BOURNEMOUTH AIRPORT RNAV ACP

ACP-2018-40

BOURNEMOUTH ACP DROP-IN SESSION

VERSION 1.0

BournemouthAirport

Part of Regional & City Airports

BOURNEMOUTH INTERNATIONAL AIRPORT

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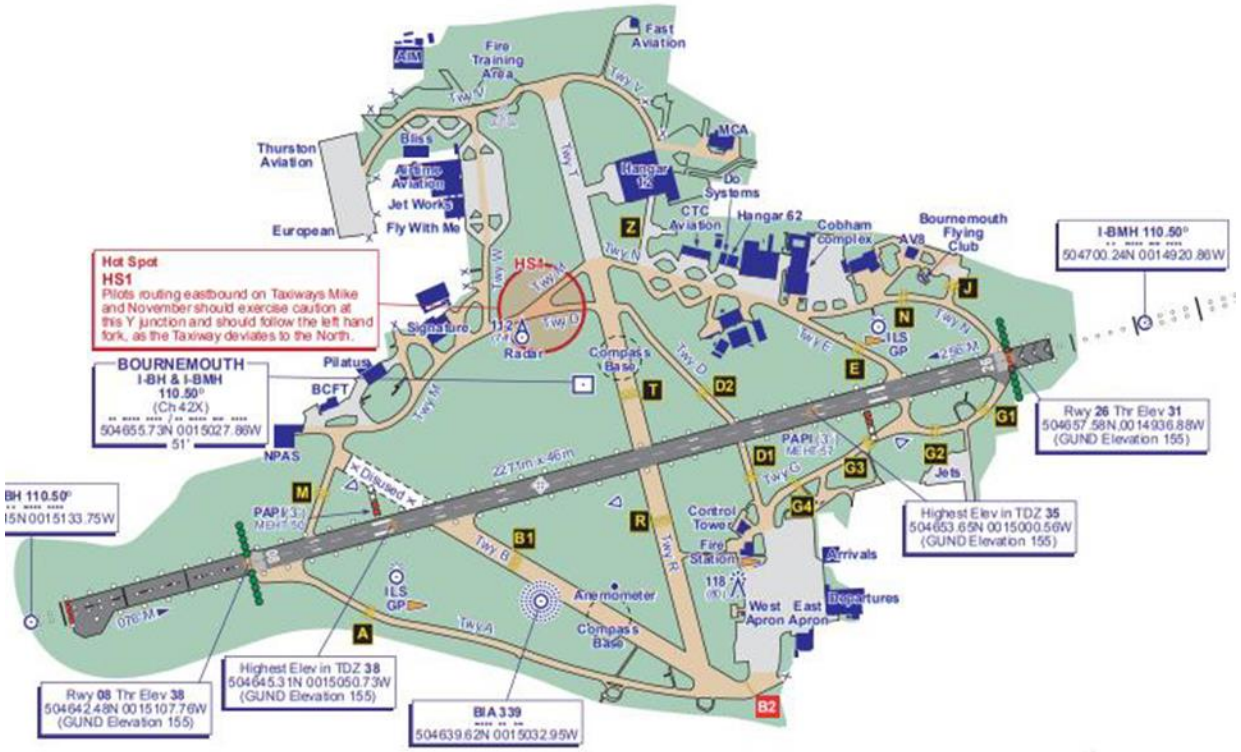
- Bournemouth International Airport is part of Regional & City Airports (Rigby Group).
- The Airport serves:
  - **Commercial Air Transport operations** providing scheduled and charter services (~ **11%** of aircraft movements for 2018)
  - **Non-Commercial operations**, that include Business Aviation, Private and Commercial Pilot training and skill testing and private recreational flying(~ **89%** of aircraft movements for 2018).

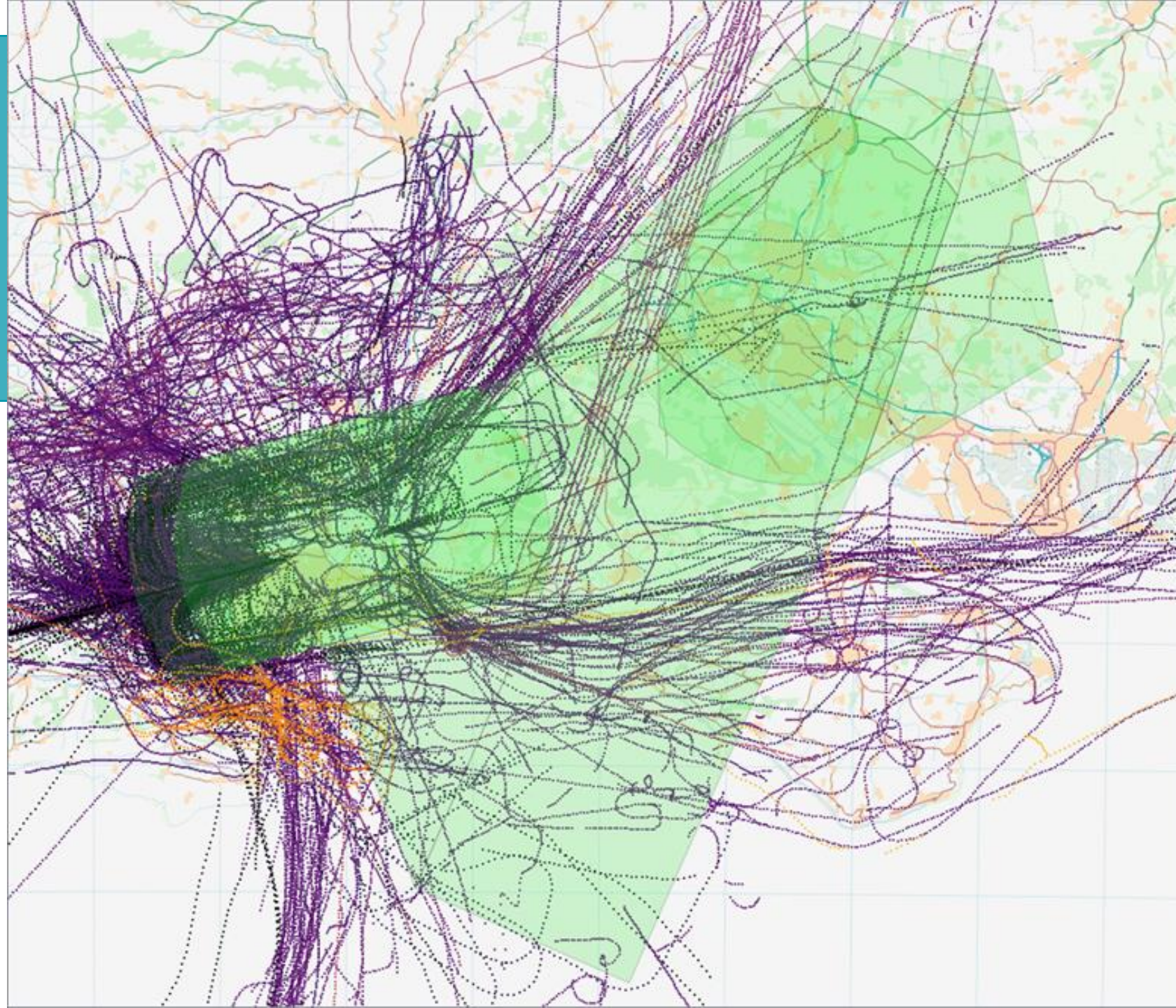
- Bournemouth Airport has one runway oriented approximately east-west with two ends:
  - **RWY 26** end (east), and
  - **RWY 08** end (west).



