



AIRWAYS' PRICING  
FOR THE 2016-2019 PERIOD  
Consultation Response Document

**AIRWAYS**  
making your world possible

MAY 2016

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Please note that Airways has also provided a separate *Executive Summary* of the *Consultation Response Document*. The *Executive Summary* is designed to accompany this *Consultation Response Document* and allows for a broader description of the key aspects of the pricing proposal.



# 1 Introduction

Every three years Airways Corporation of New Zealand (Airways) consults with customers on prices for its Air Navigation Services. The prices ensure that Airways continues to provide services that are safe, reliable, predictable, innovative and cost-effective.

In January 2016, Airways released its proposed prices for the three-year period from 1 July 2016 to 30 June 2019 and asked for customer feedback. This document summarises Airways' response to customer feedback, changes to the prices that were proposed in January 2016 and outlines the final prices.

## AIRLINE PRICES – A 4.7% PRICE DECREASE AND DELIVERING \$84M OF NEW BENEFITS

Airways is pleased to present a price decrease of 4.7% over the three years of the pricing period. The price decrease reflects Airways' successful cost saving initiatives and the aviation industry's strong growth. Airways has also planned service enhancements and strategic initiatives that will provide customers with an estimated \$84m of new benefits. This is in addition to the \$82m of benefits from projects completed in the current pricing period.

**A 4.7% price decrease and \$84m of new benefits**

Figure 1 compares the final price decrease against the proposed prices. The 4.7% price decrease over the three-year period is an 8.3% change from the price increase of 3.6% proposed in January 2016.

**Figure 1: Final airline price change**

	2016/17	2017/18	2018/19	Total <sup>1</sup>	Average
Proposed price change (Jan 2016)	(0.9%)	1.2%	3.0%	3.6%	1.2%
Final overall price change (May 2016)	(9.8%)	1.6%	3.2%	(4.7%)	(1.6%)

Airways recognises the importance of the aviation industry to New Zealand in underpinning business, trade and tourism. The prices will fund a significant investment in New Zealand's aviation infrastructure; airlines will experience greater service reliability, better on-time performance and a reduced carbon footprint. Airways is leveraging strong industry growth to invest in new technologies, helping to maintain the industry's economic momentum. Airways is determined to play its part in making New Zealand a great place for the world to come and visit.

## GENERAL AVIATION (GA) PRICES – PRICES HELD TO INFLATION

Prices for GA customers are calculated differently to airline prices<sup>2</sup>; prices are set at a level that balances affordability while still reflecting the underlying workload. Airways believes that current prices provide this balance. Therefore, prices for the 2016-2019 period have been calculated by simply applying inflation to current prices, ensuring prices stay in line with the underlying costs. Figure 2 compares the final price change against Airways' proposed prices. Prices are lower than what was proposed owing to updated inflation rates.

**GA prices are in line with inflation at 1.6% per annum**

**Figure 2: Final GA price change**

	2016/17	2017/18	2018/19	Total	Average
Proposed price change (Jan 2016)	1.7%	1.6%	1.8%	5.1%	1.7%
Final overall price change (May 2016)	1.6%	1.6%	1.7%	4.9%	1.6%

Following strong customer feedback, Airways will also develop a smart device application to provide GA customers with easy access to flight information. Airways will be working with the GA associations to refine the application, making sure the application meets the needs of GA users.

<sup>1</sup> The total column includes the compounding effect of the annual price changes.

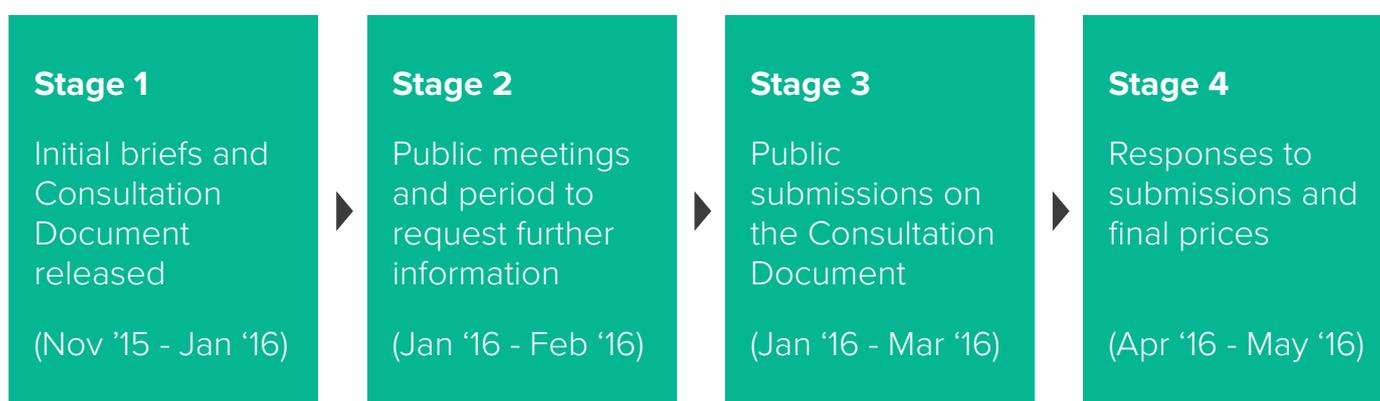
<sup>2</sup> Airline prices are based on the underlying cost to provide the service (including new capital expenditure), a fair return to the shareholder and changes in volume. In comparison, GA prices are not directly calculated from the underlying cost of the service or the change in volumes.

## 1.1 Consultation process

Over the last three years Airways has significantly benefited from close collaboration with customers, growing a deeper understanding of their businesses and the commercial drivers. The pricing proposal presented in January 2016 represented the insights gained from this collaboration and Airways' determination to provide safe, reliable and predictable services at a cost-effective price. Your feedback has provided essential guidance to finalise prices and services, helping to ensure Airways provides the services you want for a reasonable price. Airways' consultation process is outlined in figure 3.

**Customer feedback  
lead to significant  
changes to the  
proposed prices**

**Figure 3: Consultation process for setting prices**



**Stage 1:** In November 2015, Airways provided customers with an initial brief on what influences Airways' prices. Airways also presented a draft capital programme for early feedback and presented Airways' strategic initiatives.

**Stage 2:** On 18 January 2016, Airways released a *Consultation Document* setting out the proposed service enhancements and associated prices for customers and invited feedback. Public meetings were held in late January 2016 in Auckland, Hamilton, Wellington, Christchurch and Queenstown. The purpose of the meetings was to clarify the proposals and assist stakeholders in developing their submissions. Customer workshops were also held to explain specific elements of Airways' proposals. Stakeholders were also invited to request further information during February 2016. Requests for further information ended on 19 February 2016.

**Stage 3:** Customers were asked to provide feedback on the proposed prices. Submissions closed 11 March 2016. All submissions were published on Airways' website on 16 March 2016.

**Stage 4:** Airways carefully considered all the submissions and feedback received on the proposed service enhancements and prices. Airways then determined the final prices for the 2016-2019 pricing period. This *Consultation Document* provides a summary of this final stage of the process.

Pricing for the 2016-2019 period has now been finalised. Prices are detailed in section 8 of this document. These prices come into effect on 1 July 2016.

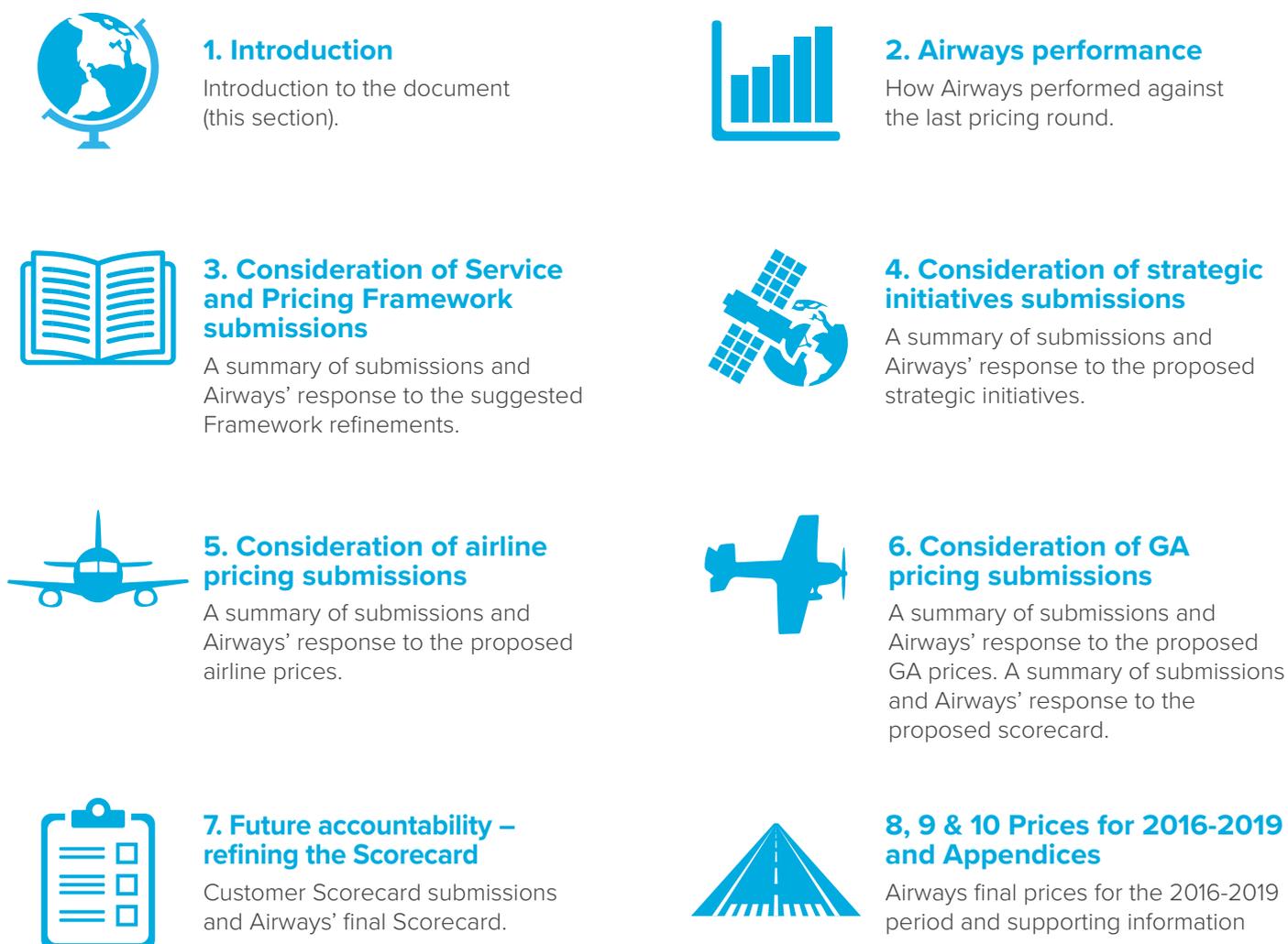
## 1.2 Document purpose and structure

The purpose of this document is to:

- Summarise the key issues raised by submitters to *Airways' Proposed Pricing for the 2016-2019 Period, Consultation Document*.
- Outline Airways' responses and the rationale for those responses.
- Describe any changes made to the proposed prices as a result of submissions.
- Publish the final pricing for the 2016-2019 period.
- Provide a reference of the final pricing inputs and assumptions, including the anticipated capital programme, service enhancements, strategic initiatives and expected benefits.

This document is structured in eight sections, as illustrated by Figure 4.

**Figure 4: Structure of this consultation response document**



## 1.3 Submissions received

A total of 11 submissions were received, four from airlines, six from the GA sector and one from airports. Airways thanks all of its customers for providing submissions. Customer feedback provides essential input into the price-setting process. Figure 5 summarises who submissions were received from.

**Figure 5: Submissions received by customer**

Customer group	Customer
Airlines	Board of Airline Representative New Zealand (BARNZ), International Air Transport Association (IATA), Air New Zealand and Qantas Group (Qantas)
General Aviation	Aviation New Zealand, Canterbury Aero Club, CTC Aviation Training (NZ) (CTC), Aircraft Owners and Pilots Association of New Zealand (AOPA), Sport Aircraft Association NZ (SAANZ ) and Flying New Zealand
Airports	NZ Airports

Customer submissions were published on Airways' website on 16 March 2016 to ensure a robust and transparent consultation process.

It should be noted that while all feedback has been considered in finalising prices for the 2016-2019 period and this document provides a summary of the key points made in the submissions, this document is not intended to provide an exhaustive list of all points raised.

For a full list of submissions please refer to our website ([www.airways.co.nz](http://www.airways.co.nz)), at:

<http://www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/current-public-consultation/2016-2019-pricing-consultation-submissions/>



## 2 Airways' performance

Airways is focused on providing air traffic management services that are safe, reliable, predictable, innovative and cost-effective. Appendix 10.1 summarises Airways' performance against the scorecard metrics for the current pricing period. Performance highlights for the three years of this pricing round include:

 <p><b>Safe</b> 47% reduction in loss-of-separations</p>	<ul style="list-style-type: none"> <li>✓ Zero high-severity safety incidents for commercial passenger flights.</li> <li>✓ International top decile safety performance rating (Civil Air Navigation Services Organisation (CANSO)).</li> </ul>
 <p><b>Reliable</b> 99.95% service availability</p>	<ul style="list-style-type: none"> <li>✓ Exceeded the preventive maintenance programme completion target.</li> <li>✓ Delivered the \$94m capital programme.</li> </ul>
 <p><b>Predictable</b> 26% reduction in inflight delays</p>	<ul style="list-style-type: none"> <li>✓ In-flight delays are down to an average of 13 seconds per flight.</li> <li>✓ Increased fuel savings to airlines by 34% through new Performance Based Navigation (PBN) procedures.</li> <li>✓ Over 37,000 tonnes of CO<sub>2</sub> emissions saved.</li> </ul>
 <p><b>Innovative</b> \$82 million in new benefits</p>	<ul style="list-style-type: none"> <li>✓ Airports Collaborative Decision Management to remove delays.</li> <li>✓ Airshare.co.nz for Unmanned Aerial Vehicle users.</li> <li>✓ Improved safety from the introduction of digital clearances.</li> </ul>
 <p><b>Cost-effective</b> \$4 million in cost savings</p>	<ul style="list-style-type: none"> <li>✓ Reduced corporate costs from 14.8% to 13.1% of total costs.</li> <li>✓ Ranked seventh internationally in costs per flight hour (source: CANSO benchmarking).</li> <li>✓ Collective agreements in line with inflation.</li> </ul>



## 3 Consideration of Service and Pricing Framework submissions

### 3.1 Airways' commercial framework

While Airways is currently the sole provider of Air Navigation Services (ANS) in New Zealand, unlike other businesses with sole provider characteristics, such as electricity and gas network companies, it is not subject to rigid price regulation. Airways' pricing process achieves the same outcomes as prices driven by external regulators through transparent engagement with its customers and stakeholders in the setting of prices and reporting on financial and service performance. Airways achieves transparency through its Service and Pricing Frameworks, regular public consultation and frequent reporting. Figure 6 illustrates the steps in Airways' commercial framework.

**The Frameworks provide a flexible, low-cost mechanism for transparent price-setting**

**Figure 6: Airways' commercial framework**



This approach has much lower transaction costs and is more flexible and better able to respond directly to customer requirements than the very complex and slow-moving regulatory mechanisms that apply to, for example, electricity and gas networks.

## SERVICES DEFINED – THE SERVICE FRAMEWORK

Airways is recognised as a safe, highly efficient and innovative provider of Air Navigation Services (ANS). Airways manages New Zealand’s 30 million square kilometres of airspace, providing safe and cost-effective services. Airways is consistently ranked among the top ANS providers globally. The proposed pricing set out in this document relates to the services Airways delivers as New Zealand’s provider of ANS. These services are summarised in Appendix 10.2 and 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](http://www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/ans-services-and-pricing-explained)

## PRICING FRAMEWORK – ACHIEVES FAIRNESS AND TRANSPARENCY

Airways’ Pricing Framework details the pricing methodologies it uses to price its services. It was developed and implemented following consultation with customers in 2012. The Pricing Framework demonstrates Airways’ commitment to transparent price setting and performance reporting. The Framework can be downloaded from Airways’ website ([www.airways.co.nz](http://www.airways.co.nz)), at:

[www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/ans-services-and-pricing-explained](http://www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/ans-services-and-pricing-explained)

**The Pricing Framework provides a fair way of setting prices to reflect service cost**

## PRICES SET TO EARN A FAIR RETURN ON CAPITAL ONLY

The Pricing Framework uses the Economic Value Added (EVA) framework to set overall revenue levels. The EVA framework is a form of the cost building block method, commonly used to set prices in regulated industries. Airways’ revenue is set at  $EVA = 0$ , meaning that revenue is set at a level that recovers the cost of delivering services (including operating costs, depreciation and tax), while providing a fair return to the shareholder.

**Revenue is set to recover costs and to provide a fair return only**

## 3.2 Service and Pricing Framework refinements

Since the last pricing round, customer feedback has suggested refinements that could improve the effectiveness of the frameworks.

### LINKING AIRWAYS’ RETURN WITH PERFORMANCE AND HOLDING AIRWAYS ACCOUNTABLE

#### **Airways proposed:**

Airways’ commercial framework defines what services it will provide (Service Framework), what it will charge for those services (Pricing Framework) and how it will demonstrate to its customers that it is delivering what it promised (Scorecard and reporting). The commercial framework is applied in the absence of a formal regulatory framework, which has much lower transaction costs and is more flexible and better able to respond directly to customer requirements.

Airways welcomed any ideas on ways in which performance could be explicitly linked to return. The cost-based building block method Airways uses to calculate prices is primarily designed for use by large infrastructure providers and has some limitations for service businesses like Airways. The building block methodology calculates the commercial return, as the asset base multiplied by the capital charge rate.

While it makes sense to link the return to the shareholder with the amount a shareholder has invested in an entity, linking Airways’ return with its performance may provide better incentives to innovate and improve investment decisions. For example, under the building block model, Airways could increase its return to the shareholder by simply increasing its capital spend, even if that is not the most efficient way of providing services. Alternatives to the building block model could include explicit links between performance (safety, efficiency, cost-effectiveness or reliability) and return.

**Linking return with performance may provide better incentives to innovate and improve investment decisions**

### Summary of submissions:

Qantas said it would like Airways to become more accountable for the results of the performance metrics. Monitoring performance is the first step and accountability is the next.

A public corporation is held accountable to its shareholders and in the absence of public shareholders and regulation, Airways should be accountable to reasonable performance and efficiency targets.

### Airways' response:

While there were no submissions that provided ideas on how Airways' return could be explicitly linked to performance, Qantas commented that it would like to see Airways become more accountable. One way of doing this would be to make an explicit link between Airways' return and performance. The opportunity to improve its return would encourage higher levels of performance. Airways will continue to look for ways of linking performance and return. Airways will not change the Pricing Framework without consulting with customers first.

The Qantas submission suggested that in the absence of public shareholders or regulation, Airways should be accountable to reasonable performance and efficiency targets. The Scorecard and the BARNZ annual disclosure provide a range of performance and efficiency metrics that Airways regularly reports to airline customers. Airways believes customers are in the best position to monitor Airways' operational performance.

## NEW PRICES TO ENCOURAGE OPTIMAL AVIATION INFRASTRUCTURE

### Airways proposed:

As the aviation industry is transitioning from traditional ground-based equipment to new technology (generally satellite-based), Airways often provides both the legacy equipment and the new equipment. Figure 7 summarises services where Airways provides new technologies alongside a legacy service. Airways estimates that by 2019 it will spend approximately \$8.2m per year on legacy services.

**Figure 7: Legacy services**

Service	Legacy service	New service	Annual operating cost of legacy service
Oceanic communication	Oceanic high-frequency radio service (staff and equipment)	Satellite data link and communication	\$2.5m
Surveillance	Secondary surveillance radar	ADS-B surveillance	\$2.1m
Navigation	Ground-based navigation aids (VOR and DME)	PBN navigation	\$2.2m
The provision of instrument flight procedures	Instrument flight procedures for ground-based navigation aids	Instrument flight procedures based on PBN	\$0.5m
Providing pre-flight clearances to an aircraft	Verbal clearances provided by radio	Digital clearances sent to the aircraft flight management system	\$0.9m
<b>Total</b>			<b>\$8.2m</b>

Sometimes the legacy equipment is required by the Civil Aviation Authority (CAA) because the new technology is not reliable enough to depend on without a backup system. In other cases, legacy equipment is provided because some aircraft are not equipped to use the new technology. For legacy services that are not required as a backup, Airways asked what customers thought about applying a price premium for these legacy services. The price premium would encourage users to equip their aircraft to use new services, eventually allowing Airways to stop providing a legacy service, reducing overall infrastructure costs.

**Legacy services  
will cost  
approximately  
\$8.2m p.a.**

### Summary of submissions:

BARNZ and Qantas were supportive of the concept provided that legacy operators were given until the next pricing period to have the opportunity to equip their aircraft to use the new technology. IATA went further to say that it was supportive of “most capable – best served” but any changes to the Pricing Framework should include specific consultation with affected users to ensure that any changes were realistic and sustainable.

CTC submitted that consideration needs to be given to world-wide standards of technology. For example, if VORs and DMEs are still required internationally then they should be retained without imposing costs on just the training industry. Aviation NZ supported this view and added that from a national perspective it is essential that trainers of international students remain competitive.

NZ Airports have concerns with Airways being the sole decision-maker for introducing a price premium for legacy services. NZ Airports believe that the nation’s need for a particular service needs to be considered and leaving the decision solely to Airways could lead to decisions being made for commercial reasons alone. The New Southern Sky (NSS) forum may provide a better means for resolving issues around legacy infrastructure.

NZ Airports submitted that Airways should give consideration to the Government’s goals for economic growth and investment in infrastructure, in particular:

- An efficient transport system that supports high levels of economic productivity, provides strong international connections for freight, business and tourism, and meets international obligations; and
- An accessible and safe transport system that contributes positively to the nation’s economic, social and environmental welfare.

NZ Airports also raised the risk that services such as regional health services could be adversely affected by a move away from legacy services.

Sport Aircraft Association disagreed with increasing charges for users of legacy services and cited the safety implications of increasing charges. The Association believe that increased charges will lead to pilots avoiding control zones even when transiting a control zone is the safest route.

AOPA does not support the concept of legacy pricing at this stage. AOPA would require more detailed information around the costing of legacy services versus the cost of equipage before clarifying their position on legacy pricing.

### Airways’ response:

Overall, there is a lack of consensus about whether legacy prices would provide a sensible way of encouraging optimal aviation infrastructure. Airlines generally support the concept, general aviation does not support it, and the airports don’t oppose the idea but have wider concerns around who decides what services are provided and whether the mechanism would support Government goals for economic growth and investment.

### Who decides what services are provided?

It is important to highlight that the Civil Aviation Rules set the minimum requirements of the aviation system and the CAA provides additional guidance. The Ministry of Transport and the CAA use the NSS forum as its stakeholder engagement body – the forum where aviation users can have input into setting the requirements. Airways, airports and aviation users are all represented on this body. Aerodrome operators and Airways then provide services within the boundaries of the Civil Aviation Rules. Like the airports, while Airways decides how it will deliver its services within the requirements set by the Civil Aviation Rules, it is not the sole decision-maker on what services are provided.

For example, if the CAA decides that Automatic Dependent Surveillance – Broadcast (ADS-B) will be implemented and a ground-based surveillance backup is required because satellite surveillance is not reliable enough on its own, then Airways will provide both ADS-B and a ground-based alternative that Airways thinks best fits the CAA requirements for a backup.

The CAA’s decision around the make-up of the New Zealand aviation system will also take into account the Government’s goals for economic growth and investment in infrastructure. Aviation users can help ensure this happens by being a part of the NSS forum.

Airways (and the airports) do have a choice whether they want to provide a service that is above the minimum CAA requirements. Airways will provide these services if customers want them and there is funding to pay for them. It’s also important to note that these services don’t have to be provided by Airways – there are examples of airport lighting (Kerikeri and Westport) and flight procedures (Wanaka) where other suppliers provide services.

**The Civil Aviation Rules set the minimum requirements of the aviation system**

Airways' proposal included two pricing examples where services are not mandated by the CAA. The intention of legacy pricing is to encourage users to move to a single service type where it was not mandated by the CAA to provide both a new service and a legacy service.

### Services with a public good element

Airways does understand NZ Airports' submission that some services, especially those at low volume locations, may be outside what the CAA decided as a minimum service level and may have a public good element. Airways is required to recover the costs of all of its services and to provide its shareholder a commercial return. Airways also has a Pricing Framework that charges users the full cost of the services they use which may make services at low volume aerodromes unaffordable.

Airways would happily support an industry-lead discussion on alternative funding models for low volume services such as a direct contribution by industry or the Government.

### Summary

The legacy price examples were provided to gather customer thoughts about the concept. Currently there are no legacy services where it makes sense to apply a legacy price (most significant legacy services are still mandated by the CAA as a backup to new services). Airways will reconsider the concept in the future if a significant non-mandated legacy service materialises. Airways will also continue to actively participate in the NSS forum.

## AIRWAYS' SERVICE AVAILABILITY – CHECKING CURRENT SERVICE LEVELS

### Airways proposed:

The current levels of service availability are published in Airways' Service Framework, and were set as part of the Service Framework consultation process in 2012. Airways sets its staffing and the number of backup systems to deliver the service levels in the Service Framework. Service availability targets can be increased but this often requires extra staff and/or equipment redundancy, which adds cost to the service. Airways asked for feedback on whether the current service levels offered meet the industry's requirements.

Figure 8 summarises the service availability levels that are provided in the Service Framework and provides an indicative cost of moving to the next level of service availability.

**Figure 8: Indicative price impact of changing service availability targets**

Service	Current service availability	Next level of service availability	Indicative price impact of moving to next service level
<b>International locations:</b>			
ATM services	99.98%	99.99%	+ 13%
Visual navigation aids	99.95%	99.99%	+ 5%
Navigation aids	99.93%	99.99%	+ 2%
<b>Overall service</b>	<b>99.95%</b>	<b>99.99%</b>	<b>+20%</b>
<b>Regional locations:</b>			
ATM services	99.90%	99.98%	+18%
Visual navigation aids	99.90%	99.95%	+14%
Navigation aids	99.70%	99.93%	+8%
<b>Overall service</b>	<b>99.90%</b>	<b>99.95%</b>	<b>+40%</b>

### Summary of submissions:

CTC, Qantas, AOPA, IATA and NZ Airports said that the current levels were appropriate or they were not aware of any location where the service availability levels need increasing.

BARNZ said its members are largely comfortable with current levels or that the current capital programme will enable the appropriate level to be reached. Developing dual centres in Christchurch and Auckland was considered important to achieve appropriate levels.

NZ Airports also said that the service availability levels will be considered as part of each airport's individual service level agreement with Airways.

### Airways' response:

Customer submissions supported the current service availability targets. Airways will maintain the current service availability levels unless airports or airlines ask Airways to consider a change in the future.

Airways has also noted that service availability targets will be considered as part of the upcoming airports service level agreement discussions.

**Customers support the current service availability targets**

## LEVEL OF INFORMATION PROVIDED AND CONSULTATION PROCESS

### Airways proposed:

Airways consultation process is summarised in section 1.1 of the *Consultation Document*, outlining the consultation steps and timetable. Section 3 of the consultation document goes further to explain how the consultation process provides an essential step in Airways' overall commercial framework.

### Summary of submissions:

Qantas suggested it would be beneficial for Airways to provide a copy of the building block model used to derive the unit rate. Without a copy of the building block model, airlines have no transparency on how the unit rates are derived. Specifically Qantas would like confirmation that the over-recovery of revenue in the current pricing round (owing to higher than expected volumes) was taken into consideration in the model for FY17-19.

BARNZ considers that Airways should endeavour to reach consensus with its customers on the underlying assumptions of the pricing agreement.

### Airways' response:

#### Level of information provided

Airways has carefully considered the level of information it provides in the Pricing Framework, pricing proposal, scorecards and its annual performance disclosure to BARNZ. Airways provides detail so that customers can provide informed feedback on inputs into the price-setting process, proposed service enhancements and to validate its strategic direction. The consultation information provided includes a high-level summary of the building blocks model, which was provided in Appendix 10.6 of the pricing proposal. Airways provides further detail about cost and revenue changes as part of the BARNZ annual performance disclosure.

Airways is satisfied that the level of information provided included sufficient detail to allow informed input on the matters subject to consultation. Practically, the complexity and size of the full building blocks model and the unit price models would also make providing and explaining them very difficult.

