



Aircraft Noise Management in Australia

SPEAKER: Neil Hall



FORUM23

Flightpath to the Future: Reconnect & Collaborate

Australia's Aviation Environmental Landscape

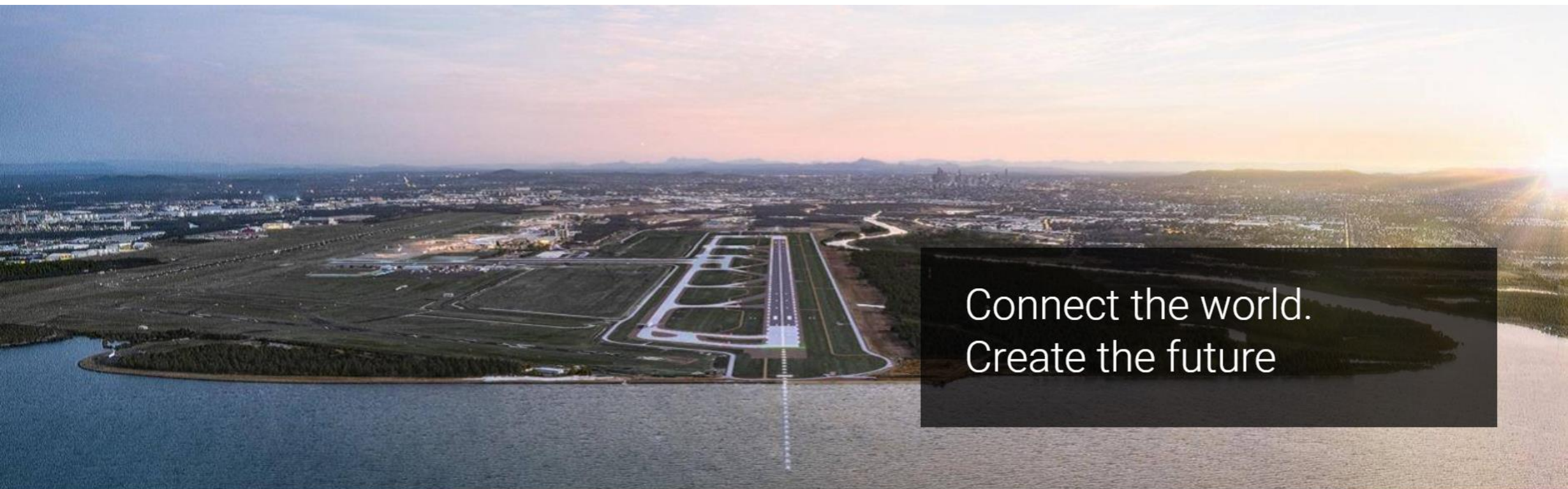


Airservices Australia

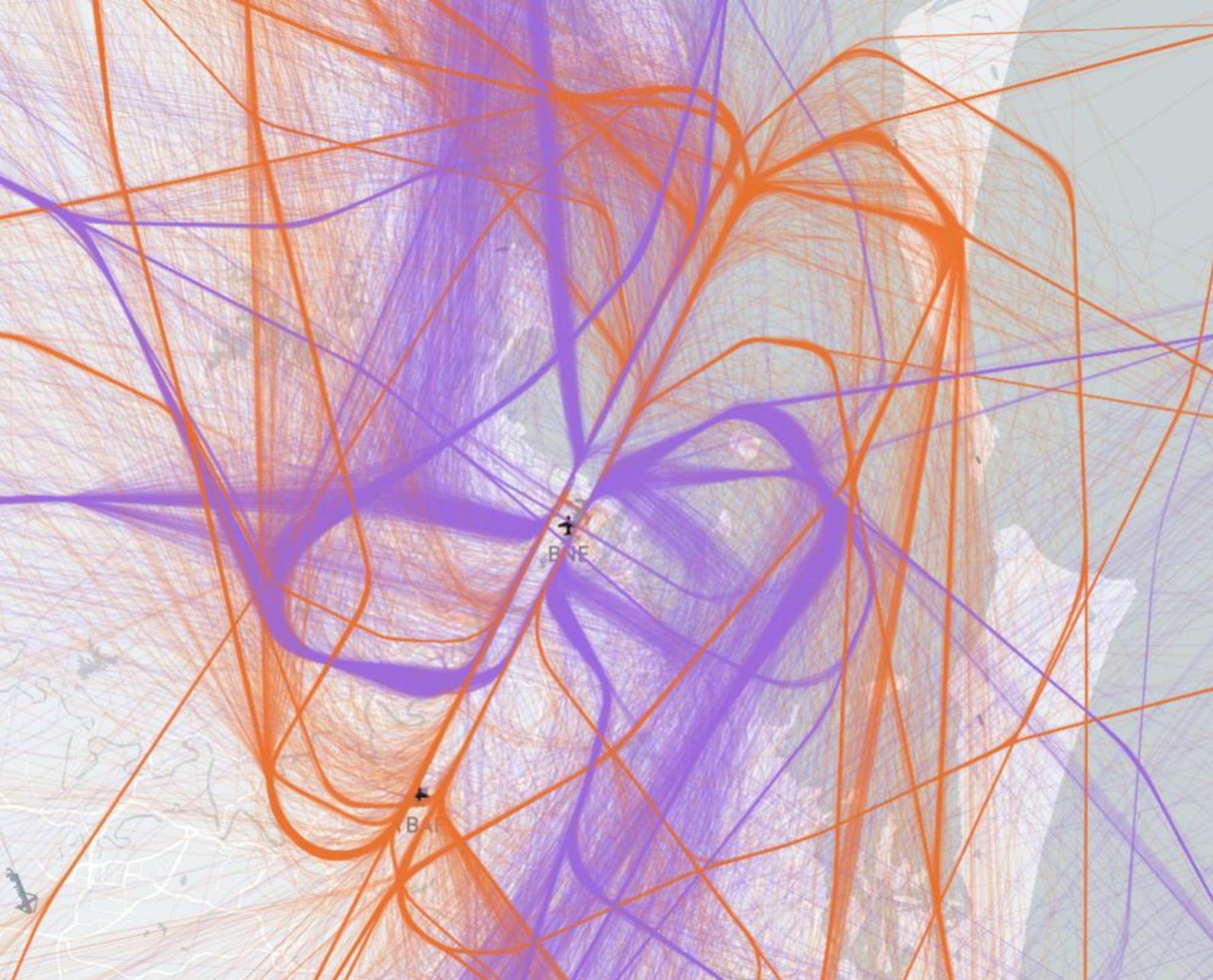
- ANSP responsible for airborne environmental impact across 29 airports
- Must respond to all aircraft noise queries & complaints
- New runways in Brisbane, Western Sydney, Melbourne and Perth
- Collaboration between ANSP, Airports and Airlines critical
- Brisbane Airport New Runway set example



Brisbane's New Runway (July 2020)



Connect the world.
Create the future



Lessons learnt after new runway opened (Jul 2020):

- Challenge to give residents experience of noise prior to runway opening
- Noise modelling (INM) did not represent actual noise levels
- Insufficient noise monitoring outside the N70
- N70 does not adequately describe noise impacts
- Noise preferred runway and RNP AP use was not as high as expected
- Regardless of engagement, community are still not satisfied

Airports need to collaborate with Airservices and airline operators

Brisbane New Parallel Runway Flight Paths Post Implementation Review (PIR)

FINAL REPORT

Version 1.0

Effective Date: 14 December 2022

Managing the ongoing risk in a changing political/social landscape

Australia's federal election shows that community campaigning can trump populism

Mark Riboldi

Posted 26 May 2022, updated 27 May 2022