BOURNEMOUTH INTERNATIONAL AIRPORT

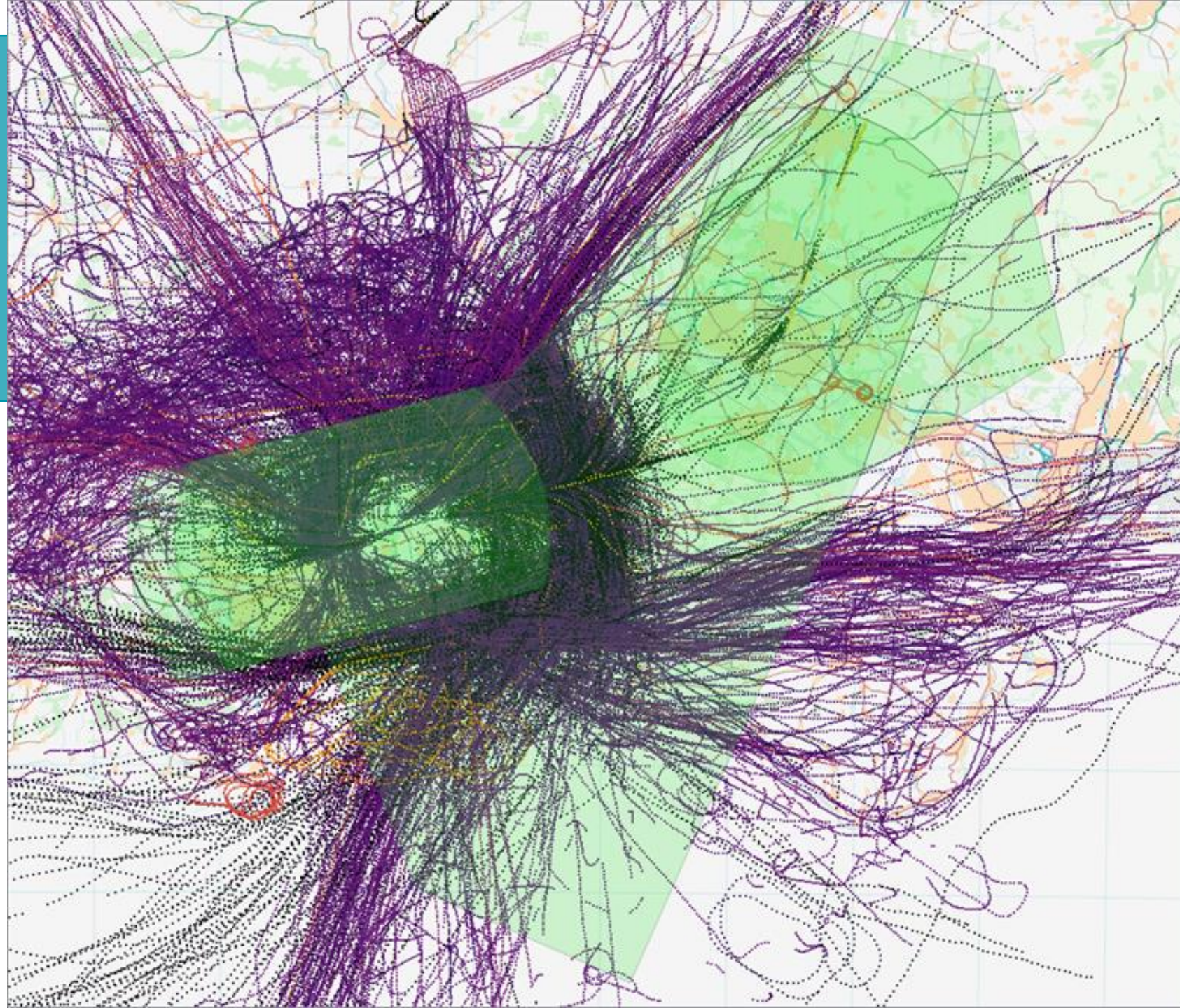
- The majority of flights undertaken by training organisations are conducted under **Visual Flight Rules (VFR)**, where aircraft navigate by visual reference to terrain features.
- Commercial Air Traffic Operations operates under **Instrument Flight Rules (IFR),** where aircraft navigate by on-board instruments, using radio beacons or satellite signals as reference.
- The following figures will provide an overview of all arrivals to RWY 26 and RWY 08 between 1500 and 2500 feet during the years 2017 and 2018.

ALL AIRCRAFT TYPES
ARRIVALS 2017
RWY 08
1500 – 2500 FT *



** Traffic filtered due to high density of VFR aircraft which obscures IFR arrival aircraft*

ALL AIRCRAFT TYPES
ARRIVALS 2017
RWY 26
1500 – 2500 FT *



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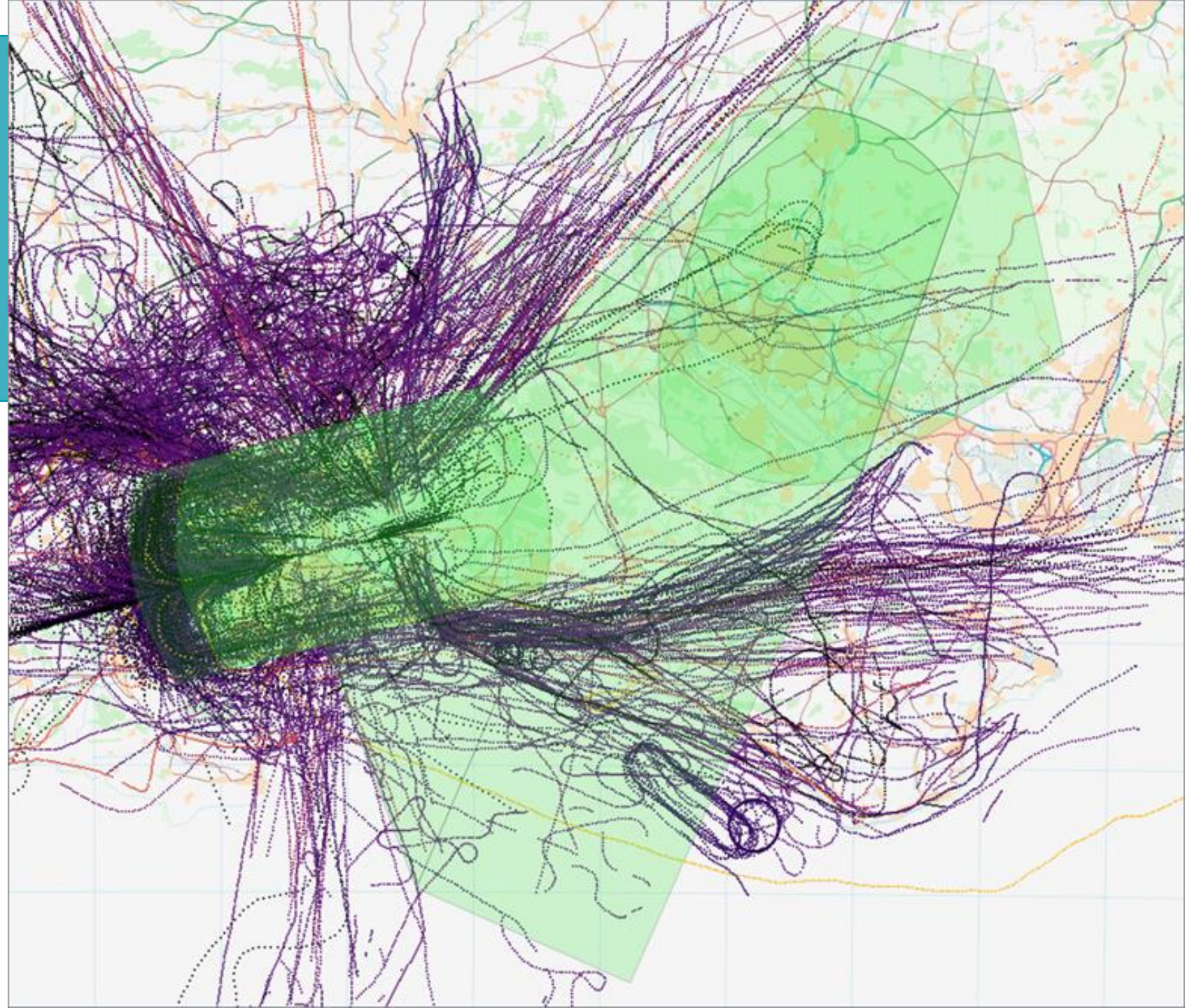