In answer to the specific question of whether the higher than expected volume movements in the current pricing period have been considered – this has been taken into account in the opening volume adjustment (see section 5.1.G.).

#### The consultation process

A robust consultation process is essential in ensuring a fair and equitable pricing outcome for all customer groups and Airways. If the process focused on achieving a consensus or negotiation then parties with the strongest negotiating position (i.e. airlines) may drive a different result. A robust consultation process is also important to ensure a timely pricing decision.

Airways believes the current consultation process provides a robust and equitable pricing decision and provides customers with a reasonable opportunity to have input into the price-setting process.



## 4 Consideration of strategic initiatives submissions

### Airways proposed:

Over the last two years Airways has been developing a set of strategic initiatives designed to leverage technological advances in the industry to provide customers with significant service improvements and cost savings. Once the strategies have been implemented, customers will benefit from the provision of safe, less expensive and more reliable services for the next 15 years. The strategies are estimated to deliver \$84m of new benefits to customers.

Airways' strategic initiatives also incorporate the modernisation and interoperability frameworks that have been provided through International Civil Aviation Organization's (ICAO) Aviation System Block Upgrades (ASBUs) and further refined for New Zealand through the NSS programme.

### Summary of submissions:

BARNZ welcomes Airways' strategy of endeavouring to minimise increases to charges over the forthcoming pricing periods and IATA members indicated a general satisfaction with Airways' proposal in terms of capital spend and strategic initiatives. Air New Zealand was generally comfortable with the approach taken in terms of proposed service enhancements and strategic initiatives. AOPA and Sports Aircraft Associations supported the approach of investing now to provide future benefits.

NZ Airports generally agreed to the strategic initiatives, subject to the details being agreed with specific airports and reflected in the airport Service Level agreements (where it's applicable to do so).

NZ Airports also suggested that the new operating model should be extended to regional aerodrome services to provide more flexibility in the services offered.

In addition, NZ Airports said that reducing service levels (for example, moving from an air traffic control service to a flight information service) is not necessarily working smarter, and a different level of service should not be assumed until the regulator has deemed it appropriate.

### Airways' response:

In response to the strong support for the proposed Operating Strategy, Airways will now focus on delivering the strategies and the \$84m of expected new benefits. Figure 9 summarises the expected benefits. Appendix 10.3 provides the overall work programme for the strategic initiatives.

**Figure 9: Long-term customer benefits from Airways' strategic initiatives**

Benefits		Annual benefits	Total benefits (2016-2028)
Safety	A 50% <sup>3</sup> reduction in operational safety events by using technology to reduce the possibility of human error.	Not quantified	
Resilience	Return to full services for the majority of traffic within an hour and for all traffic in less than six hours.	\$3m	\$20m
Predictability	Further fuel savings by introducing flow management tools to all stages of a flight.	\$1m	\$5m
Cost-effective	Operational cost savings by using new air traffic management tools and standardising services.	\$18m	\$59m
<b>Total</b>		<b>\$22m</b>	<b>\$84m</b>

Benefits from each strategic initiative	Annual benefits	Total benefits (2016-2028)
Operational Strategy	\$15m	\$53m
ATM replacement	\$7m	\$31m
<b>Total</b>	<b>\$22m</b>	<b>\$84m</b>

<sup>3</sup> Based on the 75% reduction in safety incidents that resulted from the implementation of the Oceanic System.

### Including service-level changes in the Airport service-level agreements

Airways will be re-negotiating airport service-level agreements (the majority of agreements end 30 June 2016). Airways will include any relevant aspects from the strategic initiatives in this process.

### Improving flexibility of regional tower hours of watch

Airways is aware that extending the operating hours at regional locations is often expensive owing to the need to add an extra air traffic controller shift. Airways is investigating a number of different ways to reduce the cost of extending operating hours at regional towers. The investigation includes:

- Refinements to the ATC collective to provide more flexibility around extending regional tower hours of watch for minor one-off requests.
- Investigating alternative service models. For example, aerodrome flight information for all or part of the day to reduce overall staffing costs.
- Investigating remote tower technology as a way of allowing a single controller to look after multiple low-volume locations or provide limited service from a central location for low-volume periods.

### Aerodrome Flight Information Service

Airways agrees with NZ Airports that an aerodrome flight information service may not be appropriate for all locations. Airways also agrees that the CAA and our customers have to agree whether a different level of service is appropriate before any change can be made. Airways is working with airports and airlines at two locations to investigate whether an alternative service level provides a safe and more cost-effective alternative. This process includes working with users to develop a safety case for the CAA to consider.

## 4.1 Operational strategy – A new operating model

### Airways proposed:

The Operational Strategy combines an alternative operating model and advances in Air Traffic Management (ATM) tools to optimise the air traffic system and staff structure.

The concept of operations is:

1. Airways' air traffic control centre will be split between two locations. Enough staff will be based at each location to allow one location to cover the other in an emergency.
2. Standardised Airways' air traffic control functions, providing operational flexibility so a single controller is not restricted to a single area of geographically defined airspace.
3. New ATM tools to monitor aircraft separation, allowing a single controller to look after more aircraft and reducing the possibility of human judgement error.
4. Different service levels will be offered at regional aerodromes. Service levels could also be flexible, changing to match demand.

The Operational Strategy is expected to cost \$11.7m in this pricing period and \$12.6m in total. Most of the benefits of the investment won't be delivered until future pricing periods (although there will be some reliability improvements in this pricing period). The new operating model is expected to provide benefits worth four times more than the initial investment and has an expected payback period of four years<sup>4</sup>.

### Summary of submissions:

BARNZ and Qantas strongly supports co-locating Airways' centres at Auckland and Christchurch, providing improved resilience.

NZ Airports also support the strategy because it provides better service flexibility. The standardisation of Approach Services and providing all regional Approach Services from Airways' centre will provide more flexibility around the hours of service.

### Airways' response:

Customer submissions support the Operational Strategy. Airways will now focus on implementing the strategy and delivering the benefits summarised in figure 10. Figure 11 summarises the costs and benefits of the strategy.

<sup>4</sup> The net present value of the investment over the investment's life (until 2032) is \$25.9m.

**Figure 10: Expected benefits from the new operational strategy**

Workstream	Description	Customer benefits	Annual benefits	Total benefits (2016-2028)
<b>Increasing controller productivity</b>	Procedure development and training to combine upper area sectors and oceanic – as well as the implementation of regional approach to some sectors.	Providing customers with cost savings and enhanced safety.	\$2m	\$6m
<b>Flexible labour</b>	Combining staff capabilities based on skill sets rather than the traditional model of geographic adjacency and sector-specific ratings.	Providing customers with cost savings.	\$2m	\$6m
<b>Consolidating management roles</b>	Reducing the management and overhead component of the service delivery model will streamline the business.	Providing customers with cost savings.	\$5m	\$17m
<b>Enhanced resilience</b>	Enhanced resilience through co-locating Airways' centres and using cross-rated staff. Return to full services within six hours of an outage or a major event.	Avoiding aviation system disruption costs for our customers.	\$2m	\$16m
<b>Cost-effective regional services</b>	Rationalisation of tower services in a full surveillance environment (post ADS-B implementation) would generate cost savings. This would also deliver cost-effective 24/7 services to regional airports from remote locations.	Providing customers with cost savings.	\$4m	\$8m
<b>Total</b>			<b>\$15m</b>	<b>\$53m</b>

**Figure 11: Financial summary of the Operational Strategy<sup>5</sup>**

	This pricing period (2016-2019)	Future pricing periods (2019-2028)	Total investment (2016-2028)
Operational cost savings	\$ -	\$37.0m	\$37.0m
Improved service resilience	\$ 2.7m	\$13.1m	\$15.8m
Implementation costs	(\$11.7m)	(\$0.9m)	(\$12.6m)
<b>Net benefits</b>	<b>(\$9.0m)</b>	<b>\$49.2m</b>	<b>\$40.2m</b>
<b>Benefit-cost ratio</b>			<b>4.2</b>
<b>Payback period</b>			<b>4 years</b>

<sup>5</sup> All costs and benefits are in present value terms.

## 4.2 Airways' ATM Systems – providing the tools for the new operating model

### Airways proposed:

To support the delivery of the Operational Strategy, new ATM tools are needed. Airways currently has a domestic and an oceanic ATM system, both of which are nearing the end of their economic lives. A combination of access to the system source code and an in-house software capability has allowed Airways to continuously develop both systems. It is estimated that developing the systems in-house has saved customers \$2.6m p.a. or \$39m across the assets' lives, compared to the cost had Airways outsourced the development and maintenance.

An initial research project explored which potential ATM system options might best deliver the operational requirements. The results from this research project provided the capital estimates that have been included in the pricing proposal. The initial research suggested that developing the system in-house may halve costs while providing similar capability and better flexibility and resilience.

It is estimated that the total ATM system will cost \$44m, of which \$32m is expected to be incurred in this pricing round. The remaining \$12m is expected in the next pricing round.

While the investment in the ATM system is a lifecycle asset replacement, it also provides significant new benefits. The new system is estimated to cost \$44m and estimated to provide \$31m of new customer benefits and avoid \$21m of costs to maintain the current system, thereby providing net benefits of \$8m.

### Summary of submissions:

BARNZ supported developing an in-house ATM system. IATA suggested that Key Performance indicators (KPIs) should be added to the scorecard to alert customers if the cost estimates could be exceeded.

Qantas is concerned about the adoption of technology without a full understanding as to the longevity of such technology. Qantas strongly suggests that an ongoing review of ATM technology and a review of international best practice occur prior to committing to the proposed ATM system.

Qantas also commented that the current ATM system is still robust (as stated by Airways) and a decision on a \$32m capital spend should not be approved without extensive due diligence.

### Airways' response:

#### Tracking ATM development costs

Airways routinely report capital expenditure progress in the Scorecard and a detailed break down of key capital projects in the BARNZ annual disclosure. Given the ATM system is Airways largest asset and customers do see there is some risk around developing the asset in-house Airways has added additional reporting to the Scorecard to provide extra transparency of the ATM development progress.

#### Understanding ATM global best practice and the system asset life

Airways implemented an initial research project to explore which potential ATM system options might best deliver the operational requirements – this included a review of global best practice and how other ATM systems are provided.

The initial research suggested that the preferred options of purchasing source code and then developing the system in-house would not only provide the most cost-effective solution, but would also provide the functionality required to implement the Operational Strategy. The initial research project suggested that traditional 'off the shelf' systems were more expensive to purchase and customise to meet the Operational Strategy requirements. Airways acknowledges that this method of updating our system capability is not without risk, however, Airways has prior experience of developing our ATM system in-house and has strong evidence that this is a very cost-effective way of providing a modern ATM system.

**Airways' in-house software team has saved customers approximately \$2.6m p.a. or \$39m across the lives of the assets**

The initial research also included an assessment of the ATM systems asset lives and the risk that a new technology may become more viable before the asset cost has been recovered. The initial research resulted in Airways delaying the development of the Oceanic air traffic control functionality until future pricing periods. The initial research also suggests that the proposed \$44m to develop the current domestic system will have at least a 15-year useful life and provide an agile capability to respond to emerging technologies. The conclusions of the initial research will be tested through a robust procurement process.

### Certainty around whether a new ATM system is needed

Airways has carefully considered the costs, timing of the implementation and impact on customers of developing a new ATM system. While the proposed investment in the ATM system could be deferred, this would mean the benefits of the proposed strategies would also be delayed. Figure 13 illustrates that the investment in the ATM system is expected to provide airline customers with \$8.4m of net benefits<sup>6</sup>.

In addition to the benefits the new system will directly enable, the system also enables some of the Operational Strategy benefits i.e. the tools to allow a single controller to look after more aircraft and enabling dual interoperable centres. Delaying the investment also increases the risk of the assets becoming redundant before their full benefits are realised.

### General support for the ATM strategy

Airways believes its work in this area should satisfy Qantas' concerns and other customer submissions supported the ATM strategy. Airways will now start the supplier procurement process, the delivery of the new system and the expected benefits outlined in figure 12.

**Figure 12: ATM system requirements and associated benefits<sup>7</sup>**

Workstream	Description	Customer benefits	Annual benefits	Total benefits (2016-2028)
Safety	Reducing the risk of human error through: a. Electronic conformance b. Medium-term conflict probe c. Domestic data link.	A 50% <sup>8</sup> reduction in operational loss-of-separation incidents.	Not quantified	
Flow management	New flow management tools like Departure Manager (DMAN), Cross Border (XMAN) and Surface Manager.	Providing customers with fuel savings from enhanced flow and trajectory management.	\$1m	\$5m
Enhanced resilience	Enabling interoperable sectors. Essential to co-locating Airways' centres.	Avoiding aviation system disruption costs for our customers.	\$1m	\$4m
Combined platform	Combined Domestic and Oceanic platform.	Providing ATC labour savings through combining of rosters and a reduction in software development staff.	\$3m	\$13m
Automation	Maximising staff productivity through the introduction of tools such as conflict detection, conformance monitoring and sequencing aids.	Providing improved ATC labour efficiency – controllers are able to control more aircraft.	\$2m	\$9m
<b>Total</b>			<b>\$7m</b>	<b>\$31m</b>

<sup>6</sup> The net benefits measure being the net present value of the total investment.

<sup>7</sup> Where possible, benefits have been quantified in monetary terms. Where monetary quantifications are not sensible the benefits have simply been described.

<sup>8</sup> Estimated based on the 75% reduction in safety incidents that resulted from the implementation of the Oceanic System.

Figure 13 summarises the costs and benefits of the strategy.

**Figure 13: Financial summary of the initial ATM system options research**

	<b>This pricing period (2016-2019)</b>	<b>Future pricing periods (2019-2028)</b>	<b>Total investment (2016-2028)</b>
New benefits	\$ -	\$31.4m	\$31.4m
Avoided costs	\$ -	\$21.0m	\$21.0m
Implementation costs	(\$32.0m)	(\$12.0m)	(\$44.0m)
<b>Net benefits</b>	<b>(\$32.0m)</b>	<b>\$40.4m</b>	<b>\$8.4m</b>
<b>Benefit-cost ratio</b>			<b>1.4</b>

## 4.3 Surveillance and Navigation Strategy

### Airways proposed:

The Surveillance and Navigation strategies are influenced by the Operational Strategy and the NSS programme.

#### Surveillance Strategy

Airways has been working closely with the CAA to analyse options for a future air traffic surveillance system in New Zealand domestic airspace. ADS-B will be the primary tool for providing surveillance in the future. A terrestrial backup of either radar or multilateration is also expected. The start of the ADS-B programme and one replacement radar site have been included in this pricing round.

#### Navigation Strategy

Airways presented its Navigation Strategy to industry in 2012; this strategy played a significant part in the formulation of the NSS programme. The general approach of the strategy is to introduce PBN as the primary method of navigation for Instrument Flight Rules (IFR) operations in New Zealand. A limited ground-based navigation aid network will be retained as a back up. The lifecycle replacement of the ground-based navigation aids is nearly complete and the PBN programme has been started. Appendix 10.4 illustrates the current status of Airways' ground-based navigation aid network. The completion of the PBN programme is planned for this pricing round, with a focus in the regions. Appendix 10.5 provides the PBN rollout timetable.

### Summary of submissions:

No submissions were received on this topic.

### Airways' response:

Airways notes that customers had no objections to the proposed Navigation and Surveillance strategies. No changes have been made to the proposed Surveillance and Navigation strategies.



## 5 Consideration of airline pricing submissions

This section summarises customer submissions on airline prices and provides Airways' response to those submissions. The prices presented were a result of Airways working in partnership with you over the last three years. Airways asked for your feedback on the pricing inputs and key assumptions – a series of questions were provided to help assist the construction of feedback and you were also encouraged to provide feedback outside the scope of the questions.

Five submissions were received on airline prices; four from airline customers and one from NZ Airports. Customer feedback provided an essential input into the price-setting process; all feedback was carefully considered and used in finalising prices.

### 5.1 Overall revenue

Using the Pricing Framework, Airways sets prices by calculating the overall required revenue, then allocating the revenue to specific services and, finally, 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 fair commercial return (the building blocks). The EVA calculation outlining the building block inputs is provided in Appendix 10.6.

Following consideration of consultation feedback, we have made significant changes to the proposed prices. The change in overall annual revenue required to continue to provide safe, reliable, predictable and innovative services, has decreased from \$22.3m to \$20.7m. The total price change has reduced by 8.3% from a 3.6% price increase to a 4.7% price decrease. The average annual price change has reduced from a 1.2% price increase to a 1.6% price decrease.

Figure 14 summarises the impact of the revisions of each pricing input in response to the consultation process. It also shows the final revenue and related change in prices for each of the next three years.

**Figure 14: Impact of the adjustment made to each pricing input after consultation**

	Revenue (\$m)			Price change (%)			
	FY17	FY18	FY19	FY17	FY18	FY19	Total <sup>9</sup>
<b>Proposed ANS revenue</b>	<b>180.0</b>	<b>184.4</b>	<b>191.7</b>	<b>(0.9%)</b>	<b>1.2%</b>	<b>3.0%</b>	<b>3.6%</b>
<b>Changes relative to the proposal</b>	<b>Revenue change (\$m)</b>			<b>Price change (%)</b>			
A. Operating costs – base	-	-	-	-	-	-	-
B. Operating costs – inflation	(0.1)	(0.1)	(0.1)	(0.0%)	(0.0%)	(0.0%)	<b>(0.0%)</b>
C. Lifecycle capital costs	-	-	-	-	-	-	-
D. Capital charge rate	(1.9)	(2.0)	(2.2)	(0.7%)	(0.1%)	(0.2%)	<b>(1.0%)</b>
E. Service enhancements	-	-	-	-	-	-	-
F. Strategic initiatives	-	-	-	-	-	-	-
G. Opening volume adjustment	-	-	-	(3.9%)	-	-	<b>(3.9%)</b>
H. Volume growth	-	-	-	(4.7%)	0.5%	0.4%	<b>(3.8%)</b>
I. Volume driven costs	0.7	0.7	0.7	0.4%	-	-	<b>0.4%</b>
<b>Total change relative to the proposal</b>	<b>(1.3)</b>	<b>(1.4)</b>	<b>(1.6)</b>	<b>(8.9%)</b>	<b>0.4%</b>	<b>0.2%</b>	<b>(8.3%)</b>
<b>Final revenue/price change</b>	<b>178.7</b>	<b>183.0</b>	<b>190.1</b>	<b>(9.8%)</b>	<b>1.6%</b>	<b>3.2%</b>	<b>(4.7%)</b>

The rest of this section addresses the key points raised in the submissions that specifically relate to the pricing inputs. The key submission points have been grouped by pricing input.

## OVERALL REVENUE REQUIREMENT

### Airways proposed:

To continue to provide safe, high-quality services now, and in the future, Airways proposed an annual revenue increase of \$22.3m to be phased over the next three-year pricing period. A 3.6% price increase or an average of 1.2% p.a. was proposed to fund the revenue increase once volume growth was included.

### Summary of submissions:

While BARNZ generally supported the capital programme and strategic initiatives, it did not support any price increase. BARNZ submitted that any increase in revenue requirements should be managed within the increasing revenue from volume growth.

IATA had no major objections with the pricing proposal. However, it felt strong controls were required to mitigate key areas of risk. IATA's submission suggested specific controls relating to the delivery of the capital programme and strategic initiatives.

Aviation New Zealand believed the proposed price increases were moderate and compared well with inflation.

<sup>9</sup> The percentages in the 'Total' column do not add horizontally owing to the compounding effect of the changes.

## Airways' response:

To continue to provide safe, high-quality services now and in the future, Airways is increasing annual revenues by \$20.7m over the next three-year pricing period (an average of 4.1% p.a.). Tight cost control and strong volume growth mean Airways does not have to increase prices to fund the additional revenue - Airways is pleased to present an overall price decrease of 4.7% or an average decrease of 1.6% p.a., exceeding BARNZ's expectation of being able to fund the proposed capital programme and deliver the strategic initiatives within the additional revenue provided by volume growth.

Airways has addressed IATA's request for specific controls in the relevant pricing input sections.

Figure 15 summarises the drivers behind the revenue and price change for each of the pricing years.

**Figure 15: Final year-on-year change by price driver**

	Revenue change (\$m)				Price change (%)				
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total <sup>10</sup>	Avg
<b>To maintain current service:</b>									
A. Operating costs – base	(2.2)	1.3	(0.3)	<b>(1.2)</b>	(1.3%)	0.7%	(0.2%)	<b>(0.7%)</b>	<b>(0.2%)</b>
B. Operating costs – inflation	1.9	2.9	2.5	<b>7.3</b>	1.1%	1.6%	1.4%	<b>4.4%</b>	<b>1.5%</b>
C. Lifecycle capital costs	4.5	2.1	1.8	<b>8.4</b>	2.7%	1.2%	1.0%	<b>5.1%</b>	<b>1.7%</b>
D. Capital charge rate	(2.3)	(0.6)	(0.6)	<b>(3.5)</b>	(1.0%)	(0.4%)	(0.4%)	<b>(2.0%)</b>	<b>(0.7%)</b>
<b>Total to maintain current service</b>	<b>1.9</b>	<b>5.7</b>	<b>3.3</b>	<b>10.9</b>	<b>1.5%</b>	<b>3.1%</b>	<b>1.8%</b>	<b>6.8%</b>	<b>2.3%</b>
<b>Investment in value-add initiatives</b>									
E. Service enhancements	2.5	0.7	0.5	<b>3.7</b>	1.5%	0.4%	0.3%	<b>2.2%</b>	<b>0.7%</b>
F. Strategic initiatives	4.2	(2.1)	3.3	<b>5.4</b>	2.5%	(1.1%)	1.8%	<b>3.2%</b>	<b>1.1%</b>
<b>Total investment in value-add initiatives</b>	<b>6.7</b>	<b>(1.4)</b>	<b>3.8</b>	<b>9.1</b>	<b>4.0%</b>	<b>(0.7%)</b>	<b>2.1%</b>	<b>5.4%</b>	<b>1.8%</b>
<b>Volume growth</b>									
G. Opening volume adjustment	-	-	-	-	(8.5%)	-	-	<b>(8.5%)</b>	<b>(2.8%)</b>
H. Volume growth	-	-	-	-	(7.2%)	(0.8%)	(0.7%)	<b>(8.8%)</b>	<b>(2.9%)</b>
I. Volume-driven costs	0.7	-	-	<b>0.7</b>	0.4%	-	-	<b>0.4%</b>	<b>0.1%</b>
<b>Total revenue and price change</b>	<b>9.3</b>	<b>4.3</b>	<b>7.1</b>	<b>20.7</b>	<b>(9.8%)</b>	<b>1.6%</b>	<b>3.2%</b>	<b>(4.7%)</b>	<b>(1.6%)</b>

Figure 15 highlights three key points:

1. The change in revenue required to maintain current service levels is around long-term inflation.
2. The above inflationary increases in revenue are to fund service enhancements and strategic initiatives that are expected to provide customers with \$84m of new benefits.
3. Overall, tight cost control and strong volume growth is funding new initiatives and a price decrease.

**Strong volume growth and tight cost control is funding new initiatives and a price decrease**

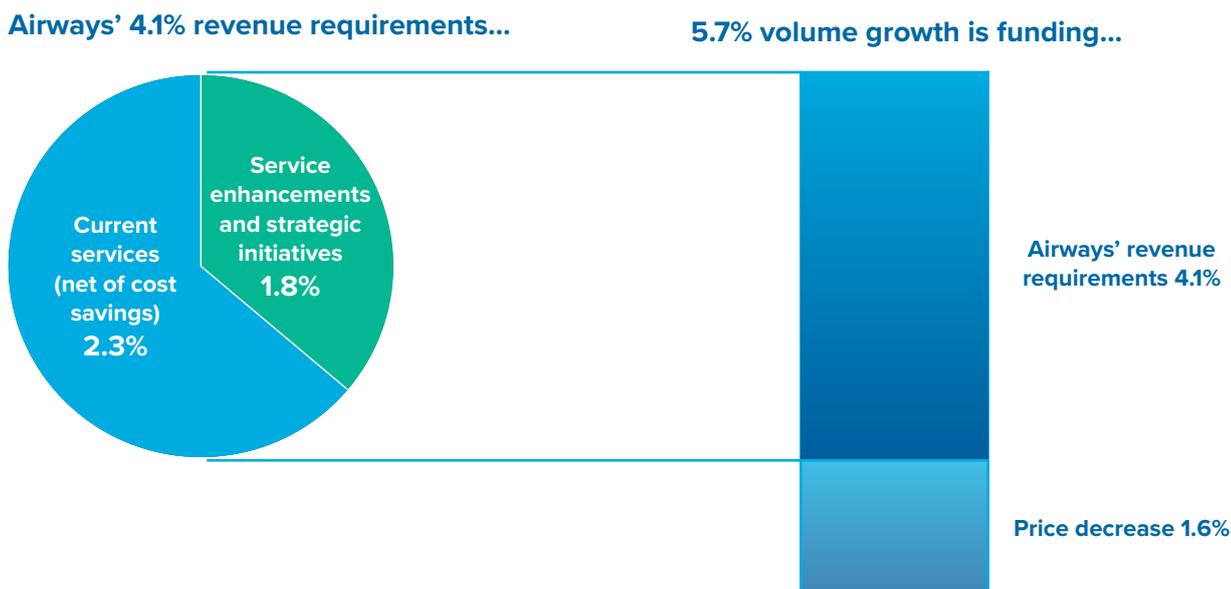
<sup>10</sup> The percentages in the 'Total' column do not add horizontally owing to the compounding effect of the changes.

## SERVICES FUNDED BY TIGHT COST CONTROL AND STRONG VOLUME GROWTH

Figure 16 shows the price and revenue change graphically as an average of the three years of the pricing period – 4.1% p.a. The graph shows that the majority of the 4.1% p.a. revenue increase is required to fund current service levels, essential to ensuring air traffic management services remain safe, reliable and predictable. The remaining portion of the revenue increase is to fund new services that will provide \$84m in new customer benefits.

Figure 16 also illustrates how the overall increase in revenue is being funded. Tight cost control and strong industry growth are allowing Airways to fund its change in revenue requirements and decrease prices by an average of 1.6% per year.

**Figure 16: Final average annual price changes and funding**



## A. OPERATING COSTS - BASE (BEFORE INFLATION AND EXCLUDING ASSET COSTS)

### Airways proposed:

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed operating cost changes	(2.2)	1.3	(0.3)	<b>(1.2)</b>	(1.3%)	0.7%	(0.2%)	<b>(0.7%)</b>

Airways is pleased to present a decrease in operating costs in this pricing period (before inflation). Cost savings initiatives have provided a \$4.3m (0.7%) savings over the next three years.

Airways' focus on cost control and the successful implementation of cost saving initiatives, such as procurement reviews, staff roster refinements and a rationalisation of Airways' property, have enabled us to absorb one-off unexpected costs for asbestos removal and land impairments at Queenstown and Gisborne within the current pricing period. The cost savings delivered within the current pricing period are ongoing and are now being passed onto customers, resulting in the 0.7% decrease in operating costs.

Figure 17 outlines the components of the base operating costs for the three years of the price path, compared with the operating costs from the final year of the current pricing round.

**Figure 17: Base operating costs 2016-2019 (\$m)**

Operating cost	FY16	FY17	FY18	FY19	2017–19 Total
Labour	97.8	98.3	99.7	101.3	<b>299.3</b>
Other	33.6	30.9	30.8	28.9	<b>90.6</b>
<b>Total base operating costs</b>	<b>131.4</b>	<b>129.2</b>	<b>130.5</b>	<b>130.2</b>	<b>389.9</b>
<b>Productivity improvements (compared to last year of current price round)</b>		<b>2.2</b>	<b>0.9</b>	<b>1.2</b>	<b>4.3</b>

**Summary of submissions:**

Qantas is concerned about the lack of operational efficiencies being generated as a result of the planned capital works. Based on indicative numbers provided by Airways, the organisation has a total of 780 staff earning an average salary of \$126k per annum; well above the New Zealand average income of \$55k per annum. Qantas believes cost efficiencies should be generated over the coming years to reduce the average salary.

**Airways' response:**

Qantas is correct in its assessment that the cost saving provided in this pricing round has not come directly from the capital programme – the savings have come from a review of Airways' operating expenditure (procurement review, roster refinements and consolidation of property leases).

However, the strategic initiatives presented in the pricing proposal did include investments (both operating expenses and capital) to provide future salary reductions through headcount savings. The strategic initiatives described in section 4 will provide \$11m per annum in air traffic control labour cost savings, once the strategies are implemented.