Whatever your political team's uniform, the 2022 federal election shows what can be achieved by investing in building powerful and meaningful local relationships. (Bai Xuefei / Xinhua via Getty Images)

[OUR PLAN](#)[OUR PEOPLE](#)[GREENS MOVEMENT](#)[LATEST](#)[TAKE ACTION](#)

GREENS ANNOUNCE BILL TO IMPOSE CURFEW ON LATE NIGHTS FLIGHTS FROM BRISBANE AIRPORT

2023-09-06

With Brisbane Airport set to double its traffic by 2035, Greens MP Elizabeth Watson-Brown today announced plans to bring peace and a good night's sleep to thousands of Brisbane residents impacted by flight noise.

The bill introduces hourly caps on flights, a late night curfew on non-emergency flights over Brisbane and brings in a long-term plan to move more flights over the water rather than over the city—in line with similar legislation that successfully manages flight noise over Sydney.



Noise Action Plan for Brisbane

Overview

The *Noise Action Plan for Brisbane* is Airservices Australia's plan to reduce the impact of aircraft noise on the greater Brisbane community. The plan was developed to address impacts resulting from changes to Brisbane's airspace, following the introduction of Brisbane Airport Corporation's new parallel runway in July 2020.

The *Noise Action Plan for Brisbane* comprises four packages of work outlining 11 recommendations and 82 individual actions.

Airservices is actively engaging with industry stakeholders and the wider Brisbane community on aircraft noise, discussing potential flight path options and outlining key delivery milestones for the next three years (2023-2025).

