



Noise Action Plan for Brisbane

Topic: Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS) expansion

Purpose: To support greater use of SODPROPS, including daytime operation

Background

Brisbane Airport operates 24 hours a day, seven days a week, so aircraft can arrive or depart at any time, day or night, though night volumes are generally much lower.

Simultaneous Opposite Direction Parallel Runway Operations (SODPROPS) is the priority operating mode at night. This mode has both arrivals and departures over water, with aircraft arriving over Moreton Bay to the new runway (19R) and departing over Moreton Bay from the legacy runway (01R). Note that aircraft travel over land before some arrivals and after some departures.

While standard parallel runway operations have 50% of flights going over Moreton Bay, with either arrivals or departures over the bay depending on wind direction, SODPROPS mode involves all operations starting and/or ending over water. SODPROPS is currently only used at night-time due to conflicting daytime operations to and from other airports and airspace, which was identified during final flight path design in 2018.

The safe operation of SODPROPS depends on a range of factors including weather, conflicting airspace operations and the volume of aircraft traffic that can be safely managed in this mode, given aircraft are effectively travelling toward each other on arrival and departure.

The *Noise Action Plan for Brisbane* is seeking to extend the use of SODPROPS beyond night-time operation, with the aim of making it the preferred operating mode during the day as well as at night, where conditions allow.

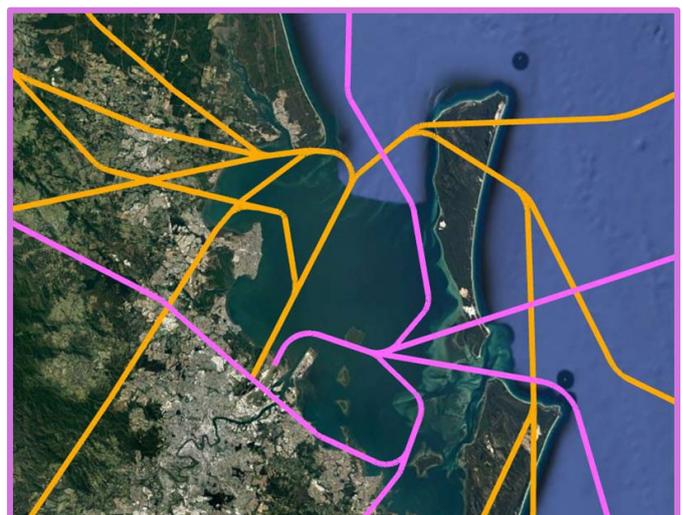


Figure 1 In SODPROPS mode, aircraft arrive (orange paths) and depart (pink paths) over Moreton Bay

Noise Action Plan for Brisbane

Recommendation 2.2(c) of the *Noise Action Plan for Brisbane* focuses on options to amend specific flight paths that serve traffic routing through the Brisbane airspace system inbound to other destinations, which may constrain Brisbane air traffic control's ability to extend the use of SODPROPS.

Recommendation 2.3(e) is to examine opportunities to modify weather condition constraints, where safe, to allow greater use of SODPROPS.

Current operations

Aircraft travelling between the Sunshine Coast and Gold Coast airports travel through Brisbane airspace. These high-altitude routes currently track over and to the east of North Stradbroke Island (shown in red in *Figure 2*). This is the same location as the flight paths used during SODPROPS mode.

While the Sunshine Coast/Gold Coast routes are at a higher altitude, these aircraft are still under air traffic control (ATC) management. ATC must ensure aircraft on these routes are kept at a safe distance from the Brisbane Airport operations.

Having both SODPROPS movements and these higher-altitude operations in the same location increases the risk of aircraft conflict. Given the high volume of traffic that is managed during daytime hours, and the added complexity of SODPROPS mode that has both arriving and departing aircraft in the same location, SODPROPS mode is not currently used during the day. During night-time hours when there is a much lower volume of aircraft movements, SODPROPS mode can be used and potential conflicts managed.

What is a mode? This refers to modes of operation. They describe different arrival and departure operational options usually linked to time of day, air traffic volume, wind direction and runway availability. For example, SODPROPS is a mode.

Proposed change

A number of actions recommended in the *Noise Action Plan for Brisbane* will increase our ability to use SODPROPS at all times of the day and night, where conditions allow. This includes review of operating procedures, options to address conflicting airspace operations and review of weather criteria.

