HOBART AIRSPACE DESIGN REVIEW

PROPOSED FLIGHT PATH DESIGNS

Airservices has undertaken a review of the Hobart Airspace as a 'greenfield approach' with safety of air navigation as the primary consideration.

WHY DID WE NEED A REVIEW?

Airservices introduced changes to arrival and departure flight paths at Hobart Airport on 14 September 2017. The changes were designed to organise aircraft departing from, or arriving into, Hobart Airport onto standard routes called Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs).

Following implementation, concerns were raised by the community. Airservices subsequently undertook to engage with the communities affected to provide feedback on a number of flight path alternatives, which may result in an improved noise outcome. Based on the feedback received, Airservices implemented a change to the Runway 30 STAR flight path in March 2018.

The Hobart Runway 30 STAR Review Report concluded that Airservices would commit to a further review of the Hobart SIDs and STARs and released Terms of Reference (TOR) to describe the objectives of that review.

WHAT HAS BEEN DONE TO DATE?

Airservices has undertaken a review of the Hobart Airspace using a 'greenfield approach', with safety of air navigation as the primary consideration.

Airservices has reviewed the design of the SIDs and STARs for Runway 12 and Runway 30.

This has included a review of the operability of the design implemented on 14 September 2017, and the changes to Runway 30 STAR in March 2018.

Wherever possible, changes to the flight paths that would deliver safety enhancements have been identified and these have been balanced with minimising the effects of aircraft noise on the community, as far as practical.

CURRENT AIRSPACE DESIGN

The current flight path designs for Hobart are based on an integration of STARs and SIDs, designed using advancements in Performance Based navigation (PBN) technology to provide separation assurance between arriving and departing traffic at Hobart.

SIDs connect departing aircraft from the runway to their routes that they will fly to their destination. STARs connect arriving aircraft from the overlying routes, to approaches to the runway. These can include satellite based area navigation approaches (RNAV) and required navigation performance arrivals (RNP-AR, also known as 'Smart Tracking') which guide the aircraft to the runway in all weather conditions.

This allows improved management of aircraft operations by aircraft and air traffic control systems, reducing pilot and air traffic control workload and resulting in reduced fuel burn and lower emissions.