Background

- 2005:** Brisbane Airport Corporation (BAC) commenced planning and approval process for a new runway, parallel to existing north-east/south-west oriented main runway.
- 2007:** BAC's Major Development Plan (MDP) and Environmental Impact Statement (EIS) for the project were approved by then-Federal Minister for Transport and Regional Services (as required under the *Airports Act 1996* and the *Environment Protection and Biodiversity Conservation Act 1999*).
- 2012:** Construction commenced on BAC's new runway in July.
- 2020:** New Parallel Runway (NPR) opened on 12 July using new flight paths.
- 2021:** Terms of Reference for Post Implementation Review (PIR) was developed in consultation with community and industry stakeholders and finalised in December.

2022: January: Airservices engaged consultant Trax International (Trax) to conduct an independent review.

August: Trax published *Brisbane New Parallel Runway Flight Paths Post Implementation Review Independent Review*; Airservices adopted all recommendations.

October: Draft PIR report released for four-week public comment period, and received 450 written community submissions, including a petition signed by 1284 community members. Submissions were also received from Australia's two largest domestic airlines and from Brisbane Airport Corporation (BAC).

December: Final PIR report was released: four packages of work, containing 11 recommendations and 82 individual actions, which formed the basis of the *Noise Action Plan for Brisbane*.

What is a PIR? Airservices' National Operating Standards requires that a Post Implementation Review (PIR) is conducted 12 months after airspace and flight path changes to confirm actual noise and aircraft operations. Airservices compares actual operations data with forecasts modelled during final flight path design to identify any variance and the reasons for this.

The Noise Action Plan for Brisbane

The *Noise Action Plan for Brisbane* identifies recommendations for improvement across Airservices' business including governance, over-water operations, flight path design, operations and noise sharing, as well as a wider airspace review. The recommendations are organised across four packages with a range of timelines for delivery, depending on the complexity of the action.

The overall purpose and timing for each package is:

- **Package One:** Strong, transparent and representative governance (development and implementation Q3-Q4 2022)

Actions in this package are intended to establish frameworks to support changing the flight paths. This includes independent assurance mechanisms, effective communications and community engagement plans, tools and opportunities for community input. It also includes ensuring decision-making metrics are clearly communicated and reported on.
- **Package Two:** Maximise flights over the water (development and implementation in 2023)

Actions in this package focus on increasing how many flights are directed over Moreton Bay. Recommended actions to achieve this include reducing complexity for air traffic control, simplifying integration with RAAF Base Amberley and Archerfield Airport airspace, redesigning flights paths that conflict with over-water operations and updating the air traffic control operating plan. It also includes reviewing options to reduce track miles and emissions, and reducing the impact of over-water operations on affected communities.
- **Package Three:** Reduce the frequency and concentration of flights over communities (development during 2023 and implementation in 2024)

Actions in this package are intended to reduce the impact on communities of concentrated operations and those subject to both arriving and departing aircraft, including consideration of noise sharing. It also includes introducing opportunities for greater use of advanced navigation technology to improve community noise outcomes.
- **Package Four:** Optimise the performance of the wider Brisbane airspace system (development in 2023 and 2024, implementation from 2025)

This package focusses on reviewing the current airspace design to identify improved design options, including removal of compass operations and developing respite options for communities.

This may include introducing noise sharing through new operating modes and introducing multiple arrival routes over the city so they can be alternated on schedule. The timeframe for completion of this package – and consequential changes to community experience – depends on the scope and scale of the design options that are developed.

Flight path design

The term 'flight path' is used to refer to a mapped three-dimensional corridor. Flight paths can be a number of kilometres wide, rather than the single lines depicted on flight charts (maps). Aircraft may fly differently within these corridors for a range of reasons, including aircraft performance (e.g. type, speed, and weight) and navigation systems. Aircraft may also deviate from flight paths due to weather or operational requirements.

Airservices undertakes a multi-step process when designing or changing flight paths, and a number of screening and assessment steps are involved when progressing a flight path proposal. These steps ensure that the flight paths are safe, operationally feasible, and meet our environmental responsibilities. The changes involve a range of stakeholder engagement activities, and all feedback is considered before we progress to final flight path design development.

It can take several months to several years to complete this complex process, depending on the nature of the change being progressed. Flight path changes are not dissimilar to changing or upgrading a road. Time is needed to ensure the design is safe and compliant with the relevant standards, to complete environmental assessments and community engagement, and then to construct the road. In the case of invisible flight path infrastructure, the construction phase involves publishing the flight paths well in advance of implementation, so aircraft computer systems can be updated with the new paths and air traffic controllers can be trained on the new operations.

