investments will provide additional safety, resilience and flexibility benefits to you. The new investments include:

- The implementation of a full digital tower service at Invercargill and contingent digital tower services at Auckland. If approved by stakeholders, these investments could lay the foundation for a fully operational digital tower in Auckland by 2024, avoiding the need for a costly physical tower replacement.
- Supporting Auckland International Airport Limited's (AIAL's) implementation of a Flexible Contingent Runway (FCR) which will allow the main taxiway to be converted into an alternative runway within 30 minutes. This provides extra resilience to Auckland operations in the event that the main runway is unusable, and allows for routine runway maintenance overnight without significantly impacting operations.
- Detection and management of UAVs to enhance the safety of controlled airspace around aerodromes. This investment will provide effective management of cooperative UAVs, while improving the detection and enforcement of non-cooperative UAVs.

Business transformation, including ATM platform replacement

Airways is committed to the implementation of the transformation programme presented in the 2016 Pricing Consultation document. The transformation programme will improve the safety, resilience and flexibility of services delivered, as well as provide cost savings in future pricing periods. The business transformation focuses on the people, technology and buildings required to deliver interoperable services from Auckland and Christchurch.

Capital to maintain current services

Airways has a mature approach to asset management, which focuses on preventative maintenance and performance monitoring to maximise the useful life of assets. This pricing proposal includes $92.9 million of capital projects necessary to ensure the current target service levels are maintained.

Changes to operating costs (including inflation)

To ensure transparency Airways separates movements in the cost base into three specific categories – base costs, inflationary uplifts and changes to the capital charge rate (if applicable).

Base costs – Airways' operating cost base includes labour, accommodation and equipment. Like others in the aviation industry, Airways is currently facing cost challenges from collective employment negotiations and increased lease costs driven by the requirement to move from a ground lease to a full office lease at Auckland Airport. These challenges are driving an increase to base operating costs above the level of inflation.

Inflationary uplifts – Airways' operating cost base is uplifted by standard inflation rates as forecast by the New Zealand Institute of Economic Research (NZIER). Labour costs are uplifted by either actual collective settlements or the Labour Cost Index (LCI). Other operating costs are uplifted for forecast changes in the Primary Producer Index (inputs) (PPI).

Capital charge rate – Airways is proposing to retain the current capital charge rate of 6.9% based on a combination of Commerce Commission guidelines and market-based inputs. There is no change to Airways' proposed prices driven by this input.

Proposed prices for General Aviation

Airways helps GA customers operate safely within controlled airspace by providing flight information. Overall, GA activity makes up approximately 53% of movements and contributes 2% of Airways' air navigation revenue.

Following the implementation of Airways' Pricing Framework in 2012, Airways believes that GA prices contribute a fair amount to the total cost of providing services. Airways is therefore proposing that GA prices are simply increased by the forecast level of inflation so they remain in line with underlying costs. This methodology is consistent with the 2016 Pricing Consultation and will result in GA prices increasing by an average of 2.4% p.a.

PART A - Proposed prices for airlines

The prices presented in this section reflect a considered approach to the level of investment required for the continuance of safe and resilient services, while anticipating and planning for the future aviation environment.

The pricing presented in this section proposes:

- Investment in digital towers at Auckland (for contingency) and Invercargill, which will improve the flexibility and resilience of the services you receive.
- Continued investment in a new ATM platform and business transformation programme that will ensure you receive services that are more resilient and responsive to your needs.
- Investment in UAV detection and management tools that will enhance the safety of aircraft operating in and around controlled airspace.
- A capital programme to ensure the continued delivery of safe and reliable services.
- A capital charge rate of 6.9% to deliver a fair return to Airways' shareholder.
- An average price increase of 6.3% p.a. over the next three years.

This section presents the inputs and key assumptions used to calculate prices. Your feedback is an essential step in the price-setting process. A series of questions are provided to assist in the preparation of your submission. You are also encouraged to provide feedback outside the scope of the questions – the questions are there to guide responses and are not intended to exclude comments on other topics.

An online template with all the questions (with space for answers) is available on Airways' website at:

http://www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/current-public-consultation

Overall revenue

Airways' Pricing Framework details the pricing methodologies used to price our services. It was developed and implemented following consultation with customers in 2012. The Pricing Framework demonstrates Airways' commitment to transparent price-setting. You can download the document from Airways' website at: **www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/ans-services-and-pricing-explained**

Using the Pricing Framework, Airways sets prices by calculating the overall revenue required, allocating the revenue to specific services and calculating unit prices based on forecast volumes.

Overall revenue has been calculated using the Economic Value Added (EVA) Framework. The EVA framework calculates overall revenue as the aggregate of costs and a commercial return (the building blocks). The EVA calculation outlining the building blocks is provided in Appendix 2.1.

To continue to provide safe, high-quality services now and in the future, Airways is proposing a revenue increase of $54.1 million over the 2019 – 2022 pricing period. An 18.9% price increase, or an average of 6.3% p.a., is required once volume growth has been included. Figure 3 outlines the drivers for this revenue and price increase.

Figure 3 – Drivers of the revenue and price increase

	$ Revenue change				% change			
	FY20	FY21	FY22	Total	FY20	FY21	FY22	Total[2]
1. Enhanced services	6.5	4.7	4.4	**15.6**	3.5%	2.0%	1.8%	**8.2%**
2. Business transformation and ATM platform	9.0	5.6	(1.7)	**12.9**	4.7%	2.5%	(0.7%)	**6.8%**
3. Capital to maintain current services	2.9	0.1	1.8	**4.8**	1.5%	0.0%	0.8%	**2.5%**
4. Changes to operating costs (including inflation)	15.0	0.6	5.2	**20.8**	7.8%	0.4%	2.3%	**11.0%**
Total increase	**33.4**	**11.0**	**9.7**	**54.1**	**17.5%**	**4.9%**	**4.2%**	**28.5%**
5. Volume growth								
Opening volume adjustment					3.2%			**3.2%**
Annual volume growth					4.0%	1.0%	1.0%	**6.4%**
Total price change					**10.3%**	**3.9%**	**3.2%**	**18.9%**

2. Total % column includes the compounding effect of the changes.

This section explains the drivers in figure 3.

1. Enhanced services

Airways prides itself on being one of the most innovative Air Navigation Service Providers (ANSPs) in the world. Airways continues to look for new technologies that improve safety and resilience, create flexible and sustainable regional services and improve the overall sustainability of your business. Figure 4 outlines the proposed investments in enhanced services.

Figure 4 – Revenue and price increase from enhanced services

	$m change				% change			
	FY20	FY21	FY22	Total	FY20	FY21	FY22	Total[3]
A. Future Aerodrome Services	1.5	1.1	1.8	**4.4**	0.8%	0.5%	0.8%	**2.3%**
B. Flexible Contingent Runway	2.1	2.1	0.8	**5.0**	1.1%	0.9%	0.3%	**2.6%**
C. UAV detection and management	2.4	0.1	0.1	**2.6**	1.3%	0.0%	0.0%	**1.4%**
D. Other initiatives	0.5	1.4	1.7	**3.6**	0.3%	0.6%	0.7%	**1.9%**
Total enhanced services	**6.5**	**4.7**	**4.4**	**15.6**	**3.5%**	**2.0%**	**1.8%**	**8.2%**

3. Total % column includes the compounding effect of the changes.

1.A. Future Aerodrome Services

Airways has been working with stakeholders to determine the future service requirements at attended aerodromes around New Zealand. These services could range from Aerodrome Flight Information Services (AFIS), such as those currently provided at Kapiti and Milford, through to 24-hour-a-day Air Traffic Control (ATC) provision. It is Airways' objective to provide fit-for-purpose services that will increase regional connectivity.

Airways has been following the development of digital towers around the world since 2012, assessing whether digital technologies could improve the safety and flexibility of aerodrome services at a reasonable cost. Airways has visited digital towers at Changi in Singapore and London City and is confident that the cost and capability of digital technologies presents significant opportunities for services in New Zealand.

Airways is proposing a digital tower solution at Invercargill to replace the old physical tower. Following the installation of a digital tower in Invercargill, Airways is proposing one in Auckland as a contingency option if the physical tower is unusable. If the digital solution in Auckland proves to be acceptable to stakeholders, there is an opportunity to use a digital tower as the prime means of control in Auckland from 2024, avoiding the need for a costly physical tower replacement.

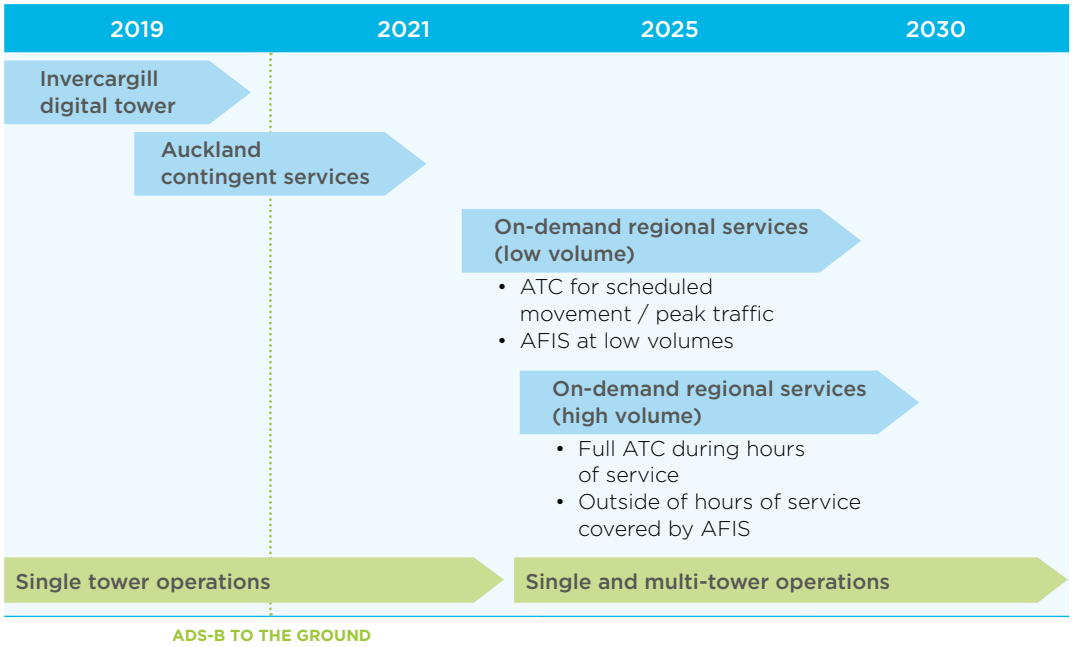
Airways is excited about the benefits digital towers can provide to lower-volume regional locations. Airways will start a detailed feasibility study during this pricing period with a plan for broader roll out at suitable locations in the 2022-2025 pricing period. Airways will consult on the plan for future aerodrome services at other regional locations as part of the 2022 pricing consultation.

Digital towers will improve the safety and resilience of services provided by Airways, which will enable you to increase the flexibility of your operations. Figure 5 describes the benefits of Airways' proposed investment in digital tower technology. Figure 6 outlines Airways' proposed plan to implement digital towers.

Figure 5 – Benefits of digital tower technology

TODAY Services limited by physical assets and human performance	→	FUTURE Enhanced services that leverage digitisation and automation
▶ **Detection of objects limited to radar and eyesight** ▶ **Construction zones or other closed areas managed manually**	**Flight Safety** →	▶ Automatic detection of objects that may pose a threat to flight safety, for example, UAVs and large birds. ▶ Airport overlays provide controllers with a clear view of out-of-bounds areas. ▶ Runway incursions can be automatically detected through enhanced tools.
▶ **Controllers limited by visibility of runway affecting throughput of aircraft** ▶ **Few efficiencies enabled by automation** ▶ **Lack of information sharing around airport reduces possible A-CDM efficiencies**	**Operational Efficiency** →	▶ Greater visibility through infrared cameras will allow increased throughput in low visibility conditions resulting in fewer disruptions to airlines. ▶ Greater automated decision making of airport movements enabled by improved information sharing and artificial intelligence.
▶ **Transition to Contingency takes 3-6 hours** ▶ **Contingency is 80% capacity of main operations**	**Contingency** →	▶ Contingency system always on. ▶ Potential for 100% capacity during contingency operations. ▶ Fewer disruptions to flights in a contingency operation.
▶ **Physical towers require large capital investments, which result in higher charges for customers**	**Costs** →	▶ Digital towers are cheaper to implement and this cost is expected to further reduce as the technology matures.
▶ **Operating hours limited to staff roster in specific tower location**	**Flexibility of Services** →	▶ Potential for services to be provided for increased hours in a cost-effective way through centralising aerodrome control services.