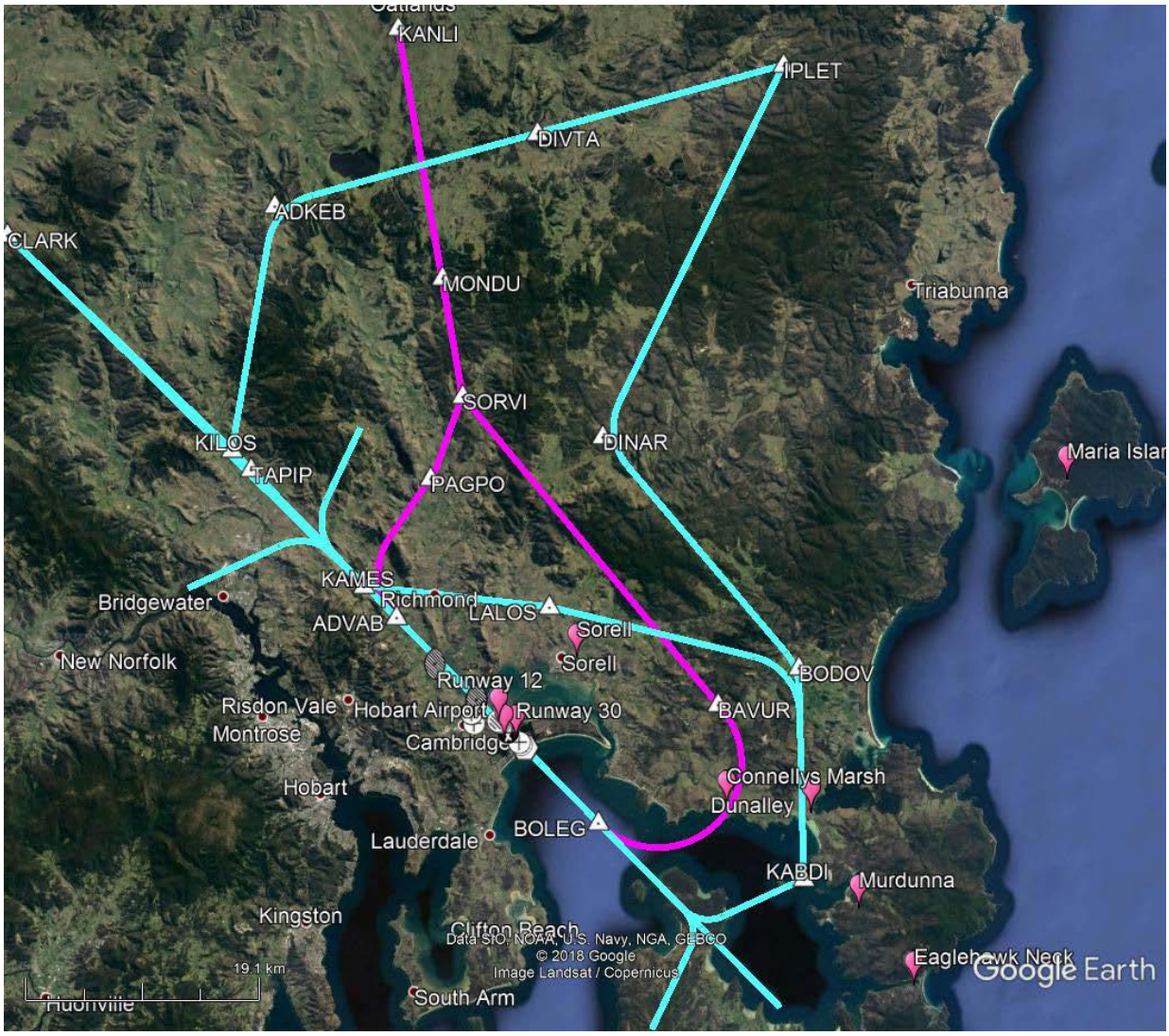

Figure 1: Current flight path design for Hobart Airport with STARs and SIDs

Hobart Airport has one runway, which is aligned north–west (known as Runway 30) to south–east (known as Runway 12). The current flight path designs at Hobart consist of one SID for all departing aircraft and two RNAV STARs for arriving aircraft for both the RWY 30 and RWY 12 configurations (refer Figure 1). There is no Smart Tracking approach and all routes are over land.

The operational pattern at Hobart Airport is highly seasonal, due to the prevailing winds. In winter months the runway in operation is almost exclusively Runway 30, with aircraft departing and arriving in a north-westerly direction, into the wind. During summer months runway operations are more evenly distributed between both runway ends.

Daily aircraft movements at Hobart range from 41 to 90 with an average of 62 aircraft movements per day. Figure 2 below depicts current (actual) flight tracks for RWY 12 from the last three months. Figure 3 below depicts current (actual) flight tracks for RWY 30 from the last three months.