The average Airways' salary calculation provided by Qantas appears to include staff from its international business unit which are not funded by airline prices. Airways provides average salary information for its air traffic control business (covered by the pricing proposal) as part of its BARNZ annual disclosure. The most recent annual disclosure figures show that average salaries have decreased from \$143k p.a. in 2013/14 to \$138k p.a. in 2014/15.

There is limited rational value in comparing Airways' average salary to the national average. Of the 690 staff members covered by the proposed prices, 53% are air traffic controllers, 20% are technicians, engineers and software engineers and 10% are corporate services (information technology specialists, accountants, lawyers etc.). The market rates for all of these roles are well above the national average salary<sup>11</sup>. Airways believes it's reasonable and sensible to remunerate staff fairly to ensure it has staff with the right level of training, experience and skills to continue to provide safe services.

Alternative metrics and examples to provide Airways' customers with confidence that its using its labour workforce effectively and its labour costs are reasonable are:

- Airways operates on the principle that wage settlements should stay within the bounds of productivity improvements and inflation. The current collective agreement for Air Traffic Controllers (ATCs) has been settled for the next three years at 0.9% (2015/16), 1.1% (2016/17) and 2.5% (2017/18).
- Airways benchmarks itself against other air traffic control providers. The measure of labour costs shows Airways' average air traffic controller hourly labour rates are ranked a competitive 6th lowest, once it has been adjusted for purchasing power parity.
- The benchmarking also shows Airways to have the second lowest proportion of overhead costs. The scorecard shows Airways overheads make up 13.1% of its total costs.
- Where it's sensible, Airways invests in highly skilled staff to reduce costs overall. For example, Airways' in-house software team has saved customers on average \$2.6m per year to run its air traffic control system.

**Airways' tight cost control is providing a 0.7% price decrease**

<sup>11</sup> Roles outside our collective agreement are benchmarked against the Hays Salary Guide.

## B. OPERATING COSTS - INFLATION

### Airways proposed:

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed inflationary changes	2.0	3.0	2.6	<b>7.6</b>	1.1%	1.6%	1.4%	<b>4.4%</b>

The proposed inflation inputs are outlined in Figure 18 and were applied using a standard methodology as follows:

- ATC salaries have been increased by the actual collective settlement for the 2016/17 and 2017/18 years.
- All other labour costs and the 2018/19 ATC labour costs are based on New Zealand Institute of Economic Research's (NZIER's) Labour Cost Index (LCI) forecast.
- Other operating costs (excluding depreciation) are based on NZIER's Primary Producers Index (PPI) (inputs) forecast.

**Final prices  
reflect the  
latest inflation  
forecasts**

**Figure 18: Proposed inflation assumptions 2016-2019**

Cost type	Inflation source	FY17	FY18	FY19
ATC salaries	ATC collective settlement	1.1%	2.5%	
	NZIER LCI forecast (Dec 15)			1.8%
Other labour costs	NZIER LCI forecast (Dec 15)	1.7%	1.6%	1.8%
Other costs	NZIER PPI (inputs) forecast (Dec 15)	2.1%	2.4%	2.3%

### Summary of submissions:

There were no submissions on this input.

### Airways' response:

The proposed prices were calculated using the December 2015 NZIER forecast rates. Final prices have been updated using the latest forecast (NZIER's March 2016 forecast). Figure 19 provides the updated rates.

**Figure 19: Final inflation rates**

Cost type	Inflation source	FY17	FY18	FY19
ATC salaries	ATC collective settlement	1.1%	2.5%	
	NZIER LCI forecast (Mar 16)			1.7%
Other labour costs	NZIER LCI forecast (Mar 16)	1.6%	1.6%	1.7%
Other costs	NZIER PPI (inputs) forecast (Mar 16)	1.7%	1.7%	1.8%

While the NZIER LCI forecast changed very little, the PPI forecast has decreased by an average of 0.5% over the 2016–2019 period. This results in a reduction in the overall revenue requirements by \$0.1m, and a small reduction in prices as illustrated in figure 20.

**Figure 20: Impact of revised inflation rates on prices**

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed inflationary changes	2.0	3.0	2.6	<b>7.6</b>	1.1%	1.6%	1.4%	<b>4.4%</b>
Change to proposal	(0.1)	(0.0)	(0.0)	<b>(0.1)</b>	(0.0%)	(0.0%)	(0.0%)	<b>(0.0%)</b>
Final inflationary changes	1.9	3.0	2.6	<b>7.5</b>	1.1%	1.6%	1.4%	<b>4.4%</b>

## C. LIFECYCLE CAPITAL COSTS

### Airways proposed:

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed change in lifecycle capital costs	4.5	2.1	1.8	<b>8.4</b>	2.7%	1.2%	1.0%	<b>5.1%</b>

Airways' proposed capital programme for the 2016-2019 period has been developed to ensure Airways continues to provide safe, reliable, predictable and cost effective services. The programme incorporated customer feedback provided during the current pricing period. The lifecycle capital programme, \$102m over three years, is high owing to the replacement of some of Airways' largest assets, such as the ATM system and the completion of the Wellington control tower.

In the last pricing round Airways developed a strong project management and engineering capability and is on track to deliver the current capital programme. Airways is confident it now has the means to deliver the capital programme proposed.

### Summary of submissions:

BARNZ supports the key capital expenditure projects proposed, IATA indicated general satisfaction around the proposed programme and NZ Airports endorses the work to support the New Southern Sky programme.

NZ Airports also submitted that Airways should consider investing in lower cost technology solutions (such as the use of solar power that might reduce cabling, civil works, and power consumption) when appropriate. Measures of 'value for money' may in some cases be better than absolute quality measurements.

Qantas expressed its disappointment at the more expensive location of the Wellington Tower and is concerned around the forced timeline of the Nelson tower. It is unclear whether Nelson Airport's business case of the new terminal has included airline costs. Qantas has requested that Airways:

1. Reviews the costs associated with the tower build to ensure that it is the most cost-effective solution.
2. Uses a 40-year asset life to reflect the actual useful life (proposed prices assumed a useful life of 30 years). Qantas believes the actual likelihood of a stranded asset is small (reason behind using a shorter life) and the Weighted Average Cost of Capital (WACC) asset beta compensates for this risk and it's unfair for early users to cross-subsidise future users of that asset.

Qantas is also concerned about Airways' ability to deliver the capital works of \$102m over the next three years. Qantas recommends Airways review the current capital plan and consider pushing back non-essential projects.

Qantas has suggested that capital programme cost estimates aren't based on supplier quotes and may include inefficient contingencies. Any cost savings compared to the forecast costs should be returned to the users via a rebate mechanism or taken out of the pricing.

IATA submitted that capital items planned for this pricing period should only be funded from charges collected from this pricing period, even if their implementation has been extended into future periods. This will ensure airlines don't pay twice for an asset.

## Airways' response:

### Fit-for-purpose services

Airways is changing its approach from providing a standard level of reliability and quality across all services and locations, to providing different levels of quality and reliability depending on the level of service required. Airways agrees with NZ Airports that more cost-effective solutions that have a lower reliability, and are still safe, may be more appropriate at low-volume aerodromes. Examples of where Airways has implemented this approach or is considering different service levels (with the CAA, airports and users) are:

- Investigating whether remote tower technology will let a single controller manage multiple low-volume locations. While price and technology are not yet viable, suppliers have indicated that the cost of remote tower technology will decrease over the next five years. Airways will continue to monitor the evolving technology and will invest when it is sensible to do so.
- Investigating whether an Aerodrome Flight Information Service could provide a safe and more cost-effective service at lower volume aerodromes.
- Reducing the number of navigation aid flight procedures at low-volume aerodromes. Practically, this means removing procedures which aren't regularly used.
- As aerodrome lights reach the end of their useful lives, they are being replaced with LED lights that have lower running costs.

However, Airways does acknowledge that it still has some way to go before it can be confident that all of the services it provides are 'fit for purpose' – especially at unattended aerodromes. Airways will investigate lower cost technologies.

### Nelson tower

The decision to replace the Nelson tower has been driven by Nelson Airport's planned terminal expansion. Airways has completed an extensive analysis of different tower replacement options and is confident that the most cost-effective solution was proposed. Options considered included remote tower technology, different tower designs and alternative sites.

The pricing proposal assumed an asset life of 30 years for the tower. Changing this to 40 years, as suggested by Qantas, would only reduce revenue by an average of \$20k per year, equivalent to an average annual price decrease of 0.01%.

Airways still considers that a useful life of 30 years is appropriate. Remote technology is rapidly evolving and Airways expects that the safety, cost and efficiency benefits of remote technology will make it a viable delivery model before the traditional 40-year useful life of a regional control tower.

### Does Airways have the ability to deliver the planned programme?

As part of the development of the capital programme, Airways delayed capital items where it could. The current lifecycle programme only includes items that cannot be sensibly delayed without impacting service availability. The capital programme review process also included customer reviews with Air New Zealand, Jetstar and Jetconnect operational staff.

A large proportion of the planned programme is for the purchase of ATM system software and construction of new towers. These items are largely delivered by external contractors and suppliers which will have a minimal impact on Airways' resourcing.

The pricing proposal also highlighted that in the current pricing round Airways developed a strong project management and engineering capability and is on track to deliver the current capital programme of \$94m. Airways is confident it now has the means to deliver the proposed capital programme.

### Rebating any unspent capital expenditure (capex)

Airways' capital programme is based on informed cost estimates and does not include contingencies. As capital budgets are refined, some capital projects will be less than expected and some will be more. Any differences only impact prices for a maximum of three years – prices are updated with actual expenditure in the following pricing round.

Airways considered rebating any capital expenditure differences during the construction of the Pricing Framework. One of the principles underlying the Pricing Framework is that prices should "encourage innovation and efficient operations – [that is] provide Airways with incentives to innovate in the supply of existing and new services, to operate efficiently and for customers to benefit over time from such innovation and efficient operation". By allowing Airways to retain savings relative to capital and operational expenditure that has been planned for, the incentive to operate efficiently is created. Any benefits will pass quickly to customers as Airways has a relatively short pricing period of three years. In practice, Airways has reinvested capital expenditure savings to replace other assets, for example, capital expenditure savings in the 2013-2016 pricing period allowed the replacement of HF radios to be brought forward.

Airways considers a capital savings rebate is neither necessary, because the capital expenditure plan has been revised based on customer feedback, nor desirable, because it blunts the incentive to seek efficiencies in capital expenditure.

In addition, the Scorecard and the BARNZ annual disclosure reporting regularly provide airline customers with progress updates, holding Airways accountable for any variations to the capital programme.

### Changes to the proposed capital programme

In summary, there have been no changes to the proposed capital programme. Appendix 10.7 provides the capital programme for the 2016-2019 pricing period and Appendix 10.8 provides the high-level 10-year programme.

## D. CAPITAL CHARGE

### Airways proposed:

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed capital charge rate change <sup>12</sup>	(0.4)	(0.6)	(0.6)	<b>(1.6)</b>	(0.3%)	(0.3%)	(0.3%)	<b>(1.0%)</b>

Setting the capital charge rate is a technical area that also requires a degree of judgement. Airways has calculated a reasonable and analytically supportable range for its capital charge rate. The upper estimate was calculated using the Commerce Commission's Input Methodology framework and using market data to derive parameter estimates. The lower end of the range was calculated using the Commerce Commission's Input Methodology framework and parameter estimates where available. Where the Commerce Commission has not provided parameter estimates that are appropriate to Airways (asset beta, risk-free rate, debt premium and leverage), Airways has followed the Commerce Commission's methodology as closely as is practicable to calculate these inputs.

In the last pricing round Airways adopted the lower end of the calculated range. Airways proposed to do the same in the current pricing round to moderate any price increase and recognise the significant investment in strategic initiatives and capital projects included in this pricing round. Airways adopted the 67th percentile as its point estimate of the cost of capital, based on the Commerce Commission's decision on electricity and gas distribution.

Airways proposed a capital charge rate, or Weighted Average Cost of Capital (WACC) of 7.6% for the 2016-2019 Pricing Period. This was a reduction from the 7.8% capital charge in the current pricing period (2013-2016). A lower WACC is reflected in lower prices.

### Summary of submissions:

Qantas, IATA and BARNZ submitted that Airways should adopt the 50th percentile (central estimate) of WACC based on the recent Commerce Commission decision in respect of Unbundled Copper Local Loop/Unbundled Bitstream Access (UCLL/UBA) and its 'emerging view' on the WACC range it would publish for airports' information disclosure.

BARNZ submitted that the 67th percentile is no longer appropriate owing to:

- The Commerce Commission's decision to use the mid-point WACC estimate for UCLL/UBA, on the basis that the mid-point should be the starting point and Chorus had not provided evidence justifying the need for a higher return.
- The Commerce Commission's emerging views paper indicating that it is not appropriate to use the upper estimate of the WACC percentile range as the de facto upper limit or starting point when assessing profitability. BARNZ said that the Commission has emphasised the importance of the mid-point as the starting point for assessing returns, and any move above the mid-point requires justification and evidence of the rationale for targeting a higher return.

<sup>12</sup> The change in revenue and price reflects the change in capital charge rate from current prices (which used 7.8%) to the proposed prices (which proposed 7.6%).

Some of the reasons BARNZ does not believe Airways can justify a return above the mid-point estimate of WACC are:

- Airways is not price controlled and retains the power to set its own charges.
- Airways has the ability for in-period price resets if certain circumstances are triggered (such as a change in the number of aerodromes or legislative or regulatory changes). The volume risk sharing mechanism also reduces the risk faced by Airways.
- There is strong regulatory oversight of Airways by the CAA, shareholder oversight by the Government of New Zealand which takes into account the wider public good to New Zealand of the services provided by Airways, and user oversight by Airways' customers. All these types of oversight combine to mean that the risk of under-investment by Airways in air navigation services in New Zealand as a result of a mis-estimation of its WACC is very low.

BARNZ's view is that "Airways targeting a return above the mid-point of the WACC would just result in it earning a higher return, without there being any positive impact on its incentive to invest".

BARNZ also submitted that the risk free rate and debt premium should be updated to reflect the most recent data when prices are set.

### **Airways' response:**

#### **Use of 67th percentile point estimate**

Consideration of an appropriate point estimate is a very technical topic. Appendix 10.9 provides Airways' detailed response. A summary of the key points is provided below.

An estimate of WACC is used because the true WACC cannot be calculated. An estimate above the mid-point is used to reflect that the cost to consumers of under-estimating the cost of capital (under-investment by Airways) is higher than the cost of over-estimating WACC. An under-investment could result in: delays, reduced choice of destination, reduced frequency of service or higher airfares. There could be a gradual degradation of service, or a constraint on capacity.

After reviewing customer submissions, the Commerce Commission's electricity lines/gas pipelines decision, its UCLL/UBA decision and its "emerging view" on the airports' WACC range, Airways has concluded:

1. The UCLL/UBA decision is not relevant as it was made under a different regulatory framework (Total Service Long Run Incremental Cost (TSLRIC), not cost building blocks as Airways and the Airports use). In particular, under the TSLRIC methodology, the WACC does not influence investment in the regulated service, as new investment does not affect UCLL/UBA price caps.
2. The Commission's 'emerging views' paper relates to the publication of information about WACC in an information disclosure regime, which is different to the rate of return allowed in a price-setting exercise. The opinion provided by the paper's author, Professor Yarrow, in relation to airports supports a higher allowed rate of return than the mid-point WACC estimate.

On balance, there is no compelling reason to set Airways' WACC below the 67th percentile as none of the recent Commerce Commission decisions or research suggests that an estimate above the midpoint estimate is inappropriate when setting prices using the building blocks methodology. We consider this appropriately reflects both economic theory and the likely asymmetry of costs of under-estimating WACC compared to over-estimating WACC.

#### **Updating the risk free and debt premium**

BARNZ submitted that Airways update the risk-free rate and debt premium. The proposed prices used estimates from late last year. Airways agrees that these should be updated to reflect current market conditions. Specifically:

- The updated risk-free rate is 2.23%. This is the average for March 2016. The Commerce Commission's methodology is to use a monthly average. March has been selected to allow time to finalise prices through Airways' internal processes. This is consistent with the Commission's approach which is to use a risk-free rate about four months prior to the start of the period in which it applies.
- The debt premium has been set at 1.26%. This estimate reflects the debt premium on the recent issue of bonds by Auckland International Airport.

## Summary:

Airways has updated its WACC estimates with the March 2016 risk-free rate and debt premium. Airways has maintained its proposed approach of taking the lower end of the WACC range (calculated using the Commerce Commission's Input Methodology framework and parameter estimates where available) to moderate the price increase and recognise the significant investment in strategic initiatives and capital projects included in this pricing round. Appendix 10.10 provides further explanation of the inputs chosen and includes the upper range of the capital charge rate.

Figure 21 presents the final inputs used to calculate WACC and the final WACC rate of 6.9%.

**WACC of  
6.9% based  
on Commerce  
Commission's Input  
Methodology**

**Figure 21: Final capital charge inputs and components**

Capital charge components	Inputs (2016–2019) prices	Explanation (lower end of the calculated range)
Risk-free rate	2.23%	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	An asset beta of 0.6 is appropriate when comparing to AirServices Australia (0.55), United Kingdom NATS (0.6) and the Commerce Commission's estimate for airports (0.6).
Tax-adjusted market-risk premium	7.0%	Based on the Commerce Commission's input methodologies estimate.
Debt premium	1.26%	The current estimate is based on the recent issue of bonds by Auckland International Airport.
Debt issuance cost	0.35%	Based on the Commerce Commission's input methodologies estimate.
Leverage	40%	Target leverage for Airways, as reported in the last published <i>Statement of Corporate Intent</i> . This is consistent with the leverage of other Air Navigation Service Providers (ANSPs).
WACC margin	67th percentile	The Commerce Commission has used the 67 <sup>th</sup> percentile for setting gas and electricity prices.
<b>Calculated capital charge rate</b>	<b>6.9%</b>	

Figure 22 provides the impact of the updated WACC inputs on revenue and prices.

**Figure 22: Impact of revised WACC inputs**

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed capital charge rate change	(0.4)	(0.6)	(0.6)	<b>(1.6)</b>	(0.3%)	(0.3%)	(0.3%)	<b>(1.0%)</b>
Change to proposal	(1.9)	(0.1)	(0.1)	<b>(2.1)</b>	(0.7%)	(0.1%)	(0.1%)	<b>(1.0%)</b>
Final capital charge rate change	(2.3)	(0.7)	(0.7)	<b>(3.7)</b>	(1.0%)	(0.4%)	(0.4%)	<b>(2.0%)</b>

### Length of the bond rate used to estimate the risk free component

Airways has committed (for the 2016-2019 pricing period) to using the lower end of the calculated WACC range which includes using a bond rate that matches the three-year length of the pricing period. However, Airways would like to investigate using a longer bond rate for future pricing rounds. While Airways understands the Commerce Commission methodology relating to bond rate selection, it also sees merit in linking the period of financing with the term of a company's assets that the financing is being used for. In Airways' case the assets are typically long term and therefore a 10-year bond rate (the longest available) might be more appropriate.

## E. SERVICE ENHANCEMENTS

### Airways proposed:

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed service enhancements	2.5	0.7	0.5	<b>3.7</b>	1.5%	0.4%	0.3%	<b>2.2%</b>

Airways proposed a \$26.2m capital programme of new service enhancements that will provide customers with new benefits.

### Summary of submissions:

BARNZ supports the key capital projects proposed and Air New Zealand is generally comfortable with the proposed service enhancements.

In response to whether any other investment should be considered:

- AOPA suggested Airways should consider contributing towards a Satellite Based Augmentation System (SBAS). AOPA noted that ADS-B transponders will also be SBAS capable. Once ADS-B transporters become mandatory then most aircraft will be capable of using SBAS.
- BARNZ and IATA suggested that CAT III lighting at Christchurch should be investigated with Christchurch Airport. This should be treated as a stand-alone consultation.
- BARNZ said that there is a general consensus with its airline members that the current CAT III service at Auckland provides the right level of service availability. Airlines will continue to monitor and will engage Airways if it needs to be improved.
- Qantas has nothing else to add but would support cost-effective investments that can deliver airline operational and airport and airspace optimisation.

NZ Airports said that any service enhancements at specific airports should be addressed through discussions with the parties concerned to reflect any service-level changes in the Airport Service Levels Agreement.

Qantas encourages earlier consultation at the options review stage of the investment decision-making process.

### Airways' response:

Customers generally support the proposed service enhancements. The unchanged programme is provided in figure 23, along with a description of the expected benefits. Appendix 10.11 provides an annual breakdown of the service enhancement capital programme and Appendix 10.8 provides the high level 10-year capital programme.

**Figure 23: Expected benefits to be delivered from new services and enhancements**

Capital project	Total cost (\$m)	Benefits
ADS-B Surveillance	12.3	Increased resilience owing to dual coverage of ADS-B & SSR and an enabler to new technologies such as remote towers. Also complements PBN with improved routes. Investment in line with NSS requirements.
Performance-based Navigation (PBN)	3.7	Implementation of PBN procedures provides safety benefits and efficiencies from flying more accurate flight paths. Additional fuel savings are location dependent.
Auckland new facility restructure	1.8	The new Auckland facility is an enabler for the Operations Strategy outlined in section 4.
Christchurch stop bars and taxiway reconfiguration	1.5	Improved taxiway efficiency and further protection against runway incursions.
Auckland runway guard lights	1.3	Safety enhancement to reduce runway incursions.
Queenstown multilat power expansion	0.8	Improves service reliability of multilat surveillance.
Network interfaces for inline testing	0.5	Improved testing of network performance.
Movement area guidance signs to meet CAA req.	0.5	New requirements mandated by the Civil Aviation Rule Part 139 changes.
Other projects (less than \$0.5m)	3.8	Additional projects include remote control for airfield lighting and additional stop bars at Auckland Airport.
<b>Total service enhancements</b>	<b>26.2</b>	

In addition, Airways will also implement the following actions:

1. Airways will ask Christchurch Airport whether they would like Airways to develop a business case for CATIII lighting at Christchurch Airport. If Christchurch Airport would like to go ahead with the business case, Airways will treat the potential investment as a separate consultation process (like Airways did recently for Queenstown lights).
2. Airways will not investigate a higher level of service for CATIII lighting at Auckland Airport unless Auckland Airport or the airlines request it.
3. Airways will continue to monitor progress on the SBAS discussions. Airways will work with the NSS programme, the CAA and other stakeholders to consider funding implications and options. To be part of any Airways' funding discussion the stakeholders would have to be confident that the expected benefits are greater than the cost and supportive of the investment, unless alternative funding could contribute to the total cost.
4. Airways has noted that any new service enhancements at an aerodrome will be included in the relevant airport's Service Levels Agreement.

Airways will provide enough detail in the consultation documents for new services or significant service enhancements to validate whether customers want the new services. When Airways presents a proposed solution, it will have already used its expertise to select the best delivery model, technology alternatives and implementation timelines. The Qantas submission provides a reminder that in some cases it may also be sensible to include a summary of other options considered to provide customers with the confidence that the proposal represents the best solution.

## F. STRATEGIC INITIATIVES

### Airways proposed:

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed strategic initiatives	4.2	(2.1)	3.3	<b>5.4</b>	2.5%	(1.1%)	1.8%	<b>3.2%</b>

This section addresses the funding and pricing impact of Airways' new Operational Strategy that is expected to provide customers with \$84m of new benefits. The details of the strategic initiatives and related submissions are covered in section 4. To deliver the strategy, staff will need to be trained and relocated, the centre in Auckland will be expanded and new procedures and methods developed. The strategy requires an upfront investment in this pricing period to ensure that the cost savings benefits (from a reduction in headcount) begin to be realised from the next pricing period.

Figure 24 summarises the cost of the Operational Strategy for each year of the pricing period. The capital cost of a new domestic ATM system is included in lifecycle capital costs (section 5.1.C.).

**Figure 24: Strategic initiatives**

	FY17 Spend	FY18 Spend	FY19 Spend	Total for period
Total strategic initiatives	4.2	2.1	5.4	<b>11.7</b>

### Summary of submissions:

Airline customers had no objections to the costs of the strategic initiatives, however they generally did not agree with the approach of investing now to provide future benefits.

Qantas submitted that there is a risk that current users bear the cost of this initiative while potential new future users get to enjoy the benefits without having fairly contributed to the costs. Qantas recommends "spreading the recovery of the costs over the life of the new assets".

IATA submitted that airlines should only pay for investments on an "as and when used" basis, preferring that benefits are directly linked to charges in the same pricing period. IATA also added that strong controls are required to ensure that delivery of the initiatives occur in this pricing period to avoid future charging for completion of the initiatives.

BARNZ submitted that "the practice of recouping all the operating costs relating to strategic initiatives in the year in which they are incurred, without taking account of when the fruits of such investment will be enjoyed by airlines, needs revising. This is particularly relevant to the proposed co-location of air traffic control centres in Auckland and Christchurch...BARNZ is interested in exploring with Airways the potential for spreading the recovery of the costs of projects such as these (i.e. where the benefits occur in pricing periods after those in which the majority of costs are incurred) over a longer period, such as two pricing periods".

### Airways' response:

Spreading the price over the period where benefits will be realised has some parallel with businesses operating in a competitive environment where the business owner typically takes the investment risk, speculating that future customers will demand the new service or innovation at a price that provides a return greater than the cost of capital. However, Airways' return is limited to covering costs and providing a fair return to the shareholder as outlined in the Pricing Framework. Price smoothing would mean Airways would bear all of the risk of making the investment (in the form of short-term losses) while benefits would be limited to the cost of capital. Airways does not 'profit' from the strategic initiatives. Rather, Airways is investing on the airlines' behalf – the \$84m of benefits from the strategies are all passed to the airlines. Price smoothing reduces the incentive to innovate as it creates short-term losses and increased financial risk with no corresponding reward.

The current Pricing Framework methodology means that all operating costs are passed to the airlines when they are incurred and all the benefits of the investment are enjoyed by the airlines when they are realised in the future. In this manner, the timing of costs and benefits passed to Airways customers follow a standard investment profile. This is similar to a typical approach to funding investments – an upfront investment is made with the expectation of a return in the future.

The changing mix of airlines using Airways' services may mean some airlines that contribute towards the cost of the strategies may not benefit, however, the impact of this should not be overstated. The benefits exceed costs by a factor of four suggesting that even if some new customers enter in the next pricing period, current customers will receive benefits in excess of the cost they have incurred.

Practically, price smoothing would introduce significant complexity, given the range of different investments that Airways makes, each with a potential benefit-cost mismatch from the customer perspective. This could create a constantly moving EVA target, which would be difficult to reconcile to a long-run EVA=0 position.

Pragmatically, recovering the operating expenditure in this pricing period when volumes are growing strongly may also be more desirable for customers than deferring it to the next period when volumes may ease and thereby lead to recovery at a time when Airways' prices have upward pressure owing to volumes.

## G. OPENING VOLUME ADJUSTMENT

### Airways proposed:

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed opening volume adjustment					(4.6%)	-	-	<b>(4.6%)</b>

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 therefore 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. The opening volume adjustment was calculated as 4.6%.

### Summary of submissions:

All of the airline customers provided a list of known schedule changes and Qantas asked for confirmation that the opening adjustment would be updated.

### Airways' response:

In March 2016, Airways received airline schedules for the next three months providing an accurate volume forecast for the 2015/16 financial year. The schedules show that revenue is expected to be 8.5% higher than the target pricing revenue for 2015/16. Airways has therefore updated the opening volume adjustment to 8.5%.

**Figure 25: Impact of revised opening volume adjustment**

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed opening volume adjustment	-	-	-	-	(4.6%)	-	-	<b>(4.6%)</b>
Change to proposal	-	-	-	-	(3.9%)	-	-	<b>(3.9%)</b>
Final opening volume adjustment	-	-	-	-	(8.5%)	-	-	<b>(8.5%)</b>

## H. VOLUME GROWTH

### Airways proposed:

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed volume growth					(2.5%)	(1.3%)	(1.0%)	<b>(5.0%)</b>

Following customer feedback from the last pricing round, Airways proposed a new volume forecast model that calculates domestic and international forecasts separately. Airways also used a separate volume growth forecast to calculate Queenstown Aerodrome prices, reflecting the approach proposed in the 2014/15 Queenstown night operations consultation.

The proposed volume forecast model used the following inputs:

- Base schedules – provided by airlines.
- Fleet changes – published by airlines.
- Historical growth rates – Airways' data.
- Gross Domestic Product (GDP) growth forecast – published by New Zealand Institute of Economic Research (NZIER) forecasts.
- International tourism growth – Ministry of Business, Innovation and Employment (MBIE) forecasts.
- Domestic passenger growth – published by Statistics New Zealand.

