



*HEATHROW EXPANSION:
ENGAGEMENT ON OUR INITIAL LIST OF FLIGHT PATH OPTIONS*

HEATHROW COMMUNITY NOISE FORUM, SEPTEMBER 2019

Heathrow
Building for the future

WE ARE NOW AT THE "OPTIONS DEVELOPMENT" STAGE OF DESIGNING FLIGHT PATHS FOR EXPANSION



- We are at Stage 2A of the CAA's Airspace Change Process, known as 'CAP1616'
- This is the stage where we develop an initial comprehensive list of flight path options and then undertake assessment/appraisal of these options
- At this stage we are required to:
 - Explain our approach to flight path design
 - Discuss the options we have developed based on the design principles set at Stage 1
 - Answer your questions and get your feedback
- We are setting up a series of workshops, which all HCNF members will be invited to

PURPOSE OF THIS ENGAGEMENT

The purpose of this engagement is to **explore and test our approach** to developing route/flight path options. We will use feedback to understand and address any concerns raised.

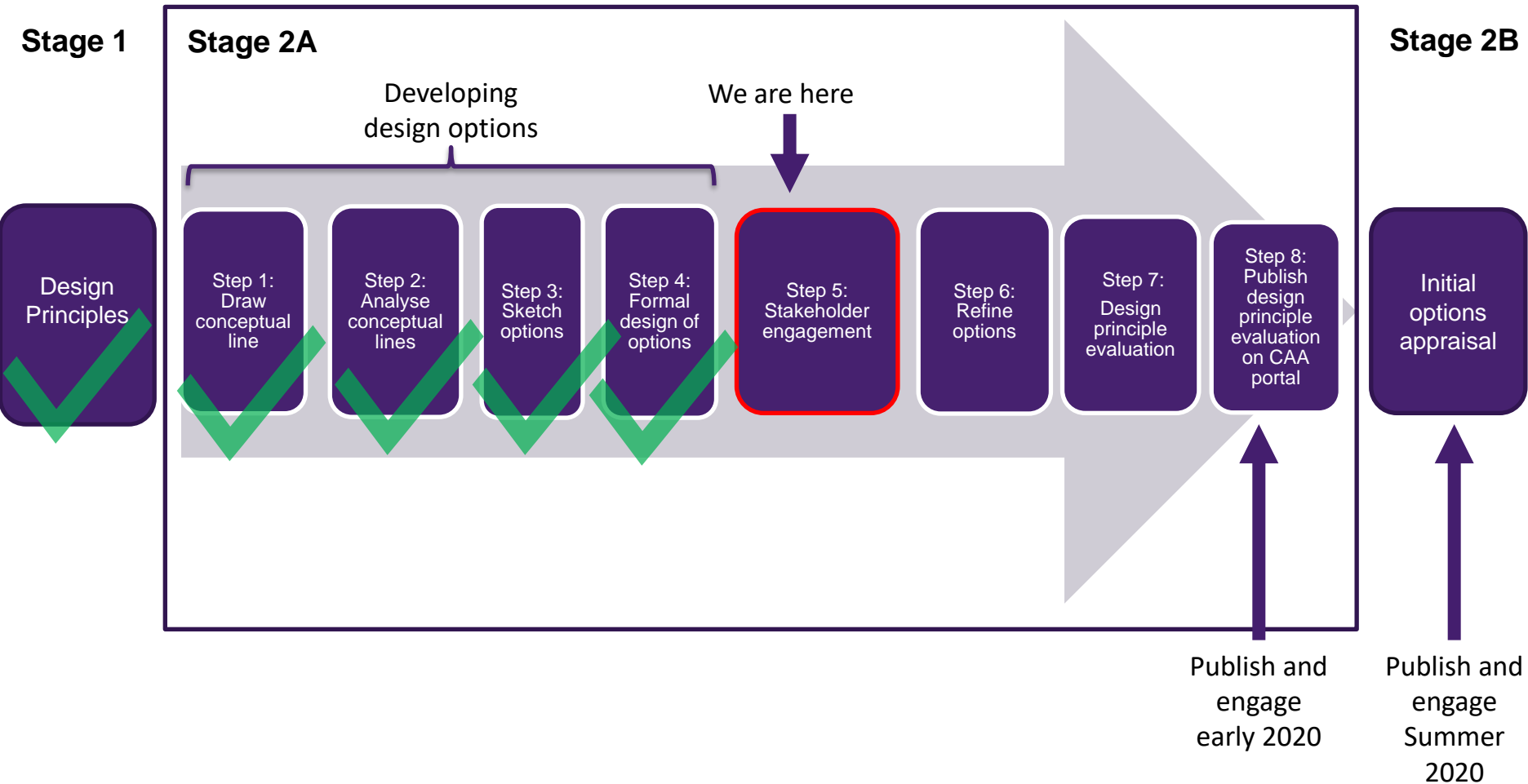
This stage of engagement is to:

- Show our approach to developing route options based on the design principles set at Stage 1
- Answer questions relating to our approach
- Seek your feedback on our approach

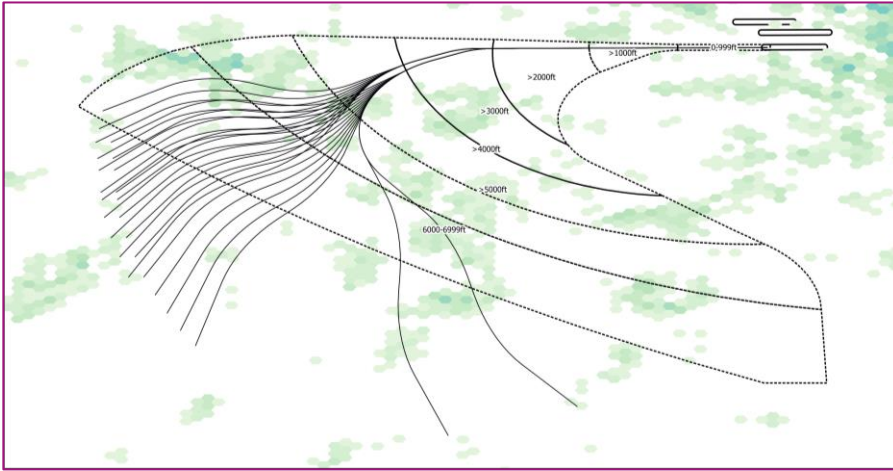
This stage of engagement is not to:

- Examine the detailed specific geographical position of the route options
- Discuss the pros and cons of individual route options
- Describe impacts of the route options
- Seek feedback on individual route options

THE OPTIONS HAVE BEEN DEVELOPED FOLLOWING THE STEPS SET OUT IN THE CAA'S AIRSPACE CHANGE PROCESS

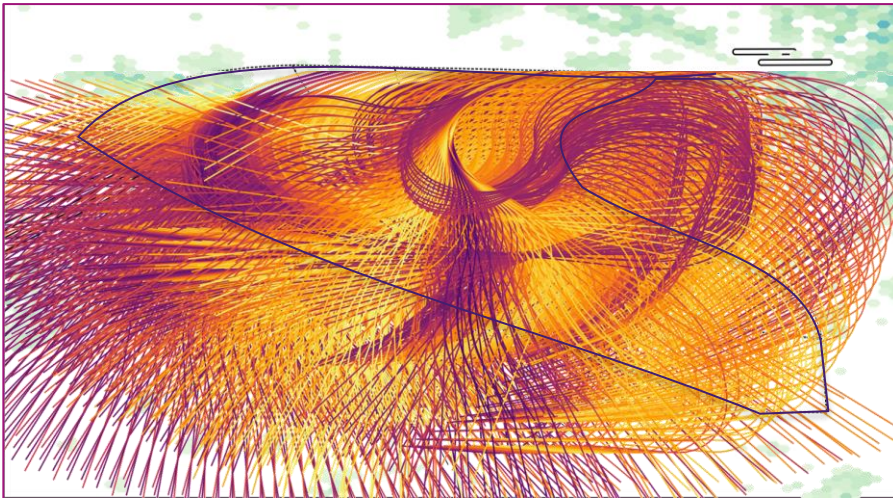


STEP 1: DRAWING CONCEPTUAL LINES



- The first step was to use computers to generate thousands of conceptual lines across the design envelopes

- As computer generated lines, they had no direct input from Air Traffic Control (ATC) and were therefore not necessarily operationally viable or flyable