Who is Airservices Australia? Airservices Australia is a Federal Government-owned organisation responsible for the safety of 11% of the world's airspace. We are responsible for the safe and efficient management of Australia's skies and the provision of aviation rescue fire fighting services at Australia's busiest airports www.airservicesaustralia.com

Noise Improvement Trials Assessment

Noise improvement trials

Two noise improvement trials commenced at Brisbane Airport in February 2022. These trials were recommended by the former government-appointed Brisbane Airport Post Implementation Review Advisory Forum (BAPAF) and were designed to provide a potential immediate noise improvement opportunity while the Post Implementation Review progressed.

Extended Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS)

SODPROPS is operated as the priority mode between 10pm and 6am to maximise aircraft movements over Moreton Bay. This trial extended SODPROPS operations to include 6am to 8am on Saturday and Sunday mornings and 8pm to 10pm on Saturday evenings, when weather conditions allow.

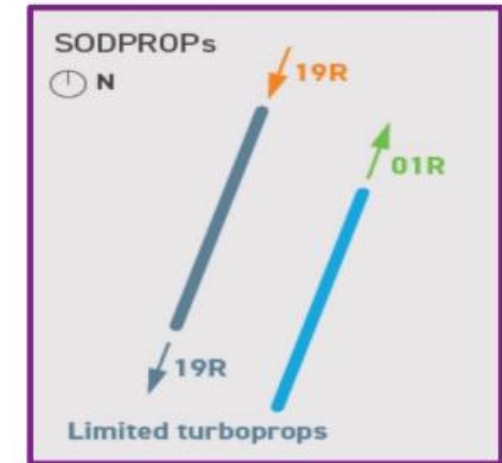
Further details of this trial can be found [here](#).

Restriction on intersection departures from the New Parallel Runway

This trial limited intersection departures for all aircraft (jets and turboprops) from the new runway over the city, meaning aircraft commenced their take-off roll from the northern end of the new runway. By having aircraft start their take-off roll from this point, they can become airborne earlier and climb higher as they fly over communities.

Further details of this trial can be found [here](#).

The trials were recommended to operate for 12 months which ended in February 2023. However, the trials will continue to operate until they have been fully assessed.



SODPROPS mode



Restriction on intersection departures

We have compiled annual results for each trial, which show the extent of operational use for SODPROPS and the recorded noise difference for the restriction on intersection departures. To enable us to consider the implications of these trials for industry, community and the environment, we have also provided data on track miles/ground delays and emissions.

Noise Improvement Trials

Noise Action Plan for Brisbane - Engagement Program 2023

Three phases of engagement are planned for 2023, focused on the priority actions from the Noise Action Plan for Brisbane.

Additional phases of engagement may be implemented as work across all packages is progressed.

Details of specific engagement locations and dates will be released closer to engagement commencing.

Note: School holidays indicated on timeline in purple. No engagement will be conducted during these periods.



Phase 1 April-May 2023

- ➔ Options to reduce the impact of:
 - Legacy runway over water operations to the south
 - New runway over water operations to the west
 - Legacy runway over land night time operations to the north
 - Early morning turboprop operations
- ➔ Baseline model development
- ➔ Noise Abatement Procedure reporting
- ➔ Noise trial feedback
- ➔ Communications Approach



Phase 2 July-August 2023

- ➔ Preferred options identified from phase 1 engagement
- ➔ Options to extend SODPROPS operations:
 - Weekday evenings, weekends, and daytime
 - Adjoining airspace constraints
- ➔ Weather constraints
- ➔ SODPROPS reporting



Phase 3 October-November 2023

- ➔ Preferred options identified from phase 2 engagement
- SODPROP daytime operations:
 - Defence airspace options
 - procedural changes
- ➔ Tactical over water options
- ➔ Night time operations all locations
- ➔ Reduce concentration of flight paths west of the airport