**A new volume forecast model provides separate domestic and international forecasts**

Figure 26 summarises the volume growth assumptions used to calculate the proposed prices.

**Figure 26: Proposed volume growth**

	FY17	FY18	FY19
Domestic	1.8%	0.1%	(0.2%)
International	3.6%	3.1%	2.8%
Queenstown	8.0%	8.0%	8.0%
<b>Weighted average growth</b>	<b>2.5%</b>	<b>1.3%</b>	<b>1.0%</b>

### Summary of submissions:

All airline customers and NZ airports made submissions about volume growth. Overall airline customers felt the forecasts were conservative, especially the domestic growth forecast. Air NZ submitted that domestic volume growth in FY19 should at least be flat, rather than decreasing. NZ Airports noted that as Airways is adjusting its starting base to 2016 actual revenue, it has already ensured that it is commencing its forecast from a robust starting position.

Customer submissions have been grouped into three categories:

- 1) Submissions providing further fleet and schedule information.
- 2) Submissions on the choice of forecast model inputs.
- 3) Submissions providing alternative volume forecasts.

### 1) Submissions providing further fleet and schedule information

Additional fleet and schedule information was provided by BARNZ and Qantas:

- Emirates is commencing a daily 777 service between Dubai and Auckland at the beginning of March 2016.
- Air Asia X commences services to the Gold Coast (travelling onto Kuala Lumpur) in March 2016.
- American Airlines commences weekly services from Auckland to Los Angeles in June 2016.
- United Airlines commence services from Auckland to San Francisco in July 2016 three times per week, increasing to daily services in October 2016.
- Cathay Pacific has new A350 aircraft on order, with deliveries expected in the middle of 2016. It would be prudent to anticipate these aircraft operating on New Zealand routes from November or December this year (although the impact on (Maximum Certified Take-Off Weight (MCTOW) is not large).
- Air Tahiti Nui has advised that they will operate B787-900 aircraft from 2018.
- Effective 20 September 2016, Singapore Airlines will operate four times a week from Canberra to Wellington using a 777 aircraft.
- Qatar Airways will be commencing 777 daily services to Doha from Auckland on 3 December 2016.
- Air New Zealand plans to continue to expand, launching flights to destinations such as Vietnam after increasing routes to the United States, Argentina and China in 2015.

### 2) Submissions on the choice of forecast model inputs

A number of submissions commented on the choice of inputs into Airways' forecast model. The submissions have been grouped by the input it relates to and is summarised in figure 27.

**Figure 27: Submissions on forecast model inputs**

Forecast input	Submissions received						
a) Fleet changes	Customers had no objections to using published fleet changes in the forecast model.						
b) Fuel (not initially proposed)	BARNZ suggested that the recent high-volume growth in the industry has been driven by low fuel prices and including fuel as a forecast input could be a predictor of future volume growth.						
c) Historical growth rates	BARNZ commented that the use of historical growth rates has resulted in a subdued volume prediction and fuel prices could be a better predictor of future growth.						
d) GDP growth forecast	Customers had no comments about the use of GDP growth forecasts in the forecast model.						
e) International tourism growth	<p>BARNZ suggested that the growth in international tourism should also have a downstream impact on domestic volume growth.</p> <p>IATA raised concerns that focusing on international tourism growth ignores the impact of New Zealanders who travel internationally. It suggested that Airways use the following IATA forecasts of passenger arrivals:</p> <table border="1"> <thead> <tr> <th>FY17</th> <th>FY18</th> <th>FY19</th> </tr> </thead> <tbody> <tr> <td>5.5%</td> <td>4.6%</td> <td>3.2%</td> </tr> </tbody> </table>	FY17	FY18	FY19	5.5%	4.6%	3.2%
FY17	FY18	FY19					
5.5%	4.6%	3.2%					
f) Domestic passenger growth	<p>IATA had concerns with the use of historic passenger growth and suggested that Airways adopt the IATA forecast of domestic passenger growth as summarised below:</p> <table border="1"> <thead> <tr> <th>FY17</th> <th>FY18</th> <th>FY19</th> </tr> </thead> <tbody> <tr> <td>4.0%</td> <td>5.0%</td> <td>4.4%</td> </tr> </tbody> </table>	FY17	FY18	FY19	4.0%	5.0%	4.4%
FY17	FY18	FY19					
4.0%	5.0%	4.4%					

### 3) Submissions providing alternative volume forecasts.

To check the rationale of Airways' volume growth forecasts, NZ airports provided a total movements forecast from the major airports as outlined in figure 28. Airways' forecasts were higher than NZ airport's forecast in FY17 but were similar to NZ airport's forecasts for FY18 and FY19.

**Figure 28: NZ airports forecast movement growth**

Forecast	FY17	FY18	FY19
Domestic	(0.4%)	1.4%	0.2%
International	4.3%	0.7%	3.8%
Queenstown	7.9%	4.2%	4.0%
<b>Total weighted</b>	<b>0.8%</b>	<b>1.2%</b>	<b>1.0%</b>

**Airways' response:**

Airways has worked hard over the past three years to develop a more robust forecast model that calculates separate growth forecasts for domestic and international volumes. Airways has made further refinements to its proposed volume forecast using feedback in customers submissions.

Airways is able to forecast one year in advance with a reasonable degree of accuracy based on airline schedules which are provided in March each year. Airways checked that the March 2016 schedules included all of the schedule changes provided in customer submissions. The remaining years of the pricing period are more difficult to forecast.

Appendix 10.12 provides Airways' detailed response to customer submissions.

Airways has concluded that the best approach to forecasting future volumes is a combination of schedule information, published fleet changes, and a forecast model based on economic inputs and historical growth rates. Figure 29 outlines how each of these inputs has been used to calculate the final volume growth forecasts.

**Figure 29: Airways' forecast approach**

Forecast	FY17	FY18	FY19
International	Airline schedules	Fleet changes + forecast model	
Domestic	Airline schedules	Fleet changes + historical growth rates	

**Domestic volume growth:**

The 2015/16 year has seen very strong domestic growth, including the introduction of the new Jetstar regional services and the rationalisation of Air New Zealand's domestic fleet, adding larger aircraft. It also includes the start of the withdrawal of Air New Zealand's Beech 1900 regional fleet. These changes have been reflected in the opening volume adjustment (see section 5.1.G).

Airways is forecasting that year-on-year domestic volumes will grow by a further 6.4% in 2016/17 as the full-year effect of Jetstar's new regional services and Air New Zealand's fleet changes are recognised.

The forecasts for 2017/18 and 2018/19 reflect the long-term average and that there are minimal fleet changes expected for 2017/18 and 2018/19. This follows the two year period from 2015/16 to 2016/17 where total domestic growth is forecasted to be 14.2% (7.8% in 15/16 - included in the opening volume adjustment, and 6.4% in 16/17).

**International volume growth:**

International volume growth has historically been more volatile and difficult to forecast. Fuel prices are expected to increase over the next three years, which is expected to slow the rate of international volume growth following the two-year period from 2015/16 to 2016/17 where total international growth is forecasted to be 16.8% (8.4% in 15/16 included in the opening volume adjustment and 8.4% in 16/17). Overall, Airways is optimistic about New Zealand's international tourism, despite downside risks from a slowing Chinese economy and a weakening Australian economy.

### Queenstown volume growth:

Airways considered the unique set of circumstances at Queenstown, including the exceptional international growth over the past five years. A higher volume growth rate has been used for Queenstown Airport. The volume growth assumption of 9.1% is based on the average growth over the past five years and is an increase from the proposed growth rate of 8%. The increase reflects the additional growth at Queenstown Airport since the *Consultation Document* was prepared.

The final volume growth assumptions are outlined in figure 30.

**Figure 30: Forecasted volume growth**

	FY16 <sup>13</sup>	FY17	FY18	FY19
Domestic	7.8%	6.4%	0.0%	(0.3%)
International	8.4%	8.4%	1.9%	2.0%
Queenstown	14.8%	9.1%	9.1%	9.1%
<b>Weighted average growth</b>	<b>8.1%</b>	<b>7.2%</b>	<b>0.8%</b>	<b>0.7%</b>

The resulting impact on prices is demonstrated in figure 31.

**Figure 31: Impact of revised volume forecast**

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed volume growth	-	-	-	-	(2.5%)	(1.3%)	(1.1%)	<b>(5.0%)</b>
Change to proposal	-	-	-	-	(4.7%)	0.5%	0.4%	<b>(3.8%)</b>
Final volume growth	-	-	-	-	(7.2%)	(0.8%)	(0.7%)	<b>(8.8%)</b>

## I. VOLUME DRIVEN COSTS

### Airways proposed:

Airways' proposed operating costs were sufficient to manage the assumed volume growth of 9.2% over the period from 2015-2019 (included in the opening volume adjustment in section 5.1.G. and the volume growth in section 5.1.H.).

### Summary of submissions:

Customers submitted on the level of volume growth (see section 5.1.H.), but did not comment on the costs required to manage additional growth.

### Airways' response:

The revised volume growth over the period from 2015-2019 is now 16.8% (included in the opening volume adjustment in section 5.1.G. and the volume growth in section 5.1.H.). This is a 7.6% increase from what was initially proposed. The increase means that volumes are three to four years ahead of where Airways' Operational Strategy expected them to be – the Operational Strategy anticipated that new tools and processes to manage the higher volumes would not be needed until 2019.

Airways has reviewed whether any temporary resource is required to manage this unexpected growth safely and still achieve the targeted in-flight delay performance measures (until the Operational Strategy is implemented). The review also tested whether the new tools and processes could be added earlier than planned. The time to re-train staff and to implement a new ATM platform will mean the extra capacity cannot be sensibly delivered earlier than currently planned.

<sup>13</sup> Volume growth in the 2015/16 financial year is included in the opening volume adjustment component of the price change calculation.

The review found that:

- Most of the growth in movements is at Auckland Airport, where there is limited resource to manage the extra movements. As a result, an additional supervisor function has been added at the Auckland Tower to co-ordinate tower operations with Auckland Airport and Approach services.
- In-flight delays have worsened with recent volume increases. A new function has been added that will predict future capacity demands. This will allow Airways and customers to adjust resourcing levels in advance of volume changes.
- The unexpected volume growth is requiring staff to work extra hours to cover busy times of the day. This has resulted in additional costs for staff working outside of their rostered hours.

An extra \$0.7m p.a. is required to manage the unexpected increase in volume safely to allow Airways to continue to reduce delays. The extra functionality is expected to be needed for this pricing period until the Operational Strategy is implemented. Figure 32 shows the pricing impact of the volume-driven costs.

**Figure 32: Impact of additional volume-driven costs**

	Revenue change (\$m)				Price change (%)			
	FY17	FY18	FY19	Total	FY17	FY18	FY19	Total
Proposed volume driven costs	-	-	-	-	-	-	-	-
Change to proposal	0.7	0.7	0.7	<b>2.1</b>	0.4%	-	-	<b>0.4%</b>
Final volume driven costs	0.7	0.7	0.7	<b>2.1</b>	0.4%	-	-	<b>0.4%</b>

## VOLUME RISK-SHARING MECHANISM

### Airways proposed:

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 therefore proposed a one-off opening volume adjustment of 4.6% to bring revenue levels back to the level required to meet costs (see section 5.1.G.).

Airways' Standard Terms & Conditions contain a volume risk-sharing mechanism to share the risk of fluctuations in volume. However, Airways did not consider the mechanism applicable when setting prices at the start of a new pricing period.

### Summary of submissions:

BARNZ questioned Airways' application of the volume risk-sharing mechanism in Airways' Standard Terms & Conditions. BARNZ argues that this mechanism requires Airways to adjust required revenue in the first year of the new pricing period (FY16/17) to reflect revenue fluctuation above the 2% mark in the previous year (FY15/16) in addition to making the usual opening volume adjustment. Otherwise, BARNZ submits, the volume-risk sharing mechanism is not applied in the final year of a pricing period (when there is most likely to be the greatest variation from forecast) and Airways retains 100% of the benefit of those fluctuations.

### Airways' response:

Airways does not agree with BARNZ's interpretation of the risk-sharing mechanism. The mechanism has never operated to reallocate revenue between years (whether by requiring the return of 'excess revenue' or enabling Airways to recoup a prior year's revenue deficit). The clause was designed to address the risk associated with setting prices for a fixed period when Airways' costs are largely fixed but demand (volumes) can significantly fluctuate. Revenue differences are used as a proxy for volume changes enabling a formulaic 'volume-based' price reset (within a current pricing period) in respect of prices that would otherwise be fixed. In this way, the mechanism has already been applied in respect of the final year of the current pricing period (because it operated to reset prices for this year).

The risk mechanism is only necessary and relevant within a pricing period. At the start of a new pricing period, prices are reset any way (with an opening volume adjustment for year 3 volume changes being part of the normal price-setting process). This is the adjustment referred to at the end of the volume risk-sharing mechanism in the Standard Terms.

BARNZ's interpretation would create a form of rebate or wash-up payment regime, which is inconsistent with:

- The wording of clause 6.3.1 of the Standard Terms & Conditions.
- The consultation documentation concerning the introduction of the volume risk-sharing mechanism (including submissions from customers such as BARNZ who were against the introduction of "wash up" provisions, preferring "within cycle pricing reviews").
- Airways' past approach to such mechanisms (i.e. when Airways under recovered revenue in the third year of the previous pricing period it did not try to recover any revenue shortfall in 2013/14 prices but simply adjusted pricing going forward to reflect the new volume levels).

Airways does not accept and does not propose to apply BARNZ's interpretation of the volume risk-sharing mechanism. However, noting the submission, Airways will amend clause 6.3.1 of the Standard Terms & Conditions to remove any ambiguity regarding its intention and operation for the future.

## INDEPENDENT REVIEW OF AIRWAYS' PRICING INPUTS

### Airways proposed:

In the last consultation period, Airways received feedback that customers were concerned about the possibility of cross-subsidisation between Airways' domestic business and Airways' international ventures. Airways' calculation of the target revenue required to deliver the services in the Service Framework is based on a Business Plan budget that forecasts the operational costs for the next three-year period. Airways engaged PwC to review the Business Plan budget and assess whether Airways' controls were operating effectively during the calculation of prices to confirm that the:

- Business Plan 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 over the Business Plan budget inputs were operating effectively and no exceptions were noted.

PwC's review of Airways' controls on whether the total revenue has been allocated to total revenue by service and location in accordance with the Pricing Framework noted the following instances where Airways has intentionally deviated from the Pricing Framework:

- 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 costs of providing the unattended services.

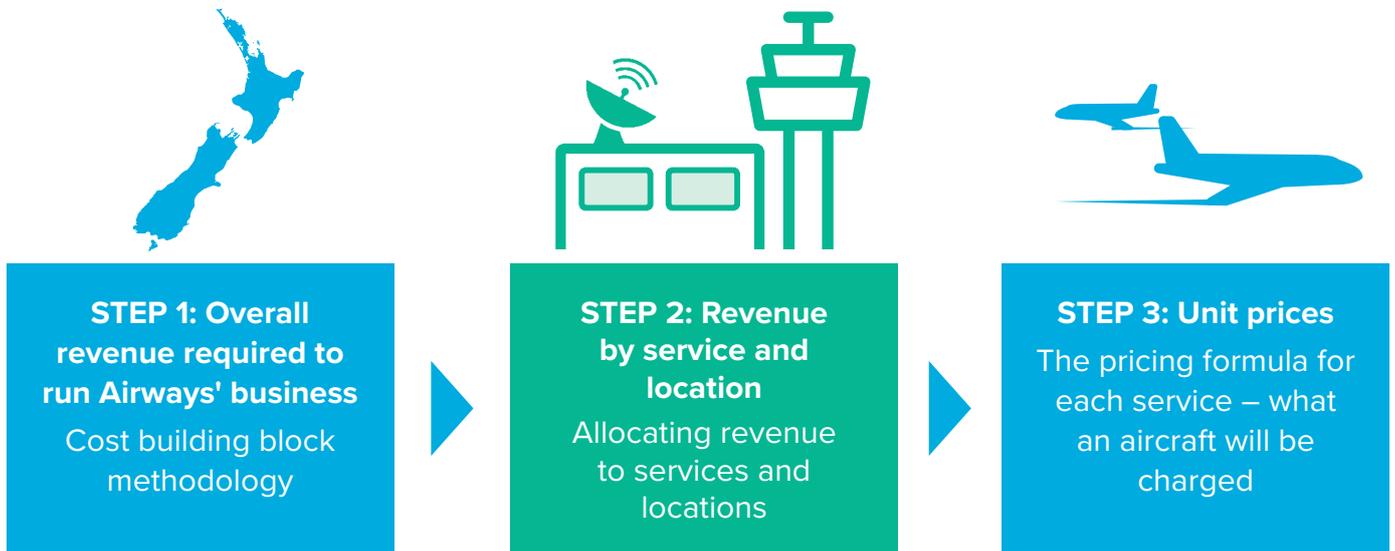
### Summary of submissions:

A copy of the PwC report was provided to IATA on request. There were no submissions on this topic.

### Airways' response:

Airways has assumed that the review provided customers the right level of confidence that Airways' international ventures costs have been not been included in the pricing calculations and total revenue has been allocated in line with the Pricing Framework.

## 5.2 Revenue by service and location



The second step in setting Airways' prices involves allocating revenue to specific services and locations by applying the methodologies and costing policies (set out in section 6.1 of the Pricing Framework). Revenue for specific services and locations will be influenced by the:

- Underlying cost of each service and location. Current prices have been rebalanced so prices reflect these costs.
- General price adjustments to reflect factors such as inflation, volume catch ups and changes to Airways' cost structure.
- Location-specific capital expenditure.

### APPLICATION OF THE PRICING FRAMEWORK METHODOLOGY

#### Airways proposed:

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. The costing methodology involves first applying the direct costs of providing a service and then adding a share of overheads.

Figure 33 illustrates this process.

**Figure 33: Cost allocation process**

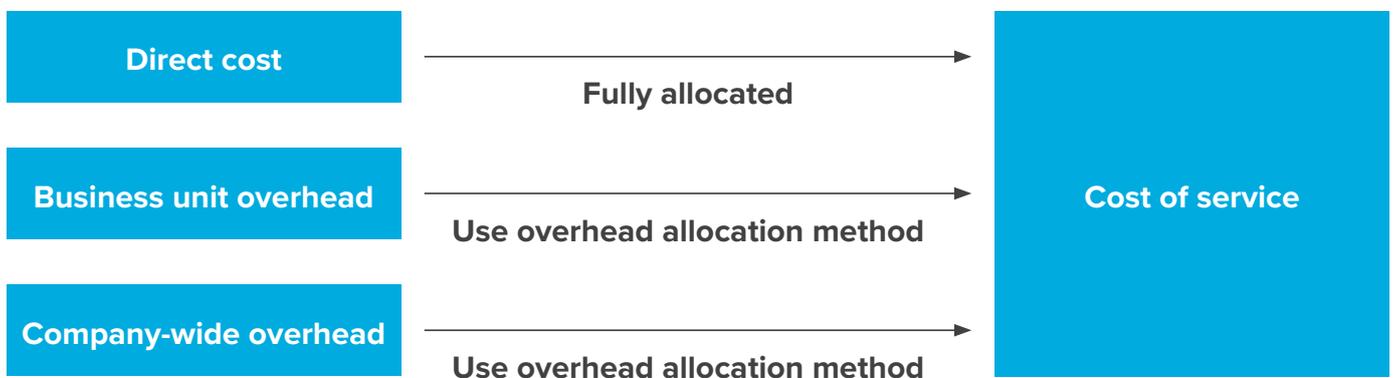


Figure 34 summarises the allocation of overhead to services using the costing policy. For services that have specific locations (Aerodrome and Approach) overheads are shared between locations using weight landed. Appendix 10.13 provides the tonnes landed at each aerodrome used to allocate overheads.

**Figure 34: Allocation of overhead costs to services**

Overhead	Allocation of overhead to service
Company-wide overheads	To services where Airways is the sole provider by statute (Approach, Domestic En-route and Oceanic En-route)
Towers overhead	Aerodrome
Regional towers overhead	Aerodrome
International towers overhead	Aerodrome
Approach overhead	Approach
Centre overhead	Approach and Domestic en-route

#### Summary of submissions:

BARNZ said that the current EVA=0 methodology and location-specific prices for some services can lead to large price variations (a ‘saw-tooth’ pricing pattern), especially if significant assets are replaced or added. Specifically, prices for the Wellington Aerodrome service decrease in year one owing to volume growth and then significantly increase in year two of the pricing proposal when the new control tower is commissioned. Can prices be smoothed, reducing the size of the price step while still achieving the revenue required?

Qantas took a more general view and suggested that prices could be smoothed within the pricing period.

NZ Airports noted the price fluctuations for some services and supports the concept of grouping regional airports for the purposes of pricing. This reflects a more ‘network’ approach in pricing.

#### Airways’ response:

Submissions generally supported the proposed price structure. The exception was the Wellington Tower for which BARNZ sought an early recovery of costs to smooth prices.

BARNZ is correct that location specific pricing creates a saw-tooth pattern in prices. This was explained in the *Pricing Discussion Document* that preceded the Pricing Framework in 2012. It was noted that location-specific pricing is simple to administer and easy to understand and makes cost-benefit evaluation transparent. Conversely, it was noted that a saw-tooth pattern does not reflect the value that the user derives from the asset, which does not diminish as the asset ages: rather it is likely to remain relatively stable.

Wellington Aerodrome, as a Main Trunk location, is priced on a location-specific basis. This reflects the large relative differences in volumes/weights at Main Trunk locations (meaning that pricing these locations as a cluster would not approximate a standard cost model), and their large size relative to the regional aerodromes (thus warranting the costs of treating them separately).

Introducing price smoothing within the price period would be inconsistent with the Pricing Framework. It also has no economic basis, as in effect it would be moving recovery of the cost of the new aerodrome into a period when it would not be in use. This is also consistent with submissions on recovering investments related to Airways’ strategic initiatives, for example, IATA states that airlines should only pay for agreed investments on an “as and when used” basis.

Figure 35 shows the change in revenue levels for specific services and locations.

**Figure 35: Revenue change for service by location (\$m)**

Service	2015/16 Target Revenue <sup>14</sup>	2016/17 Target revenue	2017/18 Target revenue	2018/19 Target revenue	Comments
<b>Aerodrome services</b>					
Auckland	10.6	12.2	12.4	12.5	ILS replacement and new taxiway lighting.
Christchurch	7.2	7.4	7.8	8.4	Labour mix has changed <sup>15</sup> .
Wellington	6.6	5.9	7.8	9.0	New control tower.
Queenstown	3.5	4.8	4.8	4.9	New lights and buildings.
Nelson	1.5	1.4	1.4	2.2	New control tower.
Hamilton	2.0	1.9	1.9	1.9	Labour mix has changed.
Napier	1.2	1.3	1.3	1.4	Labour mix has changed.
Dunedin	1.8	1.5	1.5	1.6	Labour mix has changed.
Tauranga	1.5	1.5	1.5	1.6	Inflationary increase.
Palmerston North	1.9	1.6	1.7	1.7	Budgeted reduction in headcount.
New Plymouth	1.1	1.1	1.1	1.2	Inflationary increase.
Woodbourne	1.5	1.5	1.5	1.6	Inflationary increase.
Invercargill	0.9	1.1	1.1	1.1	1 additional full-time equivalent (FTE) required for a full roster.
Gisborne	0.8	0.7	0.7	0.8	Budgeted reduction in headcount.
Rotorua	1.1	1.2	1.2	1.3	Labour mix has changed.
<b>Aerodrome services total</b>	<b>43.2</b>	<b>45.1</b>	<b>47.7</b>	<b>51.2</b>	
<b>Flight information services</b>					
Milford	0.4	0.3	0.3	0.3	Reduction in labour costs.
Kapiti	0.6	0.6	0.6	0.6	Inflationary increase.
<b>Flight information services total</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	
<b>Approach services</b>					
Auckland	21.5	24.3	25.0	25.8	Target revenue for approach services is increasing to fund the strategic initiatives that will deliver long-term cost savings.
Christchurch	10.8	11.7	12.0	12.4	
Wellington	10.2	9.7	9.9	10.2	
Queenstown	1.8	2.8	2.8	2.8	
Nelson	1.5	1.6	1.6	1.7	
Hamilton	0.9	1.0	1.0	1.1	
Napier	0.9	1.0	1.0	1.0	
Dunedin	1.2	1.6	1.6	1.5	

<sup>14</sup> This is the target revenue used for the 2013-2016 consultation.

<sup>15</sup> Airways' labour are based on the staff at a location at a point in time. A change in labour mix means that labour costs have changed because there are new employees on different salary bands now working at a location.

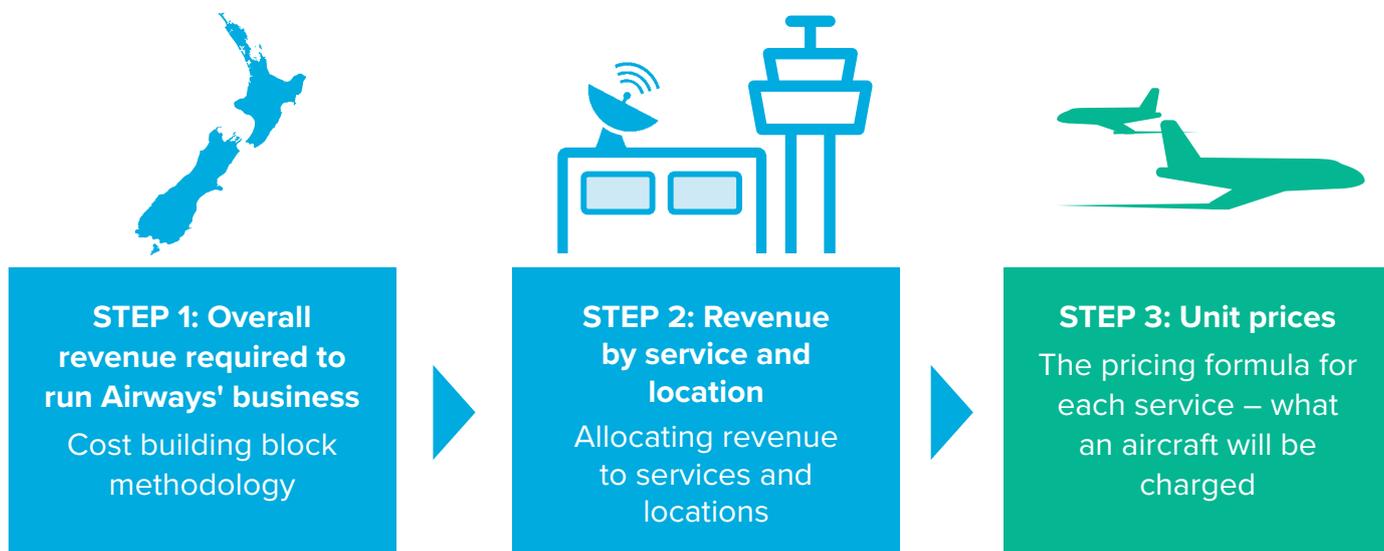
**Figure 35: Revenue change for service by location (\$m) – Continued**

Service	2015/16 Target Revenue <sup>14</sup>	2016/17 Target revenue	2017/18 Target revenue	2018/19 Target revenue	Comments
Tauranga	0.9	0.9	0.9	1.0	
Palmerston North	0.8	0.9	1.0	1.0	
New Plymouth	0.7	0.8	0.8	0.8	
Woodbourne	0.3	0.5	0.5	0.5	
Invercargill	0.6	0.7	0.8	0.8	
Gisborne	0.6	0.6	0.6	0.7	
Rotorua	0.9	0.9	0.9	0.9	
<b>Approach services total</b>	<b>53.6</b>	<b>59.0</b>	<b>60.4</b>	<b>62.2</b>	
<b>Domestic En-route</b>	<b>42.0</b>	<b>43.6</b>	<b>43.7</b>	<b>44.4</b>	<b>Increase to fund strategic initiatives.</b>
<b>Oceanic En-route</b>	<b>21.9</b>	<b>23.0</b>	<b>23.0</b>	<b>24.2</b>	<b>Increase to fund strategic initiatives.</b>
<b>Unattended approach services</b>					
Taupo	0.1	0.1	0.2	0.2	Re-cable of airfield lighting.
Timaru	0.1	0.1	0.1	0.1	Capital plan includes new generator.
Whanganui	0.1	0.1	0.1	0.1	New lights and generator.
Hokitika	0.1	0.1	0.1	0.1	Inflationary increase.
Whangarei	0.1	0.1	0.1	0.1	Inflationary increase.
Kerikeri	0.1	0.0	0.0	0.0	Reduced maintenance costs.
Kapiti	0.0	0.0	0.0	0.0	Inflationary increase.
Whakatane	0.0	0.0	0.0	0.0	Inflationary increase.
Westport	0.0	0.0	0.0	0.0	Inflationary increase.
Kaitaia	0.0	0.0	0.0	0.0	Inflationary increase..
Great Barrier	0.0	0.0	0.0	0.0	Inflationary increase..
Oamaru	0.0	0.0	0.0	0.0	Inflationary increase.
Wanaka	0.0	0.0	0.0	0.0	Inflationary increase.
Wairoa	0.0	0.0	0.0	0.0	Inflationary increase.
<b>Unattended approach total</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	
<b>Other revenue<sup>16</sup></b>	<b>6.4</b>	<b>6.3</b>	<b>6.5</b>	<b>6.4</b>	
<b>Total ANS Revenue</b>	<b>168.8</b>	<b>178.7</b>	<b>183.0</b>	<b>190.1</b>	

<sup>14</sup> This is the target revenue used for the 2013-2016 consultation.