Figure 6 – Proposed digital tower roadmap



Airways is proposing to invest $14.3 million in digital tower technology during the 2019-2022 pricing period. This investment will fund a fully operational digital tower in Invercargill, and a digital tower in Auckland for contingency. These investments could lay the foundation for a fully operational digital tower in Auckland by 2024 if accepted by stakeholders.

A fully operational digital tower in Auckland will avoid the replacement of the ageing physical tower, saving an estimated $50 to $70 million of capital investment in the 2022-2025 pricing period.

The transition to digital towers in Auckland and Invercargill will incur additional operating costs of $3.8 million over the next pricing period. The transition costs include staff training and a temporary increase in staff for a period of dual operation between the physical and digital towers. These costs are unable to be capitalised. Figure 7 summarises the expected costs of the digital tower project.

Figure 7 – Proposed investment in Future Aerodrome Services

$m	FY20	FY21	FY22	Total
Invercargill digital tower	3.4	0.6	–	**4.0**
Auckland digital tower	2.0	3.1	5.2	**10.3**
Total capital investment	**5.4**	**3.7**	**5.2**	**14.3**
Transition costs	**1.1**	**1.3**	**1.4**	**3.8**

Feedback question

Q1: Do you support Airways' roadmap to implement digital tower services at Invercargill and Auckland during the 2019-2022 pricing period?

‘Global journey’ **sets the stage for digital tower technology in New Zealand**

Airways’ first digital air traffic control towers are expected to go live in 2020 – the result of a ‘global journey’ to pave the way for enhanced safety features, service flexibility and provide a cost-effective alternative to replacing ageing infrastructure.

Invercargill will be New Zealand’s first airport to have its air traffic control tower fully replaced with a digital system. A contingent digital system will also be installed at Auckland as a back up to the existing tower. The Auckland contingent tower is seen as a first step towards a full replacement by digital services in the future.

“For a number of years we have been exploring how we can deliver aerodrome services that are safer, more efficient and better shaped to meet our customers’ needs”, Airways digital towers operational lead Mike Turner says.

“Our global journey to assess how digital technologies are helping other ANSPs address the same challenges, provided a roadmap for introducing digital towers here in New Zealand”.

Digital tower technology enables air traffic controllers to direct air traffic from a remote location, with live footage provided via high-definition video cameras. The technology provides air traffic controllers with an advanced set of tools and safety features.

“Controllers are presented with panoramic views of what’s going on in the air and around the airfield in more detail than would be possible to see with the human eye”, Mike says.

Augmented reality overlays provide controllers with additional flight data displayed alongside aircraft as they move across the screens. Infrared cameras improve vision in poor weather conditions.

Airways’ network of air traffic control towers is ageing and a number are in need of extensive refurbishment or replacement.

“Digital technology offers significant savings compared to the $50 to $70 million cost of building a new bricks and mortar control tower at an airport like Auckland”, Mike says.

Alongside the enhanced safety features comes the opportunity to provide more flexible services.

“Being able to provide the same service currently provided on site, from a secure remote location offers the opportunity to extend our services outside core air traffic control hours when needed”, Mike says.

Invercargill Airport provides the ideal location for New Zealand’s first digital tower. It’s busy enough to provide a rigorous test of how the technology would work on a larger scale but with traffic levels that allow for implementing an entirely new system. The digital tower will initially operate from the airport, before moving to a centralised hub off site.

“Installing digital services at Invercargill Airport will allow us to work through the regulatory requirements and future operational needs for a wider roll out of digital services for New Zealand”.

1.B. Flexible Contingent Runway (FCR)

AIAL has commissioned a project to convert Taxiway Alpha into an FCR that can be enacted within 30 minutes. This will significantly improve the resilience of Auckland operations by providing an alternative runway at Auckland Airport in the event the main runway is unusable. The FCR will also allow routine maintenance on the main runway overnight without significantly impacting your operations. Construction of the FCR will commence in 2019 and is expected to be operational by late 2020.

AIAL and Airways have agreed that Airways will implement and own the significant Aeronautical Ground Lighting (AGL) assets. The proposed capital spend also includes supporting investments in a new power centre, remote international stands and an extension of Taxiway Mike. The assets will be depreciated over a useful life of 15 years, recognising that the FCR will still be available for use when the proposed northern runway is operational. During the implementation of the FCR there are additional operating costs of $0.9 million p.a.

Figure 8 summarises the expected costs of the FCR project. Note the costs presented in this pricing proposal are only for Airways' owned infrastructure. Other stakeholders involved in the implementation of the FCR project will recover their costs through other means.

Figure 8 - Financial summary of the FCR project

$m	FY20	FY21	FY22	Total
Capital investment	17.4	15.2	–	**32.6**
Operating costs	0.9	0.9	0.9	**2.7**

Feedback question

Q2: Do you support Airways' involvement in the AIAL project to implement a FCR at Auckland?

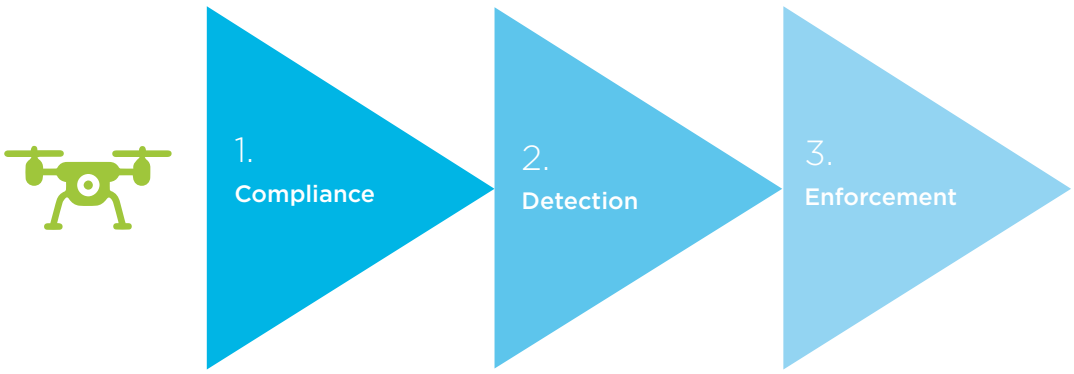
1.C. UAV detection and management

Airways currently manages the Airshare.co.nz website to educate UAV operators about their responsibilities and provides a portal for UAV operators to request access to controlled airspace. The website was initially launched in 2015 and is now recognised as New Zealand's primary UAV resource with over 11,000 registered users. Since the Airshare website was launched Airways has seen the number of logged flights increase by over 80% p.a. The growth in UAVs is expected to continue at a rapid pace and the current Airshare platform is no longer fit-for-purpose.

The exponential growth of the UAV industry presents an increasing risk to other airspace users. In the past year Airways recorded over 70 airspace incursions where drones were operated without authorisation in controlled airspace.

Airways' immediate priority is to ensure the safe passage of aircraft in and around controlled airspace. To achieve this outcome, Airways' approach is to focus on increasing the compliance of cooperative UAVs, while improving the detection and enforcement of non-cooperative UAVs. Figure 9 outlines Airways' approach to UAV detection and management.

Figure 9 – Approach to UAV detection and management



1. **Compliance** – developing a national common operating model for UAV participants who want to cooperate. This includes working with government to develop fit-for-purpose policy and regulation, for example, mandatory pilot and UAV registration and certification.
2. **Detection** – ensuring non-cooperative UAVs are identified and differentiated from cooperatives ones. This includes non-cooperative UAV detection (drone radar) and UAV flight logging.
3. **Enforcement** – ensuring non-cooperative UAVs can be tracked and dealt with by authorities. This includes situational picture and legal recording and incident management and workflow handling thereby providing authorities with suitable user information to pursue.

In the longer term, Airways' vision is to safely integrate UAVs into the existing aviation system. To achieve integration Airways will continue to work closely with government agencies to progress the necessary legislation and regulatory framework to support safe UAV operations. In parallel, Airways will work on developing a future funding model that fairly shares the costs of UAV integration.

Financial summary

Airways is proposing to improve the safety of aircraft operating in and around controlled airspace while working towards a longer term solution for UAV integration. Figure 10 outlines the funding required in the 2019-2022 period to achieve this.

Figure 10 – Proposed funding for UAV detection and management

Workstream ($m)	FY20	FY21	FY22	Total
UAV system for detection and management (incl support resource)	2.0	2.1	2.2	**6.3**
Education and awareness	0.2	0.2	0.2	**0.6**
Regulation and policy development	0.2	0.2	0.2	**0.6**
Total funding	**2.4**	**2.5**	**2.6**	**7.5**

Feedback questions

Q3: Do you support Airways' UAV detection and management initiatives to enhance safety in and around controlled airspace?

1.D. Other initiatives

In addition to the service enhancement projects outlined in Part A, Sections 1.A. to 1.C., Airways is also proposing a number of smaller investments that will improve the level of service you receive. Figure 11 summarises these investments.

Figure 11 – Other initiatives

Initiative ($m)	FY20	FY21	FY22	Total
National ADS-B network	2.7	–	–	**2.7**
Network management system contingency	0.3	1.8	0.1	**2.2**
IT service management tool	0.5	0.6	0.6	**1.7**
ATM system enhancements	–	0.4	0.7	**1.1**
Briefing system for operational staff	–	1.0	–	**1.0**
Digital NOTAM implementation	–	0.5	–	**0.5**
Enhanced Low Visibility Operations at Auckland	0.4	–	–	**0.4**
Minor projects	0.3	0.5	0.2	**1.0**
Total initiatives	**4.2**	**4.8**	**1.6**	**10.6**

Feedback questions

Q4. Do you support the projects in figure 11? Are there other service enhancements that Airways should be considering?

2. Business transformation

Airways recognises its role in providing a network that supports New Zealand's aviation industry now and in the future. Airways closely monitors the evolution of technology and operating models around the world, looking for ways to improve the services provided to you.

Airways is committed to the implementation of the transformation initiatives presented in the 2016 Pricing Consultation, which will improve the safety, resilience and flexibility of services as summarised in figure 12.

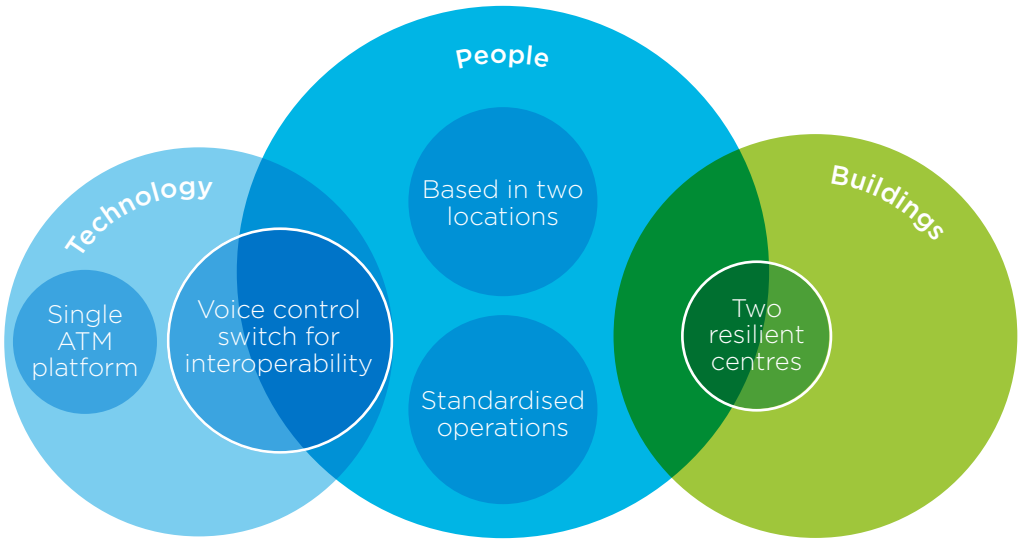
Figure 12 – Benefits of the business transformation programme

Workstream	Description	Benefits
Safety	Improved functionality of the new ATM platform minimises the chance of human error.	Greater safety for aircraft travelling through New Zealand's airspace.
Increasing controller productivity	Maximising staff productivity through the introduction of tools such as conflict detection, conformance monitoring and sequencing aids.	Providing you with cost savings and enhanced safety.
Enhanced resilience	Enhanced resilience through the operating of a single virtual centre by using cross-rated staff. Return to full services within six hours of an outage or a major event.	Avoiding aviation system disruption costs for your business.
Flexible labour	Combining staff capabilities based on skill sets rather than the traditional model of geographic adjacency and sector-specific ratings.	Providing you with future cost savings.