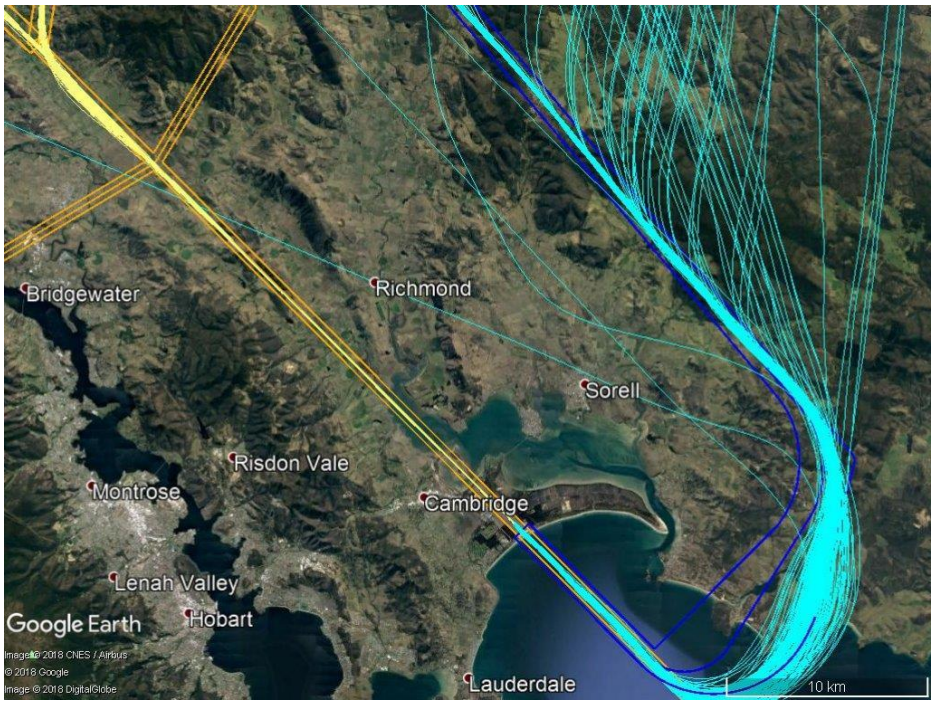

Figure 2: Arrivals and Departures RWY12: Current (Actual) Departure Tracks Current (Actual) Arrival Tracks Current Flight Path Corridor Current Departure Flight Path Corridor

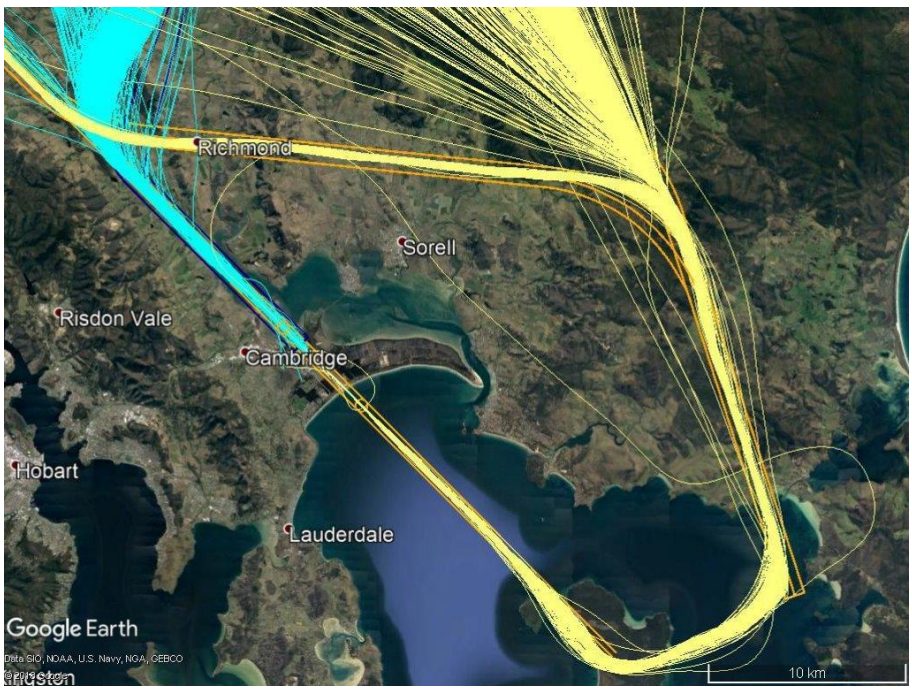

Figure 3: Arrivals and Departures RWY30: Current (Actual) Departure Tracks Current (Actual) Arrival Tracks Current Flight Path Corridor Current Departure Flight Path Corridor

WHAT ARE THE KEY ELEMENTS OF THE PROPOSED DESIGNS?

While the current flight path design is safe, Airservices has identified opportunities to improve safety and noise outcomes for the community. The following are the key elements of the proposed flight path design:

Introduction of additional separated SID procedures for turbo propeller and jet aircraft for both Runway 12 and Runway 30 (refer Figure 3)
This will deliver safety and environmental efficiency allowing aircraft to climb unrestricted, minimising fuel burn and aircraft noise.

