AIRWAYS

Auckland Air Traffic Control Tower Replacement

Industry Consultation Response

Contents

Consultation Outcome

Commencing in September 2022, Airways sought feedback from the aviation industry on Airways' preferred replacement option and implementation approach for our existing Auckland Airport air traffic control tower.

This document details Airways' consultation process, its response to submissions received and next steps.

Context

The existing tower dates from the mid-1960s. It is reaching the end of its useful life and regular maintenance is now required to keep it in a usable state. The Auckland International Airport Limited (AIAL) lease for the site where the tower is located is also due to expire June 2027.

Airways has considered all options based on both the conventional and digital options available today in the industry. Airways has considered digital solutions because these technologies are being used more broadly in the aviation industry. Airways has been investigating digital air traffic control tower technologies for several years and has watched closely as airports internationally have developed their digital capabilities.

Airways has considered the options available to replace the tower and provided the industry an opportunity to respond.

Replacement options

Three replacement options have been considered for the replacement of the existing tower. These are:

- **Conventional tower:** A new tower structure, approximately 70m high, which would enable conventional service for both the existing runway and the proposed northern runway. Contingency would be provided from a remote digital tower. This conventional tower would be centrally located between the current runway and the proposed site for the proposed northern runway, as shown in the Auckland Airport masterplan documents.
- **Hybrid tower**: A new tower structure, approximately 35m high, to provide a conventional tower for controlling the current runway, with digital capability for controlling the proposed northern runway in the future. Contingency would be a remote digital tower.
- **Remote digital tower**: Digital camera masts at Auckland Airport with controllers working from a remote operations building. This would provide service for the southern runway initially, with the capability and capacity for expansion to the proposed northern runway in the future. Contingency would be a second remote digital tower.

Airways' preferred option presented in the consultation document is to replace the current Air Traffic Control tower with a hybrid tower, supported by a digital contingency.

Outcome

Eleven submissions were received through the consultation from Airways' customers, staff, and other industry stakeholders. We would like to thank those who took the time to respond to the consultation and provide comments.

Each submission provided points of feedback that have been reviewed and considered by Airways in reaching an outcome.

As a result of this consultation, along with the considered feedback, Airways will take this opportunity to engage with an independent consultant to validate the concept of operations, requirements, including siting, and the implementation and procurement approach.

Airways will proceed with its proposal to implement a Hybrid digital tower at Auckland Airport, supported by a digital contingency tower.

As stated in the Consultation Document, as our confidence and experience builds with the undertaking of the digital contingency tower validation there will be a review carried out prior to construction commencing on the Hybrid tower. This review will provide an opportunity to consider whether

(1) to proceed with the current plan to construct the hybrid tower and digital contingency facility, or

(2) go with a full digital primary tower facility (along with the digital contingency facility).

Following discussions with AIAL during the consultation period, the lease has been extended until 31 December 2028. At this stage, the extension of the lease does not affect Airways' choice of preferred replacement option and implementation approach. It does, however, enable Airways to extend the implementation timeline by 18 months to assess whether a full digital tower would offer an appropriate and safe solution.

Airways will continue to engage with all stakeholders as the project progresses, providing regular updates and consulting where appropriate.

Airways' response to feedback on the consultation questions is outlined in the summary of submissions section of this document.

Industry consultation process

The industry consultation period began on 23 September 2022 and the final day for submissions was 21 October 2022. During the consultation process, information sharing meetings were held with industry and staff. The submission process provided Airways staff, customers, and other industry stakeholders the opportunity to formally provide feedback to Airways on the options considered and the current preferred implementation approach.

Airways received 11 submissions. Those which we have permission to publish are available on the industry consultations section here on the Airways website. This feedback has provided important guidance for Airways in its determination of the best approach to replace the existing Auckland air traffic control tower.