The business transformation strategy focuses on the people, technology and buildings required to deliver interoperable services from Auckland and Christchurch.

This section outlines the three pillars as shown in figure 13.

Figure 13 – Airways' business transformation



2.A. People – Greater flexibility to meet your needs

Airways is continuing to transform its operating model to improve the resilience and flexibility of services provided. The changes to the operating model include:

1. Balancing Airways' air traffic control delivery between new air traffic centres in Auckland and Christchurch to create a one-centre-two-locations model. Staff will be trained to ensure service provision can be transferred between the centres and that continuity of service will exist in the event of a significant natural disaster or equipment failure.
2. Standardising Airways' air traffic management services, to provide operational flexibility so a single controller is not restricted to a single area of controlled airspace. The development of a more flexible and adaptable workforce will enable future operational cost savings.

Progress to date

The first major milestones in the programme are the transition of the Raglan en-route sector to the Auckland centre and merging of the Auckland and Wellington terminal operations. The Raglan sector move was completed in FY19 and the concept of operations and common operating model for the terminal sectors has been completed. These moves are the first steps towards being able to deliver en-route and approach functions from Auckland, as well as Christchurch, providing increased operational resilience in the future.

Future programme

During the next three years the operation of the one-centre-two-locations model will be implemented and balancing of the workload between Auckland and Christchurch will start. Further enhancements will enable the replacement of procedural approach units with surveillance-based services. A review and re-evaluation of the national airspace and sectorisation model will be delivered to ensure all operational changes complement the future operating model.

The financial summary of the costs to transition staff are outlined in figure 14. The transition is due to be completed in 2022, with benefits being recognised from 2023.

Figure 14 – Financial summary of the staff transition programme

$m	FY17–FY19	FY20	FY21	FY22	FY20–FY22	FY23–FY28	Total
Transition costs	**6.1**	3.2	4.4	0.8	**8.4**	–	**14.5**

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2.B. Technology – Providing safer and more efficient tools

Transformation of the operating model is enabled by the implementation of a new Air Traffic Management (ATM) platform. Supporting upgrades in voice switching systems will allow interoperability between the two air traffic centres in Auckland and Christchurch. The new ATM platform will combine the current Oceanic and Domestic ATM systems into one single platform.

A combination of access to the system source code and an in-house software capability is allowing Airways to implement the new ATM platform for an expected cost of $58.4 million. This is significantly less than comparable systems around the world.

Progress to date

The software development of the new ATM platform is well advanced and tracking to the budget and timeline set in 2016. Significant work to merge the existing software code into the new platform has been completed. Testing of new functionality, including time-based flow management, medium-term conflict detection and domestic datalink communications are well advanced.

Both the domestic and oceanic platforms are being developed in parallel to minimise duplication of project costs and provide the most cost-effective implementation.

Future programme

The combined domestic and oceanic platforms will be operational by mid-2021. Figure 15 provides the financial summary of the technology components of the business transformation programme.

Figure 15 – Technology transformation financial summary

$m	FY17–FY19	FY20	FY21	FY22	FY20–FY22	FY23–FY28	Total
Capital projects:							
ATM system	**32.5**	16.9	7.7	1.3	**25.9**	–	**58.4**
Voice switching	**5.4**	2.5	1.0	2.1	**5.6**	2.0	**13.0**
Total capital investment	**37.9**	**19.4**	**8.7**	**3.4**	**31.5**	**2.0**	**71.4**
Operating costs:							
One-off training & transition	**–**	2.0	2.5	–	**4.5**	–	**4.5**
Ongoing support	**–**	–	0.2	0.2	**0.4**	1.2	**1.6**
Total operating costs	**–**	**2.0**	**2.7**	**0.2**	**4.9**	**1.2**	**6.1**

2.C. Buildings – Two locations providing increased resilience

Airways' new operating model will be delivered from interoperable centres in Auckland and Christchurch. Each centre will be built to an Importance Level 4 (IL4) building standard, which means they are designed to remain operational immediately after an earthquake or other disastrous event. Construction of both buildings commenced in mid-2018 and are on track for delivery mid-2019.

Future programme

Following the completion of the new centres in 2019 the transition programme will be implemented and hardware for the new ATM platform and other operational equipment will be installed. The site acceptance test for the new ATM system will be run in December 2019 followed by stability testing and operational shadowing in early 2020. The training programme will prepare the technical and operational staff for a domestic service cut-over in July 2020, with the Oceanic cut-over happening a year later. Figure 16 provides a financial summary of the buildings transformation programme.

Figure 16 – Buildings transformation financial summary

$m	FY17–FY19	FY20	FY21	FY22	FY20–FY22	FY23–FY28	Total
Capital projects:							
Technical transition to new IL4 buildings	**1.8**	2.0	0.1	–	**2.1**	–	**3.9**
New Auckland building fit out	**6.3**	0.7	–	–	**0.7**	–	**7.0**
Total capital investment	**8.1**	**2.7**	**0.1**	**–**	**2.8**	**–**	**10.9**
Operating costs:							
Property leases	**–**	5.9	5.7	5.5	**17.1**	29.7	**46.8**
One-off transition costs	**–**	0.2	–	–	**0.2**	–	**0.2**
Total operating costs	**–**	**6.1**	**5.7**	**5.5**	**17.3**	**29.7**	**47.0**

Feedback question

Q5: Do you support Airways' business transformation to improve the resilience and flexibility of future services?

3. Capital to maintain current services

Airways provides safe and reliable services for New Zealand's 30 million square kilometres of airspace. The services provided are defined in Airways' Service Framework, which can be found at: **www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/ans-services-and-pricing-explained**

The Service Framework also includes target service levels for each service provided. The target service levels vary depending on location, to ensure the services provided are fit-for-purpose. Overall, Airways' service performance has met, or exceeded, the target service levels as summarised in figure 17.

Figure 17 – Historic service performance

	Target		FY17	FY18	FY19 YTD
	%	Annual Mins			
International aerodromes					
Air Traffic Management	99.98%	105	99.99%	99.98%	99.97%
Aerodrome navigation aids	99.95%	263	99.96%	99.99%	100%
Approach navigation aids	99.93%	368	99.98%	99.99%	100%
Regional aerodromes					
Air Traffic Management	99.80%	625	99.96%	99.97%	99.87%
Aerodrome navigation aids	99.90%	312	99.98%	99.96%	100%
Approach navigation aids	99.70%	937	100%	99.95%	100%
En-route services					
En-route domestic	99.93%	368	100%	99.94%	99.88%
En-route international	99.93%	368	100%	100%	100%

To maintain the current level of service, Airways is proposing a $92.9 million capital programme. The programme is summarised by location and service in figure 18. The full capital programme is outlined in Appendix 2.2.

Figure 18 – Capital projects by service and location

Service and location ($m)	FY20	FY21	FY22	Total
Auckland	5.4	5.8	2.9	**14.1**
Christchurch, Wellington, Queenstown	0.9	1.4	2.6	**4.9**
Regional aerodromes	2.9	4.4	4.1	**11.4**
Kapiti and Milford	0.5	–	–	**0.5**
Unattended aerodromes	0.1	1.2	–	**1.3**
En-route	2.8	10.8	15.0	**28.6**
National operations	8.9	11.2	12.0	**32.1**
Total capital to maintain current services	**21.5**	**34.8**	**36.6**	**92.9**

When two projects became one – **collaborative fibre programme delivers $1 million savings**

When ageing underground copper cabling needed to be replaced at Wellington International Airport Limited (WIAL), Airways worked with WIAL on a future-proofed collaborative solution.

Meticulous planning and efficiencies enabled two planned phases of the programme to be delivered as one project, resulting in overall savings of close to $1 million.

The cabling system, originally designed as a ring around the aerodrome 40 years ago, is essential for communications, telephones and lighting control systems, including surveillance and measuring equipment, across WIAL infrastructure.

Replacing this with modern glass fibre and new copper was a major project, with work needing to be carried out entirely at night.

Airways owns the cabling on the eastern side of the airport, while WIAL owns the western side. Working collaboratively allowed Airways and WIAL to share costs and complete the project in one phase instead of two.

"That meant equipment and people did not need to be mobilised twice, with considerable savings in health and safety inductions, training, planning and administration costs", Airways' Central and Lower North Island Maintenance Manager Mike Connolly says.

The work area extended from touch-down zones through to the north and south ends of the runway and the localiser building.

To mitigate potential noise and lighting nuisance to local residents, Airways constructed an innovative sound shelf, with lighting, to illuminate the work site, while muffling noise.

"Everything had to be planned to the smallest detail, including the costs involved if we had to vacate the work area due to weather or an emergency landing".

To address the challenge of underground cabling, microducts were installed with spare capacity to allow extra fibre to be added as needed in the future.

"Previously, if there was a fault on the cable it had to be dug up. With the microduct you can simply pull the cable out and repair it. The combination of fibre and new copper has also diversified the technology on the ring," Mike says.

"The new system provides a better service, is future-proofed and will provide big benefits in reducing ongoing operating costs."

3.A. Auckland services

Auckland is New Zealand's busiest airport. Over 60% of all international air traffic and over 24% of New Zealand's domestic IFR traffic lands at Auckland Airport[4]. Maintaining a safe and reliable service at Auckland is critical to New Zealand's aviation network. Airways provides the highest level of reliability at Auckland, as well as providing an enhanced Cat III Instrument Landing System (ILS) to support Low Visibility Operations (LVO).

To further support a high level of service delivery, Airways is proposing new technology to manage the increasing volume of UAV traffic around Auckland Airport. Additionally, Airways is supporting Auckland Airport's project to implement a flexible contingent runway. See Part A, Section 1.B. and 1.C.

Airways constantly monitors the performance of cabling and lighting assets at the Auckland aerodrome and performs preventative maintenance to maximise the life of assets. This proactive approach has allowed Airways to extend the life of power and lighting assets beyond the technical useful life without compromising services.

In some cases these assets are now more than 30 years old and replacements are required over the next pricing cycle to ensure services at Auckland continue to meet required service levels.

3.B. Christchurch, Wellington, Queenstown

Airways also targets the highest level of service in Christchurch, Wellington and Queenstown as they form New Zealand's aviation backbone. While Queenstown is technically not classified as an international tower in the Service Framework, Airways recognises Queenstown's growing strategic importance to New Zealand's aviation network and manages it to an international tower standard.

Airways aims to provide fit-for-purpose services at all locations to ensure that services meet the requirements of users. Airways is agile in adjusting to changing requirements. For example, Queenstown has recently been upgraded to allow night operations, and the recent ILS replacement at Christchurch could be upgraded to allow Cat III operations, if required.

Airways' preventative maintenance programme has ensured that most infrastructure at Christchurch, Wellington and Queenstown is in very good condition, with any major replacements a result of nationwide replacement of ageing ILS equipment. Airways is currently midway through this project. The ILS at Christchurch was replaced in 2018 and is now capable of Cat III operations if supported with additional lighting and stop bars. Wellington's ILS is due for replacement in 2022.

4. Based on international IFR arrivals for the year ended 30 June 2018.

3.C. Regional aerodromes

Airways operates regional aerodromes with full Air Traffic Control at the following 11 locations:

Dunedin, Gisborne, Hamilton, Invercargill, Napier, Nelson, New Plymouth, Palmerston North, Rotorua, Tauranga, Woodbourne.

At these locations Airways targets the provision of fit-for-purpose services that balance the need to provide safe and reliable services at costs that are affordable for operators.

Airways is committed to providing fit-for-purpose services in the regions to meet the needs of airline customers, airport operators and regional communities. Airways will continue to investigate the future of aerodrome services at regional locations, including the feasibility of introducing digital towers, as outlined in Part A, Section 1.A. The maintenance of regional control towers is being kept to a minimum level, until the future aerodrome service requirements can be assessed at each location.

3.D. Unattended aerodromes

Airways provides an Approach Service to 14 locations across New Zealand where there is no air traffic control. The services provided at these locations vary and may include navigation aids, Instrument Flight Procedures (IFPs) and meteorological information.

The service level at each location is agreed between Airways and the aerodrome operator and will vary depending on the type of service provided. Unattended aerodromes typically have low volumes of IFR traffic, therefore Airways aims to provide the most cost-effective solution to ensure the sustainability of these aerodromes.

3.E. En-route

Airways separates its en-route charges into domestic and oceanic. The domestic en-route control service separates aircraft in the en-route phase of New Zealand's airspace and the oceanic en-route service separates IFR aircraft operating within the controlled airspace of the Auckland Oceanic Flight Information Region (FIR).