As the first major action to enable the use of SODPROPS during daytime hours, we have developed an option to relocate the high-altitude Sunshine Coast/Gold Coast routes further east of North Stradbroke Island (shown in *Figure 2*). The current high-altitude routes are shown in red and the proposed relocation option in green. The SODPROPS flight paths are shown in orange and pink.

By moving the high-altitude paths (red) further east (green) they would be far enough from the SODPROPS flight paths to address potential operating conflicts, enabling SODPROPS mode to be used during daytime hours, where weather and other operating conditions allow.

If progressed, this proposed change would go through a detailed design and assessment process to make this a permanent change. Changes of this nature generally take a minimum of 12 months to implement.

SODPROPS data 2022

The following table provides the total SODPROPS movements for 2022 in comparison to total aircraft movements at Brisbane Airport. "Movements" is made up of both arrivals and departures. Where parallel runway modes are used (i.e., when not in SODPROPS mode), 50% of movements will be over water, with aircraft either arriving over Moreton Bay and departing over land or arriving over land and departing over Moreton Bay, depending on the wind direction at the time. Note that aircraft travel over land before some arrivals and after some departures.

	SODPROPS movements	All Brisbane Airport movements	SODPROPS movements as percentage of all movements
Total	8031	172,158	4.67%
Night-time 10pm – 6am	5055	14,875	33.98%
Weekend 6am – 8am	487	3105	15.68%
Weekend 8pm – 10pm	447	2418	18.49%
Weekend (outside trial periods)	317	30,235	1.04%

Population and noise data

The relocation of the Sunshine Coast/Gold Coast routes is not anticipated to impact communities due to the height at which aircraft are operating and the location, which is largely over the ocean. The sections that travel over land, over the Gold Coast travelling to the south, will be operating above Brisbane Airport flight paths.