Brisbane Noise Action Plan Initiatives

Improved operational reporting – adding corridor compliance to WebTrak

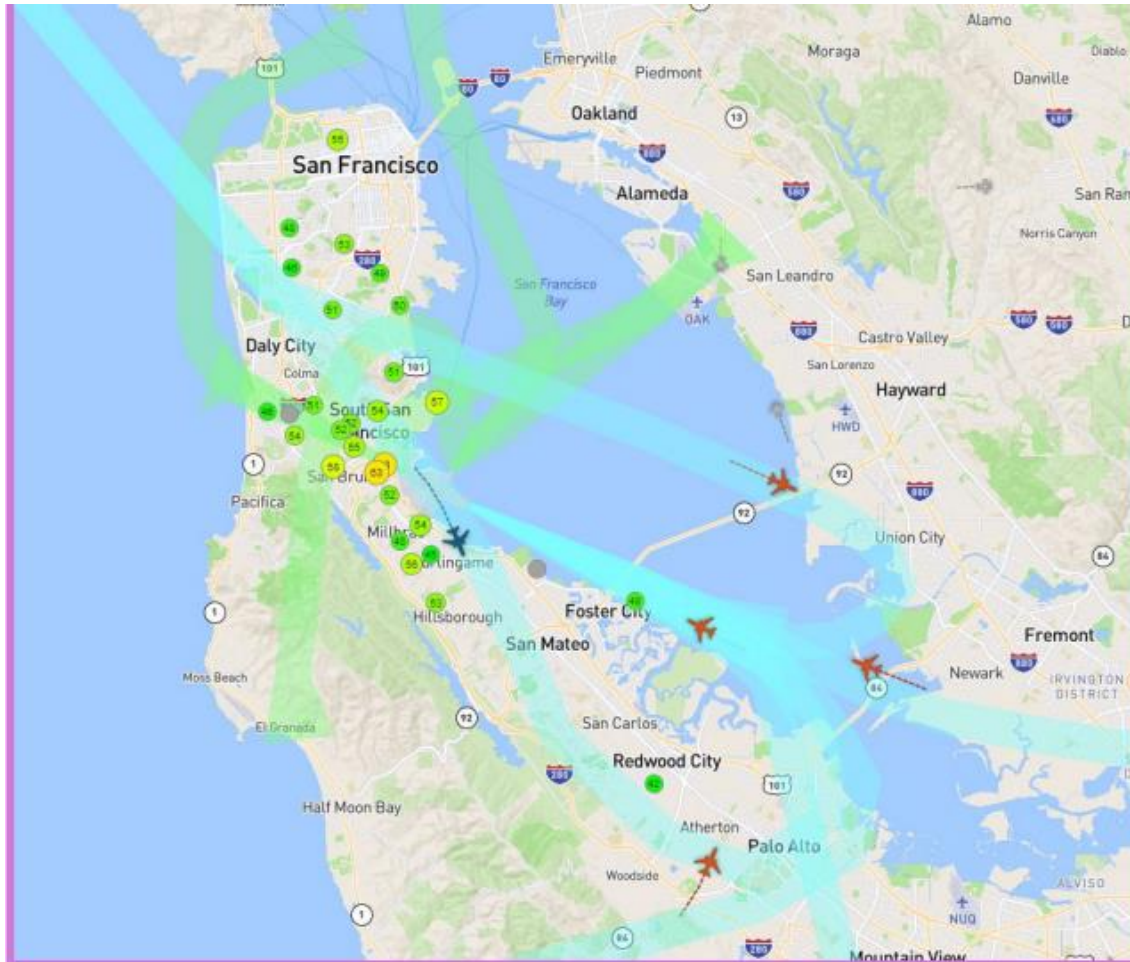


Figure 3 San Francisco WebTrak with aircraft tracking feature (example of proposed reporting option)