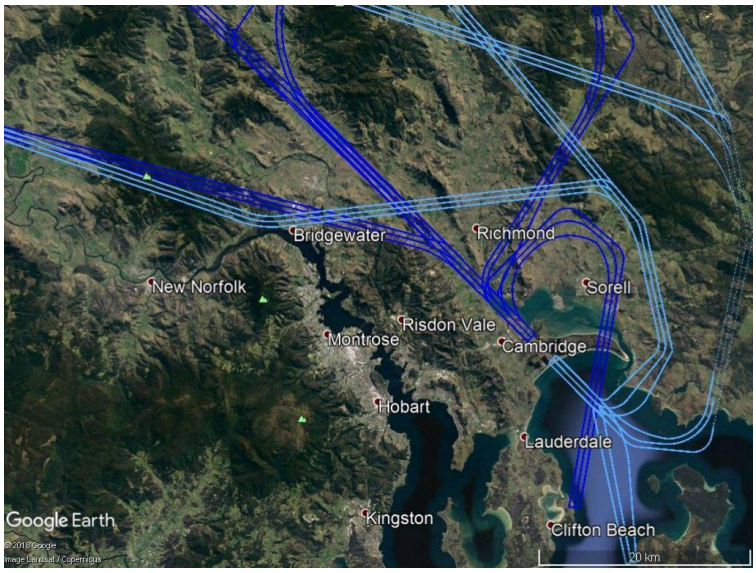

Figure 3: Proposed northern departure flight path corridors Proposed southern departure flight path corridors.

Introduction of additional STAR procedures for both Runway 12 and Runway 30
This will distribute flight paths through satellite based area navigation arrivals (RNAV) and satellite based required navigation performance approaches (RNP-AR; 'Smart Tracking'), including visual termination procedures (refer Figure 4).

Figure 4: Proposed RNAV arrival flight path corridors Proposed Smart tracking approach flight path corridors.

A new easterly flight path off the coast of Tasmania for aircraft arriving from Sydney or Brisbane This new route will move up to 30% of aircraft arrivals to the east coast and over water. The inbound STAR, for all traffic from the east coast of Australia, tracks over water and crosses land only when necessary to join the new RNAV approach at a location which aims to minimise noise impacts to rural communities (refer Figure 4). A change to air traffic control airspace volumes will be required to accommodate the new flight path and this will require approval from the Civil Aviation Safety Authority (CASA). Also shown in Figure 4 below is the new STAR to join the Smart Tracking (RNP AR) approach which provides alternative tracking for arriving aircraft.

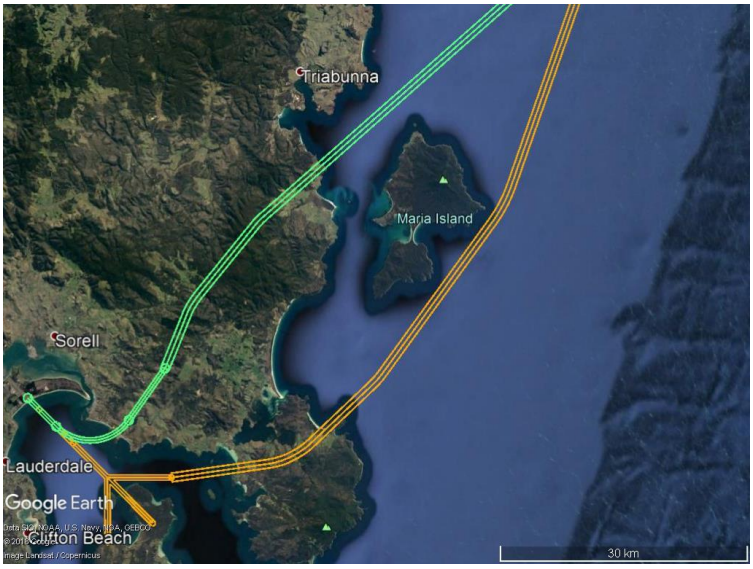

Figure 5: Proposed arrival flight path corridor to Runway 30 RNAV Proposed arrival flight path corridor to Runway 30 RNP AR (Smart Tracking)

Introduce new SIDs to Strahan and Antarctica

This will provide predictable departure flight paths for regular traffic and/or Antarctic departures (refer Figure 6).