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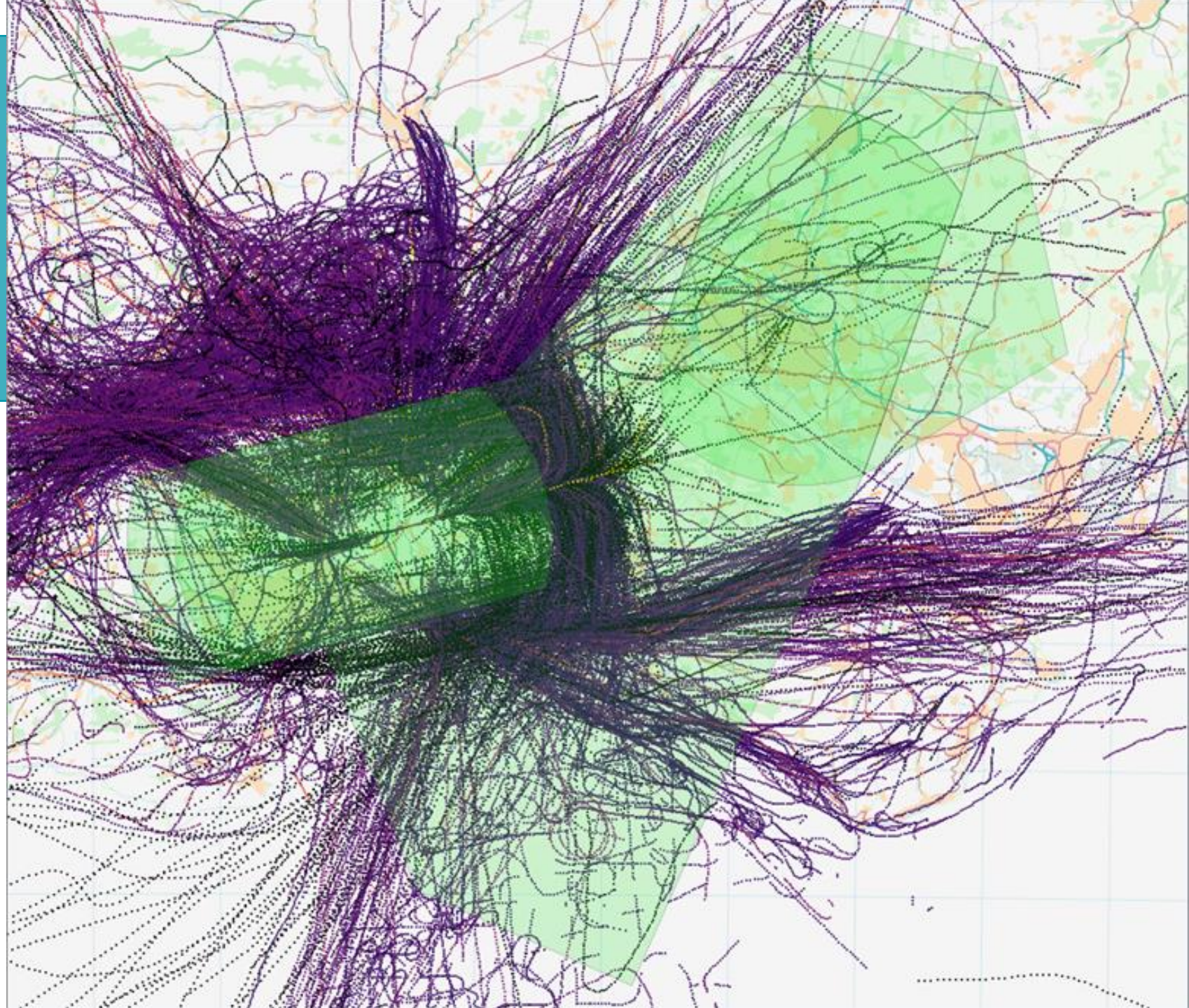

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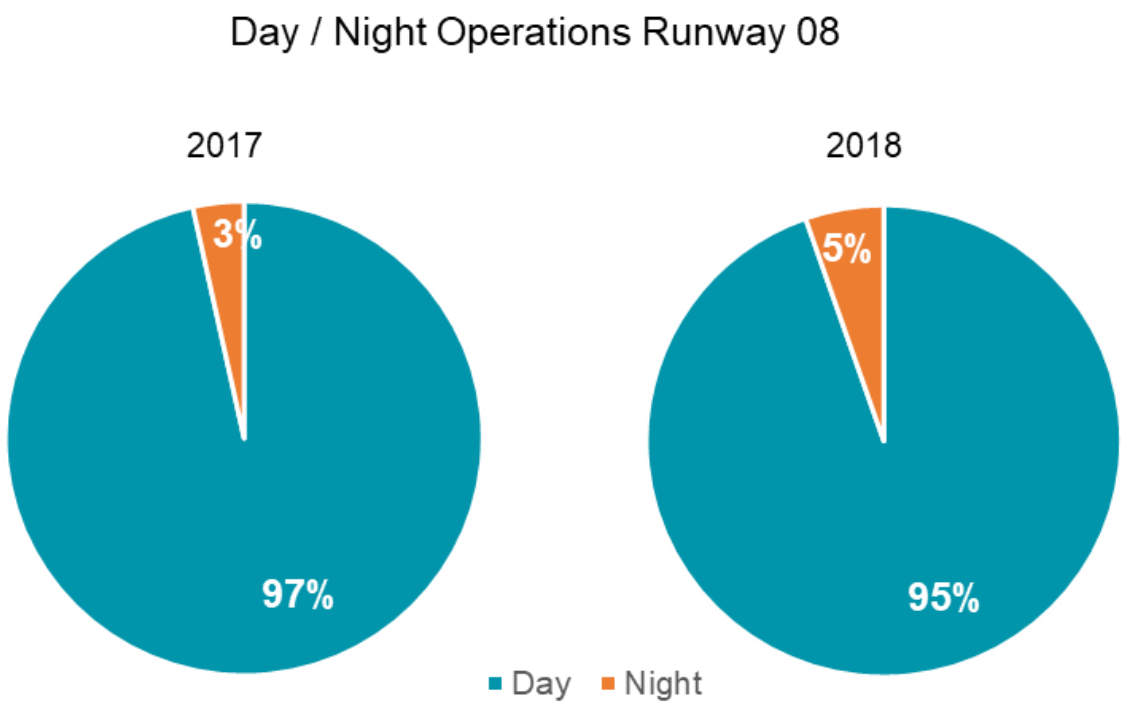
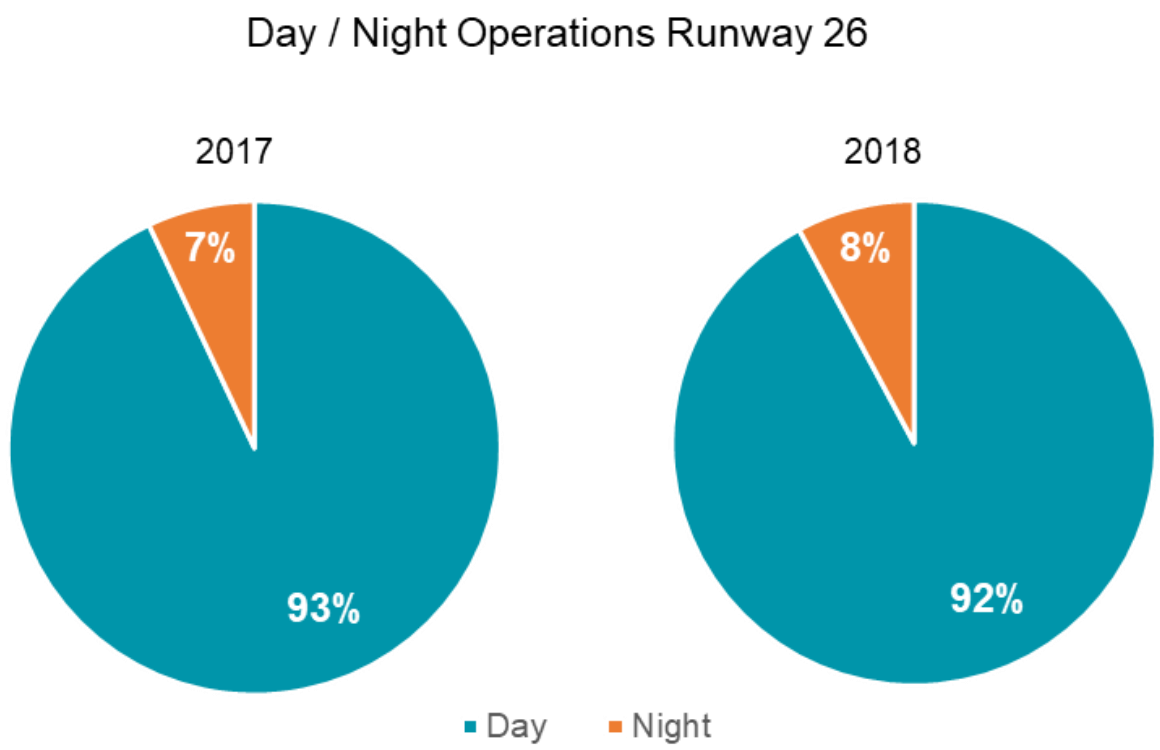
BOURNEMOUTH INTERNATIONAL AIRPORT