Airways' business transformation programme will increase the resilience of en-route services through two interoperable centres that are capable of supporting each other in the case of a service interruption. The business transformation programme is underpinned by a new ATM platform that will be operational by 2022. See Part A, Section 2, for more detail about Airways' business transformation programme.

The en-route capital programme also includes new surveillance technologies to ensure non-cooperative entries into controlled airspace are detected. This includes the detection of non-cooperative UAVs.

3.F. National operations

Airways' services are supported by a robust network infrastructure, IT assets and property for staff. The capital programme over the next three years is focused on ensuring ageing infrastructure is replaced and rationalising Airways' property.

Feedback question

Q6: Do you support Airways' capital programme to maintain safe and reliable services? Note full details of the capital programme are provided in Appendix 2.2.

4. Changes to operating costs

To ensure transparency, Airways separates movements in operating costs into three categories – base costs, inflationary uplifts and changes to the capital charge rate (if applicable).

Overall, changes to operating costs are contributing 11.0% towards Airways' required revenue increases. The drivers of the operating cost increase are summarised in figure 19.

Figure 19 – Drivers of the operating cost increase

	$ Revenue change				% change			
Operating cost drivers	FY20	FY21	FY22	Total	FY20	FY21	FY22	Total[5]
A. Base operating costs	8.7	(3.4)	1.6	**6.9**	4.5%	(1.4%)	0.8%	**3.7%**
B. Inflationary uplifts	6.3	4.0	3.6	**13.9**	3.3%	1.8%	1.5%	**7.3%**
C. Capital charge rate movement	0.0	0.0	0.0	**0.0**	0.0%	0.0%	0.0%	**0.0%**
Total change in operating costs	**15.0**	**0.6**	**5.2**	**20.8**	**7.8%**	**0.4%**	**2.3%**	**11.0%**

5. Total % column includes the compounding effect of the changes.

This section describes the drivers of the operating cost increase.

4.A. Base operating costs

Operating costs are the largest component of Airways' building blocks, contributing approximately 65% of target revenue. Operating costs include labour, accommodation and equipment maintenance.

Airways understands the highly competitive business environment in which you operate. That understanding is demonstrated in Airways' track record of financial responsibility and cost control. Currently, Airways is working in a challenging industrial environment. Like others in the aviation industry Airways is facing challenges with collective employment negotiations and lease costs, driven by the requirement to move from a ground lease to a full office lease at Auckland Airport. These pressures are leading to an increase in base operating costs of $6.9 million as outlined in figure 20 and further explained on the following page.

Figure 20 – Increase to base operating costs 2019-2022

Operating costs above inflation ($m)	FY20	FY21	FY22	Total
Collective settlements	0.9	0.9	0.9	**2.7**
Auckland property costs	1.3	0.1	0.1	**1.5**
Cloud-based software costs	1.0	–	–	**1.0**
Volume-driven costs	0.7	–	–	**0.7**
Minor projects	4.8	(4.4)	0.6	**1.0**
Total increase in base operating costs	**8.7**	**(3.4)**	**1.6**	**6.9**

Collective settlements above inflation

Approximately 72% of Airways' labour costs are covered by collective employment agreements, which include annual inflation uplifts, grade steps and other negotiated increases. At the time of publishing the collective agreement for Air Traffic Control (ATC) salaries had not been settled. For the purpose of transparency, the inflation uplifts have been included in Section 4.B., and the expected annual grade steps and negotiated increases above the level of inflation are reflected in figure 20. While the nature of Airways' labour force presents cost challenges in the short term, Airways' business transformation programme will provide the platform to recognise labour efficiencies in the future.

Auckland property costs

In 2017 Airways relocated its Auckland Airport based offices from a ground lease near the domestic terminal to a full office lease in the Auckland Airport owned Quad 7 building. The move was required to allow for future expansion plans of the domestic terminal. While the move has driven increased costs, the lease rate is very favourable compared to other office space in Auckland.

Cloud-based software costs

Airways has transitioned its corporate support and email systems to a cloud environment. This has increased software and hosting costs but has avoided the need to replace servers at an estimated capital cost of $2.7 million.

Volume-driven costs

Current air traffic volumes are 3.2% higher than forecast in the last pricing consultation and Airways expects this volume to increase by a further 6.4% over the next three years. To continue to safely manage this volume and achieve targeted in-flight delay measures, Airways expects increased labour costs over the next three years. While the number of full-time equivalent (FTE) will remain stable, the rate of leave burn is forecast to decrease, leading to higher overall staff costs.

Minor projects

In 2020 Airways will undertake a programme to realign the capabilities of the technology and engineering functions. External partners will be worked with to ensure that Airways' technical capability to manage new technologies is maintained. Airways is also investing in a sustainability programme that will ensure it is contributing to the overall environmental and societal sustainability of the aviation industry.

Feedback question

Q7: To continue to maintain safe and efficient services do you accept Airways' increase to base operating costs?

4.B. Inflationary uplifts

Inflation inputs are used to uplift Airways' base operating costs. The inflation rate differs depending on the type of cost it is being applied to.

The proposed inflation inputs are outlined in figure 21 and have been applied as follows:

- At the time of publishing the collective agreement for ATC salaries had not been settled. For transparency, all of Airways' labour cost uplifts are based on NZIER's LCI forecast.
- Other operating costs (excluding depreciation) are based on NZIER's PPI forecast.
- 2020 includes a $2.5 million adjustment to reflect the difference in actual inflation rates during the 2016-2019 period compared to the 2016 NZIER inflation forecasts.

Figure 21 – Inflation assumptions 2019-2022

Cost type	Inflation source	FY20	FY21	FY22
ATC salaries	NZIER LCI forecast (Sep 18)	2.4%	2.5%	2.3%
Other labour costs	NZIER LCI forecast (Sep 18)	2.4%	2.5%	2.3%
Other costs	NZIER PPI (inputs) forecast (Sep 18)	3.7%	2.9%	2.6%

Rationale:

In the 2013 pricing consultation, customer feedback requested that Airways adopts an independent source for forecast inflation to provide a consistent long-term measure. The proposed approach for the 2019-2022 pricing is consistent with this policy.

The forecasted PPI inflation for the 2016-2019 period was 1.7% p.a. and the forecasted LCI forecast was 1.6%. This compares to an actual PPI rate of 3.7% and an actual LCI inflation of 1.9%. The $2.5 million adjustment does not seek to recover cost shortfalls during the 2016-2019 pricing period, but merely recognises that Airways' baseline costs have been impacted by higher than forecast inflation. These higher inflation costs have been mostly observed in the increasing costs of insurance and property leases.

Note the inflation rates outlined in figure 21 will be updated to reflect the current forecast at the time of setting the final prices.

Feedback question

Q8: Recognising that the inflation inputs will be updated with current information at the time of setting final prices, do you agree with the sources of Airways' inflationary inputs?

4.C. Capital charge rate movement

As a State Owned Enterprise (SOE), Airways is required to deliver a commercial return on its assets employed. That return is provided by the capital charge component of the cost building blocks. The capital charge is calculated by multiplying the capital employed and the capital charge rate. The capital charge rate has been calculated in line with the Commerce Commission's input methodologies designed for sole providers of infrastructure services in New Zealand. This approach is consistent with previous pricing rounds and with many other regulated businesses.

Airways proposes to maintain the current capital charge rate of 6.9% for the 2019-2022 period. The capital charge rate was developed using the Commerce Commission's Input Methodology for Airports and parameter estimates that are reflective of the market. The rate is the same as the cost of capital in the current pricing period.

Figure 22 provides a summary of the inputs into the proposed capital charge rate and compares them to the inputs used for current prices. Appendix 2.3 provides further explanation of the inputs chosen and includes an upper and lower range of the capital charge inputs.

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Figure 22 – Capital charge inputs and components

Capital charge components	FY17-FY19 Pricing	FY20-FY22 Proposed	Current assumptions
Risk-free rate	2.23%	2.04%	The Commerce Commission recommends using a bond rate that matches the period of the pricing agreement. The current estimate is based on the market three-year bond rates.
Asset beta	0.6	0.6	An asset beta of 0.6 is still appropriate when compared to the Commerce Commission's estimate for airports.
Tax-adjusted market-risk premium	7.0%	7.0%	Based on the Commerce Commission's input methodologies estimate.
Debt premium	1.26%	1.09%	The current estimate is based on the market three-year bond rates.
Debt issuance cost	0.35%	0.20%	Based on the Commerce Commission's input methodologies estimate.
Leverage	40%	58%	Target leverage for Airways' statutory business. This is consistent with the leverage of other Air Navigation Service Providers (ANSPs).
Capital charge range	67th percentile	67th percentile	The Commerce Commission has used the 67th percentile for setting gas and electricity prices. The Commerce Commission has used the mid-point as the starting point for airports based on its reasoning that there is a lower risk of underinvestment for airports compared to gas pipeline and electricity distribution businesses. The risk and cost of underinvestment for Airways is likely higher than that of airports, gas pipeline and electricity distribution businesses. Airways has conservatively used the 67th percentile.
Calculated capital charge rate	6.9%	6.9%	

Feedback question

Q9: Do you agree with the inputs into Airways' capital charge calculation?

5. Volume growth

Once the change in target revenue is determined from the adjustments outlined in Part A, Sections 1 – 4, volume growth is applied to determine the proposed price increase. Volume growth comprises an opening volume adjustment to account for variances from the 2016–2019 period and an ongoing forecast of annual volume growth. Figure 23 summarises the two components of volume growth.

Figure 23 – Components of volume growth

	$ Revenue change				% change			
	FY20	FY21	FY22	Total	FY20	FY21	FY22	Total[6]
A. Opening volume adjustment					3.2%	–	–	**3.2%**
B. Annual volume growth					4.0%	1.0%	1.0%	**6.4%**
Total volume growth					**7.2%**	**1.0%**	**1.0%**	**9.6%**

6. Total % column includes the compounding effect of the changes.

5.A. Opening volume adjustment

At the start of each pricing period a one-off adjustment is made to volumes to reflect any unexpected volume movements in the previous pricing period. The opening volume adjustment has been calculated as 3.2%. This means in 2019 Airways expects to collect 3.2% more revenue than the target revenue set during the 2016 Pricing Consultation.

Rationale:

Airways sets its prices based on a forecast of volume growth. Consequently, if the actual volume growth is different to the forecasted growth, Airways will collect more or less revenue than it needs to cover current costs. Airways makes a one-off volume adjustment in the first year of the new pricing round to bring revenue levels back to the level required to meet costs. This ensures Airways' proposed prices are transparent and that cost changes are kept separate from volume movements. This method is consistent with the previous pricing round, which included an 8.5% price decrease for higher than expected volumes. This one-off adjustment will be reviewed in April 2019 before final prices are set and will be updated to reflect the current forecast information available at that time.

5.B. Annual volume growth

Volume growth forecasts the changes in airline schedules that impact the amount of revenue collected. This includes changes in the number of flights or the weight of aircraft being flown.

Following customer feedback Airways forecasts domestic routes and international routes separately. Airways is able to forecast one year in advance, based on published airline schedules, with a high degree of accuracy. Longer-term volume forecasts rely on economic forecast information and published airline fleet changes.

Domestic volume growth:

Airways is forecasting that domestic growth will be strong in the first year of the pricing round as Air New Zealand continues to add capacity. The rate of volume growth for the second and third years of the pricing round is expected to slow as there are no known significant fleet or schedule changes.

International volume growth:

International volume growth has historically been more volatile and difficult to forecast. International volume growth is influenced by fleet changes, the health of the global economy and fuel prices. Airways is forecasting strong international volume growth for the first year of the pricing round as Air New Zealand continues to expand its international fleet. Economic forecasts and fuel price expectations for the second and third years of the pricing round are mixed, suggesting that the long-term average growth is the best input to use.

Figure 24 summarises the volume growth assumptions used to calculate the proposed prices in this document.

Figure 24 – Forecasted volume growth

	FY20	FY21	FY22
Domestic	4.4%	0.8%	0.3%
International	3.4%	1.3%	2.1%
Weighted average growth	**4.0%**	**1.0%**	**1.0%**

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Rationale:

Airways' forecast methodology was improved in 2016 following customer feedback. Airways is proposing to use the same forecast methodology, except for the method to forecast international growth in the second and third year of the pricing round.

Following consultation in 2016, Airways included fuel forecasts in a regression model to forecast international growth. Unfortunately, owing to the ongoing volatility of fuel prices, Airways is unable to source a reliable forecast of fuel prices. In the absence of this economic input, Airways is proposing that the long-term historical growth rate is the best predictor of volume growth for the second and third years of the pricing round. Figure 25 summarises Airways' approach to volume forecasting.