Summary of Submissions and Airways' responses

The three questions asked were:

- Do you have any feedback on the Auckland ATC tower replacement options outlined?
- Do you have any feedback on Airways' preferred approach for the replacement of the Auckland ATC tower?
- Do you have any feedback on the changes highlighted to the Capital Plan?

Outlined below is a summary of the feedback received through stakeholder submissions as well as Airway's response to the feedback raised by submitters on each of the questions asked through consultation.

Question one: Do you have any feedback on the Auckland ATC tower replacement options outlined?

Airways' Proposed Replacement Options

Through the consultation, Airways proposed three replacement options to be considered:

- **Conventional tower option** – capable of providing service to the current southern runway and proposed northern runway.
- **Hybrid tower option** – a combination of a conventional tower for the southern runway and a digital based service extension for the proposed northern runway.
- **Digital tower option** – digital based service provision for the southern runway with the capability to be expanded for the proposed northern runway.

All three options proposed a digital contingency solution to accompany the primary option.

Airways' preferred option was for the hybrid tower option, supported by digital contingency.

Summary of Consultation Response Submissions

Of all the submissions received, most were in favour of a full digital solution urging Airways pursue this as a viable option. However, the hybrid option was also viewed favourably and should be considered ahead of a conventional installation.

Conventional solution

- NZALPA preferred a conventional tower to be built to replace the existing tower. It expressed concerns about the hybrid tower and the full digital solution. These concerns

were primarily focused on safe and 'fit for purpose' operations. NZALPA's view was that a conventional tower provided the safest, lowest risk for Airways, complies with regulations, and assures service delivery.

- NZALPA considered a conventional tower with digital technology enhancements could be a possibility but would need more research and discussion to determine its true reliability and effectiveness.
- NZALPA supported development of the current conventional contingency tower through enhancements with digital technology. NZALPA did not support a digital contingency tower at Auckland Airport.
- Air New Zealand, IATA, Virgin Australia, AIAL, Qantas and BARNZ all stated a preference for a move to a digital tower solution rather than a conventional tower solution.

Hybrid solution

- New Zealand Airports Association (NZAA) were supportive in principle of the proposed approach and would be happy to be further engaged on strategy development in the digital domain.
- General feedback from a staff member was that options other than the conventional tower had low buy-in from tower staff, however a digital contingency tower operation may be acceptable if operated with limitations and temporarily when required.
- AIAL were equally supportive of the hybrid tower implementation as they were of the full digital tower option.

Digital solution

- Air New Zealand, Virgin Australia, BARNZ, AIAL and Qantas all indicated support for the implementation of a digital tower as the primary delivery platform to provide future operational services. Air New Zealand considered that the digital tower would be the most cost-effective solution.
- Air New Zealand, the International Air Transport Association (IATA), Virgin Australia and NZAA all considered there was the potential to deliver improved safety with the implementation of a digital platform. Air New Zealand and NZAA consider there may be efficiencies with the implementation of a digital platform.
- Air New Zealand requested that we engage further with AIAL to look at a lease extension to provide additional time to investigate the possibility of a full digital tower implementation prior to committing to a physical tower build.
- Air New Zealand and Qantas highlighted the work being undertaken overseas, for example

Budapest, that supports the view that there is a growing uptake at larger airports of the use of digital towers as operational service delivery platforms.

- Air New Zealand suggested that work had already been completed offshore in terms of establishing a suitable regulatory framework that Airways and the Civil Aviation Authority (CAA) could look to leverage from and noted the importance of having CAA fully engaged throughout the project.
- New Zealand Air Line Pilots Association (NZALPA) considered Auckland Airport is not the correct place to trial a digital tower given Airways' lack of experience with digital towers.

Other considerations

- New Zealand Aviation Federation noted that the options as laid out in the consultation document were clearly described.
- One airline and IATA requested additional information on financial, project risk, and design/construction matters, including proposed construction method, and tower height considerations.
- NZALPA was of the view that Airways has insufficient staff at present to proceed with any option.