Brisbane Noise Action Plan Initiatives

Reducing weather criteria to increase noise preferred runway use

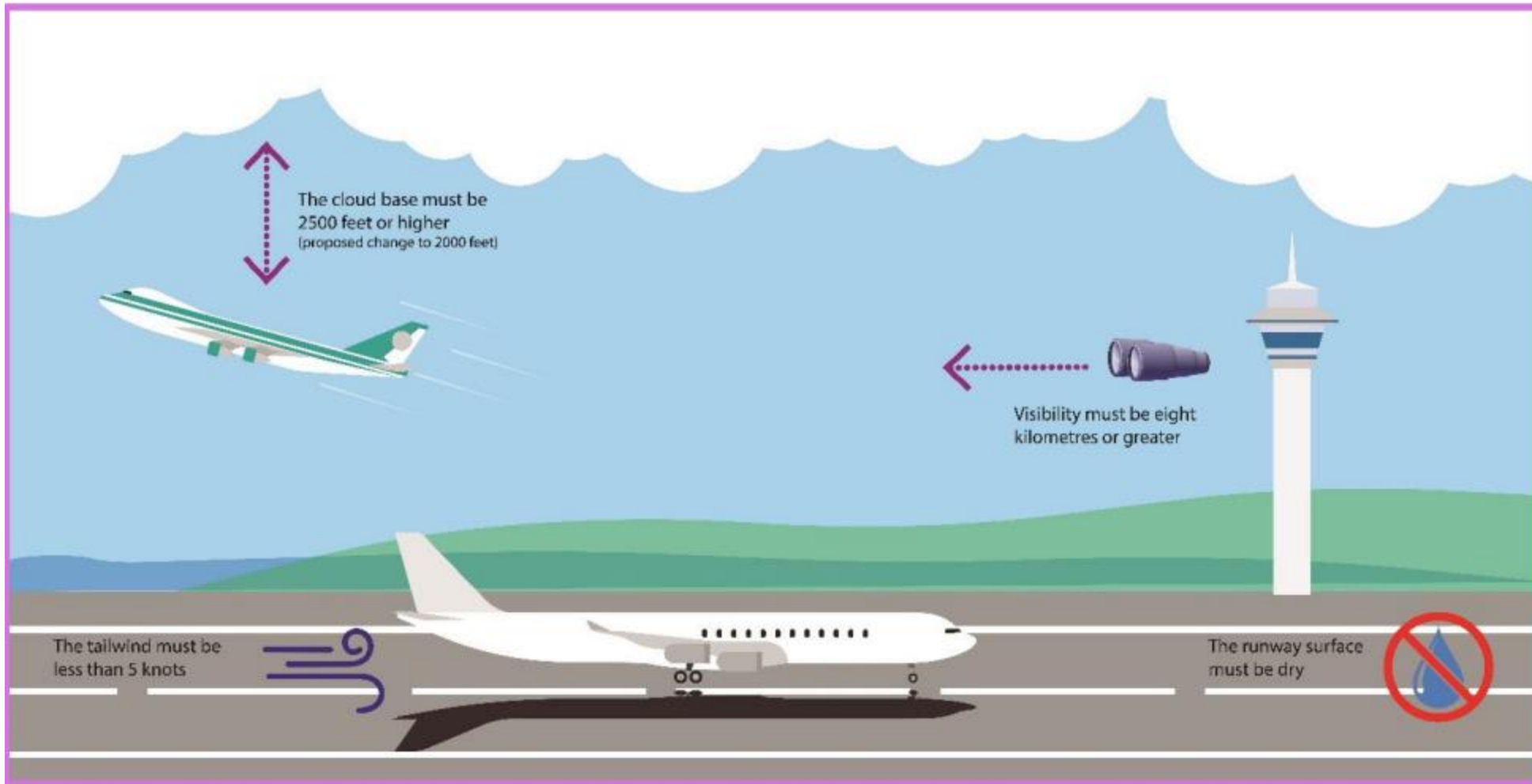


Figure 3 These four weather conditions are key decision-making criteria for safe operation of SODPROPS



Noise Action Plan for Brisbane

Alternative daytime over-water departures (legacy runway 01R) south

Current daytime operations

When the wind is blowing from the north, aircraft depart off both runways over water. Departing aircraft travelling to destinations to the south use the legacy runway (01R), in keeping with the compass model of operations.

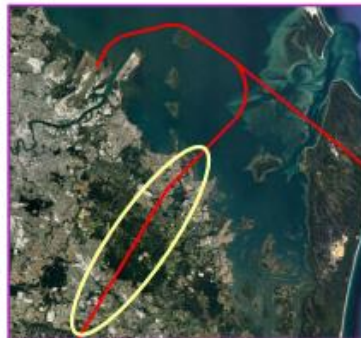
Jet aircraft travelling to the south, climb over water to approximately 8000 feet and then turn right to cross the coastline at Wellington Point. These operations from the legacy runway occurred prior to the new parallel runway opening, but on a different alignment and at lower altitude.

The Brisbane to Sydney and Brisbane to Melbourne route is one of the busiest air traffic routes in the country.

What is compass operations?

Compass operations involves aircraft being assigned a runway based on the direction of travel:

- aircraft travelling to and from southern and eastern ports will be allocated the legacy runway - 01R/19L
- aircraft travelling to and from northern and western ports will be allocated the new runway - 01L/19R.



The yellow circle indicates the specific flight path we are developing options for.

Noise Action Plan for Brisbane

Recommendations 2.3 d) and 3.1 u) of the *Noise Action Plan for Brisbane* focus on opportunities to improve over-water departure paths that fly over communities after they cross the coastline to increase height, maintain over water for longer, or travel further east.

In developing our response, we have focused on keeping operations over water for longer and finding areas of lower residential density to cross the coast.

Current Standard Instrument Departure (SID) to the south

The current daytime Standard Instrument Departure (SID) path to the south is shown in red, below.

This SID initially tracks aircraft from the legacy runway (01R) over Moreton Bay using a series of turns. Aircraft are required to climb to 5000 feet while over Moreton Bay, then cross the coastline between Wellington Point and Ormiston at 8000 feet. They continue to track in a south-west direction over Alexandra Hills at 11,700 feet and Sheldon at 13,000 feet, to join the enroute network at the SANEG waypoint near Jimboomba at 18,250 feet, where they continue their journey south.

This SID recorded 14,110 operations during 2022. This is approximately 39 operations per day on average, noting this is heavily dependent on variable weather conditions and that some days will receive higher operations, while others will have none.

Airservices has investigated options for daytime departure operations to the south, which aim to reduce the impact of these operations on the Redlands community who are also impacted by Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS) at night.

One alternative option for daytime southern departure operations to the south has been developed. If adopted, this would replace the existing SID that crosses the coastline at Wellington Point.