Figure 25 – Airways' forecast methodology

	Yr 1	Yr 2 and Yr 3
Domestic	Schedules	Fleet changes + historical growth rates
International	Schedules	Fleet changes + historical growth rates

Airways notes that changes to the volume risk-sharing mechanism in the Pricing Framework provides an opportunity to reset prices. This would occur at the end of 2020 and 2021 if airline schedules indicate that growth differs more than 2% from the assumptions used to set prices. The volume growth forecast will be reviewed in April 2019 before final prices are set. To ensure the final prices are as accurate as possible this input may be adjusted to reflect the most current airline schedules and any additional information supplied in consultation responses.

Feedback question

Q10: Is there any other information Airways should consider to forecast future volume growth?

Other pricing changes

This section includes proposed minor changes to charges in the Standard Terms and Conditions.

Queenstown night operations

In 2016 a new charge was added to the Standard Terms and Conditions for Queenstown night operations. The charge covered new investment in lighting infrastructure to allow night operations into Queenstown and applied to all aircraft over 30 tonnes.

The ATR fleet were excluded from the new charge as they were not certified to operate RNP-AR approaches into Queenstown at the time. Since 2016, the majority of the ATR fleet has been certified to operate RNP-AR approaches into Queenstown.

Accordingly, Airways is proposing that the costs for Queenstown night operations be spread across all airline operators. To achieve this outcome Airways is proposing to remove the separate charge from the Standard Terms and Conditions and consolidate the costs into the Queenstown Aerodrome Charge.

Extended or unscheduled out-of-hours service

Where extended coverage is requested and approved outside the published 'core hours' of watch at regional aerodromes, Airways charges a flat fee for a maximum of three hours. Currently, there is one charge listed in the Standard Terms and Conditions, which applies to all regional aerodromes.

Airways is proposing an alternative, reduced charge for aerodromes where Airways provides an Aerodrome Flight Information Service (AFIS). The reduced charge reflects that Airways' costs for recalling AFIS staff are lower than costs for recalling ATC staff. The two proposed charges are outlined in figure 26.

Figure 26 – Proposed out-of-hours charges

	FY20	FY21	FY22
Regional airports where an ATC service is provided	$396.87	$406.79	$416.15
Regional airports where an AFIS is provided	$238.12	$244.07	$249.69

Feedback question

Q11: Do you support proposed changes to charges for Queenstown night operations, and extended or unscheduled out-of-hours services?

Scorecard

This section proposes a refined Scorecard to track Airways' quarterly performance for the 2019-2022 period. The Scorecard helps ensure transparency and accountability for Airways' service delivery performance.

The Scorecard requires updating to continue to reflect Airways' changing operating environment and improved performance measurement metrics. The Scorecard is most effective when it is simple, transparent and has the right balance of measures that are important to you.

Safety

Safety is Airways' top priority and we continue to target zero safety events for the 2019-2022 period.

Operational

It is proposed that the following changes be made to the service availability metrics in the Scorecard to allow for a more complete picture of Airways' services:

- A 'core systems availability' metric be introduced. This metric measures the availability of the ATM platform and associated networks, with a target of 99.99%.
- An 'ATC availability' metric be introduced. This availability metric focuses on people-based availability and is an aggregate representation of Airways' towers and sector units.
- The current 'service availability' metric be renamed to 'technical availability' to better reflect its focus in light of the above changes.
- To ensure the Scorecard remains simple and easy to understand, the current metric of 'planned maintenance completion' will no longer be reported on the Scorecard.

Initiatives

The initiatives section of the Scorecard is designed to provide an update on key projects, including the Business Transformation programme. The measuring system used in the current Initiatives section of the Scorecard is inconsistent across projects. To simplify this it is proposed that each initiative be given a Red/Amber/Green label across time, quality, cost and overall, so progress can be easily determined.

Other

The 2016-2019 Scorecard includes three metrics that were part of the annual Civil Air Navigation Services Organization (CANSO) Global ANSP Performance Report. Owing to the Scorecard's quarterly focus it is proposed that these metrics are no longer included in the Scorecard for the 2019-2022 pricing period. These metrics are still publicly available on CANSO's website.

The Scorecard measures are intended to be a summary of Airways' performance, not an exhaustive list. Airways will continue to seek opportunities to improve safety, operational and financial performance. Figure 27 provides a complete revised set of measures, along with the current year-to-date performance.

Enhancing runway capacity at **Auckland Airport**

To continue to meet runway capacity demands at Auckland Airport until completion of the proposed northern runway in 2028, Airways is undertaking a number of initiatives to increase capacity of the existing runway.

"While a second runway is proposed for 2028, passenger numbers are continuing to grow so it is essential to lift capacity on the existing runway", Acting Head of Auckland Operations Mike Turner says. "By making incremental changes to enhance usage of the current runway, we can support the most efficient timing of the northern runway development".

The Airport Capacity Enhancement group (ACE) is made up of representatives from Airways, Auckland Airport, the Board of Airline Representatives New Zealand (BARNZ), Air New Zealand, Qantas, Jetstar and Virgin Australia.

Working with ACE, Airways has been able to reduce runway occupancy times and increase the declared runway rate at Auckland Airport from 43 air traffic movements per hour to 45 this year.

ACE's goal is for Airways to achieve a target of 50 aircraft movements or more per hour by 2022 to meet the projected increase in passenger numbers into Auckland.

"With ACE we mapped out a timeline of runway movement requirements over the next ten years and looked at what efficiencies could be made to ensure we met those targets," Mike says. "Our aim is to ensure maximum throughput and safety for the airport, whilst minimising expense for our customers".

Airways has implemented new departure and arrival procedures to increase runway capacity and is working with the Civil Aviation Authority on modifying current missed approach procedures.

Standard taxi routes for arriving aircraft are published and provided to flight crews prior to landing, ensuring greater predictability for pilots about the routes they will follow to exit the runway. Previously, pilots would be told what route to follow once they had landed.

"We are aiming for consistent behaviour from the wider pilot group and from air traffic control to make sure we are all working to the same standards", Mike says.

ACE provides monthly reports to airlines on their runway occupancy time performance at Auckland Airport.

"Airlines can use this data to compare 'best in class' around efficient use of runway time. We analyse why airlines might be using extra time on the runway and work with them to decrease that."

Figure 27 – Proposed Scorecard measures

Current Performance	Metric	Proposed Target			Description
FY19 YTD		FY20	FY21	FY22	
Safety					
Nil	Critical safety incidents for commercial passenger flights	Nil			Number of high severity safety incidents.
Nil	Critical safety incidents for GA	Nil			Number of high severity safety incidents.
Operational					
Proposed new metric	Core systems availability	99.99%			Measures the availability of core systems on a 12-month rolling average basis.
99.99%	Technical availability	99.95%			Measures the availability of technical systems on a 12-month rolling average basis.
Proposed new metric	ATC availability	99.95%			Measures the availability of ATC units on a 12-month rolling average basis.
3,804	Monthly inflight delay (minutes)	4,000			Measures the inflight delay for arriving flights into Auckland, Wellington, Christchurch and Queenstown on a 12-month rolling average basis.
15.1	Average delay per flight (seconds)	15.0			Measures the inflight delay for arriving flights into Auckland, Wellington, Christchurch and Queenstown on a 12-month rolling average basis.
956	IFR movements per core FTE	940			Measures the number of IFR movements handled per core FTE on a YTD basis.

Current Performance	Metric	Proposed Target			Description
FY19 YTD		FY20	FY21	FY22	
Financial					
49.1	Annual revenue ($m)	223.5	234.5	244.2	Measures actual ANS revenue for the year.
N/A	Annual EVA ($m)		0		Measures EVA as net profit for the year after capital charge deductions.
8	Annual total CAPEX ($m)	70.7	67.2	46.8	Measures actual capital expenditure for the year.
462	Cost Per IFR Flight Hour ($)	535	550	565	Measures the average cost to Airways for staffing an IFR flight over an hour.
13.4%	Proportion of shared services and governance costs		14.0%		Proportion of corporate overhead functions, like finance, legal, safety, risk management etc.
Initiatives					
Proposed new metric	Business Transformation – People, Property and Technology		Red/Amber/Green		Status update based on time, quality, cost and overall.
Proposed new metric	Digital Services – Invercargill		Red/Amber/Green		Status update based on time, quality, cost and overall.
Proposed new metric	Digital Services – Auckland		Red/Amber/Green		Status update based on time, quality, cost and overall.
Proposed new metric	UAV Traffic Management		Red/Amber/Green		Status update based on time, quality, cost and overall.
Proposed new metric	Flexible Contingent Runway		Red/Amber/Green		Status update based on time, quality, cost and overall.

CONSULTATION PROCESS
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PART A AIRLINES
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APPENDIX 1 PRICING TABLES AND EXAMPLES
APPENDIX 2 SUPPORTING INFORMATION

Feedback questions

Q12: Do you support the Scorecard metrics in figure 27?

Q13: Are there any other measures Airways should consider including in the Scorecard?

Independent review of Airways' pricing inputs

Airways has previously received feedback that customers were concerned about the possibility of cross-subsidisation between Airways' domestic business and international business. To give you assurance that there is no cross-subsidisation Airways has again employed PwC to provide a review for this pricing round.

Airways' calculation of the target revenue required to deliver the services in the Service Framework is based on a budget that forecasts the operational costs for the next three-year period. Airways engaged PwC to review the budget and assess whether our controls were operating effectively during the calculation of prices to confirm that the:

- Budgets used to calculate prices exclude costs that do not relate to the provision of services in the Service Framework, including costs for the international businesses.
- Total revenue has been allocated by service and location in accordance with the Pricing Framework.

PwC's report found that Airways' controls throughout the price-setting process over the budget inputs for the 2019-2022 pricing period were operating effectively and no exceptions were noted.

In completing the pricing process Airways has intentionally deviated from the Pricing Framework in the following instances:

- No business overheads have been applied to the Milford aerodrome because it operates as a satellite to the Queenstown aerodrome.
- No company-wide overheads have been allocated to the unattended approach service in recognition of the fact there are no direct labour costs involved in the provision of these services. Therefore, the allocation of overheads would not be a true reflection of the underlying cost of providing the unattended services.

Although PwC's report was prepared solely for Airways' directors, PwC has agreed that you can request a copy of the report. It will be provided on the understanding that you, in relying on the report, accept that PwC does not accept or assume a duty of care to you with respect to the report.

PART B – Proposed prices for General Aviation (GA)

Airways helps GA customers operate safely within controlled airspace by providing flight information. Overall, GA activity makes up approximately 53% of movements and contributes 2% of Airways' air navigation revenue.

Airways' current prices will expire on 30 June 2019. The following section outlines the proposed prices for GA for the period from 1 July 2019 to 30 June 2022. You are invited to provide feedback on the proposed prices. A series of feedback questions have been provided to assist you in your submission.

An online template listing all the questions in this consultation document (with space for answers) is available from Airways' website at:

www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/current-public-consultation

Pricing methodology for GA

Airways' Pricing Framework sets out the methodologies to calculate prices for the services provided to GA operators. The Pricing Framework was finalised in 2012 after an extensive consultation process. The Framework can be found on Airways' website at:

www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/ans-services-and-pricing-explained

This consultation focuses on the inputs into the pricing process and the final pricing levels. While Airways will respond to all feedback, the purpose of the pricing consultation is to set prices for the next three years and not to refine the Pricing Framework.

Proposed GA prices

GA prices are set at a lower level than airline pricing, reflecting the lower value GA customers derive from Airways' services. Following the Pricing Framework changes in 2012 Airways believes that costs are allocated equitably to the services provided. Airways is proposing to simply apply inflation to current prices to ensure they remain in line with underlying costs (ie, so that the revenue collected takes into account inflationary cost increases). This approach is consistent with the 2016 Pricing Consultation, and will result in GA prices increasing by an average of 2.4% p.a.

Inflation uplift

It is proposed that all prices are increased by inflation to ensure they stay at current levels in real terms. As part of the consultation response in 2013, Airways stated that it would adopt the NZIER inflation forecasts as standard policy to provide a consistent long-term measure. The proposed inflationary rates provided in figure 28 reflect this approach.

Figure 28 – Proposed GA inflationary uplifts

	FY20	FY21	FY22
NZIER LCI forecast (Sep 18)	2.4%	2.5%	2.3%

Prices are increased by inflation to ensure Airways' prices reflect underlying costs. The NZIER Labour Cost Index (LCI) forecast is used for the inflation forecast as this provides a good measure of cost inflation. NZIER's inflation forecast is an independent, expert estimate of inflation.

Service prices

As per the Pricing Framework, GA prices are national. Prices are calculated by simply adding inflation to current prices. Appendix 1.1 provides the proposed prices for aerodrome landings, IFR approaches and en-route.