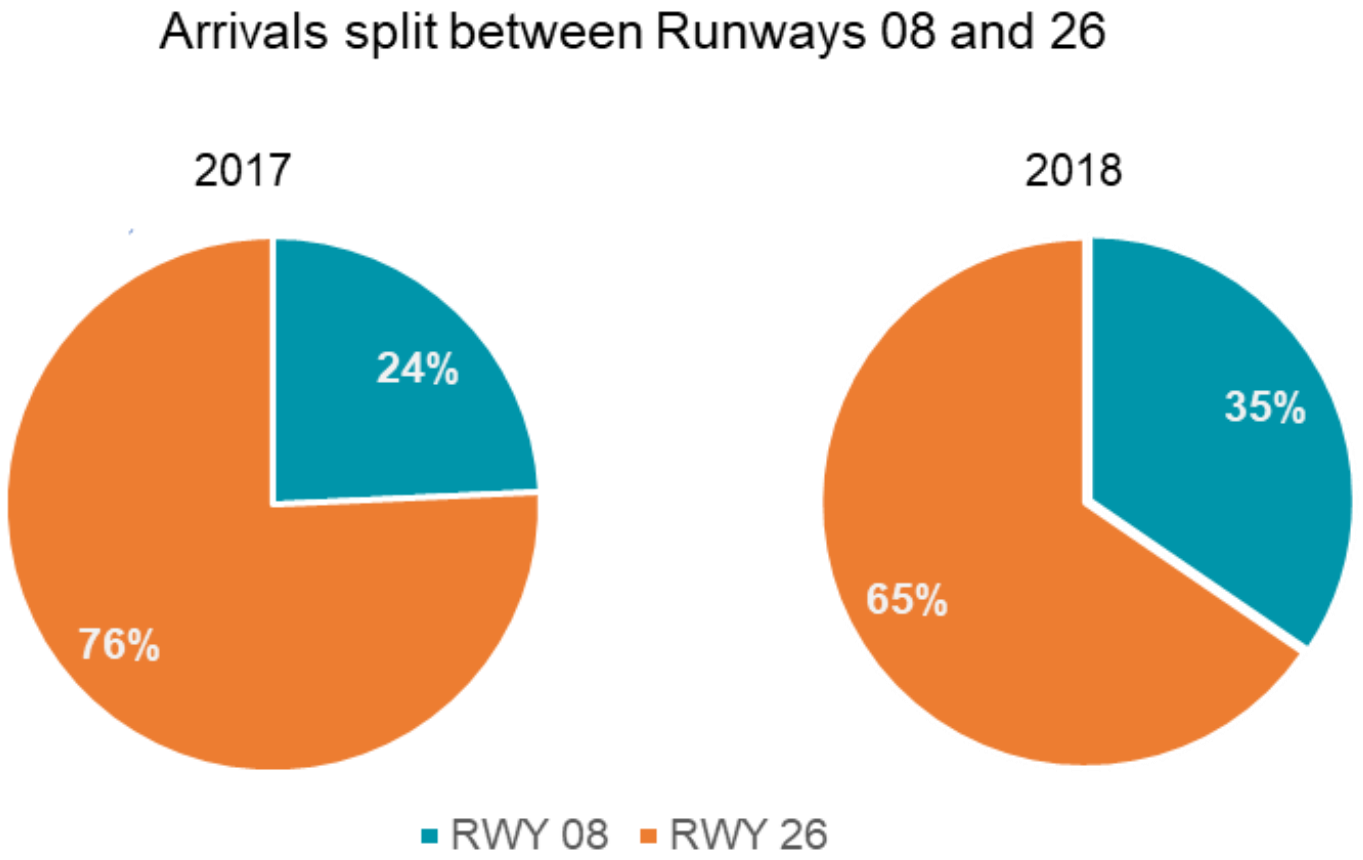
- Operational hours: **0630-2130**, outside of these hours, aircraft operations are permitted by prior arrangement.





BOURNEMOUTH INTERNATIONAL AIRPORT

- The figure below shows the proportion of aircraft arrivals to runways 08 and 26 during 2017 and 2018.