Airways' Response

Airways recognises there were divergent views among stakeholders on the solution for the replacement of the existing Auckland tower. Airways conducted a review of three options for the tower replacement and all options were genuinely considered in light of feedback received.

In response to feedback supporting a move to a full digital solution, Airways will work to balance this view against currently known risks. It will consider what further steps are required to validate the new technology in the New Zealand regulatory and operational environment.

Airways does recognise that implementations of digital towers overseas indicate the opportunity for such an installation here in New Zealand, but also recognises the associated risks of an implementation into an operations such as the Auckland Airport operational environment. Airways will first need to undertake a thorough digital platform system validation and operational evaluation in the Auckland Airport environment. This will offer the opportunity to build a robust safety case that supports an operational implementation of a digital tower.

Some submitters requested that we engage further with AIAL to look at a lease extension to provide additional time to investigate the possibility of a full digital tower implementation.

We acknowledge NZALPA's view that a conventional tower may provide the lowest implementation risk for Airways, but do not agree that it would necessarily result in the safest or

most fit-for-purpose option for future service provision. As with any significant change to our operations, a detailed safety case will need to be prepared and reviewed prior to implementation. Airways will ensure due consideration for hazards that are systematically identified and associated risks adequately assessed to ensure identified risks are mitigated to an acceptable level.

We also acknowledge the concerns raised regarding the lack of employee buy-in for a hybrid tower option. AIAL has recognised the development and operation of a hybrid tower will result in significant changes for Airways' workforce. We intend to fully engage with our people through the process and to ensure that any concerns held are reasonably addressed.

NZALPA does not consider that the Auckland digital contingency tower initiative is supported by operational controllers, and it does not support a digital contingency tower at Auckland Airport. Conversely an Auckland tower controller provided feedback that a backup contingency digital tower operation could be acceptable if operated with limitations and only temporarily as required. Airways understands the challenges a move to digital would have on our people and is committed to ensuring that there is frontline controller involvement in developing the operational solutions that will be implemented.

Airways also acknowledges NZALPA's concerns regarding the lack of a staff surplus. Airways has a supply of controllers both internal and external to join the Auckland tower team through until the end of 2023 and will continue recruiting and training as necessary throughout the project to ensure sufficient staff numbers are in place.

Airways confirms that consistent financial modelling was applied across all three options and therefore the evaluation results in this respect are also consistent relative to each other. The responses to questions and clarification requests on the financial modelling matters are provided in the section below on the Impact to Airways' Capital Plan.

Airways has not completed a detailed design and has made no final decisions on construction method or structure heights. Airways is therefore not able to answer clarification questions on design and construction aspects of the tower structure at this time. This information, as appropriate in light of consultation and other relevant obligations, will be provided in due course.

Question two: Do you have any feedback on Airways preferred approach for the replacement of the Auckland ATC tower?

Airways' Proposal

Through the consultation, Airways proposed the preferred replacement approach was:

- Not to construct a replacement conventional tower.
- To deliver a hybrid tower, which will provide a conventional service delivery platform for the southern runway and begin planning for its construction.
- To deliver a digital contingency tower, which will be developed as a parallel activity to the hybrid tower planning and design work and use this to validate the technical and operational merits of a digital tower in the Auckland environment.

Airways considered its preferred replacement approach (parallel works on hybrid and digital contingency towers) would provide the best approach to ensure continuity of service at Auckland.

Airways also proposed that, as its experience grew with the undertaking of the digital contingency tower validation, there would be a review carried out prior to construction commencing on the hybrid tower.

This review would provide an opportunity to consider whether to

(1) proceed with the current plan to construct the hybrid tower and digital contingency facility, or

(2) commit to a full digital primary tower facility (along with the digital contingency facility).

Airways has considered the feedback regarding a full digital primary tower facility received to date. This feedback will form part of the decision-making matrix for Airways if Airways did look to commit to a full digital primary tower facility. As touched on by the submissions from BARNZ, IATA, ASPAC, and NZAA, Airways will not commit to a full digital primary tower facility unless it was satisfied that this provided a safe option.