The proposed prices for GA-specific activities are outlined in figure 29 and the proposed prices for parachute activities are outlined in figure 30.

Figure 29 – Proposed circuit, vicinity landing and controlled VFR transit prices

	FY20	FY21	FY22
Circuits, vicinity landings and controlled VFR transits	$3.80	$3.90	$3.99
VFR flight plans (online)	$5.14	$5.27	$5.39
VFR flight plans (phone)	$7.38	$7.56	$7.73
Overdue SAR times	$39.74	$40.73	$41.67

Figure 30 – Proposed parachute prices

	Airspace Complexity								
	Low			Medium			High		
Aircraft Weight	FY20	FY21	FY22	FY20	FY21	FY22	FY20	FY21	FY22
Low (<1,700 kg)	$2.24	$2.30	$2.35	$2.84	$2.91	$2.98	$11.35	$11.63	$11.90
Medium (1,700-2,500 kg)	$3.42	$3.51	$3.59	$4.55	$4.66	$4.77	$11.35	$11.63	$11.90
Heavy (>2,500 kg)	$4.55	$4.66	$4.77	$6.79	$6.96	$7.12	$11.35	$11.63	$11.90

Feedback question

Q14: Do you agree with the inflationary inputs used to uplift GA prices?

Milford Services

Milford is the lowest cost location at which Airways provides air traffic services. To ensure Milford remains cost-effective, Airways' approach is to minimise investment as much as possible while ensuring safe services at a fit-for-purpose service level.

The remote location of Milford presents operational challenges for Airways. Currently, staff travel from Queenstown and spend five days at Milford before returning. Accommodation in Milford is located on a site that is earthquake prone and needs to be replaced in the 2019-2022 pricing round at an estimated cost of $0.5 million.

Airways has investigated the operational and cost-effectiveness of alternative service provision models, including providing the service remotely using digital technologies. However, Airways maintains the best method of providing current services continues to be an Aerodrome Flight Information Service provided by staff at Milford.

Airways' operating costs at Milford are summarised in figure 31 and the proposed price changes are outlined in figure 32.

Figure 31 – Milford operating costs

$m	FY20	FY21	FY22
Labour	0.3	0.3	0.3
Other operating costs	0.1	0.1	0.1
Depreciation and capital charge	0.1	0.1	0.2
Total costs	**0.5**	**0.5**	**0.6**

Figure 32 – Proposed price changes at Milford

	FY20	FY21	FY22
Proposed price changes at Milford	(18.8%)	32.1%	4.5%

Feedback question

Q15: Do you agree with the proposed changes to Milford prices?

Appendix 1 – Pricing Tables and Examples

Overall, revenue is allocated to specific services and locations based on the cost of providing the services. This is done using the methodologies and costing policies set out in the Pricing Framework. Revenue for specific services and locations will be influenced by the:

- Underlying cost of each service and location.
- General price adjustments to reflect factors such as inflation and volume changes.
- Location-specific capital expenditure.

The pricing formula set out in the Pricing Framework charges based on the weight of your aircraft; the heavier the aircraft the higher the price. Specific unit prices are set at a level that will collect the required revenue, using the expected volume forecast. The volume forecast provides the expected number of flights at each weight and distance category. The proposed prices have used Airways' latest volume forecast, based on schedules provided by airlines.

The unit prices are detailed in Appendix 1.1 and are supported by the following resources that you can use to calculate the impact of the proposed changes on your own prices:

- Example price tables (refer to Appendix 1.2).
- An online price calculator to calculate the price of a journey using several of Airways' services is available at: **www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/current-public-consultation**

The table below shows the change in revenue levels for specific services and locations and the components that make up the proposed price change.

Proposed revenue change for service by location

$m	FY19 Target Revenue[7]	FY20 Target revenue	FY21 Target revenue	FY22 Target revenue	Comments
Aerodrome services					
Auckland	**12.5**	16.5	21.0	24.2	FCR and Digital Tower
Christchurch	**8.4**	9.0	9.3	9.0	Recent ILS replacement and inflation uplift
Wellington	**9.0**	11.3	12.4	11.1	Recent new tower and inflation uplift
Queenstown	**4.9**	4.3	4.4	4.2	No recent significant investment
Nelson	**2.2**	2.5	3.0	2.6	Recent new tower
Hamilton	**1.9**	2.1	2.2	2.2	Inflationary changes
Napier	**1.4**	1.2	1.2	1.2	Current staffing issues and change in staffing mix

7 This was the target revenue set during the 2016-2019 pricing consultation.

$m	FY19 Target Revenue[7]	FY20 Target revenue	FY21 Target revenue	FY22 Target revenue	Comments
Dunedin	**1.6**	1.5	1.6	1.6	Inflationary changes
Tauranga	**1.6**	1.8	1.8	1.8	Inflationary changes
Palmerston North	**1.7**	1.8	1.8	1.8	Inflationary changes
New Plymouth	**1.2**	1.2	1.3	1.3	Inflationary changes
Woodbourne	**1.6**	1.6	1.6	1.6	Inflationary changes
Invercargill	**1.1**	1.0	1.4	2.2	Digital tower in FY21 and FY22
Gisborne	**0.8**	0.8	0.8	0.8	Inflationary changes
Rotorua	**1.3**	1.3	1.3	1.3	Inflationary changes
Aerodrome services total	**51.2**	**57.7**	**65.2**	**66.8**	
Flight information services					
Milford	**0.3**	0.4	0.5	0.6	Accommodation required
Kapiti	**0.6**	0.6	0.6	0.6	
Flight information services total	**0.9**	**1.0**	**1.1**	**1.1**	
Approach services					
Auckland	**25.8**	30.9	32.9	37.0	
Christchurch	**12.4**	13.4	14.0	15.0	
Wellington	**10.2**	10.9	11.3	12.2	
Queenstown	**2.8**	2.7	2.5	2.9	
Nelson	**1.7**	1.8	1.8	1.9	
Hamilton	**1.1**	1.2	1.2	1.3	
Napier	**1.0**	1.2	1.2	1.3	
Dunedin	**1.5**	1.9	1.9	1.9	
Tauranga	**1.0**	1.1	1.2	1.2	Business Transformation and ATM platform
Palmerston North	**1.0**	1.1	1.2	1.3	
New Plymouth	**0.8**	1.0	1.0	1.1	
Woodbourne	**0.5**	0.6	0.6	0.7	
Invercargill	**0.8**	0.7	0.8	0.8	
Gisborne	**0.7**	0.7	0.7	0.7	
Rotorua	**0.9**	1.1	1.1	1.2	
Approach services total	**62.2**	**70.2**	**73.4**	**80.4**	
Domestic En-route	**44.4**	**58.2**	**57.3**	**58.0**	
Oceanic En-route	**24.2**	**28.3**	**29.3**	**29.5**	

$m	FY19 Target Revenue[7]	FY20 Target revenue	FY21 Target revenue	FY22 Target revenue	Comments
Unattended approach services					
Taupo	**0.2**	0.2	0.2	0.3	
Timaru	**0.1**	0.2	0.2	0.2	
Whanganui	**0.1**	0.2	0.2	0.2	
Hokitika	**0.1**	0.1	0.2	0.2	
Whangarei	**0.1**	0.2	0.1	0.1	
Kerikeri	**0.0**	0.1	0.1	0.1	
Kapiti	**0.0**	0.1	0.1	0.1	Significant increase in IFP cost and capital costs
Whakatane	**0.0**	0.1	0.1	0.1	
Westport	**0.0**	0.0	0.0	0.0	
Kaitaia	**0.0**	0.1	0.1	0.1	
Great Barrier	**0.0**	0.0	0.0	0.0	
Oamaru	**0.0**	0.0	0.0	0.0	
Wanaka	**0.0**	0.0	0.0	0.0	
Wairoa	**0.0**	0.0	0.0	0.0	
Unattended approach total	**0.8**	**1.3**	**1.3**	**1.4**	
Other revenue[8]	**6.4**	6.8	6.9	7.0	
Total Revenue	**190.1**	**223.5**	**234.5**	**244.2**	

8. Other revenue includes Airways' contract with the Royal New Zealand Air Force (RNZAF) and other minor revenue streams, which are not covered in Airways' Standard Terms and Conditions.

Appendix 1.1: Pricing tables

This appendix provides the formula and pricing tables used to calculate Airways' proposed unit prices. Prices are calculated by applying the inputs from the pricing tables into the pricing formula. Appendix 1.2 provides some example prices for different aircraft types.

The pricing formulas are presented below, and the pricing tables are provided on pages 46-48.

Pricing formulas for Aerodrome, Approach and Unattended Approach Services

The Aerodrome Price is the greater of the Minimum Price or:

= Base Rate x MCTOW / 5	for aircraft < 5 tonnes
= Base Rate + Weight Rate x (MCTOW – 5)	for aircraft 5-30 tonnes
= Base Rate + Weight Rate x 5 x sqrt of (MCTOW -5)	for aircraft > 30 tonnes

The Minimum Price, Base Rate and Weight Rate are provided by the applicable pricing tables below.

MCTOW is an aircraft's maximum certified take-off weight measured in tonnes.

Pricing formula for En-route Services

The En-route Price is the greater of the Minimum Price x Nautical Miles / 100, or:

= Base Rate x Nautical Miles / 100	for aircraft < 5 tonnes
= [Base Rate + Weight Rate x (MCTOW – 5)] x Nautical Miles / 100	for aircraft 5-30 tonnes
= [Base Rate + Weight Rate x 5 x Sqrt of (MCTOW -5)] x Nautical Miles / 100	for aircraft > 30 tonnes

The Minimum Price, Base Rate and Weight Rate are provided by the applicable pricing tables.

MCTOW is an aircraft's maximum certified take-off weight measured in tonnes.

For Domestic flights, Nautical Miles is the distance between the origin and destination aerodromes, less the terminal navigation radius at both aerodromes. For International flights, see Airways' Standard Terms and Conditions for definition wording.

Aerodrome charges

	Minimum Price			Base Rate			Weight Rate >5 tonnes		
	FY20	FY21	FY22	FY20	FY21	FY22	FY20	FY21	FY22
Auckland	$11.55	$11.84	$12.11	$15.00	$15.35	$15.70	$4.31	$5.52	$6.32
Christchurch	$11.55	$11.84	$12.11	$15.00	$15.35	$15.70	$7.02	$7.16	$6.81
Wellington	$11.55	$11.84	$12.11	$15.00	$15.35	$15.70	$10.28	$11.23	$9.89
Queenstown	$8.07	$8.27	$8.46	$15.00	$15.35	$15.70	$8.52	$8.54	$7.99
Regional Airport (Group 1)	$8.07	$8.27	$8.46	$15.00	$15.35	$15.70	$15.58	$16.73	$15.90
Regional Airport (Group 2)	$8.07	$8.27	$8.46	$15.00	$15.35	$15.70	$13.47	$14.98	$15.94
Milford	$31.53	$41.67	$43.55	$86.63	$114.47	$119.66	Not Applicable		
Kapiti	$8.07	$8.27	$8.46	$15.00	$15.35	$15.70	$63.71	$63.98	$62.87
Group 1 includes Nelson, Palmerston North, Tauranga and Hamilton.									
Group 2 includes Dunedin, Gisborne, New Plymouth, Napier, Invercargill, Rotorua and Woodbourne.									

Approach charges

	Minimum Price			Base Rate			Weight Rate >5 tonnes		
	FY20	FY21	FY22	FY20	FY21	FY22	FY20	FY21	FY22
International towers	$5.78	$5.92	$6.06	$23.15	$23.75	$24.30	$8.69	$9.10	$10.00
Regional towers	$5.78	$5.92	$6.06	$23.15	$23.75	$24.30	$7.52	$7.52	$8.15
Additional Auckland CAT III weight rate (added to the international tower price for aircraft over 30 tonnes.)	Not Applicable						$0.37	$0.37	$0.37
Additional Queenstown Multilat weight rate (added to the regional tower price for aircraft over 5 tonnes.)	Not Applicable						$1.50	$1.50	$1.50
International towers includes Auckland, Wellington and Christchurch.									
Regional towers includes Queenstown, Nelson, Palmerston North, Tauranga, Hamilton, Dunedin, Gisborne, New Plymouth, Napier, Invercargill, Rotorua and Woodbourne.									