Proposed alternative option

This proposed option (green) takes aircraft further over Moreton Bay enabling them to gain more altitude before crossing the coastline over greenspace south of Thornlands at 12,900 feet, almost 5000 feet higher than the current crossing point.

After crossing the coastline, the path tracks north of Mount Cotton at 14,310 feet and Daisy Hill at 16,380 feet. It then follows the current daytime path to the south over the Logan Hospital at 16,930 feet, Loganlea at 17,150 feet, Waterford West at 17,510 feet and Logan Reserve at 18,060 feet, to waypoint SANEG near Jimboomba.

The same option is presented in the *Alternative Night-time Over-water Departures (legacy runway 01R) South* fact sheet, as an alternative to the current night-time SODPROPS path to the south.

The option of using the existing SID (blue) to the south-east, which crosses over North Stradbroke Island and connects to waypoint SCOTT over water, shown in blue below, was also investigated. Due to a conflict with busy arrival routes from the south, which cross under this departure path, this cannot be progressed as a daytime option. It has been included as a night-time option, when traffic volumes are lower, to provide respite to this community.

Another option to have this SID cross the coastline further south of this proposed option was investigated. However, due to the conflict with arrival routes from the south, this cannot be safely operated.



Alphabetical markers (A, B) identify points where noise level information is provided in the table on the following page.

Note: scalable images of flight path options are available on [Engage Airservices](https://engage.airservicesaustralia.com/nap4b)

engage.airservicesaustralia.com/nap4b

Population comparison

The total population overflow by the current and proposed option has been assessed from runway end to the end waypoint (SANEG). A flight path width of 2km has been used to enable comparison, noting aircraft noise will extend beyond this boundary.

	Current SID	Option 1
Total flight path	80,310	47,498
Within 60dB LAMax contour	2,396	336
Within 70dB LAMax contour	85	85

Population count methodology based on Census 2021 data used with Statistical Area Level 1s (SA1s) inside the noise contours for each option.

Noise level comparison

For the purpose of noise level comparison at identified marker points, a typical domestic jet has been selected, as well as a typical international jet. The noise level represented is the maximum noise level (LAMax) expected from each aircraft.

		A	B
Typical Domestic Jet (LAMax)	Current SID	< 50	< 50
	Option 1	< 50	< 50
Typical International Jet (LAMax)	Current SID	55 - 60	< 50
	Option 1	55 - 60	< 50

Noise levels are measured in decibels at each point, as reference in the image on the previous page.

For comparison, 50decibels is a similar level of noise to an air conditioner or refrigerator operating nearby, while 60decibels is similar to a normal conversation.

Noise contours

Single event, maximum noise level (LAMax) contours, below, have been developed for the current flight path and the proposed option based on the loudest international jet. The inner shaded shape represents the 70-decibel area and the outer shaded shape the 60-decibel area.

Current SID



Option 1



Track miles and emissions

To consider the operational implications of the current and proposed option, track miles and associated emissions based on a typical domestic jet have been calculated.

		Track miles (NM)	CO ₂ (tonnes)
Typical Domestic Jet	Current SID	46.5	6.32
	Option 1	48.0	6.65

Communities overflown

The following communities are overflown directly by the current SID and the alternative option. Other communities either side of those identified below may also notice the operations.

Current SID		Option 1	
Alexandra Hills	Meadowbrook	Bethania	Priestdale
Bethania	Mount Cotton	Buccan	Shailer Park
Birkdale	Mud Island	Chambers Flat	Sheldon
Buccan	Ormiston	Daisy Hill	Slacks Creek
Burbank	Pinkenba	Jimboomba	Stockleigh
Capalaba	Priestdale	Kingston	Tanah Merah
Chambers Flat	Shailer Park	Logan Reserve	Thornlands
Daisy Hill	Sheldon	Logan Village	Victoria Point
Jimboomba	Slacks Creek	Loganlea	Waterford
Kingston	Stockleigh	Meadowbrook	Waterford West
Logan Reserve	Waterford	Mount Cotton	
Logan Village	Waterford West	Mud Island	
Loganlea	Wellington Point	Pinkenba	

Next steps

Airservices Australia is seeking community feedback on the proposed option, to identify if it should be progressed as a preferred option to formal design and full environmental assessment.

No decision has yet been made by Airservices to implement this proposal.

Provide your feedback

You can provide feedback via our [Online Form](#) on the *Engage Airservices Noise Action Plan for Brisbane* page.

In particular, we would like to know:

1. Do you support the proposed option?
2. If so, why do you support it?
3. If not, why do you not support it?

You are also welcome to provide any other feedback you have on this option.