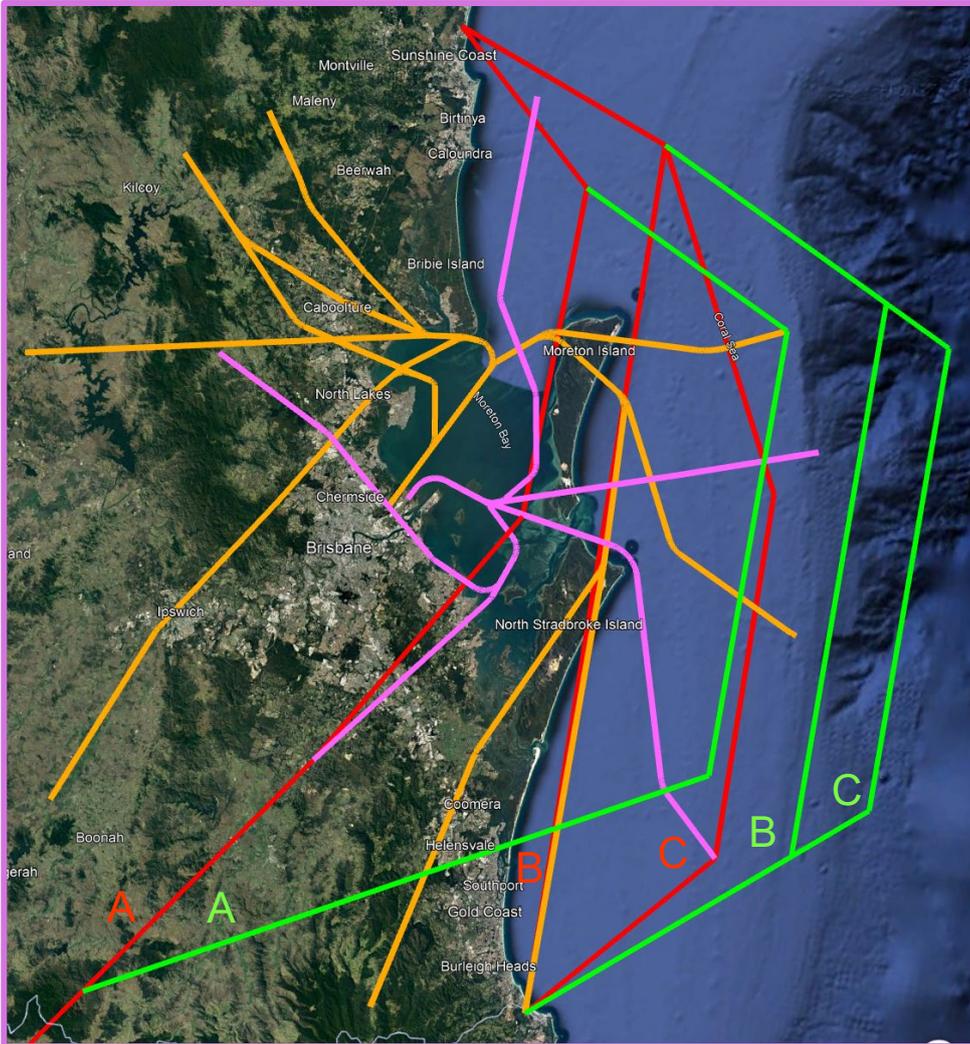


Figure 2

High altitude routes - current (red) and proposed (green)

SODPROPs flight paths - orange and pink.

Track miles and emissions

Track miles and associated emissions based on a typical domestic jet have been calculated to show the operational implications of the current and proposed option.

		Track miles (NM)	CO ₂ (tonnes)
Typical domestic jet	Current Route A (red)	95.69	7.2
	Proposed Route A (green)	132.48	7.9
	Current Route B (red)	85.79	7.0
	Proposed Route B (green)	111.46	7.5
	Current Route C (red)	95.57	7.2
	Proposed Route C (green)	118.85	7.6

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

Weather Criteria

Airservices Australia has reviewed operational data from 2022 to investigate the implications of weather conditions on the use of SODPROPS. We used this data to identify where we could have continued to use SODPROPS under different weather criteria without reducing safety.

Safety is the key deciding factor in any review of weather conditions. Any changes proposed by Airservices will require approval by the Civil Aviation Safety Authority (CASA).

There are 4 key weather criteria:

- cloud ceiling
- wind conditions
- visibility
- precipitation (rain/wet conditions).

Airservices has investigated these criteria to identify safe opportunities to propose changes that could increase the use of SODPROPS. The only feasible opportunity we have identified, in addition to our earlier efforts in relation to tailwind limits, is cloud ceiling.