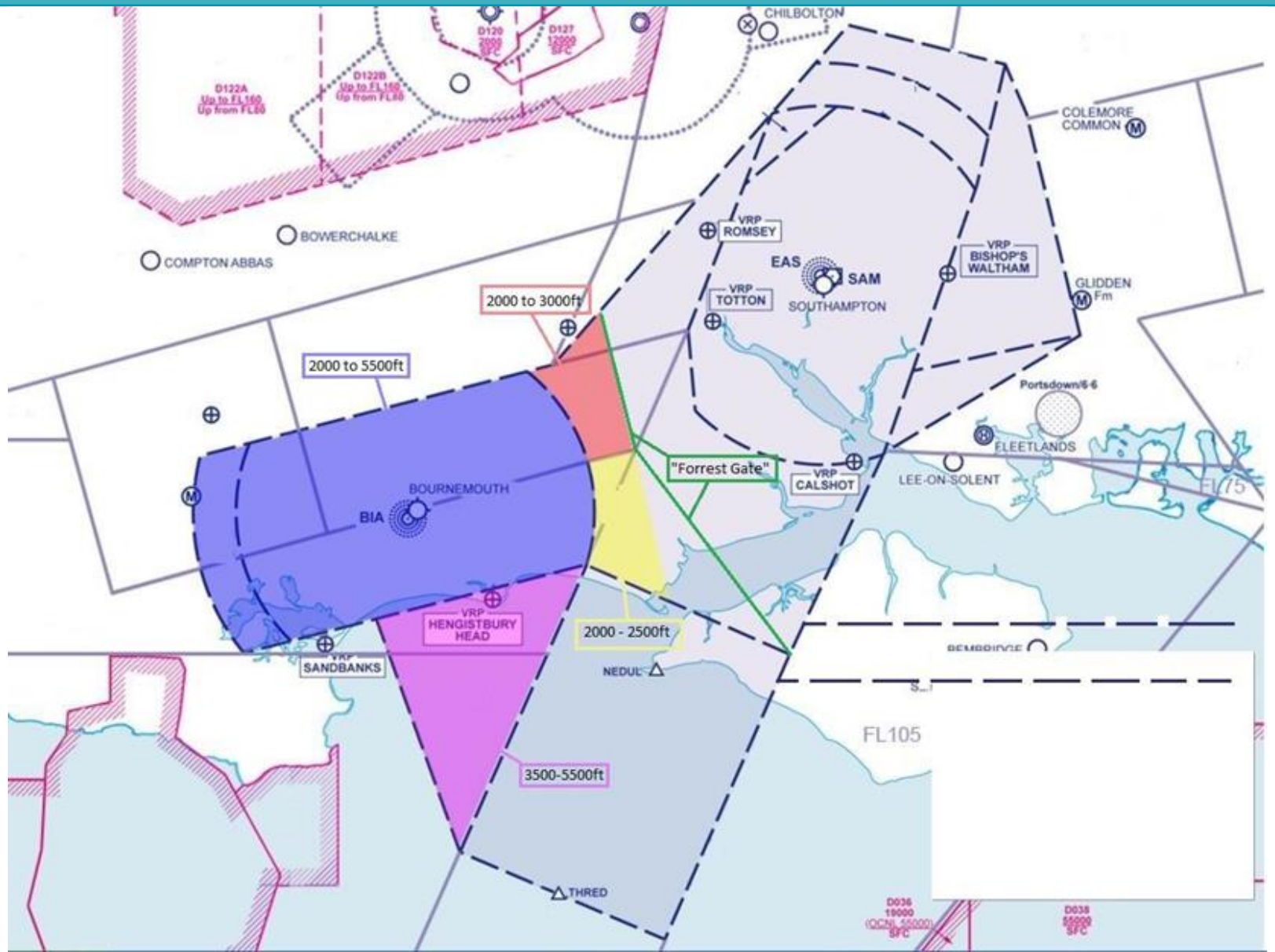


OPERATIONAL PROCEDURES

OPERATIONAL PROCEDURES

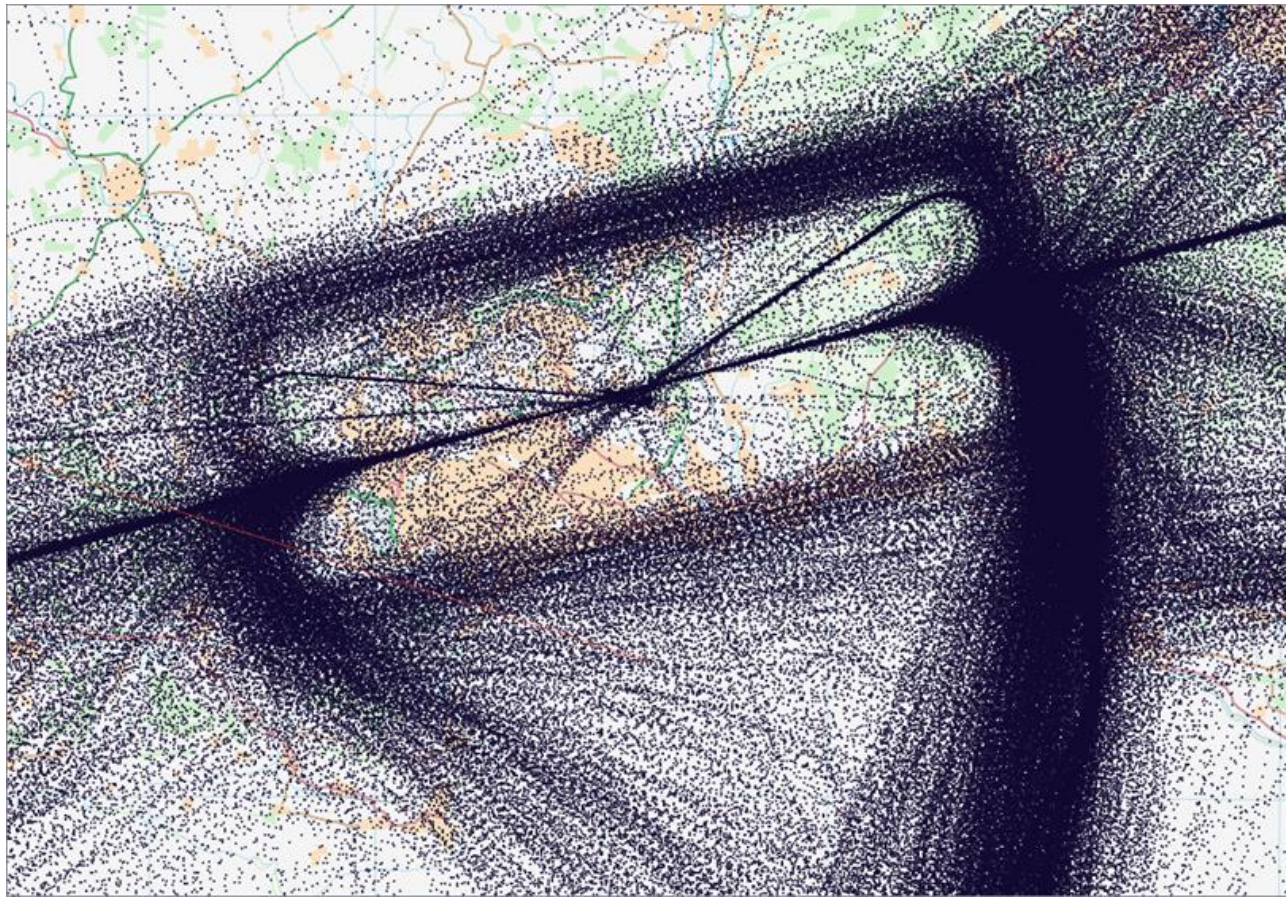
Airspace

- The airspace around Bournemouth Airport is shared between Bournemouth and Southampton Airports. Aircraft arrivals to both airports initially follow the same procedures, before being separated into arrivals for each airport.



OPERATIONAL PROCEDURES

- Aircraft destined for Bournemouth and Southampton airports arriving from the en-route airways network follow identical Standard Arrival procedures (NATS Swanwick Air Traffic Control Centre).
- Solent Radar (Southampton Airport) is responsible for routing aircraft within the Controlled Airspace to conduct an approach at Southampton or Bournemouth Airports.
- A Letter of Agreement between Solent Radar and Bournemouth Airport defines the air traffic procedures within the Solent Radar area of responsibility.
- Arrival routes are not currently defined by 'lines on maps', they are managed tactically by the radar controllers. As a result, individual aircraft approaches do not follow identical paths.



Commercial aircraft arrival tracks for 2017 / 2018

EXISTING APPROACH OPTIONS

- **Instrument Landing System (ILS): 3-Dimensional approach**
  - Bournemouth Airport currently has Instrument Landing Systems on both RWY ends :
    - 08 (Cat I) ~ 30% of landings
    - 26 (Cat III) ~ 70% of landings
- **Non-Directional Beacon (NDB): 2-Dimensional approach**
- **Distance Measuring Equipment (DME): 2-Dimensional approach**

WHY BOURNEMOUTH INTERNATIONAL AIRPORT INITIATED THIS ACP?

The primary objectives :

- The ILS serving RWY 08 was installed second hand in 1984/85 and the equipment and maintenance support are beyond the end of the system's technical and economic life. An unrecoverable failure of the ILS on RWY 08 will have serious operational consequences by denying easterly 3-Dimensional approaches. A new instrument approach is required to allow Bournemouth Airport to continue to provide 3-Dimensional approaches to Runway 08 and to avoid replacement of the ILS serving Runway 08.
- To improve the resilience of instrument approaches to Runway 26 Bournemouth International Airport by providing an alternate means of conducting an approach if the ILS is unavailable as required by the EU PBN Implementing Rule (IR) 2018/1048.

WHY BOURNEMOUTH INTERNATIONAL AIRPORT INITIATED THIS ACP?

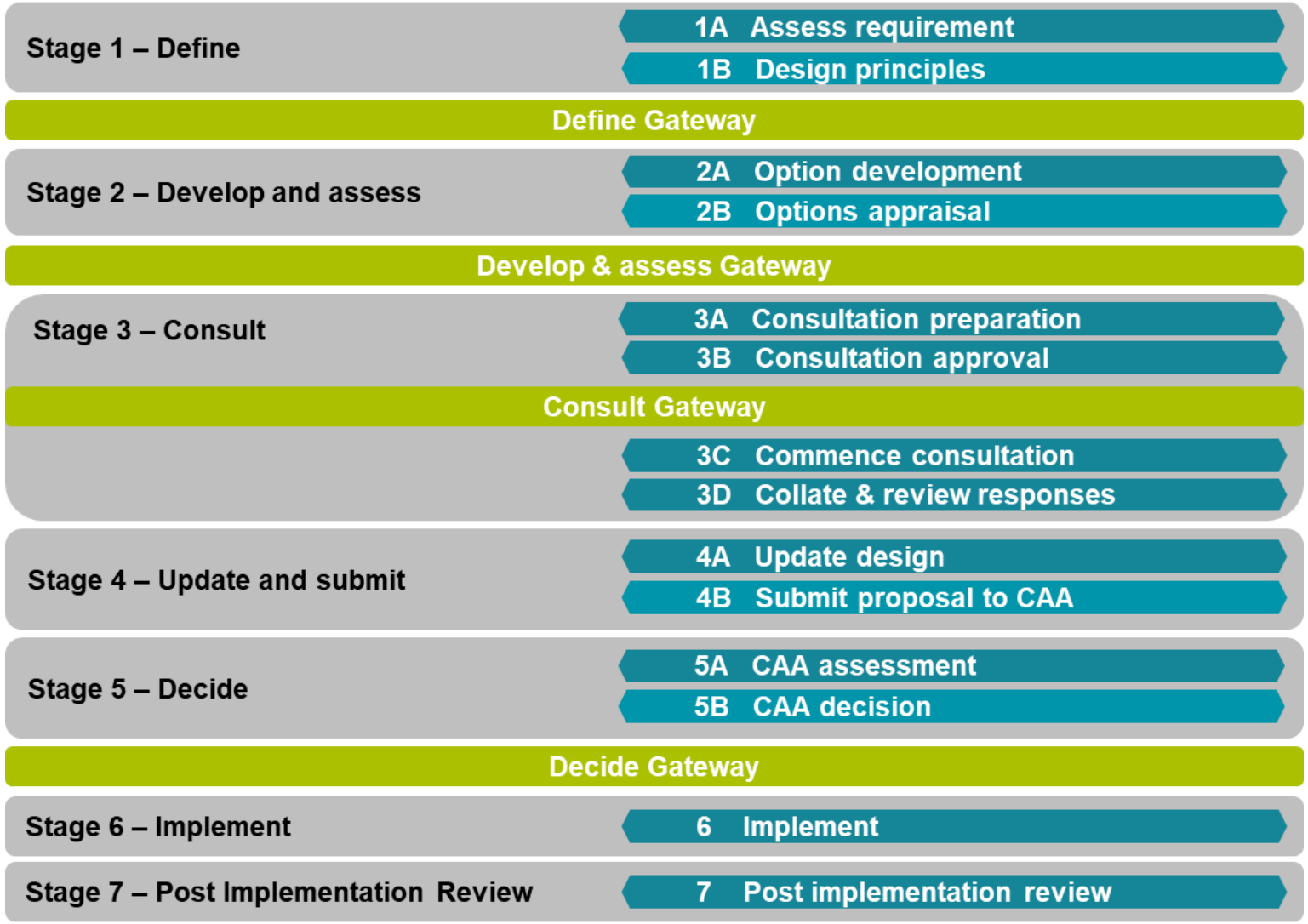
Drivers for change:

1. Obsolete ILS on RWY 08
2. New Navigation Technologies: satellite navigation known as the Global Navigation Satellite System (GNSS) attractive for airport operator with minimum implementation costs.
3. International Implementation of PBN: It has been recognised by standardisation and regulatory bodies that the provision of approaches with vertical guidance facilitating stabilised approaches offer the potential for increased aviation safety compared to 2-Dimensional approaches.
4. EU PBN Implementing Rule (IR) 2018/1048 requires:
    - By December 2020 for runways that are currently only served by 2-Dimensional approaches;
    - By January 2024 for runways that are currently served by ILS.

THE PROPOSED RNP OPTIONS

DEVELOPMENT OF SOLUTIONS

- The options have been developed in close co-operation with the Bournemouth Airport Consultative Committee, Airport Stakeholders and selected members of the National Air Traffic Management Advisory Committee (NATMAC) (CAP 1616 Airspace Change process).



DEVELOPMENT OF SOLUTIONS

The Option identified to meet the Statement of Need

- **Option 1:** Do Nothing – noting that Do Nothing would not be a continuation of 'business as usual' as the ILS serving Runway 08 is obsolete and cannot be sustained.
- **Option 2:** Replace the ILS serving Runway 08.
- **Option 3:** Implement Required Navigation Performance (RNP) approach procedures.

DEVELOPMENT OF SOLUTIONS

Design Principle	Do Nothing	Replace ILS	RNP APCH
The new procedures should not increase the number of people overflown by aircraft participating in the approach.	NOK	OK	OK
The new procedures should not increase the noise footprint of the existing airport operation, for similar aircraft types and traffic levels, as detailed in the LAeq 16 Hr map in the current Noise Action Plan.	NOK	OK	OK
Implementation should minimise disturbance to the Moors River System SSSI	OK	NOK	OK
The new approaches shall be standardised by ICAO and acceptable to EASA and CAA and the implementation shall be in compliance with all applicable legislation and regulations,	NOK	NOK	OK
The design shall be fully compliant with the design criteria stated in ICAO Doc 8168 (PANS OPS) and be flyable by all aircraft types in approach Speed Categories A through D.	OK	OK	OK
The approach procedures shall be of a type for which the majority of Bournemouth aircraft operators are equipped and authorised to fly.	OK	OK	OK
The designs shall seamlessly integrate with extant instrument approach procedures at Bournemouth International Airport	OK	OK	OK
The procedures should address the needs of flight training operators at Bournemouth.	Partial	Partial	OK
The design shall support continued use of existing radar vectored arrival procedures provided by Solent Radar	OK	OK	OK
The new procedures shall be implemented in a cost-effective manner.	OK	NOK	OK

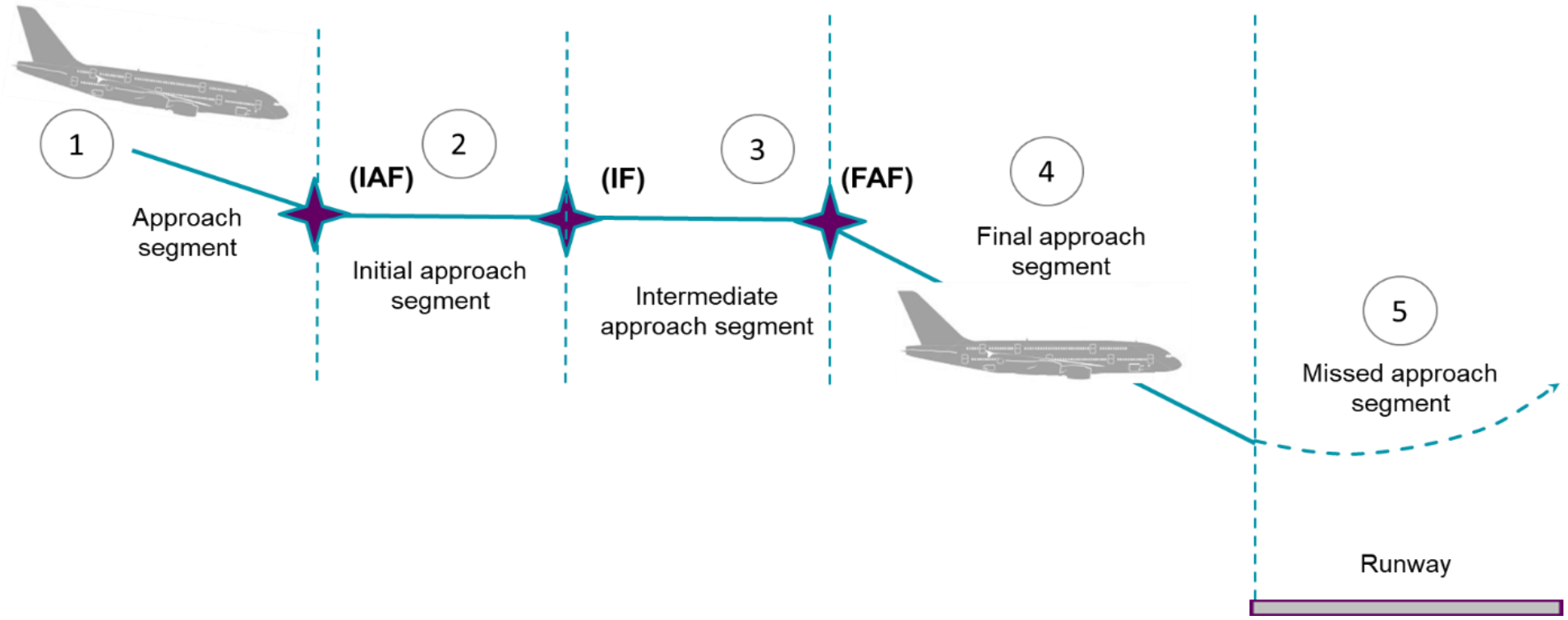
PREFERRED OPTION: RNP APPROACH FOR RUNWAYS 08 AND 26

- When evaluated against the Design Principles, only **Option 3 satisfied** all the Design Principles.
- Bournemouth Airport Consultative Committee, Airport Stakeholders and selected members of NATMAC agreed with Bournemouth Airport's proposal that Options 1 and 2 should be discounted and not be subject to further consideration and that only Option 3 to implement RNP approach procedures, should be considered in this Airspace Consultation.

THE CONSULTED OPTIONS

WHAT IS AN RNP APPROACH?