Unattended charges

	Minimum Price			Base Rate			Weight Rate >5 tonnes		
	FY20	FY21	FY22	FY20	FY21	FY22	FY20	FY21	FY22
Taupo	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$15.72	$15.29	$23.06
Timaru	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$21.48	$20.72	$20.48
Whanganui	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$16.34	$16.64	$16.56
Hokitika	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$14.00	$14.25	$16.21
Whangarei	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$7.28	$6.68	$6.62
Kerikeri	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$3.95	$4.05	$4.14
Kapiti	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$6.46	$6.50	$6.80
Whakatane	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$20.88	$19.92	$19.44
Westport	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$8.85	$8.04	$8.54
Kaitaia	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$21.48	$22.02	$23.06
Great Barrier	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$15.88	$16.28	$16.65
Oamaru	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$21.48	$22.02	$23.06
Wanaka	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$21.48	$22.02	$23.06
Wairoa	$3.52	$3.61	$3.69	$19.75	$20.25	$20.70	$21.48	$22.02	$23.06
Other unattended aerodromes	No charge								

En-route charges

	Minimum Price			Base Rate			Weight Rate >5 tonnes		
	FY20	FY21	FY22	FY20	FY21	FY22	FY20	FY21	FY22
Domestic	$6.74	$6.91	$7.07	$6.70	$6.85	$7.00	$2.93	$2.84	$2.84
Oceanic	$20.22	$20.73	$21.21	$6.70	$6.85	$7.00	$0.71	$0.73	$0.72

Other charges

	FY20	FY21	FY22
Circuits	$3.80	$3.90	$3.99
Vicinity landings	$3.80	$3.90	$3.99
Controlled VFR transits	$3.80	$3.90	$3.99
VFR flight plans (online)	$5.14	$5.27	$5.39
VFR flight plans (phone)	$7.38	$7.56	$7.73
Overdue SAR times	$39.74	$40.73	$41.67
Out of hours – ATC	$396.87	$406.79	$416.15
Out of hours – AFIS	$238.12	$244.07	$249.69

Parachute charges

	Airspace Complexity								
	Low			Medium			High		
Aircraft weight	FY20	FY21	FY22	FY20	FY21	FY22	FY20	FY21	FY22
Low (<1,700 kg)	$2.24	$2.30	$2.35	$2.84	$2.91	$2.98	$11.35	$11.63	$11.90
Medium (1,700-2,500 kg)	$3.42	$3.51	$3.59	$4.55	$4.66	$4.77	$11.35	$11.63	$11.90
Heavy (>2,500 kg)	$4.55	$4.66	$4.77	$6.79	$6.96	$7.12	$11.35	$11.63	$11.90

Appendix 1.2: Example prices for FY20

This appendix provides examples of Airways' price calculation for a range of different IFR flights to show the effect of different services. The prices in these examples are for the 2020 Financial Year. Note these prices are examples only and may differ from actual prices charged, they are only intended to provide an indication of the prices.

Aircraft: Boeing 777-300
Weight: 344,500kg
Seats: 342

From\To	Sydney	Los Angeles	Auckland	Christchurch
Sydney		748	1,968	2,184
Los Angeles	748		2,242	2,458
Auckland	698	972		2,454
Christchurch	698	972	2,238	

Aircraft: Airbus 320-200
Weight: 77,000kg
Seats: 168

From\To	Nadi	Sydney	Auckland	Christchurch	Dunedin	Queenstown	Wellington
Nadi		N/A	990	1,090	1,314	1167	1,228
Sydney	N/A		947	1,046	1,270	1,124	1,184
Auckland	385	341		1,163	1,624	1,452	1,116
Christchurch	385	341	1,064		1,107	974	991
Dunedin	385	341	1,301	883		849	1,235
Queenstown	385	341	1,275	896	996		1,241
Wellington	385	341	878	853	1,320	1,181	

Aircraft: Bombardier Dash-8 Q300
Weight: 19,500kg
Seats: 50

From\To	Auckland	Christchurch	Dunedin	Gisborne	Hamilton	Invercargill	Napier	Nelson	New Plymouth	Palmerston North	Queenstown	Rotorua	Tauranga	Wellington	Woodbourne
Auckland		438	604	411	382	633	409	484	383	452	544	371	394	416	460
Christchurch	404		409	509	530	445	475	419	459	468	364	502	545	369	390
Dunedin	493	333		600	621	368	566	509	549	560	318	593	637	460	481
Gisborne	301	432	600		423	637	362	490	415	431	553	369	411	399	455
Hamilton	240	423	590	393		621	386	470	371	431	533	351	382	396	442
Invercargill	523	369	368	637	652		602	541	580	595	320	627	670	496	516
Napier	299	398	566	362	417	602		456	390	396	518	370	415	365	420
Nelson	343	312	478	460	470	510	426		398	419	423	445	487	329	346
New Plymouth	273	383	549	415	401	580	390	429		409	299	383	421	363	404
Palmerston North	311	361	529	400	431	565	365	419	378		480	395	440	328	382
Queenstown	483	338	368	603	614	370	568	504	349	561		590	632	463	481
Rotorua	260	425	593	369	382	627	370	475	383	425	540		374	394	444
Tauranga	253	438	606	380	382	639	385	487	391	440	552	343		408	457
Wellington	334	322	490	429	456	526	394	388	392	388	442	423	468		346
Woodbourne	349	313	481	455	473	516	420	376	404	413	431	444	488	317	

Aircraft:
Cessna Grand Caravan 208B
Weight: 3,900kg
Seats: 12

From\To	Auckland	Christchurch	Dunedin	Gisborne	Hamilton	Invercargill	Kapiti	Napier	Nelson	New Plymouth	Palmerston North	Queenstown	Rotorua	Tauranga	Wellington	Woodbourne
Auckland		53	65	39	31	69	40	39	45	35	41	64	34	33	44	46
Christchurch	53		39	52	51	44	37	48	36	46	43	40	52	53	37	36
Dunedin	65	39		65	64	33	50	60	48	58	55	33	64	66	50	49
Gisborne	39	52	65		37	70	38	32	46	40	38	65	33	35	42	45
Hamilton	31	51	64	37		68	38	36	43	34	38	63	31	31	41	43
Invercargill	69	44	33	70	68		55	65	53	62	60	33	69	70	55	53
Kapiti	43	40	53	41	40	57		36	34	36	31	53	40	42	30	33
Napier	39	48	60	32	36	65	34		41	36	33	61	33	36	37	40
Nelson	45	36	48	46	43	53	31	41		37	36	48	44	45	32	30
New Plymouth	35	46	58	40	34	62	33	36	37		35	31	35	36	37	38
Palmerston North	41	43	55	38	38	60	28	33	36	35		55	37	39	32	35
Queenstown	64	40	33	65	63	33	50	61	48	31	55		64	65	50	49
Rotorua	34	52	64	33	31	69	37	33	44	35	37	64		30	41	44
Tauranga	33	53	66	35	31	70	39	36	45	36	39	65	30		43	45
Wellington	44	37	50	42	41	55	27	37	32	37	32	50	41	43		30
Woodbourne	46	36	49	45	43	53	30	40	30	38	35	49	44	45	30	

Appendix 2 – Supporting information

Appendix 2.1: Building block components of overall revenue

The proposed overall revenue is calculated using the EVA framework. Revenue is set at a level that recovers the cost to Airways of providing its services (the building blocks).

The total underlying costs have not changed from those used to calculate the FY19 prices, except for the reasons outlined in Part A, Sections 1-4.

$m	FY19	FY20	FY21	FY22
	Baseline	Plan	Plan	Plan
Revenue				
Airways' charges	190.1	223.5	234.5	244.2
Other revenue	0.4	0.7	0.7	0.8
	190.5	**224.2**	**235.2**	**245.0**
Building blocks				
Operating costs – labour	107.4	113.7	117.7	121.9
Operating costs – other	30.8	39.4	36.1	37.1
Depreciation	25.1	29.8	34.3	42.7
Service enhancements	5.4	10.2	12.1	6.2
Income tax	6.1	8.7	9.8	10.4
Cost of capital	15.7	22.4	25.2	26.7
Economic value added	**0**	**0**	**0**	**0**

Other revenue: other revenue includes out-of-hours charges and recoveries where buildings have been subleased. Other revenue is offset against operating expenses.

Operating costs – labour: includes all employee remuneration and related employment costs.

Operating costs – other: includes all operating costs excluding labour and depreciation.

Service enhancements: includes the operating costs associated with the enhanced services and business transformation, as outlined in Part A, Section 1 and Section 2.

Depreciation: Airways calculates fixed asset depreciation on a straight-line basis. Depreciation will increase with any increase in the capital programme. Under EVA, amortisation is also recognised for significant leases. Significant leases include the Wellington office, Christchurch campus and Auckland centre.

Income tax: income tax is calculated at New Zealand's company tax rate of 28%.

Cost of capital: the cost of capital is calculated as the capital charge rate multiplied by the 'historical cost' asset base, adjusted for depreciation. Airways does not revalue its assets for pricing purposes.

Appendix 2.2: Capital programme

The table below summarises all of Airways' capital expenditure outlined in this document.

	FY20	FY21	FY22	Total
Capital programme ($m)				
Capital to maintain current services (table below)	21.6	34.8	36.6	**92.9**
Future Aerodrome Services (figure 7)	5.4	3.7	5.2	**14.3**
Flexible Contingent Runway (figure 8)	17.4	15.2	–	**32.6**
Other initiatives (figure 11)	4.2	4.8	1.6	**10.6**
Technology transformation (figure 15)	19.4	8.7	3.4	**31.5**
Buildings transformation (figure 16)	2.7	0.1	–	**2.8**
Total capital programme	**70.7**	**67.3**	**46.8**	**184.8**

The table below provides detail of the capital programme to maintain current services as described in Part A, Section 3.

	FY20	FY21	FY22	Total
Capital programme to maintain current services ($m)	**21.6**	**34.8**	**36.6**	**92.9**
Auckland	**5.4**	**5.8**	**2.9**	**14.1**
Stopbar control system replacement	2.5	2.6	–	**5.1**
Southern runway edge lighting	0.3	0.6	1.0	**1.9**
Taxiway recabling and insulation resistance programme	0.6	0.6	0.6	**1.8**
Engineering and maintenance workshop facilities	–	1.3	–	**1.3**
Runway End Identifier Lights (REILs) replacement	0.4	0.4	–	**0.8**
Auckland tower refurbishment	0.6	–	–	**0.6**
Multilat refresh	0.5	–	–	**0.5**
VSAT relocation	–	–	0.5	**0.5**
Minor capital works, less than $0.5m	0.5	0.3	0.8	**1.6**
Christchurch, Wellington and Queenstown	**0.9**	**1.4**	**2.6**	**4.9**
Wellington Instrument Landing System (ILS) replacement	–	–	2.4	**2.4**
Wellington lighting and recabling replacements	0.9	0.5	–	**1.4**
Queenstown multilat refresh	–	0.5	–	**0.5**
Minor capital works, less than $0.5m	–	0.4	0.2	**0.6**
Regional aerodromes	**2.9**	**4.4**	**4.1**	**11.4**
Airfield lighting and power system replacements (at all 11 regional aerodromes)	2.3	1.1	2.8	**6.2**
Dunedin Instrument Landing System (ILS) replacement	–	2.4	–	**2.4**
Runway End Identifier Lights (REILs) replacements (NS, PM, NR, NP, TG, NV, GS)	0.3	0.7	1.0	**2.0**
Tower refurbishments (all locations except NS)	0.3	0.2	0.3	**0.8**
Kapiti and Milford	**0.5**	**–**	**–**	**0.5**
Milford staff accommodation	0.5	–	–	**0.5**

	FY20	FY21	FY22	Total
Unattended aerodromes	**0.1**	**1.2**	**–**	**1.3**
Taupo lighting	–	0.7	–	**0.7**
Hokitika Precision Approach Path Indicator (PAPI)		0.3	–	**0.3**
Airfield lighting control panels (WR, WU, TU)	0.1	0.2	–	**0.3**
En-route	**2.8**	**10.8**	**15.0**	**28.6**
Non-cooperative surveillance	0.2	3.1	6.3	**9.6**
Main trunk contingency network	0.3	3.1	5.2	**8.6**
DVOR/DME replacements (KT, HK, TG)	–	2.0	1.9	**3.9**
Replace voice recorders at international towers	1.0	2.1	0.8	**3.9**
Replacement microwave radio links	0.8	–	–	**0.8**
Minor capital works, less than $0.5m	0.5	0.5	0.8	**1.8**
National operations	**8.9**	**11.2**	**12.0**	**32.1**
Network infrastructure refresh programme	–	2.7	3.8	**6.5**
IT infrastructure refresh programme	1.8	1.5	1.9	**5.2**
Christchurch campus refresh, incl network recabling	0.1	3.9	–	**4.0**
Remote Control Management System refresh	–	–	2.1	**2.1**
ATIS replacement	1.3	0.6	–	**1.9**
Shared services supporting assets	0.6	0.6	0.6	**1.8**
Vehicle replacement programme	0.3	0.4	0.4	**1.1**
Power equipment refresh	–	–	1.1	**1.1**
Test equipment	0.2	0.3	0.3	**0.8**
Auckland office fit out	–	–	0.7	**0.7**
Wellington office fit out	–	0.5	–	**0.5**
Minor capital works, less than $0.5m	4.6	0.7	1.1	**6.4**

Appendix 2.3: Components of cost of capital

This appendix provides supporting rationale for the cost of capital inputs summarised in Part A, Section 4.C. and presents an upper and lower range of input parameters.