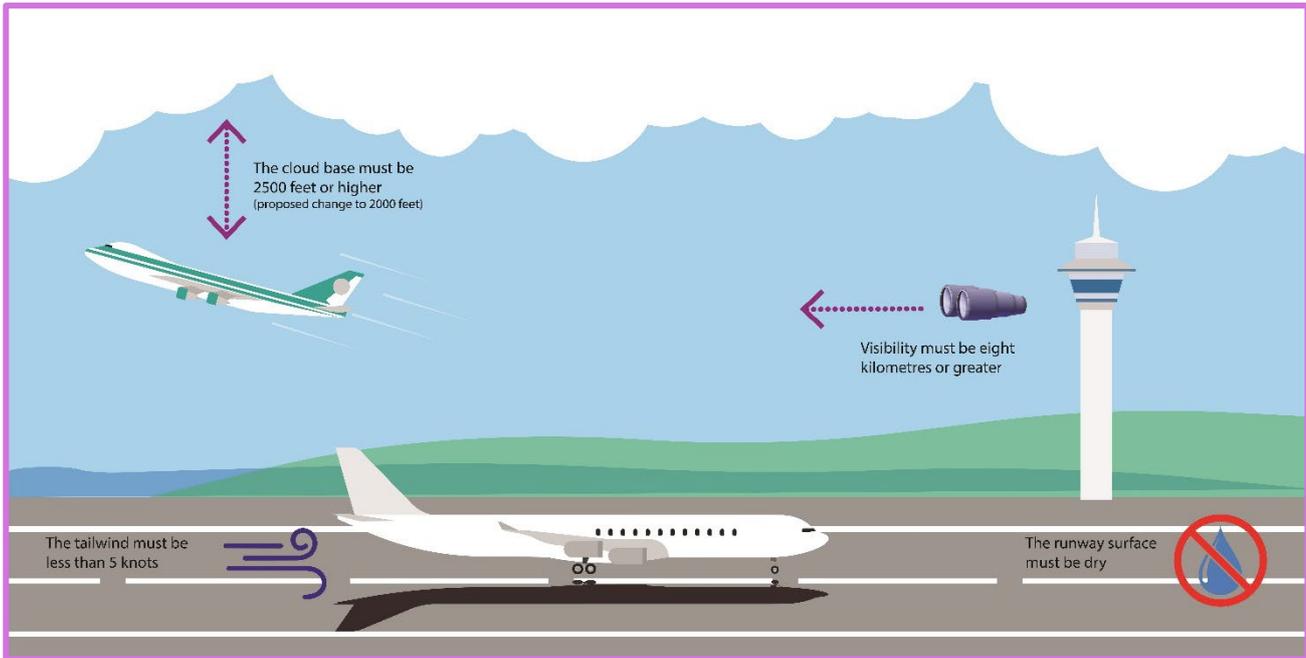


Figure 3 These four weather conditions are key decision-making criteria for safe operation of SODPROPS

Cloud ceiling

This criterion establishes a minimum height of the lowest cloud layer above the ground, to ensure pilots have clear visual references during take-off and landing.

Current operations: The current ceiling limit is 2500ft or higher. If the cloud ceiling drops below this minimum, SODPROPS operations will be suspended.

Proposed change: Seek a reduced cloud ceiling limit of 2000ft.

Potential benefit to SODPROPS: A reduction in the minimum cloud ceiling from 2500ft to 2000ft would have enabled an additional 1200 flights to operate in SODPROPS mode in 2022.

Reducing this further, for example by a further 500ft, was found to have a lesser benefit, with approximately 300 additional flights enabled in this mode for the year.

Next steps: Airservices will apply to CASA to change the cloud ceiling limit to 2000ft.

Wind conditions

Wind is a key factor influencing the use of SODPROPS. Wind speed and direction are monitored and need to be within a specified range to enable SODPROPS mode. The key criterion is tailwind, which is the speed of the wind blowing in the same direction as the aircraft.

Current operations: The current tailwind limit is 5 knots.

Proposed change: Airservices and Brisbane Airport Corporation (BAC) worked together with industry to develop a safety case requesting an exemption to the tailwind limit at Brisbane Airport during SODPROPS, from 5 to 7 knots. This was not approved by CASA.

Potential benefit to SODPROPS: A 7 knot tailwind limit would have enabled approximately 1070 additional flights to be operated in this mode in 2022.

Next steps: Airservices is seeking clarification on what further information is required to provide assurance of the safe operation of SODPROPS mode at Brisbane Airport with this slightly higher tailwind limit.

Other weather criteria – no action possible

Visibility

Good visibility is essential for safe SODPROPS operations. SODPROPS mode involves aircraft arriving and departing over Moreton Bay at the same time, so they are effectively flying toward each other. Even though they are separated by 2km (due to runway locations), good visibility is essential as it enables visual contact with the runway and surrounding aircraft.

Current operations: If visibility falls below 8km SODPROPS will be suspended until conditions improve.

Potential benefit to SODPROPS: There is negligible benefit to SODPROPS mode use in reducing the minimum visibility below 8km, as this condition typically occurs at the same time as rainy conditions, which result in a wet runway, which is unsafe for SODPROPS mode operation.

Next steps: No further action possible.

Precipitation (wet weather)

The runway surface must be dry to enable SODPROPS operations. As there will likely be some tailwind for either the departing or arriving aircraft (it is rare to have no wind in either direction) a dry runway is essential to maintain safe operations. A wet runway affects runway friction and can potentially lead to decreased braking efficiency, impacting safety for both arrivals and departures.

Current operations: Runway must be dry for air traffic control to nominate SODPROPS.

Potential benefit to SODPROPS: For safety, the runway must be dry – no scope for change.

Next steps: No further action possible.

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.

We are continuing to work on other recommended actions in the *Noise Action Plan for Brisbane* that will also contribute to expanded SODPROPS operations. These will be shared in our third phase of engagement in October/November 2023.

Provide your feedback

You can provide feedback online at the *Engage Airservices Noise Action Plan for Brisbane* page.

We would like to know:

1. Do you support using the alternative Sunshine Coast/Gold Coast routes to enable greater use of SODPROPS?
2. Do you have any concerns about these proposed changes?
3. Is there sufficient information provided on weather criteria? Is the rationale clear for next steps?

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

Join the discussion!

For more information and to join the discussion on the *Noise Action Plan for Brisbane*, register your details to receive updates, or join us at upcoming community engagement sessions, please scan this QR code or visit <https://engage.airservicesaustralia.com/nap4b>

You can also contact us at: communityengagement@airservicesaustralia.com



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