- RNP approach uses accurate position information derived from navigation satellites to allow an aircraft to fly a pre-determined Instrument Approach Procedure that is defined by a sequence of Waypoints.
- A typical RNP approach with waypoints is illustrated below:



THE RNP APPROACH SUB-OPTIONS EVALUATION

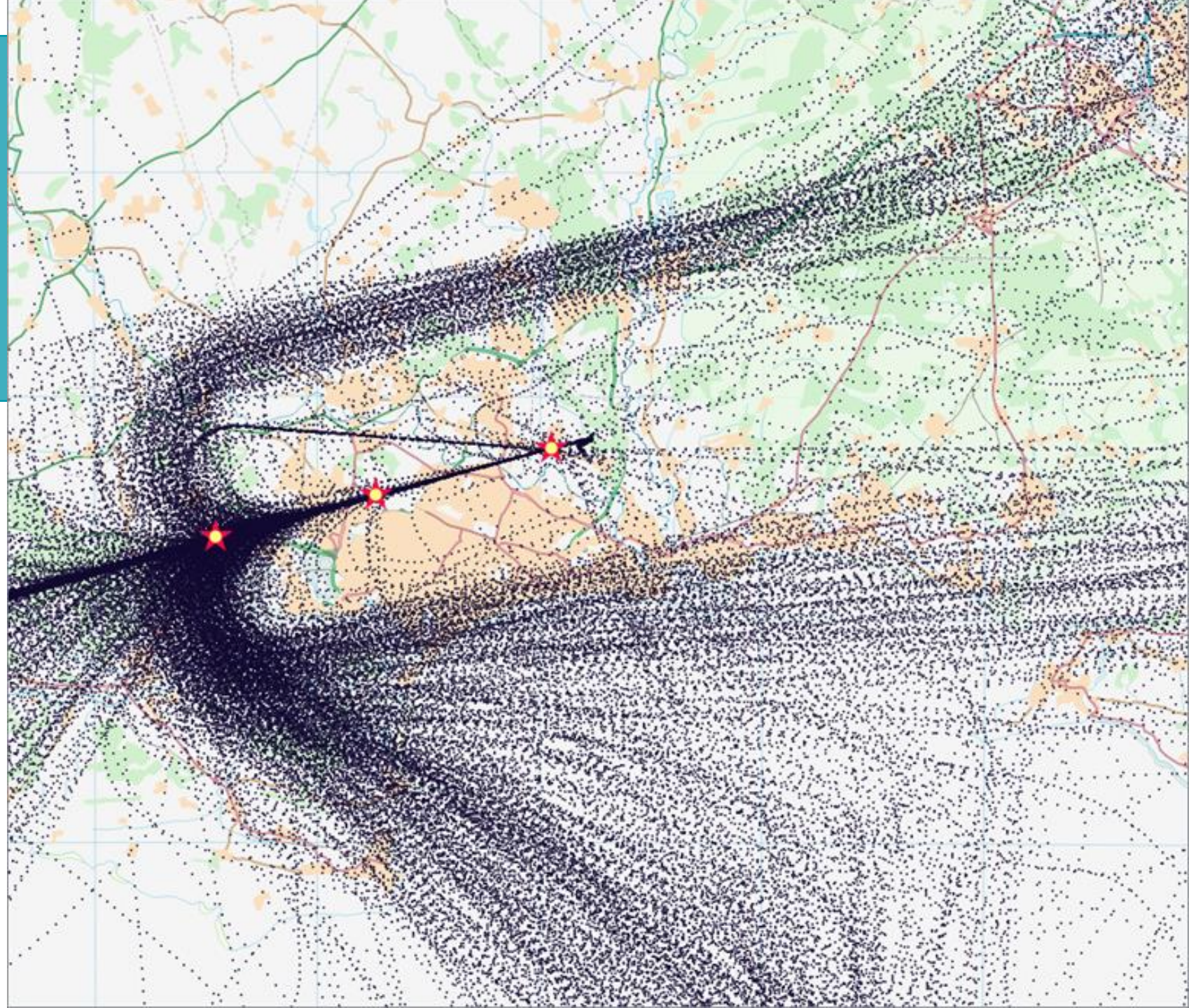
PREFERRED

RWY	3a Full T-bar	3b Limited T-bar: 1 IAF	3c 'Straight-in'	3d Limited T-bar: 2 IAFs
RWY 26	EXCLUDED	EXCLUDED	RETAINED	RETAINED
RWY 08	EXCLUDED	EXCLUDED	RETAINED	RETAINED

THE PROPOSED RNP APPROACH SUB-OPTIONS

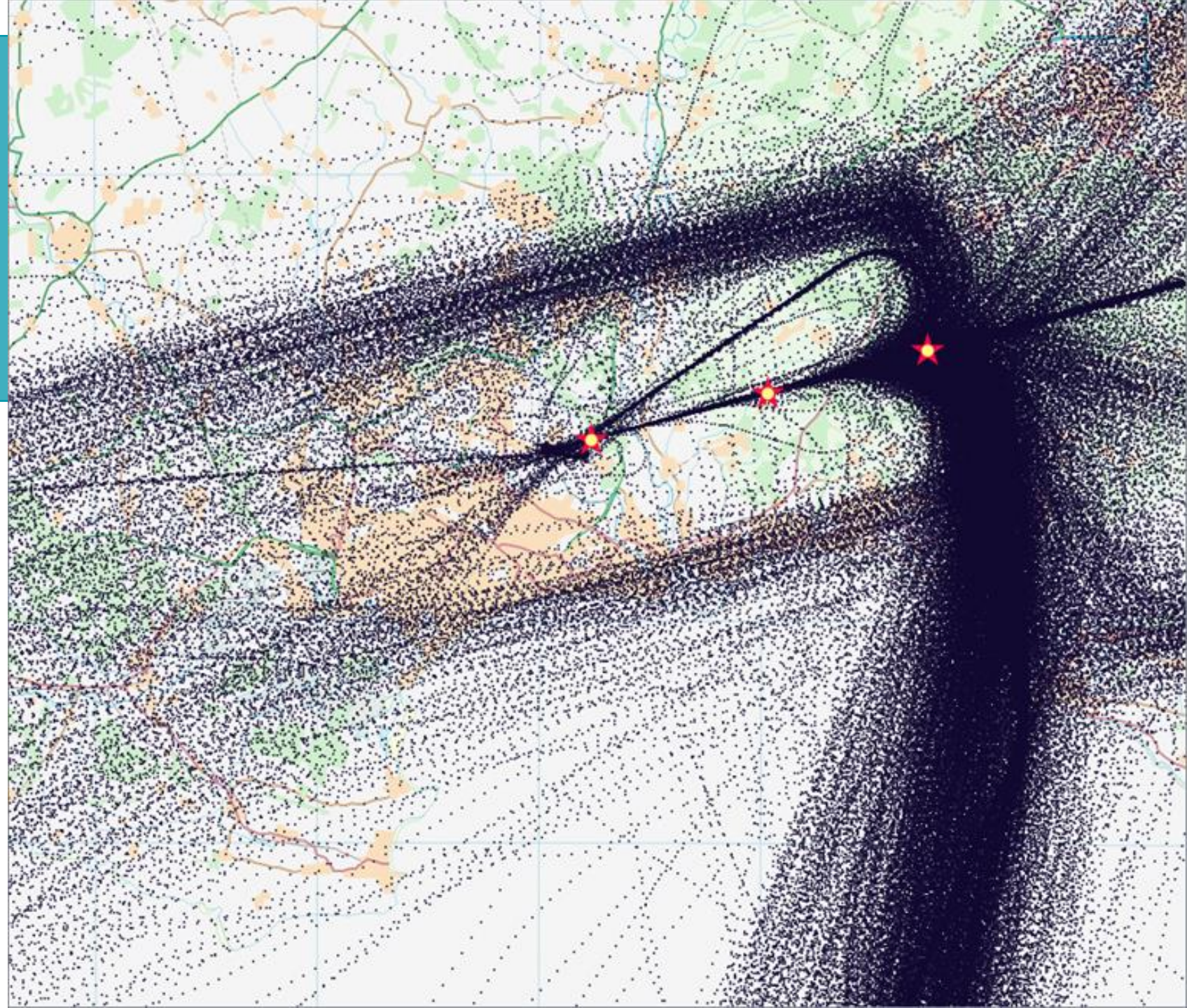
- Do not result in changes of aircraft flows to and from Bournemouth Airport;
- Do not result in an increase in movements over what is already within the agreed Bournemouth masterplan;
- Only impact aircraft arrivals;
- Do not result in aircraft arriving at lower altitudes;
- Do not make any changes to visual training flights (the vast majority of operations).