Airways acknowledges that, as identified by NZALPA, the introduction of a digital tower is a fundamental change to the conventional system. However, Airways does not agree with NZALPA's suggestion that Auckland Airport is necessarily an inappropriate place for a digital tower to be implemented. As noted, Airways will not make the decision to implement a digital tower until its experience in that area has evolved and the appropriate validation has been undertaken.

Summary Of Submissions

General

- New Zealand Aviation Federation were generally supportive of the proposed preferred implementation approach where conventional and digital towers can work contemporaneously and valuable knowledge can be gained for the digital solution.
- AIAL indicated support of our preferred approach ensuring there was a supporting safety case and we work closely with the regulator and stakeholders. AIAL also acknowledged that a digital solution would be a significant change for Airways which would need to be managed.
- Air New Zealand, IATA, BARNZ, Virgin Australia and Qantas restated their preference that we move straight to a digital tower and not put in any effort for the replacement hybrid tower until such time that it was concluded that a digital tower was not able to provide the required level of service safely.
- NZALPA are concerned about the apparent absence of collaboration between stakeholders, including Airways, CAA, AIAL, NZALPA and others. Airways will ensure that employees who are affected by the change need to be involved in any working groups to ensure their inputs and expertise are heard, respected, and listened too. NZALPA considered further consultation and appropriate safety assessment involving all stakeholders needs to occur between all relevant parties over the proposal. It sought further clarity from AIAL and CAA as to their stance on the proposal.
- NZALPA is of the view that determining whether a full digital solution would offer a superior solution in or about July 2024 is inappropriate, as this assumes there will be the ability to determine fundamental questions at a point where the process has already begun, and which might be too late to enable effective decision-making.

International examples

- Air New Zealand pointed to examples overseas where digital tower operations have successfully been implemented.
- Air New Zealand, BARNZ and IATA highlighted offshore regulatory environments have been developed and deployed that support the implementation of digital tower operations, and that these can be readily adopted in New Zealand. In response to question 1, NZALPA also mentioned that the digital technology in the context of being used as a reliable Air Traffic Control system is not proven elsewhere around the world. They suggested that a better or more appropriate deployment of digital technology would

be in a low traffic, non-geographically or metrologically challenged environment rather than Auckland.

Location of tower

- In response to question 3 NZALPA suggested there needs to be considerably more discussion and consultation over any proposed location of a hybrid tower at Auckland Airport. It raised concerns not only on the location but also the technology available to support this initiative.

Other considerations

- An airline requested additional information on the financial modelling for the three options.
- Air New Zealand, BARNZ and another airline asked if it was possible to extend the current lease.

Airways' Response

In line with their views on Airways' preferred replacement option, submitters expressed divergent views on Airways' proposed implementation approach.

Advancing technologies are fast driving positive change across the aviation industry, and Airways is looking to these advances to deliver a range of benefits to our operations without compromising safety. Based on Airways' assessment of successful deployment of hybrid and digital towers overseas, we consider that current technology will allow us to move forward with confidence to implement hybrid and digital solutions for Auckland by 2027.

Airways will commence detailed design and implementation planning for a hybrid tower and digital contingency. Airways is confident in our consultation with our stakeholders to date. We continue to engage with CAA and AIAL on a regular basis in respect to Airways' services at Auckland Airport. As part of that, and as part of this process to replace the existing tower, we will be working closely with AIAL and CAA to ensure that an appropriate air traffic solution is provided at Auckland Airport. Airways will continue to engage with all stakeholders as the project progresses, providing regular updates and consulting where appropriate.

A number of submitters expressed their preference for moving straight to a full digital platform. Moving straight to a digital platform in New Zealand, and specifically the Auckland Airport environment, will first require that a digital tower platform is installed in the environment. Airways will then need to successfully complete a thorough system validation and operational evaluation process and provide a robust safety case to be accepted by the regulatory authority. This will be reviewed prior to the construction of the hybrid tower. This will occur at a time at which effective

decision-making can occur and when Airways is best placed to assess how to proceed based on the additional knowledge that will be available to it.