<sup>16</sup> 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.

## 5.3 Unit prices



### CALCULATION OF UNIT PRICES

#### Airways proposed:

The unit price formula is provided by the Pricing Framework. The pricing formula charges customers based on the weight of an 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.

#### Summary of submissions:

NZ Airports noted that they support the unit pricing formula that uses weights (rather than weight bands) as this helps ensure smooth and consistent pricing i.e. formula with weight bands often have a price jump between weight bands.

#### Airways' response:

Airways has noted NZ Airports' support of the pricing formula. Unit prices have been finalised using the revised revenue calculation, revenue allocations and volume forecasts.

The unit prices are detailed in section 9 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 calculations that use the price formula and price tables to calculate a price (refer to Appendix 9.1).
- Price comparison tables that help customers compare proposed prices against current prices for a range of aircraft weights (refer to Appendix 9.2).
- 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](http://www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/current-public-consultation)



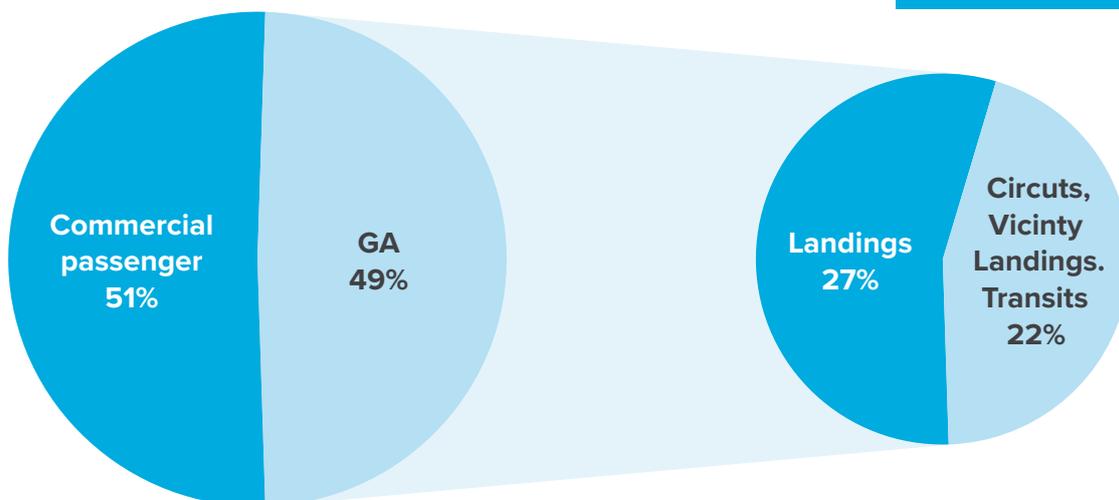
## 6 Consideration of GA pricing submissions

Airways assists General Aviation (GA) customers to operate safely within controlled airspace by safely separating users from commercial passenger traffic or providing flight information about other users. Airways allows GA users to access airspace where air traffic control or aerodrome flight information services are required.

GA customers are a significant user of Airways' services, making up 49% of movements at aerodromes and contributing 5% of the revenue required to run the service. Figure 36 illustrates the proportion of overall GA activity and what makes up that activity.

**GA activity makes up 49% of aerodrome movements and contributes 5% of the revenue**

**Figure 36: Aerodrome volumes**



Airways is working hard to allow GA to operate more freely by helping to ensure controlled airspace is an appropriate size and transit lanes are available where it's sensible. This will reduce the amount of interaction between GA and Airways. Airways has already submitted revised airspace petitions to the CAA for the 2016 airspace charting cycle. This includes proposals for changes to Hamilton, Tauranga and Rotorua control zones.

Airways also recognise that GA customers are an important part of the aviation community, and we are helping to develop the next generation of pilots through support of the Walsh Memorial Scout Flying School, and Young Eagles Flying Scholarships.

### 6.1 Submissions on pricing inputs

Airways endeavours to keep GA prices as simple as it can to minimise administration costs, keeping prices as low as possible. In 2012 a number of changes were made to ensure prices were kept low, including the introduction of a single national price, the redistribution of various discount schemes and the simplification of the pricing formula.

GA prices are set at a lower level than airline prices, reflecting the lower value GA derive from Airways' services. Prices are set at a level which reflects the underlying effort of providing the service, while being affordable.

This section summarises the inputs that directly affect GA prices. For each input customer feedback is summarised, with Airways' response to that feedback and any resulting changes in price.

## GENERAL APPROACH

### Airways proposed:

Airways believes that costs are now allocated equitably to the services provided. Therefore, Airways proposed to simply apply inflation to current prices to ensure they remain in line with underlying costs (i.e. so that the revenue collected takes into account inflationary cost increases). This approach is in line with customer feedback from the last pricing consultation.

The exception to this approach is if GA activity is driving additional cost. In this situation, Airways will look to recover the additional cost directly from GA customers, which might result in an above inflationary price increase. The pricing proposal showed that GA-driven cost has not changed.

**GA prices held  
to the level of  
inflation**

### Summary of submissions:

Flying NZ said that it accepts the proposed 2016-2019 prices for GA, however, if the average increase of 1.2% (across the three pricing years) increased to 2%, the GA community would want to be consulted again.

Other submissions focused on the specific pricing inputs and were silent on the overall increase.

### Airways' response:

There seems to be a little confusion around the size of the proposed GA increase. The average increase of 1.2% referred to the proposed airlines price increase. The average increase for GA prices was 1.7% - still below the 2% threshold that Flying NZ felt comfortable with.

## LEVEL OF GA-DRIVEN COSTS

### Airways proposed:

In 2015, prior to the proposed prices being released, Airways conducted a review of the direct costs being driven by GA activity and determined that there was no material change to the direct costs at the beginning of the last pricing round. Therefore, the only change to prices is the application of inflation.

### Summary of submissions:

No submissions commented on the level of GA-driven price.

### Airways' response:

There has been no change to the level of GA-driven costs.

## INFLATION

### Airways proposed:

Airways' proposed to simply adjust prices by the level of inflation to ensure that the price remains in line with the underlying costs of providing the services.

As part of the consultation response in 2013, Airways stated that it would adopt the use of the NZIER forecast source as standard policy to provide a consistent long-term measure. The proposed inflationary rates provided in Figure 37 below reflect this approach.

**Figure 37: Proposed GA inflationary inputs**

	FY17	FY18	FY19	Average
NZIER LCI forecast (Dec 15)	1.7%	1.6%	1.8%	1.7%

## Summary of submissions:

Some submissions compared the proposed inflationary uplift for GA to the proposed price increase for airlines and argued that inflation should be applied equally to all sectors.

CTC supported the rationale of adjusting prices for inflation, but felt that prices should be adjusted annually to reflect actual changes in the Consumer Price Index (CPI).

## Airways' response:

### Inflation should be applied equally to all sectors

Airline prices are calculated differently to GA prices. Airline prices are based on the underlying cost to provide the service (including new capital expenditure, existing asset cost, inflationary changes and changes in operating costs), a fair return to the shareholder and changes in volume (see chapter 5 for more detail on airline pricing inputs). The average airline price decrease of 1.6% p.a. is the aggregate of all of these changes.

In comparison, GA prices are not directly calculated from the underlying cost of the service or the change in volumes. If they were, GA prices would probably be higher to reflect that GA volumes have decreased. GA prices are set at a level which balances affordability while still reflecting the underlying workload. Airways believes that current prices provide this balance. Inflation is then applied to ensure prices remain in line with changes in the overall underlying costs.

### Adjusting prices annually to reflect actual rates

CTC suggested that actual inflation should be used to adjust prices annually. Re-forecasting inflation every year based on the latest actual inflation figures is unlikely to provide a more accurate forecast. Actual inflationary figures will only describe past changes and will not consider future influences. Forecast inflationary figures include the impact of the most likely changes in future economic factors. Most importantly, re-forecasting inflation would add additional pricing steps and administration, which would increase costs.

Airways will continue to use the proven NZIER forecast.

### NZIER LCI forecast vs CPI

CTC also suggested using the Consumer Price Index (CPI) rather than the Labour Cost Index (LCI). CPI is a measure of a market basket of consumer goods and services purchased by households, while LCI is a measure of the change in labour costs. Approximately 70% of Airways costs are labour so the LCI provides a more appropriate forecast measure.

### Inflation rate update

In 2013 the NZIER forecasts were adopted as policy to address arguments for and against specific forecasts at each pricing round just because they provide a favourable result for one party or the other.

Airways have updated the inflationary inputs to reflect the latest available forecasts (March 2016). The latest inflation forecasts result in a lower price increase than was initially proposed as summarised in figure 38.

**Figure 38: Impact of revised inflation rates**

	FY17	FY18	FY19	Average
NZIER LCI forecast (Dec 15) – Proposed price increase	1.7%	1.6%	1.8%	1.7%
Change in inflationary rates	(0.1%)	-	(0.1%)	(0.1%)
<b>NZIER LCI forecast (Mar 16) – Final price increase</b>	<b>1.6%</b>	<b>1.6%</b>	<b>1.7%</b>	<b>1.6%</b>

## UNIT PRICES

### Airways proposed:

In accordance with the Pricing Framework, GA prices are the same at all locations. Unit prices are calculated by simply adding inflation to current prices. Appendix 9.1 provides the proposed unit prices and Appendix 9.2 provides example pricing tables for different aircraft weights.

## Summary of submissions:

There were no submissions on this topic.

### Airways' response:

All unit prices have all been adjusted for the change in inflationary rates outlined in the previous sections. See chapter 8 for the final unit prices. Appendix 9.2 provides example price tables for different aircraft weights. Figure 39 summarises the change in the Aerodrome Service fee for a selection of the most common aircraft types. Note, the examples are based on prices for regional attended aerodromes. Landing fees at international aerodromes have a higher minimum pricing component, so prices could be different to those in Figure 39.

**Figure 39: Final price change impact on aerodrome landing fees (for regional aerodromes)**

Aircraft	Weight (tonnes)	Current Aerodrome price (2015/16)	Final Aerodrome price (2016/17)	Change (\$)	Change (%)
Diamond DA20	0.75	\$7.51	\$7.63	\$0.12	1.6%
Cessna 172	1.11	\$7.51	\$7.63	\$0.12	1.6%
Robinson R44	1.13	\$7.51	\$7.63	\$0.12	1.6%
Aerospatiale AS-350	2.20	\$7.51	\$7.63	\$0.12	1.6%
Britten-Norman Islander	2.99	\$8.35	\$8.47	\$0.12	1.4%
Cessna 208 Caravan	3.93	\$10.96	\$11.12	\$0.16	1.4%
Beechcraft King Air	4.58	\$12.78	\$12.96	\$0.18	1.4%

## NATIONAL CIRCUIT, VICINITY LANDING AND CONTROLLED VFR PRICES

### Airways proposed:

The proposed national circuit, vicinity landing and controlled VFR transit prices were calculated by applying inflation to current prices.

**Figure 40: Proposed circuit, vicinity landing and controlled VFR transit prices**

	2016/17	2017/18	2018/19
Circuits, vicinity landing and VFR transit price	\$3.59	\$3.65	\$3.72

The proposed price is lower than a landing fee, reflecting the reduced workload. This is consistent with the assumptions used in the Pricing Framework consultation.

### Summary of submissions:

There were no submissions on this topic.

### Airways' response:

The final national circuit, vicinity land and controlled VFR transit prices have been calculated by applying the March 2016 NZIER inflationary forecast to current prices.

**Figure 41: Final circuit, vicinity landing and controlled VFR transit prices**

	2016/17	2017/18	2018/19
Circuits, vicinity landing and VFR transit price	\$3.59	\$3.65	\$3.71

## OTHER GA PRICES

### Airways proposed:

The proposed prices have been calculated by applying inflation to current prices. Figure 42 provides the proposed new prices for other GA services and Figure 43 the proposed parachute prices.

**Figure 42: Proposed VFR flight plans and Missed Search and Rescue (SAR) time's prices**

	2016/17	2017/18	2018/19
VFR flight plans (using IFIS)	\$4.86	\$4.94	\$5.03
VFR flight plans (phone)	\$6.99	\$7.10	\$7.23
Missed SAR times	\$37.60	\$38.21	\$38.89

**Figure 43: Proposed parachute prices**

Aircraft Weight	Airspace Complexity								
	Low			Medium			High		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19
Low (<1,700 kg)	\$2.13	\$2.16	\$2.20	\$2.68	\$2.72	\$2.77	\$10.73	\$10.90	\$11.10
Medium (1,700 -2,500 kg)	\$3.23	\$3.28	\$3.34	\$4.30	\$4.37	\$4.45	\$10.73	\$10.90	\$11.10
Heavy (>2,500 kg)	\$4.30	\$4.37	\$4.45	\$6.43	\$6.53	\$6.65	\$10.73	\$10.90	\$11.10

### Summary of submissions:

There were no submissions on this topic.

### Airways' response:

The final prices have been calculated by applying the March 2016 NZIER inflation forecast to current prices. Figure 44 provides the final prices for other GA services and Figure 45 the final parachute prices.

**Figure 44: Final VFR flight plans and Missed SAR time's prices**

	2016/17	2017/18	2018/19
VFR flight plans (using IFIS)	\$4.86	\$4.94	\$5.02
VFR flight plans (phone)	\$6.98	\$7.09	\$7.21
Missed SAR times	\$37.56	\$38.16	\$38.81

**Figure 45: Final parachute prices**

Aircraft Weight	Airspace Complexity								
	Low			Medium			High		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19
Low (<1,700 kg)	\$2.12	\$2.15	\$2.19	\$2.68	\$2.72	\$2.77	\$10.72	\$10.89	\$11.08
Medium (1,700 -2,500 kg)	\$3.23	\$3.28	\$3.34	\$4.30	\$4.37	\$4.44	\$10.72	\$10.89	\$11.08
Heavy (>2,500 kg)	\$4.30	\$4.37	\$4.44	\$6.42	\$6.52	\$6.63	\$10.72	\$10.89	\$11.08

## 6.2 Submissions on Milford services

### Airways proposed:

In the previous pricing round, Milford Aerodrome Flight Information Service (AFIS) required a 200% price increase to break even. A 100% price increase was settled upon as operators could not afford the 200% price increase to fund the AFIS service. It was also agreed that:

1. Airways would recover the full cost of any service provided as part of the 2016-2019 pricing period.
2. Airways would investigate alternative services that were safe but less expensive.

Airways investigated a range of alternative services and concluded that the current AFIS best meets the requirements of Milford users. However, if users want to investigate a different service level then Airways will support the process.

Airways' proposal highlighted that a 36% price increase would be required to break-even at Milford, however, recognising the financial impact this would have on users, Airways proposed a reduced price increase of 18% over the three years. Rather than apply the whole increase in the first year, the increase would also be phased in at 6% per year.

### Summary of submissions:

Aircraft Owners and Pilots Association (AOPA) were the only submitter on this topic. AOPA submitted that another alternative to funding the shortfall at Milford would be cross-subsidisation by making charges universal across the country.

There were no submissions that commented on the level of services provided at Milford.

### Airways' response:

Airways uses location-specific pricing to ensure that the price for services at a location reflect the underlying costs of providing services at that location. This is important so that prices send efficient signals about the appropriate level of service and resourcing at each location. However, if customers wish to pursue direct funding from other sources, such as Government or other users, Airways will be happy to adjust prices to reflect the level of direct funding in the future.

The final price increase for Milford is outlined in figure 46.

**Figure 46: Final price increase for Milford services**

	2016/17	2017/18	2018/19
Final price increase for Milford services	6%	6%	6%

## 6.3 Submissions on easy access to flight information

### **Airways proposed:**

Airways asked for feedback on whether the development of an application based on the current IFIS website would be useful for customers. The application could be a central source of information for GA customers, including weather and automatic notification of Notice To Airmen (NOTAM).

### **Summary of submissions:**

All submissions on this topic supported the development of a flight information application, but with a range of caveats:

- CTC supported the development, provided there are no significant increases in fees.
- Sport Aircraft Association NZ Inc. (SAANZ) commented that an application would only be useful if it included weather. The primary focus should be on providing an application that is a single source of all applicable documents that pilots require to fly safely through out New Zealand.
- AOPA cautioned that it will be difficult to meet all of the diverse needs of aviators.

### **Airways' response:**

Airways has begun development of a flight information application that includes access to NOTAM and weather. Access to weather information has provisional agreement from the MetService. The application is expected to provide significant safety benefits, especially through the up-to-date NOTAM notification and timely access to weather and flight information.

Provided the remaining development can be completed at a low cost, and access to weather information is secured, it is anticipated that the application can be provided free of charge. The application is currently being tested with members of the GA community and it is anticipated that the application will be available for all GA users later in 2016.

## 6.4 Submissions on other topics

This section of the document summarises and responds to the GA submissions on topics that were not directly raised in the Pricing Proposal document. Each topic summarises the submissions received and Airways' response.

### **VICINITY LANDING CHARGES**

#### **Airways proposed:**

Airways introduced a charge for vicinity landings in 2012 to reflect the workload associated with an aircraft landing somewhere in the control zone other than the aerodrome.

#### **Summary of submissions:**

AOPA and SAANZ disagreed with Airways applying vicinity landing charges to operators of privately owned airstrips within control zones.

#### **Airways' response:**

The intention of the vicinity landing charges was to introduce a price to reflect the effort to safely manage aircraft landing in the control zone other than at the aerodrome. There may be instances where an operator of a privately owned strip is able to operate safely without driving significant controller effort. In these instances Airways may be able to apply an exemption from vicinity landing charges.

Airways invites GA associations to provide individual examples of where members:

- a) Operate from a privately owned airstrip within the control zone.
- b) Operate outside the circuit and approach areas.
- c) Operate at less than 500ft within the control zone.

Airways will then assess each instance on a case by case basis. Where operators don't drive significant controller effort Airways will consider applying an exemption.

## CONTROLLED VFR TRANSIT CHARGE

### Airways' proposed:

Airways introduced a charge for controlled VFR transits in 2013 to reflect the workload associated with an aircraft transiting through an aerodrome control zone.

### Summary of submissions:

AOPA and SAANZ disagree with charging for VFR control zone transits. AOPA submitted that the controller workload is not significant, and permission to transit is only granted if there is no safety issue. SAANZ cited safety concerns, submitting that the charge actively discourages aviators from taking the safest route through a control zone. SAANZ contend that in the worst case scenario, it is possible that a pilot may turn off their transponder to avoid being charged. In addition SAANZ submitted that the cost of recovering transit charges must outweigh the fees recovered.

### Airways' response:

The controlled VFR transit charge was part of the Pricing Framework changes which came into effect in 2013 following extensive consultation with customers.

### The workload to provide the service is not significant, so why charge?

The VFR control zone transit fees capture the additional workload these activities create. While these services may not always require additional resources to provide, they do create additional complexity and risk. It is important to signal in prices to customers the approximate cost to Airways of providing each service. In that way, customers can decide whether or not the service is warranted.

### The transit fee maybe creating unsafe practices

Under Civil Aviation rules, it is the pilot's responsibility to operate their aircraft safely. Airways does not believe that the Controlled VFR Transit fees of less than \$4 will compromise good airmanship because the materiality of the fee is very low when compared against the operating costs of an aircraft (e.g. fuel).

### The cost of applying the charge will outweigh the money collected

The cost of applying the charge does not outweigh the fees collected. The application of GA prices has been designed to keep administrative costs to a minimum. In particular, the prices are set at a flat national rate for simple application of the fee, and electronic invoicing and payment methods are promoted to facilitate a simple billing process.

## DEFINITION OF GA - APPLIES TO ALL OPERATORS OF AIRCRAFT LESS THAN 5,000KGS

### Airways' proposed:

Airways defines GA as all users under 5000kgs and does not distinguish between different GA users.

### Summary of submissions:

Flying NZ highlighted that the term General Aviation is sometimes interpreted as solely relating to recreational pilots. However in the Airways' context the term General Aviation includes all operators of all aircraft less than 5,000kgs, including commercial operators.

### Airways' response:

Airways have considered whether we could distinguish between GA users based on the reason for their flight, for example, recreational, commercial training, commercial, and not-for-profit. However, it is not feasible to make these distinctions as aircraft are often used by a number of users and for different reasons, such as training and recreational uses or aero club activities. Trying to distinguish the type of use on each flight would be impractical and administratively costly. Airways considered that, in general, customers support simpler, lower prices and therefore GA prices apply to all operators less than 5,000kgs.

## AIRWAYS DO NOT PROVIDE A SERVICE TO RECREATIONAL CUSTOMERS

### **Airways proposed:**

The CAA mandates whether an air traffic control service is required. An airport then appoints Airways to provide the services on their behalf. If an aircraft operator wants access to a control zone then they must use the air traffic control service.

### **Summary of submissions:**

Flying NZ submitted that a number of aero club pilots that fly from controlled aerodromes do not see that Airways bring a level of surveillance and safety to their operation.

SAANZ submitted that recreational aviators don't perceive that Airways is providing them a service as typically they are only providing location information to Airways staff and answering questions from Airways staff as they briefly transit Airways controlled zones. Commercial airlines are the prime beneficiaries of Airways' services and have a greater ability to recover the costs from the fare paying public.

### **Airways' response:**

The courts have previously found that both VFR and IFR traffic receive a material benefit from the provision of services in controlled airspace<sup>17</sup>. Not only are users being provided access to controlled airspace, but customers are also provided aeronautical information (weather, clearances, NOTAMs) and flight information or separation from other aircraft to help pilots operate safely.

Airways pricing recognises that GA customers receive less benefit from services than commercial passenger traffic, and as such prices for GA are significantly lower than prices for commercial passenger traffic. For example, a Cessna 172 will pay \$7.63 to land at Napier while a Bombardier Q300 will pay \$224. Airways believes that GA prices are set at a fair and affordable level.

## COMPETITIVENESS OF TRAINING

### **Airways proposed:**

Airways introduced the circuit fee in 2013 to reflect the workload associated with an aircraft practicing landing at an aerodrome. Circuits make up about a quarter of all aerodrome activity.

### **Summary of submissions:**

Flying NZ submitted that Airways charges form a significant part of the operating costs for aero clubs that operate from controlled aerodromes, especially when carrying out circuit training. These Airways costs make the aero clubs less competitive compared to full time flying schools.

### **Airways' response:**

Airways' GA charges, including circuits, are applied equally to all users operating at controlled aerodromes so full-time training organisations are not being provided with any competitive advantage.

If a full-time training organisation is training in uncontrolled airspace then they won't be receiving a circuit fee because they are not creating any additional workload – Airways can't charge for services it does not provide. This may create a cost difference to an aero club if they provide the same training in controlled airspace and receive a circuit fee. It's the decision of the training organisation as to where they do their training and whether it makes sense to train at a controlled aerodrome.

<sup>17</sup> Airways Corporation of New Zealand Ltd v Geyserland Airways Ltd; Airways Corporation of New Zealand Ltd v White Island Airways Ltd [1996] 1 NZLR 116 at page 127, at paras 37-38



## 7 Future accountability – refining the Scorecard

Airways are committed to providing safe, reliable, predictable, innovative and cost-effective services. The Scorecard enhances transparency and accountability of Airways' performance by providing a regular update of progress against Airways' key performance measures, international benchmarks, and financial pricing assumptions. The final Scorecard measures are provided in Appendix 10.4.

 <p><b>Safe</b></p>	<ul style="list-style-type: none"><li>✓ Zero high-severity safety incidents for commercial passenger flights.</li><li>✓ Zero high-severity safety incidents for general aviation.</li></ul>
 <p><b>Reliable</b></p>	<ul style="list-style-type: none"><li>✓ 99.95% service availability.</li><li>✓ 98.5% planned maintenance completion rate.</li><li>✓ Improved contingency through dual centres by 2019.</li></ul>
 <p><b>Predictable</b></p>	<ul style="list-style-type: none"><li>✓ Less than 3,000 minutes inflight delays per month.</li><li>✓ Less than 10.5 seconds average delay per flight by 2019.</li><li>✓ Advanced flow management tools by 2017.</li></ul>
 <p><b>Innovative</b></p>	<ul style="list-style-type: none"><li>✓ \$84m in new fuel savings, cost saving and reliability customer benefits.</li><li>✓ ADS-B surveillance provided in En-route airspace by 2019.</li><li>✓ PBN programme completed by 2019.</li></ul>
 <p><b>Cost-effective</b></p>	<ul style="list-style-type: none"><li>✓ Top 5 lowest cost per flight hour (CANSO benchmarking).</li><li>✓ Less than \$540 costs per IFR flight hour.</li><li>✓ Corporate overheads less than 14% of total costs.</li></ul>

## 7.1 Consideration of submissions

### Airways proposed:

Airways proposed a refined Scorecard, including metrics for operational performance, industry benchmarks, and measures of Airways' performance against key pricing assumptions. The Scorecard was updated to include the new proposed capital programme, changes to global benchmarking metrics and improved performance measurement metrics.

Refer to the January 2016 *Consultation Document* for a full list of proposed measures.

### Summary of submissions

**Airline metrics** – BARNZ asked for a better understanding of the delay-related measure, including a clarification of how the measurement compares to the allocated Controlled Time Of Take-off (CTOT).

Qantas requested a number of new metrics be added:

1. Airways' average annual employee salary.
2. The actual tracking of cost per unit for each of the services provided against the pricing forecast.
3. Additional detail and tracking for the capital expenditure programme.
4. Benefits realisation monitoring.
5. Delay monitoring.
6. Compliance reports.

**GA metrics** – CTC have asked Airways to include a measure that covers bookings for training using navigation aids and circuits that were cancelled or delayed by Airways by over 30 minutes within 24 hours of booking time.

CTC submitted that different sectors will find certain scorecard metrics more useful than others and suggested that different scorecards be developed for different sectors e.g. airlines, GA, and airports.

**Size of Scorecard** – Qantas submitted that the scorecard is not detailed enough and lacks trending data to drive performance improvement.

**Frequency of Scorecard reporting** - CTC supported quarterly reporting. Qantas asked for scorecards at least twice a year. NZ airports suggested the frequency of reporting for airports should be in line with the individual Letter of Agreements (LOAs).

### Airways' response:

#### Airline metrics

**Reporting included in annual BARNZ disclosure** – the suggested metrics of the average annual salary, tracking of costs per service and capital expenditure reporting are already reported on an annual basis via the annual BARNZ disclosure. This is a sensible forum, as the level of detail of the information provided is more suited to an annual report, rather than the quarterly scorecard, which is intended as a brief update of key performance metrics.

**Benefits realisation monitoring** – the additional benefits realisation monitoring requested by Qantas is being developed. In practice, benefit realisation monitoring is complex to calculate and is more suited to the annual BARNZ disclosure where it can be presented along with the detailed capital programme.

**Delay monitoring** – Airways measures flight duration to compute airborne delay metrics. For each flight, the 'delay' is the difference between the actual flight duration and the time the flight would take to follow its planned flight path without interference from other traffic or weather. The delay metrics include all flights destined for Auckland, Wellington, Christchurch and Queenstown. The specific scorecard delay measures are calculated as:

- **Total in-flight delays (minute):** Total number of minutes of delay for a month, across Auckland, Wellington, Christchurch and Queenstown. This measure is not adjusted for the number of monthly movements.
- **Average delays per flight (seconds):** Total minutes of delays per month, divided by the number of movements. This metric provides a volume adjusted measure of flight delays.

The inflight delay metrics have an indirect relationship with the Controlled Times Of Take-off (CTOT) measure reported as part of the annual BARNZ disclosure. As part of its flow management system, airlines choose an arrival time from Airways' online Collaborative Arrival Manager (CAM) tool. Airways then issues a CTOT time (calculated by working backwards from the arrival time selected by the airlines). An aircraft is expected to take off within +/- 5 minutes of CTOT. Airspace congestion and airborne delays are minimised by ensuring aircraft only take-off when they have an arrival time that is free at their destination. If an aircraft takes off outside of the issued CTOT time, it may be delayed because an arrival slot may not be available and inflight delays might increase. Airways reports CTOT compliance as part of the BARNZ annual disclosure.