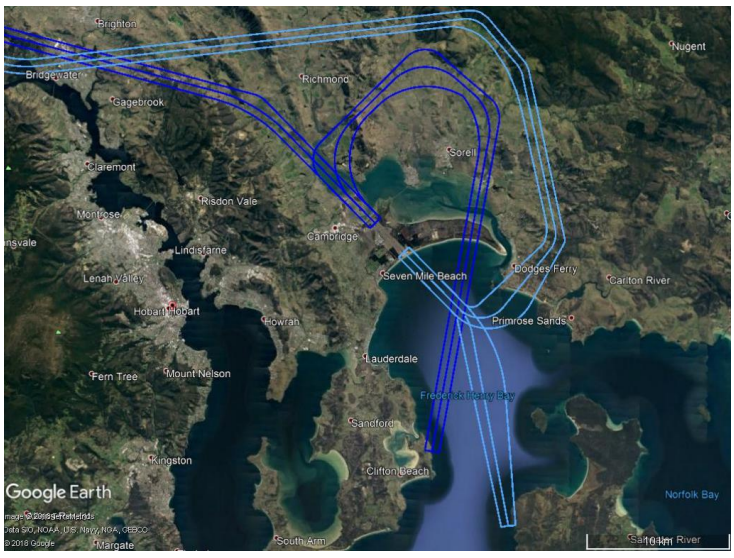

Figure 6: Proposed departure flight path corridors to Strahan and Antarctica Runway 30 Runway 12

Re-design the Runway 30 RNAV to extend it over water

The adjusted STAR crosses land at a point that minimises residential noise effects as much as possible. (Refer Figure 7)

Figure 7: Proposed flight path arrival corridors to Runway 30 RNAV — Current (Actual) Arrival Tracks — Proposed flight path arrival corridor

SID/STAR design with a vertical crossover

Flight paths for arriving and departing traffic are moved with the crossover now occurring at higher levels, further improving safety and allow arriving aircraft to descend without levelling out. (refer Figures 8 and 9)

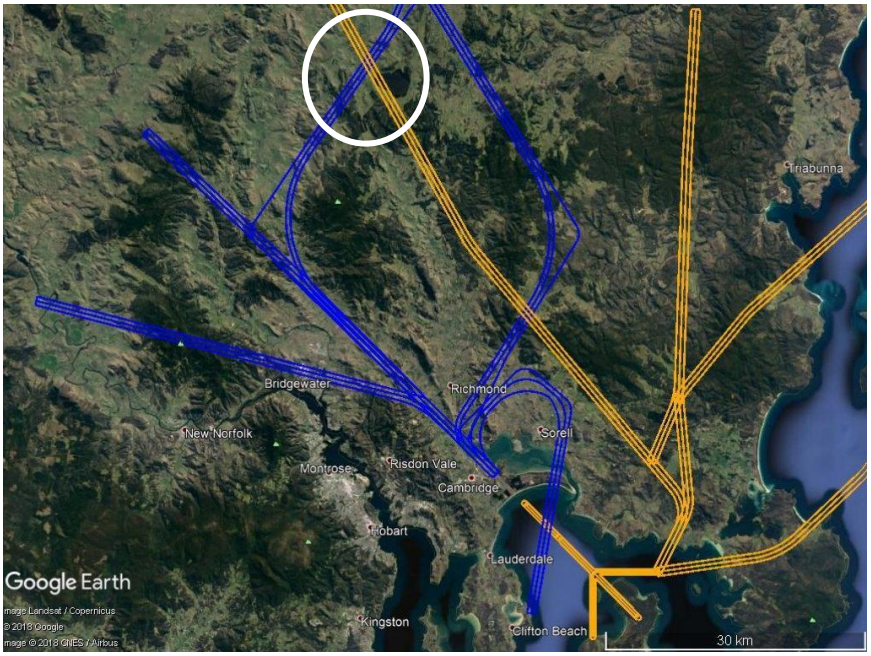

Figure 8: — Proposed crossover of Runway 30 arrivals (13,000ft) and departures (14,000ft). Proposed arrival flight path corridors — Proposed departure flight path corridors