Question three: Do you have any feedback on the changes highlighted to the Capital Plan?

Airways Proposed

In the consultation, Airways proposed to invest $29.3 million during the 2022-2025 pricing period and $26.7 million during the 2025-2028 pricing period. This investment will fund the proposed preferred approach of a hybrid tower and a digital contingency tower.

Over this timeframe, $34.3 million was included in the current capital plan resulting in an additional investment of $21.6 million.

Transition and operating costs of $2.5 million will also be incurred in relation to these projects.

These figures were estimates only and will be updated and refined as the project proceeds to the next stage.

As set out in the Pricing Decision, the Auckland tower replacement project is not forecast to be complete until FY27 and therefore does not enter our pricing asset base until then.

$m	FY23	FY24	FY25	Total 2022-2025 pricing period	Total 2025-2028 pricing period	Total project
Auckland replacement primary tower	2.8	4.5	16.1	23.4	22.4	45.8
Auckland digital contingency tower	-	2.1	3.8	5.9	4.3	10.2
Total capital investment	**2.8**	**6.6**	**19.9**	**29.3**	**26.7**	**55.9**
Currently in capital plan	**7.2**	**10.0**	**10.0**	**27.2**	**7.1**	**34.3**
Additional investment needed	**(4.4)**	**(3.4)**	**9.9**	**2.1**	**19.6**	**21.6**
Transition & operating costs	-	0.3	0.4	0.7	1.8	2.5

Summary Of Submissions

- Air New Zealand, another airline and IATA requested additional information such as lifetime before replacement, maintenance costs and OPEX considerations, depreciation model, any tax advantages (such as R&D) of any of the options, and how project financial risk will be handled.
- NZALPA considered that because Auckland Airport is New Zealand's premier gateway a conventional tower should be built at this location. Any short fall in funding for this tower should be provided either by central or local government. NZALPA considered that the

digital tower's costs have been underestimated, whilst the cost for a conventional tower have been overstated.

- Air New Zealand, BARNZ, IATA and Qantas requested clarification on the figures being stated in financial years prior to 2027 in relation to new WIP model and impact on price for each of the options.
- Air New Zealand considered that Airways should avoid the preconstruction costs of a physical tower build prior to the checkpoint in mid-2024.
- Air New Zealand noted the digital cost was the lowest over the first 10-year period.
- IATA and Qantas considered it preferable to adopt a digital tower option from the start.

Airways' Response

Regarding lifetime before replacement and depreciation rates, to date we have been using the following for our financial modelling:

- 50 years for physical buildings;
- 7 years for current technology equipment; and
- 5 years for digital tower equipment, increasing to 7 years in the future as the technical advances slow down.

Final depreciation rates will be determined as we develop more detailed plans for the implementation and the ongoing operational model.

As highlighted in our proposal, the investment and OPEX costs available at this time are estimates only and will be updated and refined as the project proceeds to the next stage. Providing more detail at this time on impact to pricing may be misleading until we develop more detailed plans for the design, implementation, and the ongoing operating model.

Our pricing will not be impacted by this CAPEX investment until the assets are delivered into service in line with the recent WIP methodology change. The investment was shown in the years in which it will be incurred in the CAPEX plan.

We will look to defer any commencement of preconstruction activities for the hybrid tower build as much as practicably possible, to avoid sunk costs should we decide to move to a full digital tower.

Our modelling to date does not show a significant cost saving under the digital tower option. We will continue to update this modelling as we develop more detailed plans for the design, implementation and the ongoing operating model.

Airways understand that both central and local government will not be funding any tower replacement. This is in accordance with Airways being a State-Owned Enterprise. Under that model, we are expected to be self-sufficient, which includes funding any major capital projects such as a tower replacement at Auckland Airport.