OPTION 3C FOR RWY 08



** Traffic filtered for passenger aircraft types over 2017/2018*

OPTION 3C FOR RWY 26



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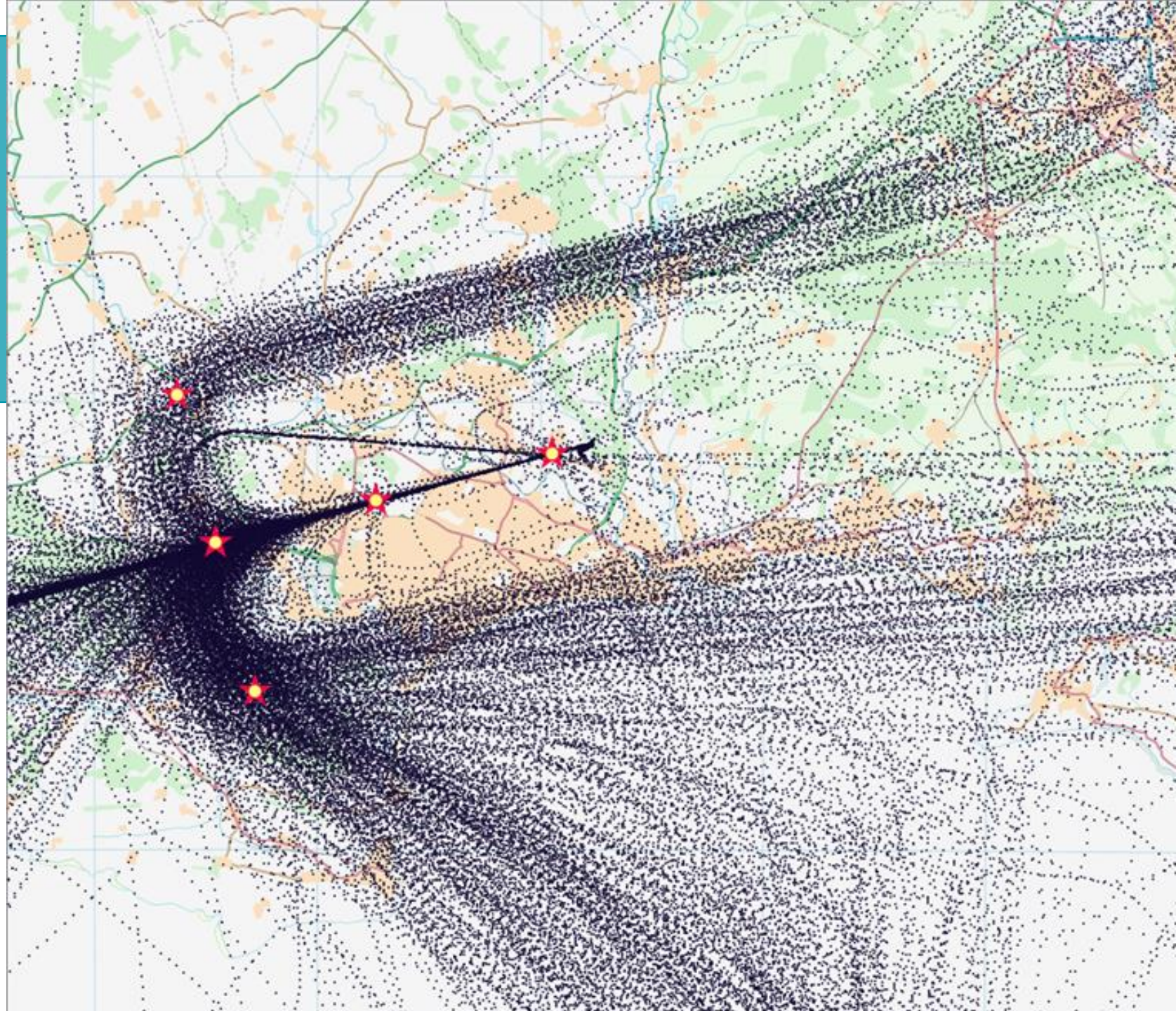
OPTION 3D FOR RWY 08



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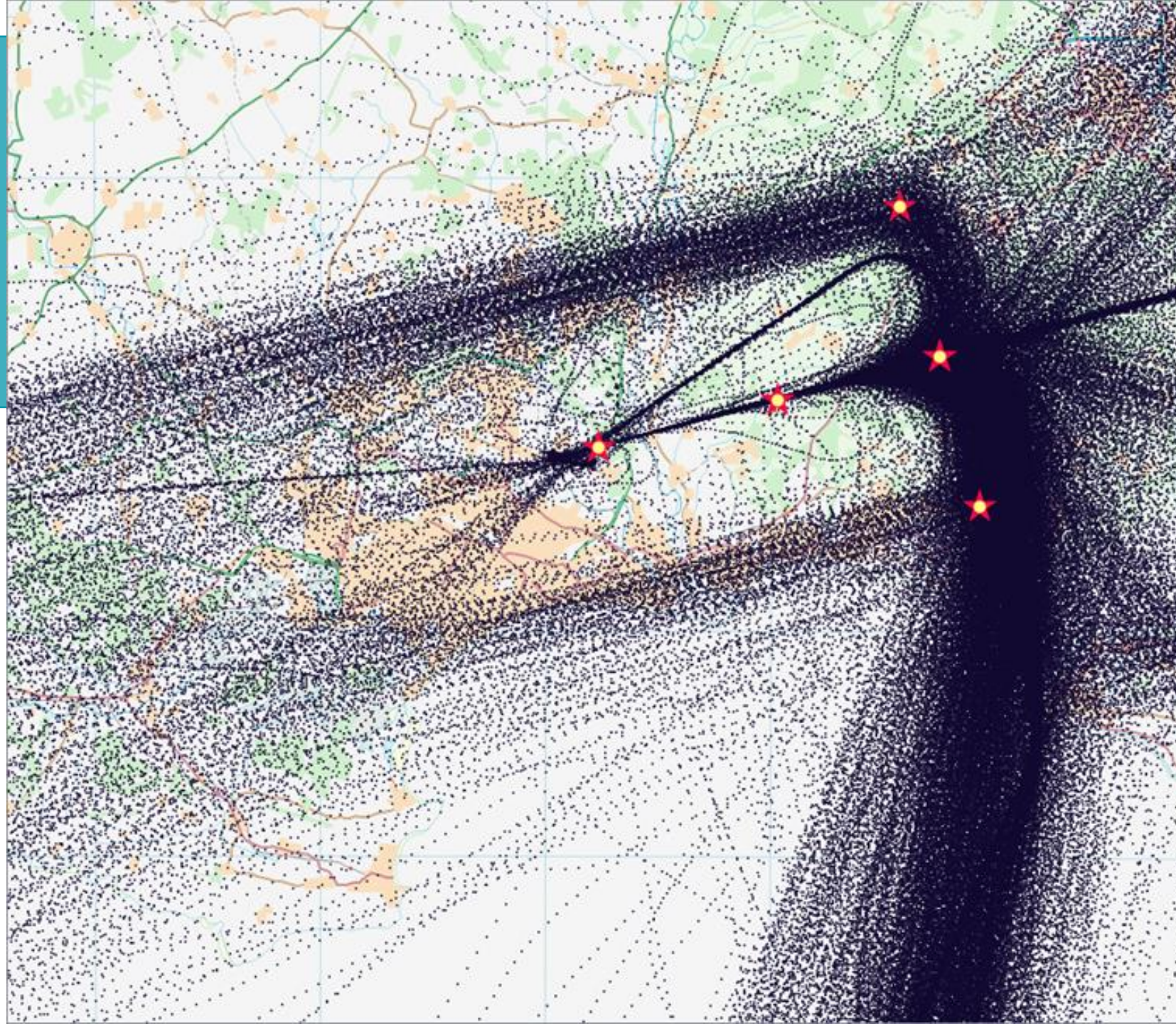
OPTION 3D FOR RWY 26



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Part of Regional & City Airports

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