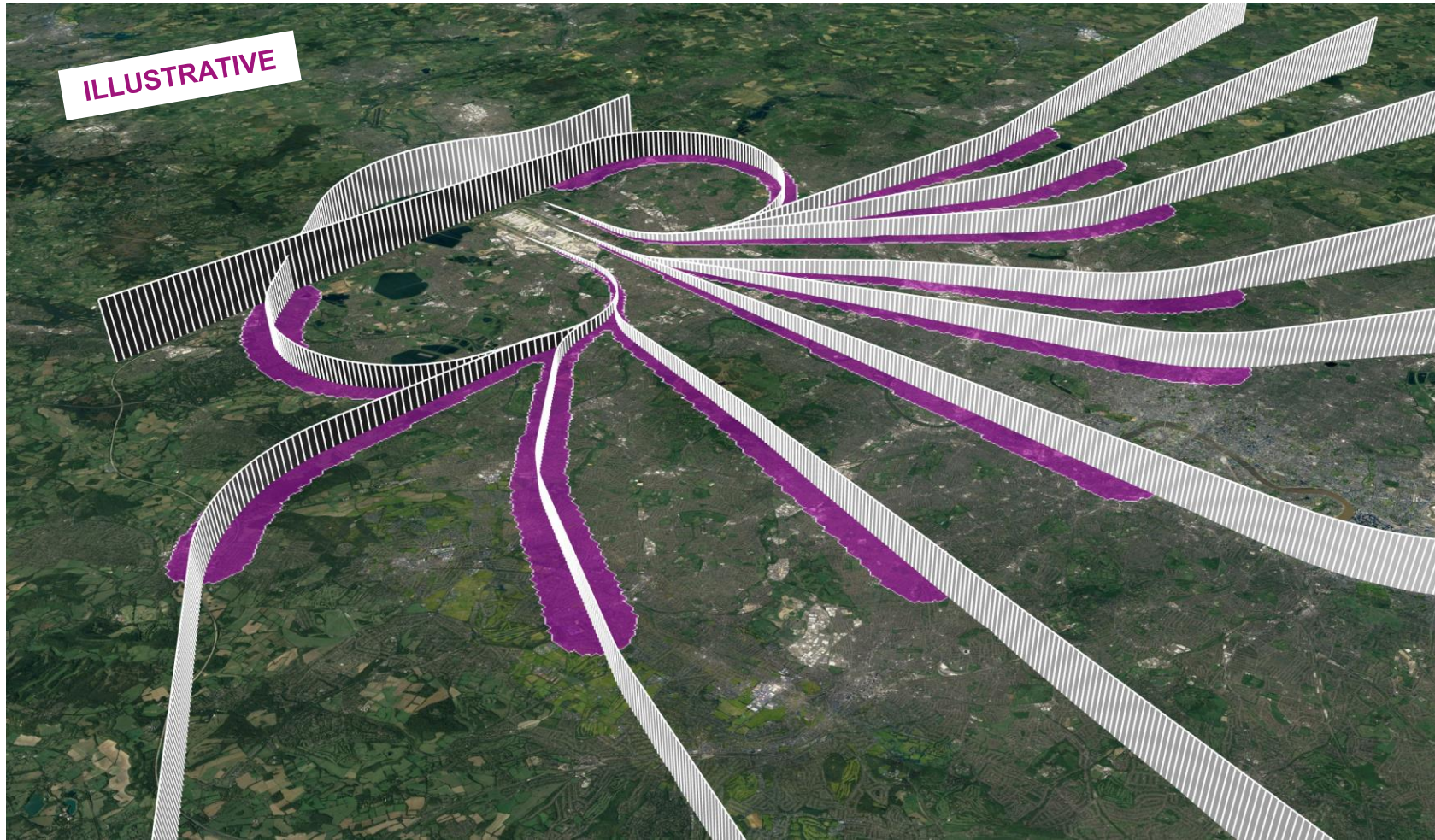


- However, they did provide insight into how options might perform against the design principles
- This picture shows a sample of lines generated for one arrival envelope