Airways continues to develop our analytics tools and traffic management processes to increase capacity and reduce delays. To date Airways' focus has been on reducing inflight delays by ensuring landing times are available before an aircraft takes-off. Airways is now looking at expanding its flow management analysis to include all phases of a flight. This includes investigating on-ground delays and allowing optimal flight trajectories (as requested by an aircraft).

### **GA metrics**

Airways aim to keep the cost of GA services as low as possible by streamlining the services delivered and reducing administration effort. The creation of specific GA metrics and a separate Scorecard will drive extra workload for Airways, and therefore extra costs. Airways considers that on the whole GA prefer lower prices.

### **Size of Scorecard**

Airways agree with Qantas that the addition of trend data will add value and is useful for measuring actual performance improvement. Airways will add trend data to the Scorecard reporting where it is simple and sensible to do so. The BARNZ annual reporting provides more detailed historical comparatives and explanatory notes.

### **Frequency of Scorecard reporting**

Airways will continue to provide the airline and airport Scorecards quarterly and will keep the frequency of the BARNZ annual disclosure the same.



# 8 Prices for 2016-2019

This section provides the final prices for the 2016-2019 pricing period. Service prices are calculated by applying the inputs from the pricing tables into the pricing formula.

Appendix 9.1 provides some examples on how to use the formula and price tables to calculate a price.

Alternatively, a comparison between current prices and the proposed prices can be made by using the following tools:

- Price comparison tables to compare current prices against final 2016/17 prices for a range of aircraft weights (refer to Appendix 9.2).
- The online price calculator to calculate the price of a journey using several of Airways' services. This can be downloaded from Airways' website ([www.airways.co.nz](http://www.airways.co.nz)):  
[www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/current-public-consultation](http://www.airways.co.nz/products-and-services/air-navigation-services/new-zealand-service-framework/current-public-consultation)

## 8.1 Aerodrome Service prices

### Aerodrome pricing formula

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 price table below.

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

### Aerodrome charges

	Minimum Price			Base Rate			Weight Rate >5 tonnes		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19
Auckland	\$10.92	\$11.09	\$11.28	\$14.15	\$14.40	\$14.65	\$3.54	\$3.49	\$3.49
Christchurch	\$10.92	\$11.09	\$11.28	\$14.15	\$14.40	\$14.65	\$6.13	\$6.35	\$6.93
Wellington	\$10.92	\$11.09	\$11.28	\$14.15	\$14.40	\$14.65	\$5.55	\$7.47	\$8.63
Queenstown	\$7.63	\$7.75	\$7.88	\$14.15	\$14.40	\$14.65	\$15.65	\$14.56	\$13.54
Regional Airport (Group 1)	\$7.63	\$7.75	\$7.88	\$14.15	\$14.40	\$14.65	\$13.07	\$13.34	\$15.44
Regional Airport (Group 2)	\$7.63	\$7.75	\$7.88	\$14.15	\$14.40	\$14.65	\$14.50	\$14.93	\$15.55
Milford	\$34.55	\$36.62	\$38.82	\$94.90	\$100.60	\$106.65	Not Applicable		
Kapiti	\$7.63	\$7.75	\$7.88	\$14.15	\$14.40	\$14.65	\$37.28	\$38.10	\$39.25
Additional Queenstown Night Operations weight rate (added to the Queenstown aerodrome price for aircraft over 30 tonnes.)	Not Applicable			Not Applicable			\$1.20	\$1.20	\$1.20

Group 1 includes Nelson, Palmerston North, Tauranga and Hamilton.

Group 2 includes Dunedin, Gisborne, New Plymouth, Napier, Invercargill, Rotorua and Woodbourne.

	Flat Fee		
	2016/17	2017/18	2018/19
Circuit charge	\$3.59	\$3.65	\$3.71
Vicinity landing charge	\$3.59	\$3.65	\$3.71
Controlled VFR transit charge	\$3.59	\$3.65	\$3.71

## 8.2 Approach Service prices

### Approach pricing formula

The Approach 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 price table below.

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

### Approach charges

	Minimum Price			Base Rate			Weight Rate >5 tonnes		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19
International towers	\$5.46	\$5.55	\$5.64	\$21.85	\$22.20	\$22.60	\$7.88	\$7.98	\$8.19
Regional towers	\$5.46	\$5.55	\$5.64	\$21.85	\$22.20	\$22.60	\$8.71	\$8.73	\$8.73
Additional Auckland CAT III weight rate (added to the international tower price for aircraft over 30 tonnes.)	Not Applicable			Not Applicable			\$0.39	\$0.39	\$0.39
Additional Queenstown Multilat weight rate (added to the regional tower price for aircraft over 5 tonnes.)	Not Applicable			Not Applicable			\$1.60	\$1.60	\$1.60

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 pricing formula

The Unattended 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 price table below.

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

## Unattended charges

	Minimum Price			Base Rate			Weight Rate >5 tonnes		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19
Taupo	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$12.00	\$13.17	\$14.12
Timaru	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$12.30	\$12.48	\$12.65
Whanganui	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$5.43	\$5.48	\$5.53
Hokitika	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$7.53	\$7.33	\$7.31
Whangarei	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$3.45	\$3.52	\$3.57
Kerikeri	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$1.31	\$1.33	\$1.35
Kapiti	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$8.55	\$8.69	\$8.85
Whakatane	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$2.20	\$2.23	\$2.25
Westport	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$10.97	\$11.11	\$11.29
Kaitiāia	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$10.53	\$10.70	\$10.89
Great Barrier	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$15.34	\$15.59	\$15.87
Oamaru	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$15.34	\$15.59	\$15.87
Wanaka	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$15.33	\$15.56	\$15.83
Wairoa	\$3.33	\$3.38	\$3.44	\$18.70	\$19.00	\$19.30	\$15.34	\$15.59	\$15.87
Other unattended aerodromes	No charge								

## 8.3 Domestic En-route Service prices

### Domestic En-route pricing formula

The En-route Price is the greater of the Minimum Price 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 price table below.

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

Nautical miles is the distance between the origin and destination aerodromes, less the terminal navigation radius at both aerodromes.

### Domestic En-route charges

	Minimum Price			Base Rate			Weight Rate >5 tonnes		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19
Domestic	\$6.37	\$6.47	\$6.58	\$6.35	\$6.45	\$6.55	\$2.46	\$2.42	\$2.42
Oceanic	\$19.11	\$19.42	\$19.75	\$6.35	\$6.45	\$6.55	\$0.64	\$0.62	\$0.64

## 8.4 Other prices

### Other final GA charges

	2016/17	2017/18	2018/19
VFR flight plans filed online	\$4.86	\$4.94	\$5.02
VFR flight plans filed by other means	\$6.98	\$7.09	\$7.21
Overdue SARTIME	\$37.56	\$38.16	\$38.81

### Final parachute charges

Aircraft weight	Airspace Complexity								
	Low			Medium			High		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19
Low (<1,700 kg)	\$2.12	\$2.15	\$2.19	\$2.68	\$2.72	\$2.77	\$10.72	\$10.89	\$11.08
Medium (1,700-2,500 kg)	\$3.23	\$3.28	\$3.34	\$4.30	\$4.37	\$4.44	\$10.72	\$10.89	\$11.08
Heavy (>2,500 kg)	\$4.30	\$4.37	\$4.44	\$6.42	\$6.52	\$6.63	\$10.72	\$10.89	\$11.08

### Final out-of-hours charges

	2016/17	2017/18	2018/19
Out of hours	\$375.09	\$381.09	\$387.57



## 9 Appendices – pricing examples

### APPENDIX 9.1: EXAMPLE PRICE CALCULATIONS

This appendix provides examples of Airways' price calculation, stepping through how the formulas and pricing tables work. Examples for a range of different flights have been provided to show the effect of combining multiple services.

#### Example 1: Wellington to Auckland by Cessna 208

Route: Wellington (NZWN) to Auckland (NZAA)	
Aircraft type: C208 (Cessna 208) Weight (kgs): 3,628	
Chargeable distance (CD): 208	
Charge type	Proposed price
(a) Aerodrome service charge	$\text{MAX}(10.92, 14.15 * (3.628/5)) = \$10.92$
(b) Approach service charge	$\text{MAX}(5.46, 21.85 * (3.628/5)) = \$15.85$
(c) En-route domestic charge	$\text{MAX}(6.38, 6.35 * 208/100) = \$13.21$
<b>Total charge (excl GST)</b>	<b>\$39.98</b>

#### Example 2: Auckland to Christchurch by ATR72

Route: Auckland (NZAA) to Christchurch (NZCH)	
Aircraft type: AT72 (Aerospatiale ATR72) Weight (kgs): 22,800	
Chargeable distance (CD): 350	
Charge type	Proposed Price
(a) Aerodrome service charge	$14.15 + 6.13 * (22.8 - 5) = \$123.26$
(b) Approach service charge	$21.85 + 7.88 * (22.8 - 5) = \$162.11$
(c) En-route domestic charge	$(6.35 + 2.46 * (22.8 - 5)) * 350/100 = \$175.48$
<b>Total charge (excl GST)</b>	<b>\$460.85</b>

### Example 3: Christchurch to Wellington by Airbus A320-200

Route: Christchurch (NZCH) to Wellington (NZWN)	
Aircraft type: A320 (Airbus A320-200) Weight (kgs): 71,500	
Chargeable distance (CD): 113	
Charge type	Proposed Price
(a) Aerodrome service charge	$14.15 + 5.55 * 5 * \text{SQRT}(71.5 - 5) = \$240.44$
(b) Approach service charge	$21.85 + 7.88 * 5 * \text{SQRT}(71.5 - 5) = \$343.15$
(c) En-route domestic charge	$(6.35 + 2.46 * 5 * \text{SQRT}(71.5 - 5)) * 1.13 = \$120.52$
<b>Total charge (excl GST)</b>	<b>\$704.11</b>

### Example 4: Singapore to Auckland by Boeing 777-300ER

Route: Singapore (WSSS) to Auckland (NZAA)	
Aircraft type: B77W (Boeing 777-300ER) Weight (kgs): 351,500	
Oceanic chargeable distance (OCD): 423	
Charge type	Proposed Price
(a) Aerodrome service charge	$14.15 + 3.54 * 5 * \text{SQRT}(351.5 - 5) = \$343.63$
(b) Approach service charge	$21.85 + (7.88 + 0.39) * 5 * \text{SQRT}(351.5 - 5) = \$791.56$
(c) En-route domestic charge - fixed at 150nm for international flights	$(6.35 + 2.46 * 5 * \text{SQRT}(351.5 - 5)) * 1.5 = \$352.96$
(d) En-route oceanic charge	$(6.35 + 0.64 * 5 * \text{SQRT}(351.5 - 5)) * 4.23 = \$278.83$
<b>Total charge (excl GST)</b>	<b>\$1,766.98</b>

### Example 5: Los Angeles to Sydney by Boeing 777-300ER

Route: Los Angeles (KLAX) to Sydney (YSSY)	
Aircraft type: B77W (Boeing 777-300ER) Weight (kgs): 351,500	
Oceanic Chargeable Distance (OCD): 1,037	
Total charge: ANS charge	
Charge type	Proposed price
(d) En-route oceanic charge	$(6.35 + 0.64 * 5 * \text{SQRT}(351.5 - 5)) * 1037 / 100 = \$683.55$
<b>Total charge</b>	<b>\$683.55</b>

## APPENDIX 9.2: PRICE COMPARISONS FOR SELECTED WEIGHTS

This appendix provides price comparison tables for each service. The comparison tables compare current prices with the proposed prices for the 2016/17 year.

### Aerodrome charges (part 1 of 2)

Aircraft Weight (kg)	Auckland			Christchurch			Wellington			Queenstown		
	Current 2015/16	Final 2016/17	Difference									
1,000	11	11	0	11	11	0	11	11	0	8	8	0
2,000	11	11	0	11	11	0	11	11	0	8	8	0
3,000	11	11	0	11	11	0	11	11	0	8	8	0
4,000	11	11	0	11	11	0	11	11	0	11	11	0
5,000	14	14	0	14	14	0	14	14	0	14	14	0
6,000	18	18	0	20	20	0	20	20	0	30	30	0
7,000	21	21	0	27	26	0	26	25	(1)	46	45	(1)
8,000	25	25	0	33	33	0	32	31	(2)	63	61	(2)
9,000	29	28	0	39	39	(1)	39	36	(2)	79	77	(2)
10,000	32	32	(1)	46	45	(1)	45	42	(3)	95	92	(3)
12,000	40	39	(1)	58	57	(1)	57	53	(4)	128	124	(4)
14,000	47	46	(1)	71	69	(2)	69	64	(5)	160	155	(5)
16,000	54	53	(1)	83	82	(2)	82	75	(7)	193	186	(7)
18,000	62	60	(2)	96	94	(2)	94	86	(8)	225	218	(8)
20,000	69	67	(2)	109	106	(3)	106	97	(9)	258	249	(9)
22,000	77	74	(2)	121	118	(3)	119	109	(10)	291	280	(10)
24,000	84	81	(2)	134	131	(3)	131	120	(11)	323	312	(12)
26,000	91	88	(3)	147	143	(4)	143	131	(13)	356	343	(13)
28,000	99	96	(3)	159	155	(4)	156	142	(14)	388	374	(14)
30,000	106	103	(3)	172	167	(5)	168	153	(15)	421	405	(15)
40,000	123	119	(4)	201	195	(5)	196	178	(18)	495	513	17
50,000	137	133	(4)	226	220	(6)	221	200	(20)	560	579	20
60,000	150	145	(5)	248	241	(7)	242	220	(22)	617	639	22
70,000	162	157	(5)	269	261	(7)	262	238	(24)	670	693	24
80,000	173	167	(6)	288	280	(8)	281	254	(26)	718	744	25
90,000	184	177	(6)	305	297	(9)	298	270	(28)	764	791	27
100,000	193	187	(7)	322	313	(9)	314	285	(30)	807	835	28
110,000	202	196	(7)	338	328	(10)	330	299	(31)	848	877	30
120,000	211	204	(7)	353	343	(10)	344	312	(33)	886	918	31
130,000	220	212	(8)	367	357	(10)	358	324	(34)	923	956	33
140,000	228	220	(8)	381	370	(11)	372	337	(35)	959	993	34
150,000	236	227	(8)	394	383	(11)	385	348	(37)	994	1,029	35
160,000	243	235	(9)	407	396	(12)	397	360	(38)	1,027	1,063	36
170,000	250	242	(9)	420	408	(12)	410	371	(39)	1,059	1,096	37
180,000	257	248	(9)	432	420	(12)	421	381	(40)	1,090	1,129	39
190,000	264	255	(9)	444	431	(13)	433	392	(41)	1,120	1,160	40
200,000	271	261	(10)	455	442	(13)	444	402	(42)	1,150	1,191	41
250,000	302	291	(11)	509	494	(15)	496	449	(48)	1,287	1,333	46
300,000	330	318	(12)	557	541	(16)	543	491	(52)	1,411	1,461	50
350,000	356	343	(13)	601	583	(17)	586	530	(56)	1,525	1,579	54
400,000	380	366	(14)	642	623	(19)	626	566	(60)	1,631	1,689	58
450,000	402	388	(15)	681	661	(20)	664	600	(64)	1,730	1,791	61
500,000	423	408	(15)	717	696	(21)	699	632	(68)	1,824	1,889	65
550,000	444	427	(16)	752	730	(22)	733	662	(71)	1,913	1,981	68
600,000	463	446	(17)	785	762	(23)	765	691	(74)	1,998	2,069	71

## Aerodrome charges (part 2 of 2)

Aircraft Weight (kg)	Regional Airport (Group 1)			Regional Airport (Group 2)			Kapiti			Milford		
	Current 2015/16	Final 2016/17	Difference	Current 2015/16	Final 2016/17	Difference	Current 2015/16	Final 2016/17	Difference	Current 2015/16	Final 2016/17	Difference
1,000	8	8	0	8	8	0	8	8	0	33	35	2
2,000	8	8	0	8	8	0	8	8	0	36	38	2
3,000	8	8	0	8	8	0	8	8	0	54	57	3
4,000	11	11	0	11	11	0	11	11	0	72	76	4
5,000	14	14	0	14	14	0	14	14	0	90	95	5
6,000	33	27	(6)	31	29	(2)	48	51	3			
7,000	51	40	(11)	48	43	(5)	82	89	6			
8,000	70	53	(17)	65	58	(7)	116	126	10			
9,000	89	66	(23)	82	72	(10)	151	163	13			
10,000	108	80	(28)	99	87	(12)	185	201	16			
12,000	145	106	(40)	133	116	(17)	253	275	22			
14,000	183	132	(51)	167	145	(22)	321	350	28			
16,000	220	158	(63)	201	174	(27)	390	424	34			
18,000	258	184	(74)	235	203	(32)	458	499	41			
20,000	296	210	(85)	269	232	(37)	527	573	47			
22,000	333	236	(97)	302	261	(42)	595	648	53			
24,000	371	262	(108)	336	290	(47)	663	722	59			
26,000	408	289	(120)	370	319	(52)	732	797	66			
28,000	446	315	(131)	404	348	(57)	800	872	72			
30,000	483	341	(142)	438	377	(62)	868	946	78			
40,000	569	401	(168)	516	443	(73)	1,025	1,117	92			
50,000	644	453	(191)	583	500	(83)	1,160	1,265	105			
60,000	710	499	(211)	643	552	(91)	1,281	1,397	116			
70,000	771	541	(230)	698	599	(99)	1,391	1,517	126			
80,000	827	580	(247)	749	642	(107)	1,494	1,628	135			
90,000	879	617	(263)	796	683	(114)	1,589	1,733	144			
100,000	929	651	(278)	841	721	(120)	1,679	1,831	152			
110,000	976	684	(292)	883	757	(126)	1,765	1,924	160			
120,000	1,020	715	(305)	924	792	(132)	1,846	2,013	167			
130,000	1,063	745	(318)	963	825	(138)	1,924	2,098	174			
140,000	1,104	773	(331)	1,000	857	(143)	1,999	2,180	181			
150,000	1,144	801	(343)	1,036	887	(149)	2,071	2,259	187			
160,000	1,182	828	(355)	1,070	917	(154)	2,141	2,335	194			
170,000	1,219	854	(366)	1,104	945	(158)	2,209	2,409	200			
180,000	1,255	879	(377)	1,136	973	(163)	2,274	2,480	206			
190,000	1,290	903	(387)	1,168	1,000	(168)	2,338	2,549	212			
200,000	1,324	927	(398)	1,199	1,027	(172)	2,400	2,617	217			
250,000	1,483	1,037	(446)	1,342	1,149	(193)	2,688	2,932	244			
300,000	1,626	1,137	(489)	1,471	1,259	(212)	2,948	3,216	267			
350,000	1,757	1,228	(529)	1,590	1,361	(229)	3,187	3,476	289			
400,000	1,879	1,313	(566)	1,700	1,455	(245)	3,410	3,719	309			
450,000	1,994	1,393	(601)	1,804	1,544	(260)	3,618	3,946	328			
500,000	2,102	1,468	(634)	1,902	1,627	(275)	3,815	4,161	346			
550,000	2,205	1,540	(665)	1,995	1,707	(288)	4,002	4,366	363			
600,000	2,303	1,608	(695)	2,084	1,783	(301)	4,181	4,561	380			

(1) Regional Airport Group 1 includes Nelson, Palmerston North, Tauranga and Hamilton and Group 2 includes Dunedin, Gisborne, New Plymouth, Napier, Invercargill, Rotorua and Woodbourne.

(2) Queenstown Aerodrome price includes the Night Operations charge.

## Approach charges

Aircraft Weight (kg)	Auckland			Wgtn and Chch			Queenstown			Regional Attended		
	Current 2015/16	Final 2016/17	Difference	Current 2015/16	Final 2016/17	Difference	Current 2015/16	Final 2016/17	Difference	Current 2015/16	Final 2016/17	Difference
1,000	5	5	0	5	5	0	5	5	0	5	5	0
2,000	9	9	0	9	9	0	9	9	0	9	9	0
3,000	13	13	0	13	13	0	13	13	0	13	13	0
4,000	17	17	0	17	17	0	17	17	0	17	17	0
5,000	22	22	0	22	22	0	22	22	0	22	22	0
6,000	30	30	0	30	30	0	32	32	0	30	31	0
7,000	38	38	0	38	38	0	43	42	(1)	39	39	0
8,000	46	45	(1)	46	45	(1)	54	53	(2)	47	48	1
9,000	55	53	(1)	55	53	(1)	65	63	(2)	56	57	1
10,000	63	61	(2)	63	61	(2)	76	73	(3)	65	65	1
12,000	79	77	(2)	79	77	(2)	98	94	(4)	82	83	1
14,000	96	93	(3)	96	93	(3)	120	115	(6)	99	100	1
16,000	113	109	(4)	113	109	(4)	142	135	(7)	117	118	1
18,000	129	124	(5)	129	124	(5)	164	156	(8)	134	135	1
20,000	146	140	(6)	146	140	(6)	186	177	(10)	151	153	1
22,000	162	156	(6)	162	156	(6)	208	197	(11)	169	170	1
24,000	179	172	(7)	179	172	(7)	230	218	(13)	186	187	1
26,000	195	187	(8)	195	187	(8)	252	238	(14)	203	205	1
28,000	212	203	(9)	212	203	(9)	274	259	(15)	221	222	2
30,000	229	219	(10)	229	219	(10)	296	280	(17)	238	240	2
40,000	279	266	(12)	266	255	(11)	347	327	(20)	278	279	2
50,000	313	299	(14)	299	286	(13)	390	368	(22)	312	314	2
60,000	344	329	(16)	329	314	(14)	429	404	(25)	343	345	2
70,000	372	355	(17)	355	340	(16)	465	437	(27)	371	373	2
80,000	398	380	(18)	380	363	(17)	497	468	(29)	396	399	3
90,000	423	403	(19)	403	385	(18)	528	497	(31)	421	423	3
100,000	445	425	(21)	425	406	(19)	557	524	(33)	444	446	3
110,000	467	446	(22)	446	426	(20)	585	550	(34)	465	468	3
120,000	488	465	(23)	465	444	(21)	611	575	(36)	486	489	3
130,000	508	484	(24)	484	462	(22)	636	598	(38)	506	509	3
140,000	527	502	(25)	503	480	(23)	660	621	(39)	525	528	3
150,000	545	520	(26)	520	496	(24)	683	643	(41)	543	546	3
160,000	563	537	(26)	537	512	(25)	706	664	(42)	561	564	3
170,000	580	553	(27)	553	528	(25)	727	684	(43)	578	581	4
180,000	597	569	(28)	569	543	(26)	748	704	(45)	594	598	4
190,000	613	584	(29)	585	558	(27)	769	723	(46)	610	614	4
200,000	629	599	(30)	600	572	(28)	789	742	(47)	626	630	4
250,000	702	669	(33)	670	639	(31)	882	829	(53)	699	704	4
300,000	769	732	(37)	733	699	(34)	965	907	(58)	765	770	5
350,000	829	790	(40)	790	754	(37)	1,042	979	(63)	826	831	5
400,000	886	844	(42)	844	805	(39)	1,114	1,046	(67)	882	887	5
450,000	939	894	(45)	895	853	(42)	1,181	1,109	(71)	935	941	6
500,000	989	942	(47)	943	898	(44)	1,244	1,169	(75)	985	991	6
550,000	1,037	987	(50)	988	942	(46)	1,304	1,225	(79)	1,032	1,039	6
600,000	1,083	1,030	(52)	1,031	983	(48)	1,362	1,279	(83)	1,078	1,084	6

(1) The Auckland Approach price includes the CAT III Service.

(2) The Queenstown Approach price includes the Multilat Service.

## Unattended charges (part 1 of 2)

Aircraft Weight (kg)	Taupo			Timaru			Whanganui			Hokitika			Whangarei			Kerikeri			Kapiti		
	Current 2015/16	Final 2016/17	Difference																		
1,000	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0
2,000	7	7	0	7	7	0	7	7	0	7	7	0	7	7	0	7	7	0	7	7	0
3,000	11	11	0	11	11	0	11	11	0	11	11	0	11	11	0	11	11	0	11	11	0
4,000	15	15	0	15	15	0	15	15	0	15	15	0	15	15	0	15	15	0	15	15	0
5,000	18	19	0	18	19	0	18	19	0	18	19	0	18	19	0	18	19	0	18	19	0
6,000	31	31	0	34	31	(3)	32	24	(8)	29	26	(3)	22	22	0	20	20	0	27	27	0
7,000	43	43	0	50	43	(7)	46	30	(16)	39	34	(6)	26	26	0	22	21	(1)	35	36	1
8,000	55	55	0	66	56	(11)	59	35	(24)	50	41	(8)	30	29	(1)	25	23	(2)	44	44	1
9,000	67	67	(1)	82	68	(14)	73	40	(32)	60	49	(11)	33	33	(1)	27	24	(3)	52	53	1
10,000	80	79	(1)	98	80	(18)	86	46	(40)	71	56	(14)	37	36	(1)	29	25	(3)	60	61	1
11,000	92	91	(1)	114	93	(22)	100	51	(49)	81	64	(17)	41	39	(1)	31	27	(4)	69	70	1
12,000	104	103	(1)	130	105	(25)	113	57	(57)	92	71	(20)	45	43	(2)	33	28	(5)	77	79	1
13,000	116	115	(2)	146	117	(29)	127	62	(65)	102	79	(23)	48	46	(2)	35	29	(6)	86	87	1
14,000	129	127	(2)	162	129	(33)	141	68	(73)	112	86	(26)	52	50	(2)	37	30	(6)	94	96	2
15,000	141	139	(2)	178	142	(36)	154	73	(81)	123	94	(29)	56	53	(3)	39	32	(7)	103	104	2
16,000	153	151	(2)	194	154	(40)	168	78	(89)	133	102	(32)	59	57	(3)	41	33	(8)	111	113	2
17,000	165	163	(3)	210	166	(44)	181	84	(98)	144	109	(35)	63	60	(3)	43	34	(8)	119	121	2
18,000	178	175	(3)	226	179	(47)	195	89	(106)	154	117	(38)	67	64	(3)	45	36	(9)	128	130	2
19,000	190	187	(3)	242	191	(51)	209	95	(114)	165	124	(41)	71	67	(4)	47	37	(10)	136	138	2
20,000	202	199	(3)	258	203	(55)	222	100	(122)	175	132	(44)	74	70	(4)	49	38	(11)	145	147	2
21,000	214	211	(4)	274	216	(58)	236	106	(130)	186	139	(46)	78	74	(4)	51	40	(11)	153	156	3
22,000	226	223	(4)	290	228	(62)	249	111	(138)	196	147	(49)	82	77	(4)	53	41	(12)	161	164	3
23,000	239	235	(4)	306	240	(66)	263	116	(146)	207	154	(52)	86	81	(5)	55	42	(13)	170	173	3
24,000	251	247	(4)	322	252	(69)	276	122	(155)	217	162	(55)	89	84	(5)	57	44	(14)	178	181	3
25,000	263	259	(5)	338	265	(73)	290	127	(163)	227	169	(58)	93	88	(5)	59	45	(14)	187	190	3
26,000	275	271	(5)	354	277	(77)	304	133	(171)	238	177	(61)	97	91	(6)	61	46	(15)	195	198	3
27,000	288	283	(5)	370	289	(80)	317	138	(179)	248	184	(64)	100	95	(6)	63	48	(16)	203	207	3
28,000	300	295	(5)	386	302	(84)	331	144	(187)	259	192	(67)	104	98	(6)	65	49	(16)	212	215	4
29,000	312	307	(5)	402	314	(88)	344	149	(195)	269	199	(70)	108	102	(6)	67	50	(17)	220	224	4
30,000	324	319	(6)	418	326	(91)	358	154	(203)	280	207	(73)	112	105	(7)	69	51	(18)	229	232	4