FIND OUT MORE

For more information on the *Noise Action Plan for Brisbane*, please scan this QR code, click here, or search <https://engage.airservicesaustralia.com/nap4b> in your web browser.



If you have specific questions or complaints about aircraft operations, please contact our [Noise Complaints and Information Service \(NCIS\)](#).



Noise Action Plan for Brisbane

Topic: Increased operational reporting

Purpose: To improve transparency and quality of information provided to the community

Background

During the Post Implementation Review (PIR) for Brisbane Airport's New Parallel Runway (NPR) flight paths, Airservices Australia received feedback noting a desire for greater transparency and reporting of aircraft operations. This included:

- adherence to Noise Abatement Procedures (NAPs)
- use of Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS)
- aircraft tracking and altitude
- noise information
- complaints and our responses to these.

We also received feedback during Phase 1 engagement in April/May 2023 that the following reporting would be valued:

- actual flight data showing where aircraft are tracking against the nominal flight path centre line in real time
- a summary of tactical interventions to aircraft operations noting why aircraft were taken off the designated flight path
- delays due to NAPs application
- current and historical wind data (speed and direction)
- use of different modes of operation
- historical aircraft track data
- improved information on non-jet traffic
- projections for increase of aircraft operations.

In this factsheet, you can find information on:

- current reporting tools
- information currently available through these tools
- proposed additional reporting including:
 - Noise Abatement Procedures (NAPs)
 - SODPROPS use
 - actual aircraft tracking
- Noise Abatement Procedures explained.



Noise Action Plan for Brisbane

Recommendation 1.4(h) Increased public reporting and transparency on operations, including NAP compliance, use of published paths and procedures, aircraft noise and altitude, and complaints and actions taken in response.

WebTrak

Currently available information

- aircraft tracking information, extending to a 40km boundary around each airport. Where a smaller aerodrome is located within this distance, aircraft movements to and from this aerodrome will also be shown. In the case of Brisbane, this includes Archerfield Airport.
- single event noise levels for locations with permanent or temporary noise monitors. This includes Brisbane, Sydney, Melbourne and Adelaide airports
- aircraft information including flight identification, origin and destination of the flight, aircraft type and aircraft altitude
- historic noise and flight track data dating back 90 days, as well as historic trends and traffic patterns dating back to 2011
- weather data including wind speed and direction, temperature, humidity and visibility
- airport updates, noting any maintenance or operational updates that may result in changes to normal aircraft operations.

WebTrak currently has a 30-minute delay in providing aircraft movement and noise information. This is the time it takes for data captured at noise monitoring terminals to upload to the system.

We are working with our supplier to reduce this to 10 minutes, with further work being progressed to move to real-time display. We are also extending the geographic coverage of WebTrak from 40km to 80km around the airport.

Additional reporting options

Based on the recommendations of the *Noise Action Plan for Brisbane*, Phase 1 feedback on reporting, and a review of information that is already publicly available, we have identified the following new reporting requirements that can be serviced through our existing tools:

- NAP adherence
- SODPROPS use
- actual aircraft tracking.

The following reporting requests will need to be investigated further as our current systems do not support this reporting:

- tactical interventions to aircraft operations
- summary of aircraft delays being caused by NAPs
- current and historical wind data (speed and direction)
- historical aircraft track data
- historical raw noise measurement data.

The community has also requested additional complaints reporting. Airservices is currently reviewing the mechanism and format for this additional reporting in consultation with the Brisbane Airport Community Airspace Advisory Board (AAB). We will report on progress with this in future updates to the community.

WebTrak can be viewed at:
<https://webtrak.emsbk.com/bne3>

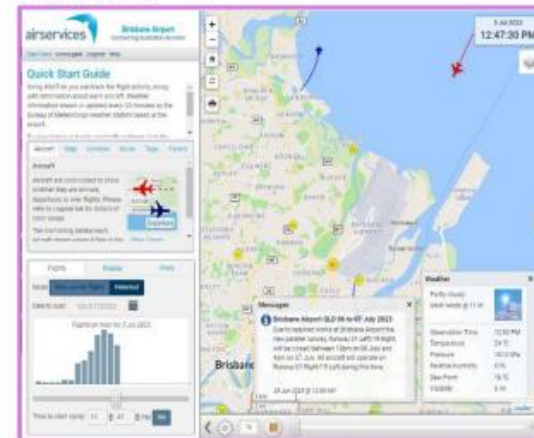


Figure 2 Sample page from WebTrak

Future Challenges

- Final outcomes Brisbane Noise Action Plan
- Western Sydney Airport opens 2026
- Melbourne Airport 3rd Runway 2027
- Perth Airport New Runway 2027/28

Solutions

- Industry collaboration and support
- Baseline noise and emissions
- Accurate and transparent data
- Follow Brisbane's lead