The method used to estimate Airways' cost of capital has wide support in the New Zealand financial community and is the method used by the Commerce Commission in its Input Methodologies to estimate the cost of capital for regulated businesses. The method involves estimating the cost of equity using the capital asset pricing model (CAPM) and combining that result with estimates of the cost of debt to arrive at the weighted average cost of capital (WACC). The method requires establishing values for various parameters and there is a degree of judgement required in establishing these values. The parameter values used to calculate the WACC are listed in the table below, including the upper and lower bounds considered.

Capital charge components	Lower bound	Upper bound
Risk-free rate	2.04%	2.85%
Asset beta	0.6	0.6
Tax-adjusted market-risk premium	7.0%	7.5%
Debt premium	1.09%	1.60%
Debt issuance cost	0.20%	0.20%
Leverage	58%	58%
WACC range	67th percentile	75th percentile
Calculated capital charge rate	6.9%	8.3%

For each parameter, Airways considers the approach used in the Commerce Commission's Input Methodologies and other approaches used in the market to derive a range for WACC.

Airways calculated the upper band of the reasonable and analytically supportable range for its cost of capital at 8.3%. The upper range was calculated using the Commerce Commission's Input Methodology framework and using market data. The lower end of the range was calculated at 6.9%, using the Commerce Commission's Input Methodology for Airports framework and parameter estimates where available. Where the Commerce Commission hasn't provided parameter estimates that are appropriate to Airways (asset beta and leverage), Airways has followed the Commerce Commission's methodology for calculating those parameters as close as practicable.

It is also worth noting that the cost-based building block method is primarily designed for use by large infrastructure providers and has some limitations for service businesses like Airways. The building blocks methodology calculates the commercial return as the asset base multiplied by the cost of capital rate. While it makes sense to link the return to shareholder with the amount invested in an entity, it does not incentivise innovation and can create inefficient investment decisions. For example, Airways could increase its return to shareholder by simply increasing its capital spend, even if that is not the most efficient way of providing services. Under the building blocks model, there is no explicit link between performance (safety, efficiency, cost-effectiveness or reliability) and return.

a. Risk-free rate

The Commerce Commission estimates the risk-free rate as the yield on government stock. To avoid the influence of unusual movements in the bond market, the Commerce Commission estimates the rate as the average of the daily yields over the month preceding the start of the disclosure year.

Lower bound – 2.04%, **Upper bound** – 2.85%

Rationale:

The Commerce Commission is of the view that the term of the government bonds used to estimate the risk-free rate should match the term of the pricing period. In Airways' case the risk-free rate would therefore be based on a three-year government bond rate. This approach is reflected in the lower bound input of 2.04%.

An alternative view is that the period of financing should be linked to the term of the company's assets the financing is being used for. In Airways' case the assets used in the provision of ANS are typically long term and therefore a 10-year bond rate (the longest available) would be more appropriate. This approach is reflected in the upper bound input of 2.85%.

b. Asset beta

Asset beta is the ratio of the covariance of a company's returns with the returns on the market, relative to the variance of returns on the market. It is thus a measure of the degree to which the entity's returns move with the market. The asset beta assumes zero leverage, whereas the equity beta reflects the company's leverage. For listed companies beta can be estimated from observed returns but for unlisted companies the beta is estimated from an average of the betas of comparable listed companies.

Lower range – 0.6, **Upper range** – 0.6

Rationale:

As Airways is not a listed company the estimation of asset beta must come from the (de-levered) betas of comparable companies. Airways considers that New Zealand airports are a suitable comparison because they operate in a similar economic environment to Airways in terms of fluctuations in demand from shifts in the domestic and external economies. In addition, their costs tend to be fixed in the short to medium term (as are Airways') and they are thereby not able to shift costs up or down quickly in response to *changes* in demand (thus resulting in returns being very sensitive to volumes).

An asset beta of 0.6 was estimated by the Commerce Commission for airports in New Zealand.

AirServices Australia, NATS and IAA are the providers of ANS in Australia, the United Kingdom and Ireland respectively. These entities are therefore expected to be exposed to a similar level of systematic risk (which beta aims to reflect) to Airways. Airways considers that these businesses are comparable for estimating asset betas.

AirServices Australia uses an asset beta of 0.55, NATS 0.505 and IAA 0.65. All of these are in line with Airways' proposed beta, and further corroborate with the comparisons with the asset beta of New Zealand airports.

c. Tax-adjusted market-risk premium (TAMRP)

The tax-adjusted market-risk premium represents the premium for exposure to market risk.

Lower bound – 7.0%, **Upper bound** – 7.5%

Rationale:

The Commerce Commission has adopted an estimate of 7.0% as an average of the estimates formed from four different methods for estimation of the premium and from consideration of the estimates adopted by overseas regulators. This is the basis for the lower bound input of 7.0%.

An alternative approach is to extrapolate the historical premium from a long historical series, as pioneered by Ibbotson & Co. This method is the basis for the upper bound input of 7.5%. The best source of this type of estimate is the data presented by Dimson, Marsh and Staunton, which indicates a real premium of 4.5% for equities over bonds. This suggests that 7.0% to 7.5% is a reasonable estimate for the current nominal TAMRP in New Zealand.

d. Debt premium

The debt premium represents the margin over the risk-free rate.

Lower bound – 1.09%, **Upper bound** – 1.60%

Rationale:

For airports the Commerce Commission estimates the debt premium as the margin over the estimated risk-free rate, for New Zealand dollar denominated bonds that:

i. are issued by an airport,
ii. are publicly traded,
iii. have a qualifying rating of grade A-, and
iv. have a remaining term to maturity of five years.

The Commerce Commission's most recent application of this method, issued on 31 July 2018 for the disclosure year ending 30 June 2019 for Auckland and Christchurch airports, resulted in an estimate of 1.24% for the debt premium.

The lower bound estimate of 1.09% applies the same methodology used by the Commerce Commission but is based on a term to maturity of three years.

Similarly, the upper bound of 1.60% applies the same methodology but is based on a longer term to maturity to reflect that long-term financing is more appropriate to fund Airways' asset base.

e. Debt issuance costs

The debt issuance costs are intended to reflect the cost of issuing publicly traded bonds.

Lower bound – 0.20%, **Upper bound** – 0.20%

Rationale:

The Commerce Commission revised down its estimate of debt issuance costs in its 2016 review of the input methodologies. Airways has adopted this value in the absence of more specific evidence.

f. Leverage

The leverage input adjusts for the mix of a company's funding between debt and equity.

Lower bound – 58%, **Upper bound** – 58%

Rationale:

The adoption of a leverage estimate of 58% is based on Airways' medium-term targeted leverage for its statutory business. The leverage ratio of 58% reflects the true cost of capital for Airways.

The input methodologies specify an explicit leverage level for each of the industry sectors to which they apply. These leverage levels were derived from the same company dataset that was used to derive the asset betas. The leverage level for airports (for the purpose of calculating WACC) is set at 19%. The Commerce Commission has not calculated a leverage dataset for the ANSP sector.

The leverage levels for two comparators that Airways used for determining its asset beta are 60% for NATS and 55% for AirServices Australia. Airways considers its target leverage level is the appropriate value to use when estimating its WACC and has therefore used 58% in its WACC estimate. This target leverage level is comparable with Airways' industry peers, NATS and AirServices.

g. Choosing a point estimate from a range

Given that the costs of debt and equity each require estimate, the final calculated WACC is subject to the risk of uncertainty or error. The Commerce Commission recognises the asymmetrical effects of error. If prices are set too low, investment is disincentivised and may threaten the ability of the company to continue to provide services. To allow for this potential for error, a margin is added to the point estimate.

Lower bound – 67th percentile, **Upper bound** – 75th percentile.

Rationale:

The Commerce Commission has recently reviewed the pricing decisions by Auckland and Christchurch airports. The draft decisions indicate that the Commerce Commission considers the risk of underinvestment from underestimation of WACC for these airports is lower than that of the electricity distribution and gas pipeline business, where the allowed WACC is set at the 67th percentile.

Although the business of Airways is strongly linked to that of the airports, it is considered that the cost of underinvestment by Airways is relatively high:

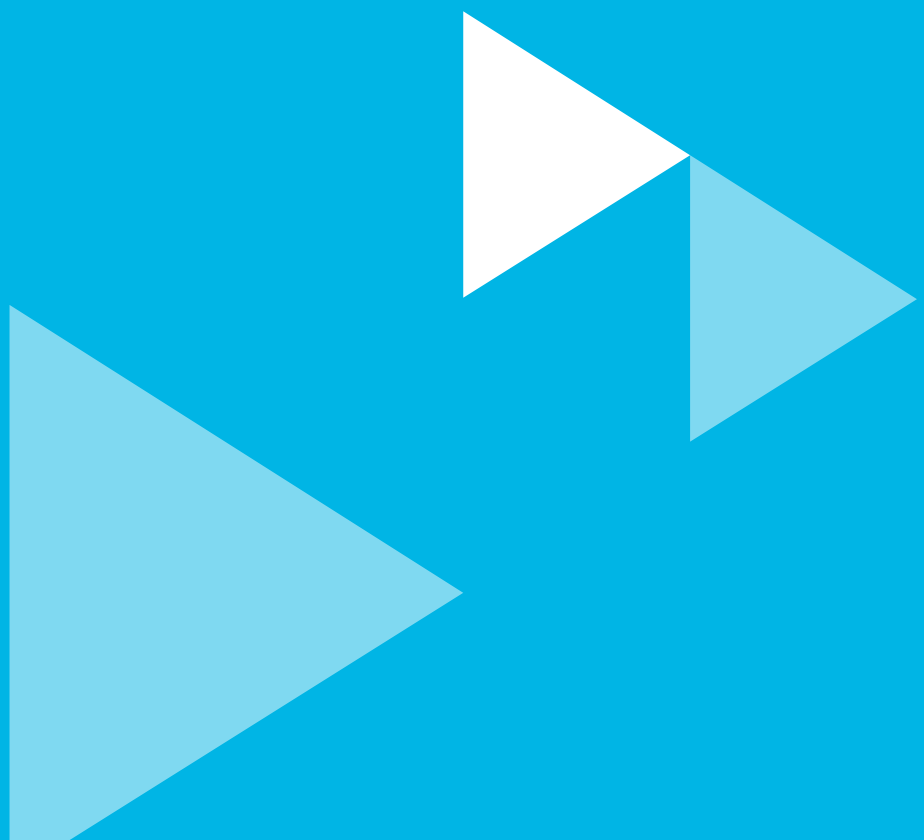
- A possible outage of ANS services is significant in terms of the costs of disruption or worse an accident.
- Inefficiently low levels of investment may cause economic cost due to travel delays and reduced levels of travel (as a result of fewer flights). A reduced number of travellers has a wider impact on the economy through lower expenditure on associated goods such as accommodation.
- Airlines may experience higher costs, potentially as a result of less efficient flight times, or aircraft spending longer periods of time on the ground between flights.

There are also fewer factors that mitigate the risk of underinvestment in comparison to airports. Complementary commercial activities for airports potentially create an incentive for investment even if the WACC is set lower than the true cost of capital.

The lower bound is based on the percentile applied to electricity distribution and gas pipeline businesses by the Commerce Commission. The upper bound of the 75th percentile reflects the increased cost, and fewer mitigating factors of, underinvestment for Airways in comparison to airports, electricity distribution and gas pipeline businesses.

Appendix 2.4: Weights used to allocate approach and aerodrome-related overhead

Aerodrome	Actual FY18 tonnes landed
Auckland	8,150,461
Christchurch	2,186,112
Wellington	1,648,583
Queenstown	624,305
Dunedin	263,384
Nelson	256,805
Palmerston North	189,183
Napier	169,240
Hamilton	120,536
Tauranga	119,851
New Plymouth	115,328
Woodbourne	106,421
Rotorua	77,616
Invercargill	75,160
Gisborne	59,212
Kapiti	18,707



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