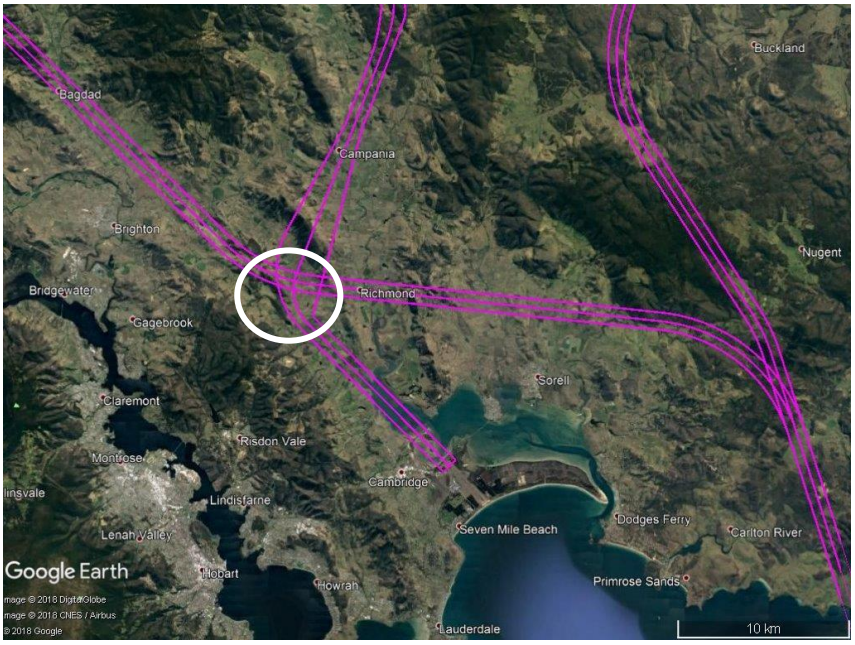

Figure 9: Existing crossover of Runway 30 arrivals (9000ft) and departures (8000ft). Existing flight path corridors

Movement of flight paths away from the World Heritage listed Coal Mine Historic Site
No sites of National Environmental significance are overflown. Consideration of Freycinet Peninsula and Maria Island have informed the design. (refer Figures 10 and 11)