Note that the lines shown outside the envelopes would be above 7000ft

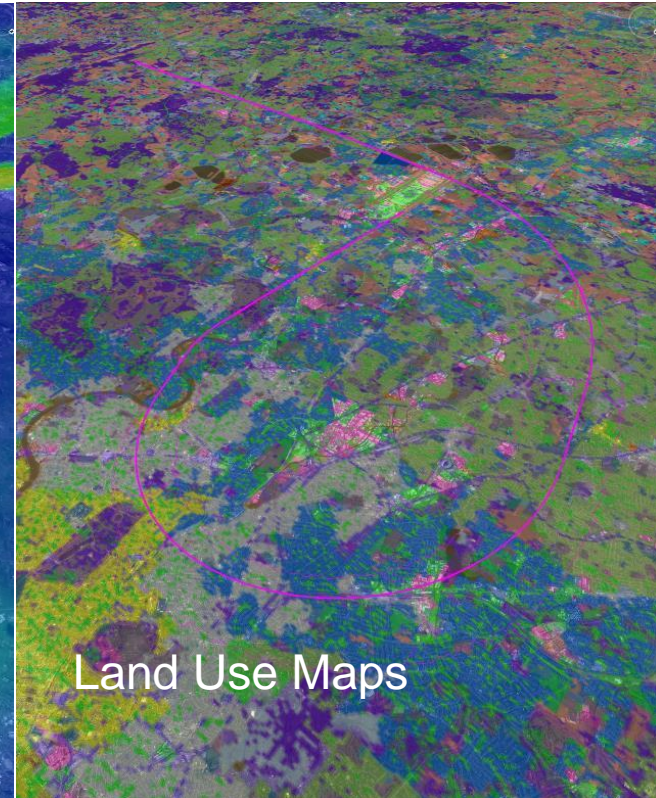
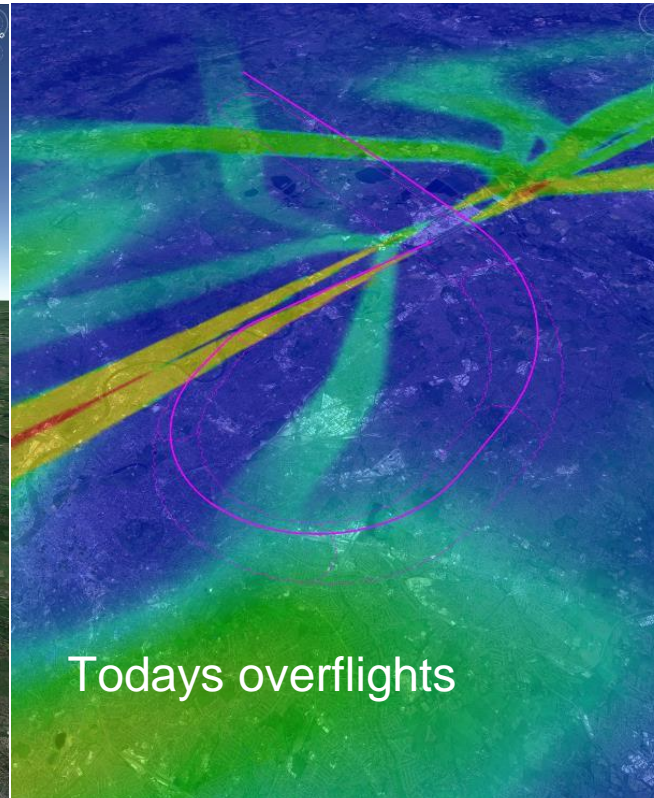
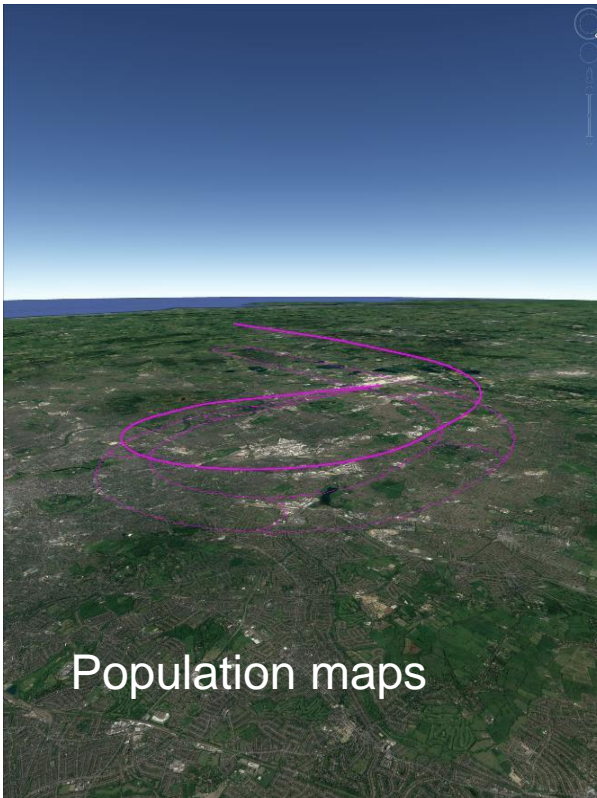
STEP 2: ANALYSING CONCEPTUAL LINES