## Unattended charges (part 2 of 2)

Aircraft Weight (kg)	Whakatane			Westport			Kaitaia			Great Barrier			Oamaru			Wanaka			Wairoa		
	Current 2015/16	Final 2016/17	Difference																		
1,000	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0	4	4	0
2,000	7	7	0	7	7	0	7	7	0	7	7	0	7	7	0	7	7	0	7	7	0
3,000	11	11	0	11	11	0	11	11	0	11	11	0	11	11	0	11	11	0	11	11	0
4,000	15	15	0	15	15	0	15	15	0	15	15	0	15	15	0	15	15	0	15	15	0
5,000	18	19	0	18	19	0	18	19	0	18	19	0	18	19	0	18	19	0	18	19	0
6,000	22	21	(1)	29	30	0	29	29	0	33	34	1	33	34	1	33	34	1	33	34	1
7,000	25	23	(2)	40	41	1	39	40	1	49	49	1	49	49	1	49	49	1	49	49	1
8,000	28	25	(3)	51	52	1	49	50	1	64	65	1	64	65	1	64	65	1	64	65	1
9,000	31	28	(4)	62	63	1	60	61	1	79	80	1	79	80	1	79	80	1	79	80	1
10,000	35	30	(5)	73	74	1	70	71	1	94	95	2	94	95	2	94	95	2	94	95	2
11,000	38	32	(6)	84	85	1	81	82	1	109	111	2	109	111	2	109	111	2	109	111	2
12,000	41	34	(7)	94	95	1	91	92	2	124	126	2	124	126	2	124	126	2	124	126	2
13,000	44	36	(8)	105	106	1	101	103	2	139	141	2	139	141	2	139	141	2	139	141	2
14,000	47	39	(9)	116	117	1	112	113	2	154	157	3	154	157	3	154	157	3	154	157	3
15,000	51	41	(10)	127	128	2	122	124	2	169	172	3	169	172	3	169	172	3	169	172	3
16,000	54	43	(11)	138	139	2	132	135	2	184	187	3	184	187	3	184	187	3	184	187	3
17,000	57	45	(12)	149	150	2	143	145	2	199	203	3	199	203	3	199	203	3	199	203	3
18,000	60	47	(13)	159	161	2	153	156	3	214	218	4	214	218	4	214	218	4	214	218	4
19,000	64	50	(14)	170	172	2	163	166	3	230	233	4	230	233	4	230	233	4	230	233	4
20,000	67	52	(15)	181	183	2	174	177	3	245	249	4	245	249	4	245	249	4	245	249	4
21,000	70	54	(16)	192	194	2	184	187	3	260	264	4	260	264	4	260	264	4	260	264	4
22,000	73	56	(17)	203	205	2	194	198	3	275	279	5	275	279	5	275	279	5	275	279	5
23,000	77	58	(18)	214	216	2	205	208	4	290	295	5	290	295	5	290	295	5	290	295	5
24,000	80	61	(19)	225	227	3	215	219	4	305	310	5	305	310	5	305	310	5	305	310	5
25,000	83	63	(20)	235	238	3	225	229	4	320	326	6	320	326	6	320	325	5	320	326	6
26,000	86	65	(21)	246	249	3	236	240	4	335	341	6	335	341	6	335	341	6	335	341	6
27,000	89	67	(22)	257	260	3	246	250	4	350	356	6	350	356	6	350	356	6	350	356	6
28,000	93	69	(23)	268	271	3	256	261	4	365	372	6	365	372	6	365	371	6	365	372	6
29,000	96	72	(24)	279	282	3	267	271	5	380	387	7	380	387	7	380	387	6	380	387	7
30,000	99	74	(25)	290	293	3	277	282	5	395	402	7	395	402	7	395	402	7	395	402	7

## En-route charges (per 100 nautical miles)

Aircraft Weight (kg)	Domestic En-route			Oceanic En-route		
	Current 2015/16	Final 2016/17	Difference	Current 2015/16	Final 2016/17	Difference
1,000	6	6	0	19	19	0
2,000	6	6	0	19	19	0
3,000	6	6	0	19	19	0
4,000	6	6	0	19	19	0
5,000	6	6	0	19	19	0
6,000	9	9	0	19	19	0
7,000	12	11	0	19	19	0
8,000	15	14	(1)	19	19	0
9,000	17	16	(1)	19	19	0
10,000	20	19	(1)	19	19	0
12,000	26	24	(2)	19	19	0
14,000	31	28	(3)	19	19	0
16,000	37	33	(3)	19	19	0
18,000	42	38	(4)	19	19	0
20,000	48	43	(4)	19	19	0
22,000	53	48	(5)	20	19	(2)
24,000	59	53	(5)	22	19	(3)
26,000	64	58	(6)	24	20	(4)
28,000	70	63	(7)	25	21	(4)
30,000	75	68	(7)	27	22	(5)
40,000	88	79	(8)	31	25	(6)
50,000	98	89	(10)	34	28	(6)
60,000	108	98	(11)	37	30	(7)
70,000	117	106	(12)	40	32	(8)
80,000	125	113	(12)	42	34	(8)
90,000	133	120	(13)	45	36	(9)
100,000	140	126	(14)	47	38	(9)
110,000	147	132	(15)	49	39	(10)
120,000	154	138	(15)	51	41	(10)
130,000	160	144	(16)	53	42	(11)
140,000	166	149	(17)	54	44	(11)
150,000	172	154	(17)	56	45	(11)
160,000	177	159	(18)	58	46	(12)
170,000	183	164	(19)	60	47	(12)
180,000	188	169	(19)	61	49	(12)
190,000	193	174	(20)	63	50	(13)
200,000	198	178	(20)	64	51	(13)
250,000	221	199	(23)	71	56	(15)
300,000	242	218	(25)	78	61	(16)
350,000	262	235	(27)	83	66	(18)
400,000	280	251	(29)	89	70	(19)
450,000	296	266	(30)	94	74	(20)
500,000	312	280	(32)	99	78	(21)
550,000	327	293	(34)	103	81	(22)
600,000	342	306	(35)	107	84	(23)



# 10 Appendices

## – Supporting information

### APPENDIX 10.1: SCORECARD JULY 2013 TO MARCH 2016

Scorecard Measure	Target	FY14 Actual	FY15 Actual	YTD FY16 Actual	Comments
Critical safety incidents	0	2 (no RPT)	0	0	Both critical safety incidents involved GA training flights in the 2013/14 financial year.
In-flight delays	< 4,250 per month	3,665	2,910	5,089	Delays have increased in FY16 owing to runway works at Auckland and higher volumes. Delays in FY16 were 3,926 min (achieving the target) if the impact of the runways works is removed.
IFR movements per system operator FTEs	> 950 per year	952	936	983	Decreased in 2015 owing to increased headcount (less than expected attrition) and increased in 2016 owing to higher volumes.
Cost per IFR flight hour	\$250 (USD)	\$267 (USD)	\$267 (USD)	\$321 (USD)	Outdated benchmark that does not take into account changes in foreign exchange. Replaced with a NZD measure in FY16-FY19.
Portion of shared services and governance costs	< 14.5%	13.7%	13.6%	13.1%	The reducing percentage reflects the procurement cost saving initiative and headcount reductions in the finance team.
New ASPIRE routes	Addition of Narita and San Francisco – Auckland routes	8 routes added			Eight new routes added. Further routes expected before the end of the financial year.
RNP AR arrivals flown into Auckland Airport	> 10 per day for northern arrivals	10 arrivals per approach.			New procedures were developed to take into account aircraft noise. The new procedures have been used since May 2015.
Auckland runway capacity increase	2% increase in capacity	On track			New procedures will deliver capacity enhancements of between 2% and 8% depending on weather conditions. Approval process with CAA is under way. Current capacity is 46 movements per hour.
Planned maintenance completion rate	> 98.5%	99.1%	98.7%	98.7%	Consistently above target.
Service Availability; People and Systems	> 99.95%	99.95%	99.95%	99.98%	Consistently met target.
Cost per IFR flight hour (Rank)	CANSO survey top 5	4 <sup>th</sup>	4 <sup>th</sup>	7 <sup>th</sup>	Good results for FY14 and FY15, below target in FY16. The 2015 result reflects the 2013/14 price increase, which included a catch up in the capital programme and a price adjustment for low volumes.
Revenue per IFR flight hour	CANSO survey top 5	4 <sup>th</sup>	4 <sup>th</sup>	7 <sup>th</sup>	
ATC labour cost per IFR flight hour	CANSO survey top 5	Not Reported			CANSO no longer reports this metric.
Average ATC labour cost	CANSO survey top 5	6 <sup>th</sup>	6 <sup>th</sup>	5 <sup>th</sup>	This is now on target with the new air traffic control collective being settled.
Revenue (\$m)	157.3 / 164.8 / 130.6	159.9	169.3	138.0	Above target, led to a price decrease of 0.5% in FY16.
Total Cost (\$m)	129.3 / 135.1 / 105.6	132.9	138.8	107.9	Above target, asbestos and depreciation catch up.
EVA (\$m)	0.0	1.0	4.8	5.6	Above target owing to higher than expected volume growth, driven by both higher international and domestic growth.
Capex (\$m)	38.8 / 37.0 / 25.3	33.8	32.1	23.5	The full year forecast is in line with the budgeted spend of \$35m.

## APPENDIX 10.2: AIRWAYS SERVICES AS DEFINED BY THE SERVICE FRAMEWORK

<b>Aerodrome Air Traffic Management Service</b>
<ul style="list-style-type: none"><li>• Services for aircraft arriving or departing from an attended aerodrome and/or operating in the vicinity of that aerodrome.</li><li>• Includes a Flight Information and Alerting Service.</li></ul>
<b>Aerodrome Visual Navigation Aid Service</b>
<ul style="list-style-type: none"><li>• Provision and maintenance of airfield lighting, signage and runway marking.</li></ul>
<b>Approach Service</b>
<ul style="list-style-type: none"><li>• Services for arriving and departing aircraft, electronic navigation aids and navigation procedures at attended aerodromes; electronic navigation aids and/or navigation procedures at selected unattended aerodromes.</li><li>• Includes a Flight Information and Alerting Service.</li></ul>
<b>En-route Domestic or En-route Oceanic Service</b>
<ul style="list-style-type: none"><li>• Control and navigation services for aircraft en-route between aerodromes; provided in both domestic and international airspace.</li><li>• Includes a Flight Information and Alerting Service.</li></ul>
<b>Flight Information Service in Uncontrolled Airspace</b>
<ul style="list-style-type: none"><li>• Provision of information to aircraft in uncontrolled airspace.</li></ul>
<b>Alerting Service in Uncontrolled Airspace</b>
<ul style="list-style-type: none"><li>• Provision of alerting service to aircraft in uncontrolled airspace.</li></ul>

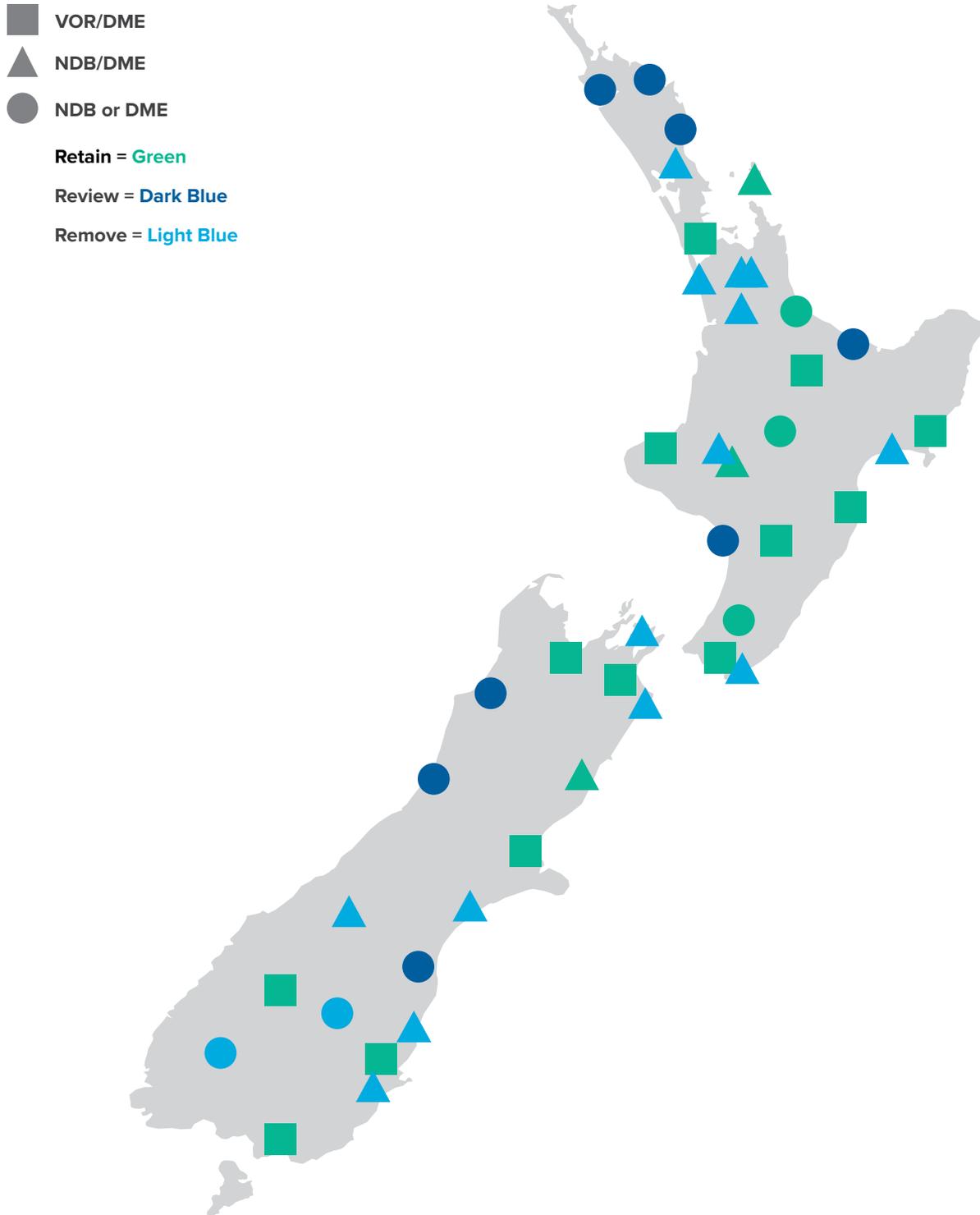
## APPENDIX 10.3: OPERATIONAL STRATEGY WORK PROGRAMME

	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25
<b>Terminal</b>										
Standardise AA/WN TMA procedures										
Combine and consolidate AA/WN TMA										
Relocate 50% combined AA/WN TMA to AA Centre										
Implement lower South Island surveillance approach service										
Combine CH terminal and Area South										

<b>En-route</b>										
Move Raglan to AA centre. Cross train OCS										
Develop consolidated OCA/Area/Regional Approach										
Implement consolidated OCA/Area/Regional Approach										
Investigate self-separation between equipped aircraft										
En-route procedure consolidation										
Relocate 50% En-route Operation to AA Centre										

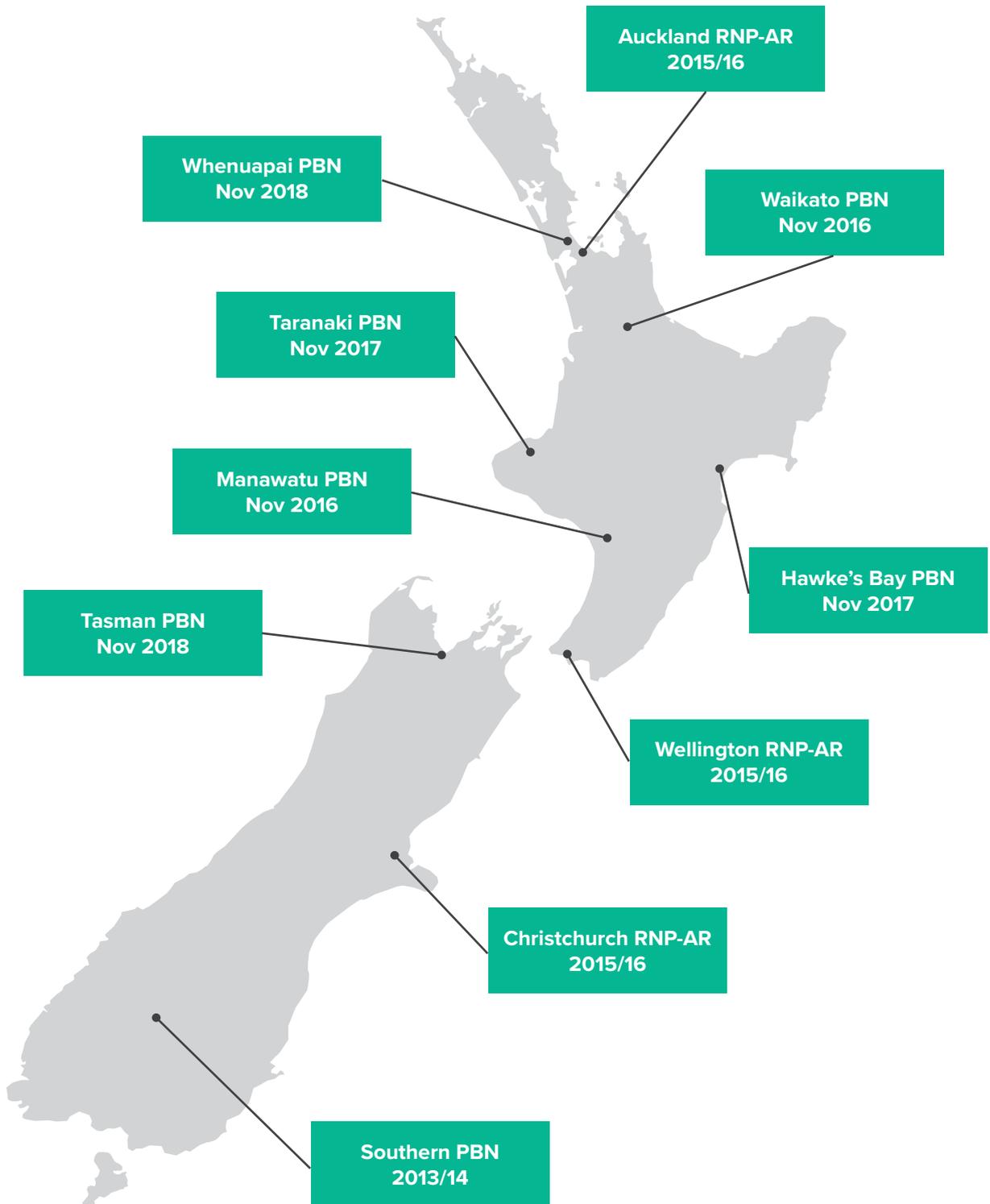
<b>Supporting</b>										
Implement new ATM platform										
Advanced flow management ATM tools										
Centralised clearance delivery										
Medium-term conflict probe & conformance monitoring										
New AA centre										

## APPENDIX 10.4: GROUND-BASED NAVIGATION AID NETWORK<sup>18</sup>



<sup>18</sup> Based on Airways' 2012 Navigation Aid Strategy that was developed with customer feedback.

APPENDIX 10.5: PERFORMANCE-BASED NAVIGATION PLAN



## APPENDIX 10.6: BUILDING BLOCK COMPONENTS OF OVERALL REVENUE

The 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). Figure 53 provides the components of overall revenue.

**Figure 53: Building block components of overall revenue**

Revenue	2015/16 price plan	2016/17	2017/18	2018/19
Airways' charges	168,782	178,689	182,994	190,141
Other revenue	971	328	336	349
<b>Total revenue</b>	<b>169,753</b>	<b>179,017</b>	<b>183,330</b>	<b>190,490</b>
<b>Building Blocks</b>				
Operating expenses	131,388	131,676	135,987	138,253
Depreciation	20,095	24,792	25,282	25,058
Strategic initiatives	-	4,201	2,136	5,402
Income tax	5,279	5,117	5,558	6,076
Cost of capital	12,991	13,231	14,367	15,701
<b>Economic Value Added</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Other revenue:** Other revenue includes Met Service income and rent recoveries where buildings have been sub-leased. Other revenue is offset against operating expenses.

**Operating expenses:** Operating expenses are based on Airways' latest 2015/16 Business Plan forecast. Operating expenses include labour cost, insurance and all other non-asset costs.

**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 asset base, adjusted for depreciation. Airways did not re-value its assets for pricing purposes.

## APPENDIX 10.7: ANNUAL BREAK DOWN OF LIFECYCLE CAPITAL PROGRAMME

Asset class	16/17	17/18	18/19	Total
<b>Aerodrome services</b>	<b>21.1</b>	<b>11.6</b>	<b>4.5</b>	<b>37.2</b>
Wellington control tower	10.5	-	-	10.5
Nelson control tower	4.0	4.0	-	8.0
ILS replacements (AA/CH)	2.8	2.8	-	5.6
Christchurch communication cable	-	1.0	1.0	2.0
Auckland taxiway A re-cabling	0.5	0.5	0.4	1.4
Wellington communication cable	1.3	-	-	1.3
Regional VHF-DF replacement	0.5	0.7	-	1.2
Tauranga airfield lighting re-cable	-	-	1.0	1.0
Dunedin re-cable	-	-	1.0	1.0
Invercargill tower refurbishment	0.8	-	-	0.8
Auckland airfield lighting	0.3	0.4	-	1.7
Lighting lifecycle	-	-	0.6	0.6
REILs replacement	0.2	0.4	-	0.6
IR SIT and connector upgrades	0.2	0.3	-	0.5
AMHS hardware upgrade	-	0.5	-	0.5
New Plymouth tower refurbishment	-	0.5	-	0.5
Switchgear and power cable	-	-	0.5	0.5
Tower structured cabling	-	0.5	-	0.5
<b>Approach services</b>	<b>1.0</b>	<b>0.3</b>	<b>7.1</b>	<b>8.4</b>
Primary radar replacement	-	-	7.0	7.0
Procedure design	0.5	0.3	0.1	0.9
ATIS replacement	0.5	-	-	0.5
<b>En-route service (Oceanic)</b>	<b>-</b>	<b>0.5</b>	<b>-</b>	<b>0.5</b>
Oceanic Network lifecycle	-	0.5	-	0.5
<b>En-route service (Domestic)</b>	<b>-</b>	<b>1.2</b>	<b>2.0</b>	<b>3.2</b>
Power switchboard upgrade for 58 navigation sites	-	1.2	1.2	2.4
Radio links lifecycle replacement	-	-	0.8	0.8
<b>Other</b>	<b>11</b>	<b>20.1</b>	<b>21.9</b>	<b>53.0</b>
ATM system and software	5.0	16.0	11.0	32.0
Lifecycle computer replacements	0.8	0.6	0.7	2.1
VCS communications replacements	-	-	1.5	1.5
Maintenance premises fit out	-	-	1.2	1.2
Maintenance vehicles	0.3	0.3	0.4	1.0
Load balancing lifecycle	-	-	1.0	1.0
Enhanced mobile working	0.3	0.3	0.2	0.8
Test equipment	0.3	0.3	0.2	0.8
Cisco IPS lifecycle	0.7	-	-	0.7
Network lifecycle	-	0.7	-	0.7
AMMS – Java upgrade	0.3	0.3	-	0.6
PC replacement for voice switches	0.6	-	-	0.6
Server lifecycle replacements	0.5	0.1	-	0.6
Disaster recovery – Auckland	-	0.6	-	0.6
Projects less than \$500k	2.2	0.9	5.7	8.8
<b>Total</b>	<b>33.1</b>	<b>33.7</b>	<b>35.5</b>	<b>102.3</b>

## APPENDIX 10.8: 10-YEAR CAPITAL EXPENDITURE

The following table provides Airways' forecast capital expenditure for the next 10 years. The later years become less accurate as uncertainty increases.

	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
<b>Total capital expenditure</b>	\$40m	\$44m	\$45m	\$47m	\$39m	\$39m	\$37m	\$29m	\$18m	\$22m

## Major Capital programmes in the next 10 years

The following table provides an overview of the major capital programmes over the next decade.

Services	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	\$m
<b>Aerodrome Service:</b>												
Control tower – Auckland												29
Control tower – Wellington												18.7
Control tower extension Queenstown												4.5
Control tower – Nelson												8
Communication cabling – Wellington												2.3
Communication cabling – Christchurch												2
Voice communication lifecycle upgrade												14
Surface movement radar – Auckland												4
Regional virtual towers/contingency												14
Night operations – Queenstown												2
Relocatable standby power centre												1.2
Main trunk control Tower data/service												1.1
Earthquake structural repairs												3.3
Stop bars & taxiway reconfiguration – Christchurch												1.8
Taxiway lighting replacement – Auckland												3.2
Dunedin lighting replacement												1
Tauranga lighting replacement												1
VHF direction finders												4.2
DCL/D-ATIS/D-VOLMET												1
<b>Approach Service:</b>												
ILS replacements												10.2
Northern runway ILS – Auckland												2.5
Ground-based Augmentation System												2
<b>En-route Oceanic Service:</b>												
Oceanic System lifecycle upgrades												12
HF Radio Replacement Project												4.3
Support Overhead Services:												
ATM skyline replacement												44
Radar lifecycle												21
Auckland & Queenstown MLAT lifecycle												12
ADS-B												18.9
VHF radios												3.6
Asset and Maintenance Mgt System												1.5
MPLS & IP MUX communication network												14
DVOR/DME upgrade												7.6
Performance-based Navigation (PBN)												9.5
Christchurch new centre fit out												3
Auckland new centre fit out												3.8

## APPENDIX 10.9: AIRWAYS' FULL RESPONSE TO THE CAPITAL CHARGE POINT ESTIMATE SUBMISSIONS

WACC is the cost of capital and reflects a combination of the cost of debt and the cost of equity. As these are not observable they have to be estimated. The WACC estimate could therefore be higher or lower than the actual cost of capital. The Commerce Commission's (The Commission) intention in setting the WACC above the midpoint estimate is to reflect its view that the loss (social cost) associated with under-estimating WACC is greater than the loss associated with over-estimating WACC.

Under-estimating the cost of capital could mean an under-investment in capital – under-investment by Airways could result in: delays, reduced choice of destination, reduced frequency of service or higher airfares. There could be a gradual degradation of service or a constraint on capacity.

In 2010, in the input methodologies (IMs) for businesses regulated under Part 4 of the Commerce Act 1986 the Commission decided to specify an estimate of WACC at the 75th percentile for businesses subject to price control and a range of between the 25th and 75th percentile for information disclosure purposes. At the 75th percentile, there is around a 25% probability that the estimate set by the Commission is lower than the true actual value of WACC.<sup>19</sup>

Parties to the Commission's IM decisions appealed a number of matters to the High Court, including features of the cost of capital IMs. Although the High Court did not overturn the Commission's decision on the percentile, it criticised the reliance on expert judgment, rather than evidence, by the Commission in reaching the decision.

As a result of the Court's comments, in 2014, the Commission reviewed the WACC percentile and reset it for electricity distributors and gas pipelines at the 67th percentile. This decision was largely based on a loss analysis undertaken by Oxera, which estimated the extent to which the social cost of under-estimating WACC exceeded the social cost of over-estimating it.<sup>20</sup> The Commission used its judgment informed by the opinions of its experts to select a percentile between the 60th and 75th percentile; it chose approximately the middle.

Airways has not replicated this analysis for air navigation services. However, we note that the airports recently submitted analysis to the Commerce Commission that estimated the social costs of under-or over-investment by airports using the Oxera framework. This analysis is based on the macroeconomic cost of delays associated with air travel and concludes "taken as a whole, the illustrative estimates suggest that the asymmetry in the airport sector would appear to be stronger, rather than weaker, than the asymmetry the Commission observed in relation to electricity network investment".<sup>21</sup>

Since its decision to revise the IMs for electricity and gas distribution, the Commission has released two other papers on WACC percentile. In 2015, it chose the mid-point estimate (or the '50th percentile') for UCLL/UBA (Chorus). That is, the Commission chose to set the allowed WACC at the point estimate without adding a margin. Most recently, in February 2016 it released its "emerging views" on the WACC that it will publish for airports under the information disclosure regime.

### The relevance of the Commerce Commission's UCLL/UBA decision

In the UCLL/UBA decision, the Commission chose the 50th percentile for these services that are supplied by Chorus. This decision is not relevant to Airways' situation as UCLL/UBA are regulated under the Telecommunications Act 2001, which uses a different regulatory methodology (Total Service Long Run Incremental Cost (TSLRIC), as opposed to the building blocks method used under Part 4 of the Commerce Act and by Airways).

The Commission said "the different purpose statements and price-setting methodologies are relevant when deciding whether to apply an adjustment to our mid-point WACC estimate".<sup>22</sup> In particular, under the TSLRIC methodology, the WACC does not influence investment in the regulated service, as new investment does not affect UCLL/UBA price caps. The social cost of under-investment by Chorus in these services was also expected to be lower as the effects were considered localised and substitutes (mobile telephony) are available.