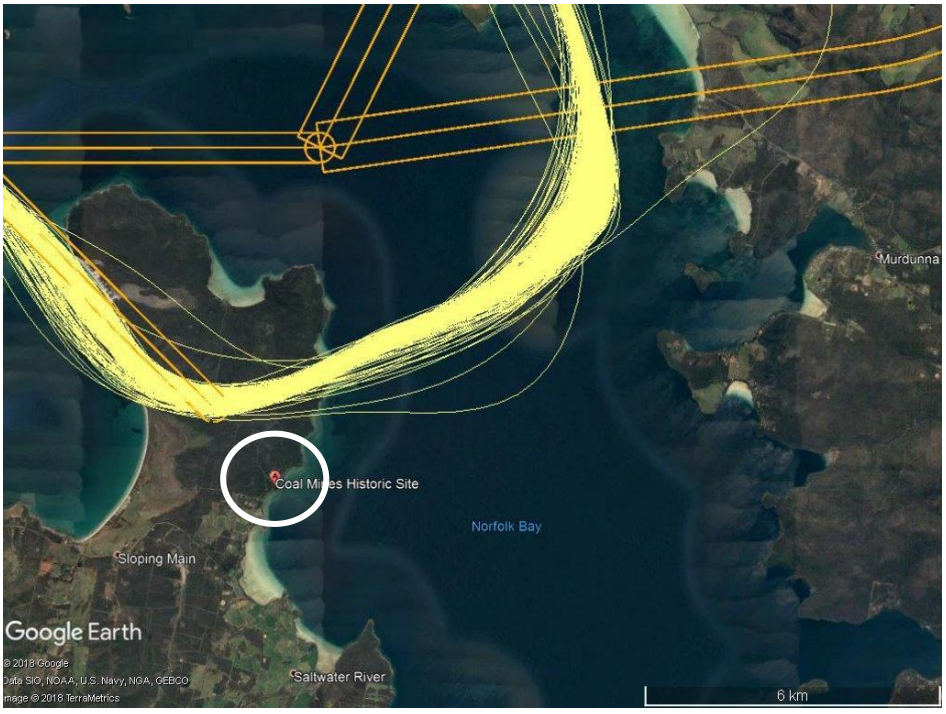

Figure 10: Current (Actual) Arrival Tracks Proposed flight path corridors

Figure 11: Proposed arrival flight path corridors (above 10,000ft) to avoid Maria Island

Holding patterns with operations below 6000 feet have moved to be located over sparsely populated areas wherever possible (Refer Figure 12)
This is to minimise noise impacts.

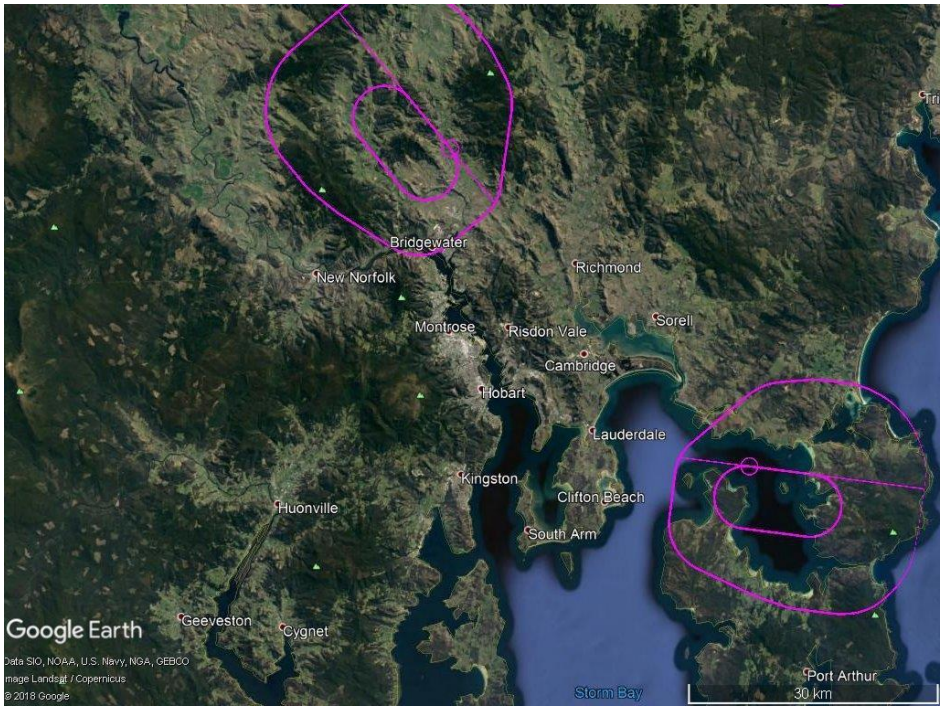

Figure 12: Aircraft holding corridors

HOW WERE THE DESIGNS DEVELOPED?

The proposed flight path designs meet international and domestic regulatory requirements, and certain design constraints including:

- aircraft capability
- controlled airspace design
- single runway airport capacity
- pilot work load
- air traffic control system capability and
- air traffic control standards and procedures.

The range of flight path designs must also be 'flyable', which refers to the ability for aircrews and the aircraft systems to operate within normal limits. Designs that are flyable must then be tested to ensure that they are feasible from an operational perspective.

The proposed designs have also been informed by numerous stakeholder considerations gathered from consultation and engagement activities conducted during the review.

The Hobart community considerations have been detailed in the Social Impact Review Report and from the Stakeholder Reference Panel meeting held in Hobart on 14 September 2018.

A summary of the Flight Path Design Considerations is available on the Airservices website.

Flight path designs were developed via an iterative process. Design alternatives were compared against a range of considerations relating to safety, efficiency, environment and stakeholders to determine the overall impact on the Hobart community. Environmental considerations included noise and visual impacts resulting from aircraft operations, ecological and heritage matters as well as fuel burn and emissions.