- Overflight footprints for each line were created. These footprints define areas around each line below which a population would be classed as 'overflown'



STEP 2: DATA LAYERS FOR ANALYSIS

- The overflights were compared to various data layers to indicate the extent to which each conceptual line might deliver against our design principles

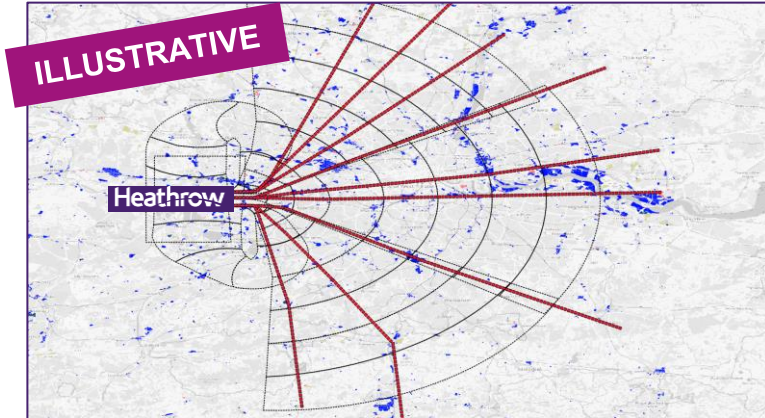


STEP 3: SKETCH OPTIONS

- We used the data to sketch a set of ‘operationally dependent’ flight path options based on the lines that had the best results relating to each data layer.
- Dependent flight path options are a set of routes to/from a runway end, that could feasibly work together as a group (e.g. they are safely separated from one another).
- Our options consist of separate sets of operationally dependent routes for:
 - easterly departures
 - westerly departures
 - easterly arrivals
 - westerly arrivals

EXAMPLES OF GROUPS OF OPERATIONALLY DEPENDENT ROUTES

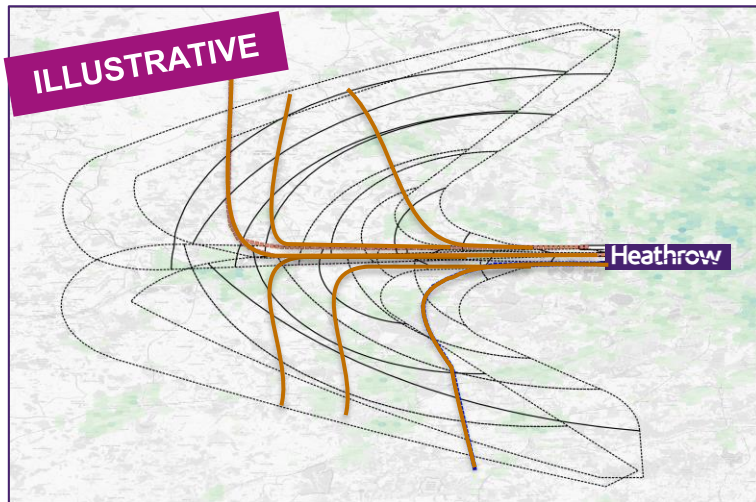
Easterly departures (at least 9 flight paths)



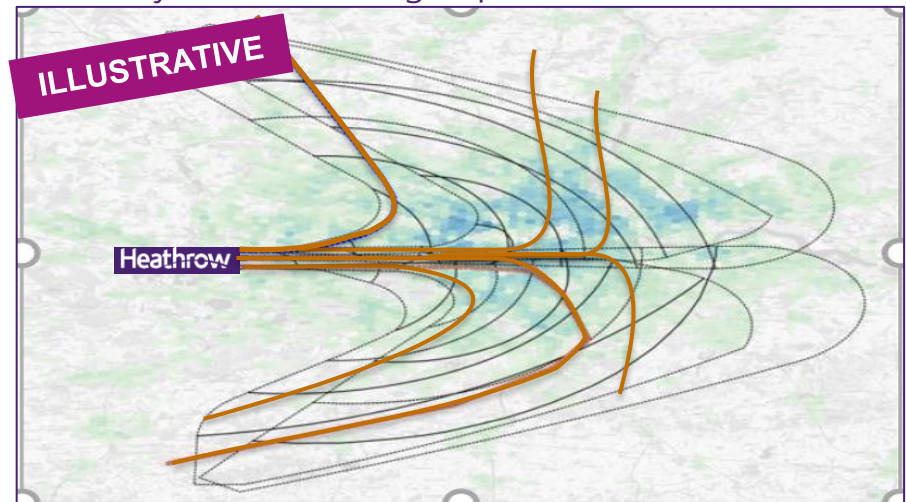
Westerly departures (at least 9 flight paths)