<sup>19</sup> The Commission refers to the point estimate resulting from the estimation process as the "midpoint estimate" and also as the "50th percentile". This is misleading as it is simply a point on the sampling distribution of WACC and may be above or below actual WACC. The Commission's "75th percentile estimate" is the result of adding to the point estimate a margin equal to 0.674 times the estimated standard error of the sampling distribution of WACC. With this margin, the probability of the allowed WACC being below the true WACC is around 25%. With the Commission's shift to the 67th percentile, the margin has decreased to 0.440 times the standard error and the probability of the allowed WACC being below the true WACC has increased to around 33%. Although the terms used by the Commission are technically misleading, these terms are familiar to submitters. Therefore, to avoid confusion, this response to the submitters also uses these terms.

<sup>20</sup> Commerce Commission, Amendment to WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons Paper, 30 October 2014, section 3.

<sup>21</sup> Davies, Preston, He, Selena and Kieran Murray Asymmetric impact on consumers from underinvestment by airports – an indicative view, Sapere Research Group, 17 March 2016, p.27.

<sup>22</sup> Commerce Commission, Cost of capital for UCLL and UBA pricing reviews, 15 December 2014, para 41.

## The relevance of the Commission's "emerging views" on airports

In its recent "emerging views" on airports' WACC percentile, the Commission favours publishing the mid-point estimate and information about the probability distribution of the WACC estimate. This is intended to reduce the focus on the 75th percentile estimate (the mid-point estimate plus 0.674 times the standard error). This decision is not relevant to Airways, because the airports are not subject to price control: the decision relates to an information disclosure regime. Under such a regime, the Commission's expert advisor, Professor Yarrow, recommended that an estimate of WACC be seen as part of the information that is acquired and published. Judgments about the profitability of airports, Yarrow explains, should be made subsequently in the light of all the disclosed information, of which WACC is just one part. Yarrow emphasises the need to interpret deviations "on the basis of a full economic analysis of the relevant context".<sup>23</sup>

Thus, the purpose of estimating WACC is quite different in an information disclosure context than a price-setting one, where WACC is an important input to determining the allowed price.

Professor Yarrow also discusses the importance of differentiating the cost of capital (WACC) from what might be considered an appropriate rate of return. He explains that an allowed rate of return (under regulation) is typically higher than the WACC for good reasons and "the loss of the distinction (familiar to our predecessors) between the allowed rate of return and the cost of capital serves to encourage the practice of 'massaging' cost of capital estimates (or other estimates) in order to meet the adding up constraint whilst reaching what a regulator considers to be a sound final determination. I cannot but think that this development is an unfortunate one, but that it is easily remediable [sic] (via reinstatement of a valid distinction between allowed rate of return and cost of capital). However, whatever the position in relation to regulatory decisions about price caps, there is no requirement for such massaging in an information disclosure regime".<sup>24</sup>

The reasons that Yarrow outlines for setting a rate of return higher than WACC relevant to Airways' decision include the following:

- An unregulated firm operating in a competitive context would make a decision about whether to proceed with a project based on whether the rate of return exceeded the cost of capital by sufficient margin to compensate for the risk characteristics of the investment. If a firm adds an investment at the high risk end of the spectrum of investment opportunities to its business plan, the spread of the probability distribution of the rate of return on capital will increase. By limiting the rate of return to the cost of capital "the result could be a bias against more risky, possibly more innovative, projects".<sup>25</sup> The mean rate of return on investment is reduced but unintended distortions in investment may result.
- Businesses reasonably expect to derive a rate of return from their investments that exceeds the cost of capital. Typically, the 'investment demand curve' of an unregulated firm operating in a competitive context will be downward sloping, that is, the firm will invest more as it becomes profitable at a lower cost of capital. With a downward sloping demand curve and assuming for simplicity that all investment has similar risk characteristics, the level of investment is determined by the condition that the NPV of the marginal project is zero. "However, looking at the NPV of the investment programme as a whole on an ex ante basis, the downward slope of the investment function implies that the NPV of the investment programme as [a] whole will be NPV positive. That is, anticipated profitability will tend to be [sic] above the cost of capital".<sup>26</sup>

International precedent supports setting the regulated rate of return above the mid-point estimate of WACC.

## Conclusion on percentile

As BARNZ notes, Airways retains the power to set its own charges and it is open to Airways to choose the WACC percentile for its business. None of the recent Commerce Commission decisions or research suggests that an estimate above the mid-point estimate is inappropriate when setting prices using the building blocks methodology. This is supported by Yarrow's opinion for the Commission. After reviewing customer submissions, the Commerce Commission's electricity lines/gas pipelines decision, its UCLL/UBA decision and its "emerging view" on the airports' WACC range, Airways has decided to adopt the 67th percentile estimate of WACC. We consider this appropriately reflects both economic theory and the likely asymmetry of costs of under-estimating WACC compared to over-estimating WACC.

<sup>23</sup> Yarrow, George. Responses to questions raised by the Commerce Commission concerning WACC estimates for information disclosure purposes in the airports sector, undated but published by the Commission on 19 February 2016, p.4.

<sup>24</sup> Yarrow, op cit, p.20.

<sup>25</sup> Yarrow, op cit, p.6.

<sup>26</sup> Yarrow, op cit, p.12

## APPENDIX 10.10: COMPONENTS OF COST OF CAPITAL

This appendix provides supporting rationale for the cost of capital inputs summarised in section 5.1.D. 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 the estimate of the cost of debt to arrive at the 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 figure 47, including the upper and lower bounds considered.

**Figure 47: Components of WACC**

Capital charge components	Lower bound	Upper bound
Risk-free rate	2.23%	3.05%
Asset beta	0.6	0.6
Tax adjusted market risk premium	7.0%	7.5%
Debt premium	1.26%	1.76%
Debt issuance cost	0.35%	0.35%
Leverage	40%	40%
WACC margin	67th percentile	75th percentile
<b>Calculated capital charge rate</b>	<b>6.9%</b>	<b>8.3%</b>

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 to derive parameter estimates. The lower end of the range was calculated at 6.9%, using the Commerce Commission's Input Methodology framework and the Commission's 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 the 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 the 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.

### 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 – 2.23%, Upper bound – 3.05%

**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 2.23%.

An alternative view is that the period of financing should be linked to the term of a company's assets that 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 3.05%.

**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 entity 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 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, thereby, they are not able to shift costs up or down quickly in response to changes in demand (thus resulting in returns being very sensitive to volumes).

The estimation of beta from the betas of comparable companies starts with de-levering the observed betas and then averaging across the de-levered estimates. For airports in New Zealand, the Commission's application of this process resulted in an estimate of 0.6 for asset beta.

NATS (the air traffic control provider in the United Kingdom) and AirServices (Australia's provider) are also ANS businesses and, therefore, are expected to be exposed to a similar level of systematic risk (which beta aims to reflect) to Airways. AirServices uses an asset beta of .055 and NATS uses 0.6 – both are in line with Airways' proposed beta. Both NATS and AirServices have volume risk-sharing mechanisms. In addition, NATS does not bear inflation risk, where AirServices and Airways do. Overall, Airways considers these businesses comparable for the purposes of estimating asset beta and the results from doing so are corroborated with comparisons with New Zealand airport betas.

**Tax adjusted market risk premium**

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% 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%. In one of the conferences on the development of the input methodologies, the Commerce Commission conducted an informal poll of the market risk premium value used by the organisations represented and all but one person nominated 7.5% or above.

## Debt premium

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

Lower bound – 1.26%, Upper bound – 1.76%

### Rationale:

For airports, the Commerce Commission estimates the debt premium as the margin over the estimated risk-free rate, for NZ\$ denominated bonds that:

- Are issued by an airport.
- Are publicly traded.
- Have a qualifying rating of grade A-.
- Have a remaining term to maturity of 5 years.

The Commerce Commission's most recent application of this method, issued on 31 July 2015 for the disclosure year ending 30 June 2016 for Auckland and Christchurch airports, resulted in an estimate of 1.0% for the debt premium. However, the Commission's March 2016 estimate of the debt premium for Powerco included the estimate of 1.26% as the premium on a recent issue of bonds by Auckland International Airport. This estimate of 1.26% has been adopted as the lower bound estimate of the premium.

The upper bound input of 1.76% reflects the longer term to maturity financing that is more appropriate to fund Airways' asset base.

## Debt issuance costs

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

Lower bound – 0.35%, Upper bound – 0.35%

### Rationale:

The debt issuance inputs are based on a small survey conducted by the Commerce Commission, supplemented by overseas evidence.

## Leverage

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

Lower bound – 40%, Upper bound – 40%

### Rationale:

The adoption of a leverage of 40% is based on Airways' medium-term targeted leverage, as published in the *Statement of Corporate Intent*. The leverage ratio of 40% 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 17%. The Commerce Commission has not calculated a leverage data set for the ANSP sector.

The leverage levels for two comparators that Airways used for determining its assets beta are 60% for NATS and 45% for AirServices. Airways considers its target leverage level is the appropriate value to use when estimating its WACC and has therefore used 40% in its WACC estimate. This target leverage level lies below that of its industry peers, NATS and AirServices.

### 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 used to set the allowed WACC at the midpoint estimate plus a margin for the 75th percentile but in 2014 this was reduced to the 67th percentile for electricity and gas pipeline businesses. The lower bound is based on the application of the electricity and gas pipeline business decision, while the upper bound is the upper end of the range considered by the Commission in that decision.

### APPENDIX 10.11: ANNUAL BREAK DOWN OF SERVICE ENHANCEMENT CAPITAL PROGRAMME

Capital project (\$m)	16/17	17/18	18/19	Total for period
ADS-B Surveillance	-	6.1	6.1	12.2
Performance-based Navigation (PBN)	1.5	1.5	0.7	3.7
Auckland new facility restructure	-	-	1.8	1.8
Christchurch stop bars and taxiway reconfiguration	1.5	-	-	1.5
Auckland runway guard lights	0.8	0.5	-	1.3
Queenstown multilat power expansion	-	0.8	-	0.8
Network interfaces for inline testing	0.5	-	-	0.5
Movement area guidance signs to meet CAA req.	0.3	0.2	-	0.5
Other projects (less than \$0.5m)	2.8	0.6	0.5	3.9
<b>Total service enhancements</b>	<b>7.4</b>	<b>9.7</b>	<b>9.1</b>	<b>26.2</b>

## APPENDIX 10.12: AIRWAYS' ANALYSIS OF CUSTOMER FEEDBACK ON THE PROPOSED VOLUME FORECASTS

This section examines customer submissions on the proposed volume forecasts, Airways' analysis and response to the feedback and the rationale to support the final volume growth forecasts.

Airways has concluded that the best approach to forecasting future volumes is a combination of schedule information, published fleet changes, a forecast model based on economic inputs and historical growth rates. Figure 48 outlines how each of these inputs has been used to calculate the final volume growth forecasts.

**Figure 48: Airways' forecast approach**

Forecast	16/17	17/18	18/19
International	Airline schedules	Fleet changes + forecast model	
Domestic	Airline schedules	Fleet changes + historical growth rates	

The analysis of customer feedback is presented in the following steps:

- 1) Airline schedules.
- 2) Fleet changes.
- 3) Forecast model.
- 4) Historical growth rate.
- 5) Summary of forecast inputs.

### 1. Airline schedules

Airways' proposed volume growth calculations were calculated by applying the volume growth model to the 2015/16 airline schedules, which were the most current schedules available at the time the *Consultation Document* was published in January 2016. Since then, Airways has received updated schedules for the 2016/17 year from most airline operators. Airways is now able to base the volume growth forecast for the 2016/17 year on actual airline schedules, rather than using the forecast model.

Historically, Airways has used airline schedules to forecast the first pricing year with a reasonable degree of accuracy, typically actual results have been within 1% of what was forecasted. In response to the proposed approach of using airline schedules, most airline submissions provided a list of known fleet changes and asked that they be included in the final forecast calculation. The March 2016 airline schedules included all the scheduled changes highlighted in customer submissions.

### 2. Fleet changes

Some carriers publish future changes for their New Zealand fleets. For these carriers Airways will use the fleet changes to adjust the base schedules from 2016/17. While this does not take into account changes in an airline's utilisation of aircraft, Airways believes this is a sensible approach to reflect airlines investment in extra fleet capacity.

The proposed prices presented the fleet changes used in the volume forecast for customer feedback. Customers did not provide any feedback on the known fleet changes so Airways has not changed what was proposed for the 2016/17 to 2018/19 years. Airways also included known fleet changes for the 2015/16 year – these fleet changes were included in the latest airline schedules and so have been excluded so they are not double counted. The known fleet changes included in the volume forecast calculations are outlined in figure 49.

**Figure 49: Fleet change assumptions used in the volume forecast model**

16/17	17/18	18/19
<ul style="list-style-type: none"> <li>▲ 3 Air NZ B789</li> <li>▼ 2 Air NZ B763</li> <li>▲ 1 Air NZ A320</li> <li>▲ 1 Mt Cook ATR72</li> <li>▲ 2 Air Nelson Q300</li> </ul>	<ul style="list-style-type: none"> <li>▲ 2 Air NZ B789</li> <li>▲ 1 Air NZ A320</li> </ul>	<ul style="list-style-type: none"> <li>▲ 1 Air NZ 789</li> </ul>

### 3. Forecast model

For carriers where future fleet changes are not published, Airways has used a statistical regression model that uses economic inputs to forecast a volume growth rate to apply to the 2016/17 schedules. Airways considered a number of economic inputs including:

- a) Fuel prices.
- b) GDP growth.
- c) International tourism growth.
- d) Domestic passenger growth.

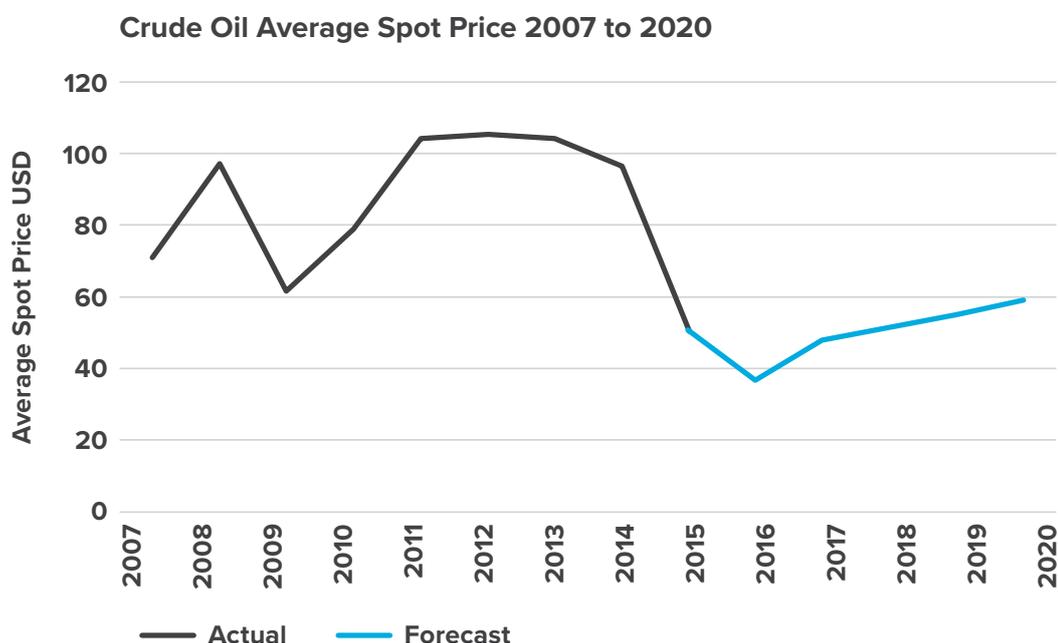
#### a) Fuel prices

Airways has investigated the correlation between fuel prices and aircraft volumes in response to BARNZ’s submission that fuel prices could be a good predictor of future volume growth. Airways has used crude oil as a proxy to the price of fuel, as crude oil data is generally well understood and forecasts are readily available. Since the Global Financial Crisis 2008 (GFC) there has been a correlation between oil and international volume growth. There was no correlation between oil prices and domestic volume growth.

Airways concludes that the correlation between oil prices and international growth is strong enough to be included as an input into the forecast model for international growth. However, oil prices appear to be a weak indicator of domestic volume growth and have been excluded from the forecast model for domestic growth.

Airways investigated various sources of oil forecasts, including the World Bank, International Monetary Fund (IMF) and the Economist Intelligence Unit. The World Bank forecast has been preferred because it is an average measure of the Brent, West Texas Intermediate (WTI) and Dubai benchmarks. This provides a more accurate measure of the cost of A1 jet fuel in New Zealand than other forecasts, which tend to focus on just the Brent benchmark. The World Bank forecast shows that oil prices are expected to increase over the next three years, as demonstrated in figure 50.

Figure 50: World Bank crude oil forecast



**b) GDP growth forecast**

Airways revisited the correlation between GDP growth and volume growth as part of its assessment of the potential new fuel input. GDP is a weak predictor of volume growth and has been removed from the forecast models.

**c) International tourism growth**

In response to submissions from BARNZ and IATA, Airways tested two further scenarios to see whether international tourism growth could be a meaningful predictor of future volume growth:

- 1) Airways tested whether international tourist growth had a downstream impact on domestic growth.
- 2) Airways tested whether combining all international travellers (tourists and New Zealanders travelling internationally) had a stronger correlation on volume growth.

Airways was unable to find any significant correlation between any of these scenarios and volume growth. International tourism growth has now been removed from the forecast model.

**d) Domestic passenger growth**

Airways investigated the correlation between domestic passenger growth and domestic volume growth, including modelling the suggested alternative passenger growth forecasts provided by IATA. We found that domestic passenger growth is a weak predictor of volume growth and the inclusion of this input did not significantly alter the volume forecast. Airways has now removed this input from the forecast model.

**Final statistical regression model – used only for international growth**

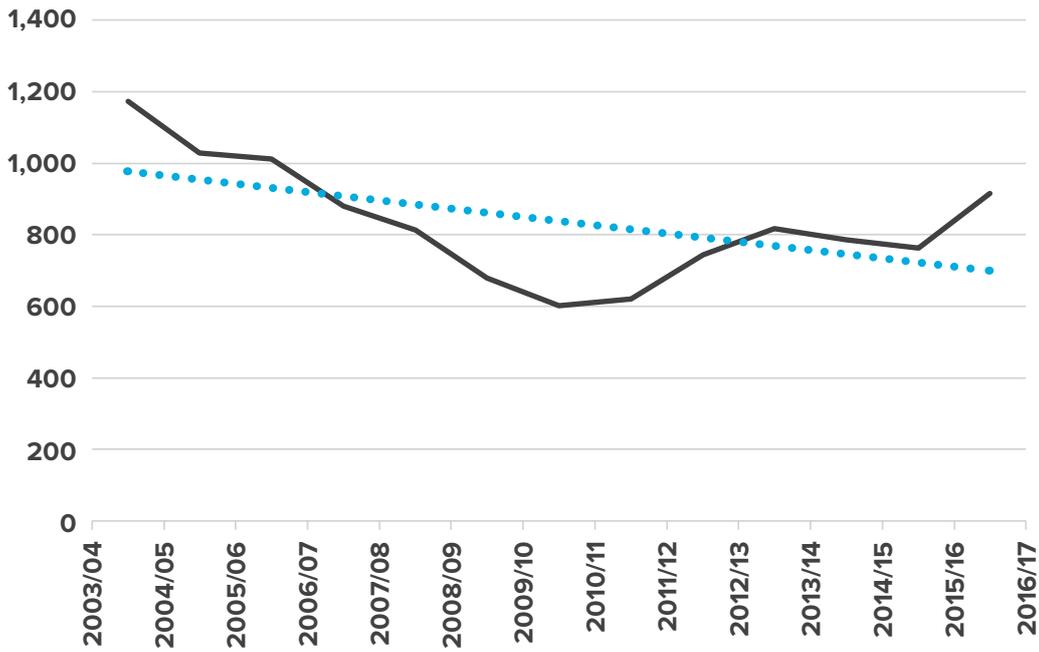
A sensible regression forecast can be provided using fuel for international volume growth. A sensible forecast cannot be provided for domestic growth.

#### 4. Historical growth rate

For domestic carriers where fleet changes are not published Airways has not been able to find any meaningful predictor of future growth. While historical growth rates are not always the best predictors of future volume growth, it is generally accepted that it is appropriate to use historical data when there are no meaningful predictors of volume growth.

Historically, the segment of the domestic market represented by smaller carriers that do not publish fleet changes has been declining by 1.4% p.a. as shown in figure 51.

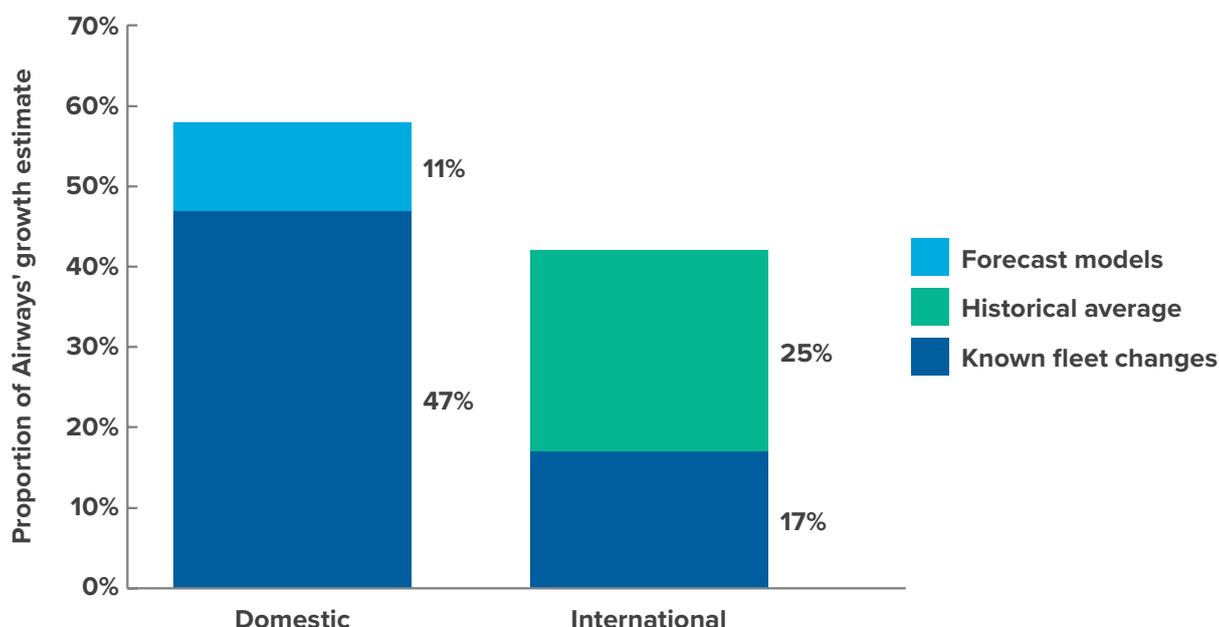
**Figure 51: Domestic volumes, excluding carriers that publish fleet changes**



## 5. Summary of forecast inputs

Figure 52 illustrates how much each of the different forecast sources contributes to the overall volume growth estimate for the 2017/18 and 2018/19 years. Known fleet changes are the largest influence on the forecast and are the most reliable predictors of future growth. Fleet changes originating in New Zealand are especially well understood and so contribute more to the forecast than for international services, where fleet changes are less visible.

**Figure 52: Contribution each forecast component makes to the overall growth estimate**



## Comparison to NZ Airport's forecast

NZ Airports provided an alternative forecast as a comparative to Airways' forecast. The NZ Airport's forecast was an aggregation of Auckland, Wellington and Christchurch airports 2012 price-setting forecasts. Airways has compared its forecast for the next three-year period to the total movements forecasts from the major airports.<sup>27</sup> The comparison is summarised in figure 53.

**Figure 53: Airways' volume growth forecast compared to NZ airport's forecast movement growth**

	Airways FY17-FY19 average	NZ airports FY17-FY19 average	Variance
Domestic	2.0%	0.4%	1.6%
International	4.1%	2.9%	1.2%
Queenstown	9.1%	5.4%	3.7%
<b>Total weighted</b>	<b>2.9%</b>	<b>1.0%</b>	<b>1.9%</b>

Overall, Airways' forecasts are higher than what has been forecast by NZ airports. The variance is largely driven by the strong volume growth Airways is forecasting in the 2016/17 year, based on airline schedules. The differences can be explained by the higher fuel prices at the time the airports forecast was calculated in 2013. It's sensible to expect volume growth to be higher now fuel prices have fallen.

<sup>27</sup> Note, the forecast compares Airways' volume growth, which is calculated as the growth in tonnes landed (a combination of movements and changes in aircraft weights) and the airports movement forecast, which is just the number of landings. While there are some differences in the measures, it still provides an approximate comparison of growth.

**APPENDIX 10.13: WEIGHTS USED TO ALLOCATE APPROACH  
AND AERODROME-RELATED OVERHEAD**

<b>Aerodrome</b>	<b>Actual 14/15 tonnes landed</b>
Auckland	6,474,695
Christchurch	1,856,310
Wellington	1,490,013
Queenstown	414,598
Dunedin	214,681
Nelson	200,046
Palmerston North	148,822
Napier	124,929
Hamilton	115,387
New Plymouth	111,708
Tauranga	92,336
Woodbourne	86,909
Rotorua	75,911
Invercargill	73,658
Gisborne	47,617
Kapiti	28,992
Milford	9,545

## APPENDIX 10.14: FINAL SCORECARD MEASURES



### Safe

Measurement	Target			Description
	16/17	17/18	18/19	
Critical safety incidents for GA	Nil			Number of high-severity safety incidents
Critical safety incidents for commercial passenger flights	Nil			Number of high-severity safety incidents



### Reliable

Measurement	Target			Description
	16/17	17/18	18/19	
Planned maintenance completion rate	>98.5%			An annual measure of the percentage of preventative (planned) maintenance work completed within the month scheduled.
Service availability; People and Systems	> 99.95%			Measures total actual hours of availability on a 12-month rolling average.



### Predictable

Measurement	Target			Description
	16/17	17/18	18/19	
Total inflight delays (minutes)	3,000			For arriving flights into Auckland, Wellington, Christchurch and Queenstown. This includes all delays from take off to landing (ideal projected flight time vs. actual).
Average delays per flight (seconds)	12.5	11.5	10.5	This includes all delays from take off to landing (ideal projected flight time vs. actual).



## Innovative

Measurement	Target			Description
	16/17	17/18	18/19	
Operational strategy – key milestone – Raglan sector moved to Auckland	Complete Jun-2017			Provides partial contingency for the Christchurch Centre.
Operational strategy – key milestone – combined CH TMA and Areas South	Complete Dec-2017			Standardises the South Island surveillance air traffic control functions.
Operational strategy – key milestone – combined Auckland and Wellington TMA	Complete Jun-2018			Standardises the Auckland and Wellington terminal functions (the two business sectors).
Operational strategy – key milestone – new Auckland centre build	Complete Dec-2019			A larger centre built in time to facilitate the new ATM platform and the relocation of part of the combined Auckland and Wellington terminal function.
Operational strategy budget (\$m)	4.2	2.1	5.4	Cost to implement the Operational Strategy.
ATM system budget (\$m)	5.0	16.0	11.0	Cost to implement the domestic ATM platform.
Delivery of the PBN programme	50%	70%	100%	Percentage of the programme complete.



## Cost-effective

Measurement	Target			Description
	16/17	17/18	18/19	
IFR movements per core FTE (System Operator total headcount)	Greater than 940			This will provide a measure of controller efficiency and reflect planned productivity improvements.
Cost per IFR Flight Hour	\$510	\$525	\$540	Measures the average direct cost to Airways for manning a flight over an hour.
Proportion of shared services and governance costs	<14%			Proportion of corporate overhead functions, like finance, legal, safety, risk management etc.
<b>International benchmarking</b>				
Cost per IFR flight hour	CANSO survey top 5			Measures the average direct cost to Airways for staffing a flight over an hour.
Revenue per IFR flight hour	CANSO survey top 5			A proxy measure for the average price paid per flight by Airways customers.
Average ATC labour cost	CANSO survey top 5			Measures average ATC employment cost to Airways.
<b>Performance against pricing inputs</b>				
Annual revenue (\$m)	179.0	183.3	190.5	Measures actual overall revenue for the year and variance to the revenue band.
Annual total cost (\$m)	164.1	166.8	172.2	Total cost before tax and capital charge Generally Accepted Accounting Principles (GAAP).
Annual EVA (\$m)	0 EVA			Measures EVA as net profit for the year after capital charge deductions.
Annual total CAPEX (\$m)	40	44	45	Measures actual CAPEX expenditure for the year.





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