Flight path designs were modelled on a busy day of operations at Hobart Airport, including night time operations, and were adjusted for winter and summer aircraft movement patterns and the seasonal variation to prevailing winds.

Aircraft movement data was adjusted for future movements in 12 months, noting that aircraft movements have exceeded the predicted levels for 2020 (Hobart Airport Master Development Plan).

The flight paths have been designed with a 20 year outlook.

The modelling was based on the expected noise levels of a Boeing 737-800 aircraft as they are the most common jet aircraft operating at Hobart Airport, closely followed by the Airbus A320.

Noise modelling did not include helicopters or Cambridge Airport operations as they do not fly SIDs and STARs. The occasional Antarctic flight was also excluded, however it is recognised that each of these types of operations contribute to the noise environment around the general Hobart area.

Actual aircraft movement data of the current operations (Figure 2) is able to show how air traffic control management of flights may occur due to emergency, safety or operational reasons and that these aircraft may appear to deviate off the assigned SID or STAR.

WHAT ARE THE EXPECTED NOISE IMPACTS?

There are a number of changes to flight paths across the Hobart Airspace design, however the likely noise impacts of greater than 60 decibels for greater than 10 flights per day is presented in Figure 13 below.

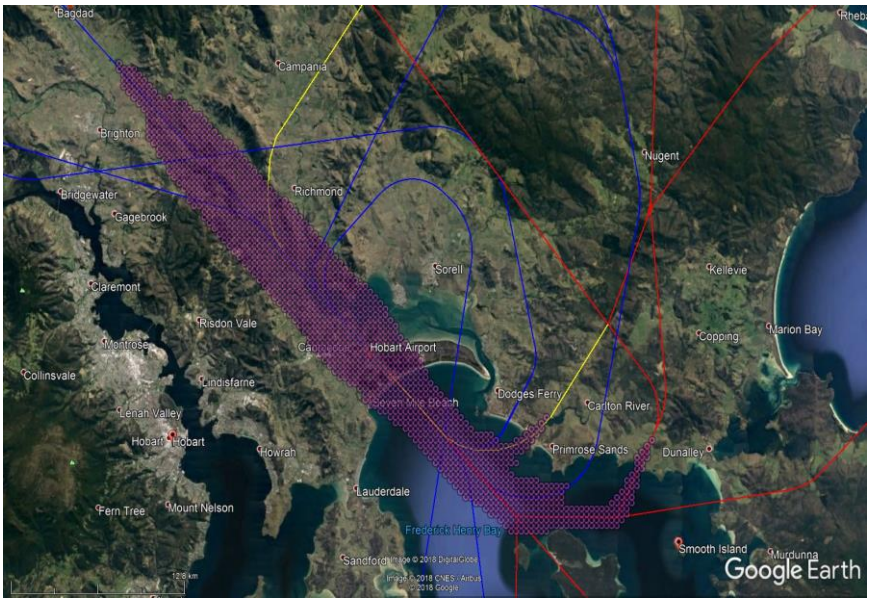

Figure 13: Proposed design – more than 10 flights above 60 decibels, departures, arrivals, Smart Tracking approaches

WHEN WILL THIS CHANGE OCCUR?

The proposed flight path designs are open for stakeholder feedback from 31 October and have now been extended until 10 December 2018.

An implementation date will be determined once all the feedback is considered and the flight path designs are finalised.

WHERE CAN I GET MORE INFORMATION?

On-site community consultation will occur in Hobart between 15 to 21 November 2018.

Dates and locations will be provided on the Airservices website.

HOW CAN I HAVE MY SAY?

To provide feedback contact Tania Parkes Consulting:

Email: taniaparkes@taniaparkes.com.au
or
Free call: 1800 172 173

Or the Noise Complaints and Information Service (NCIS) on:

- 1800 802 584 (free call), an interpreter service is also available on 131 450
- online at: https://feedback.emsbk.com/asa
- Mail to Noise complaints and Information Service, PO BOX 211 Mascot NSW 1460.