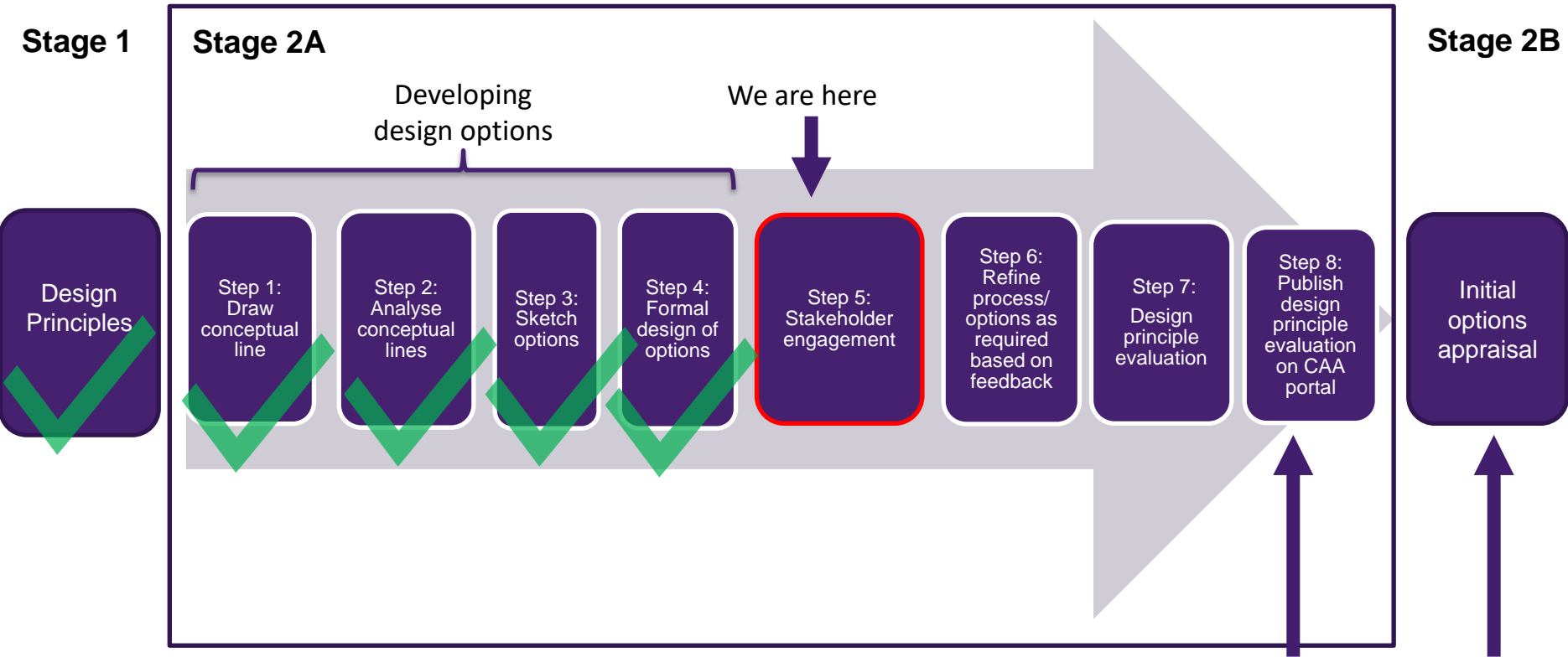
Easterly arrivals (6 flight paths)



Westerly arrivals (6 flight paths)



TIMELINE FOR NEXT STEPS



This process helps us to identify a comprehensive list of options. If we learn anything new at later stages that suggest new options are required we will have the flexibility to feed them into the process. Our submissions to the CAA will make it clear where this has happened.

Publish and engage early 2020

Publish and engage Summer 2020

STAKEHOLDER ENGAGEMENT WORKSHOPS

- Workshops will be set up for community representatives (e.g. HCNF and HCEB) and for Local Authority representatives.
- We will be in contact with you all to invite you to attend a session.