



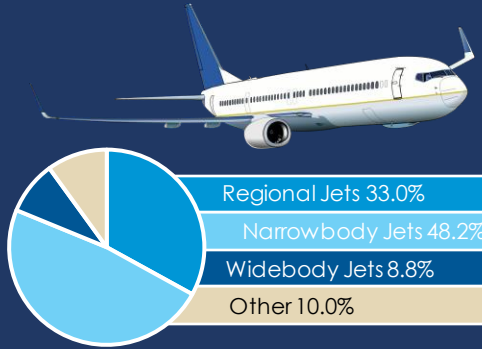
ANOMS FLY QUIET DEPARTURE ANALYSIS

PHL 2022

Airport Profile



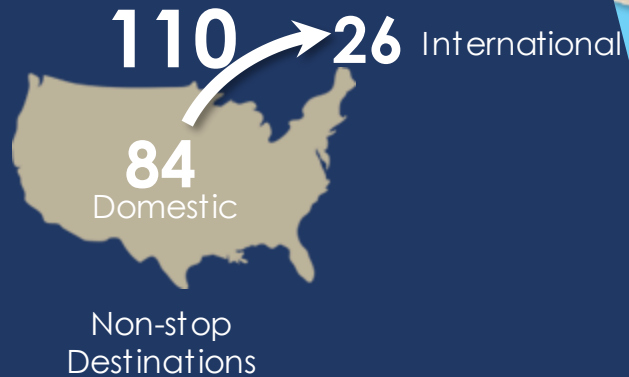
21.8
Million
Passengers



Operations

284,141

Avg. 762 Ops/Day



6.2 million people live in the 11- County Philadelphia (MSA)



PHL AIRPORT

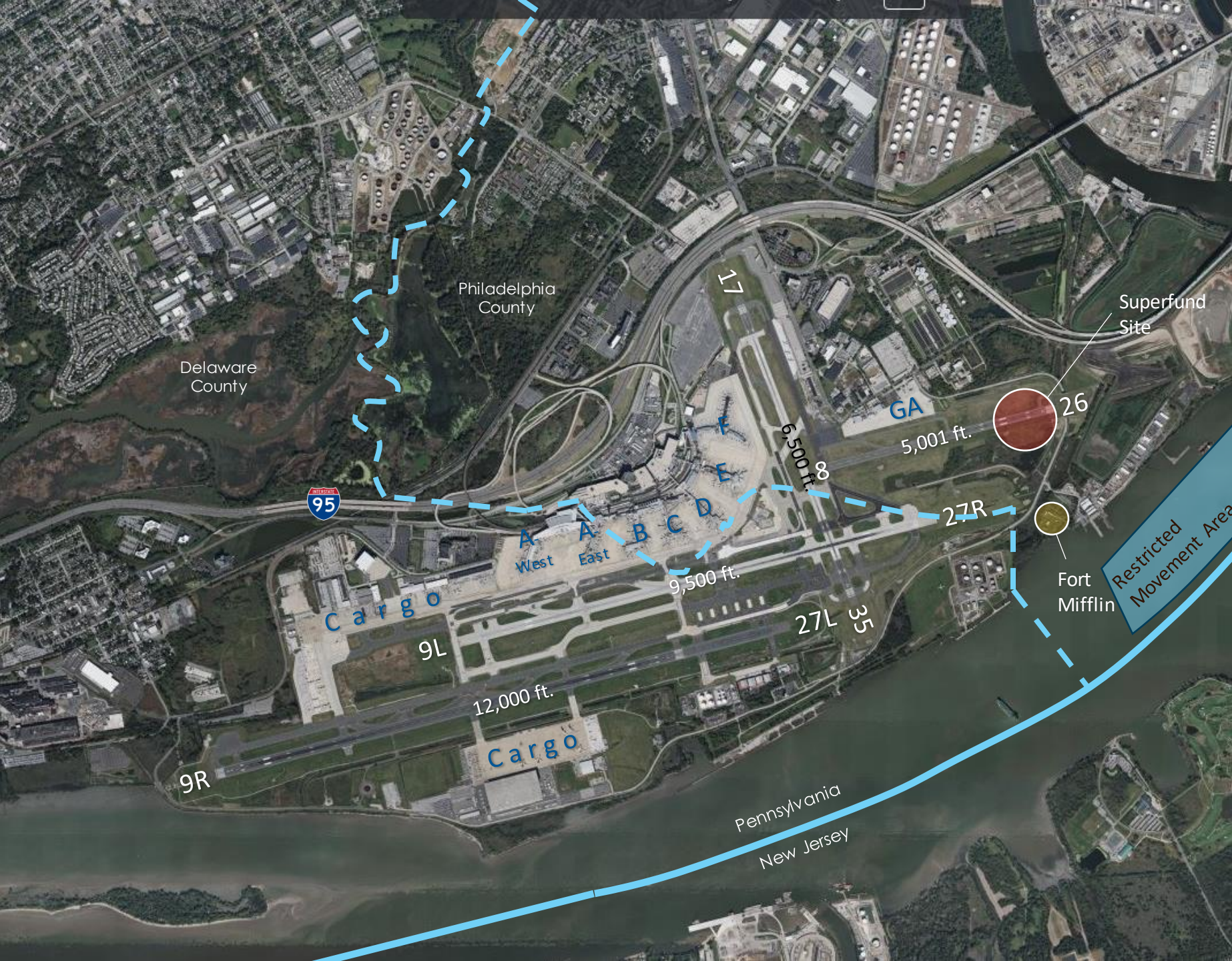
OPERATIONAL ENVIRONMENT

4 runways, **7** terminals, **126** gates

- Runway 8/26 – 5,001 x 150 ft.
- Runway 9L/27R – 9,500 x 150 ft.
- Runway 9R/27L – 12,000 x 200 ft.
- Runway 17/35 – 6,500 x 150 ft.

PHL airport straddles two counties Philadelphia, and Delaware.

It also sits on the border of New Jersey and Pennsylvania.



PHL2 SID

PHILADELPHIA 2 DEP SID

There is **1** departure SID at **PHL**. It utilizes a turn to a fix based on the destination of the airplane.

Atlantic – DITCH, RUUTH

Amsterdam, Boston, London, Halifax, Rome, Zurich

North – ARD, FJC, RBV

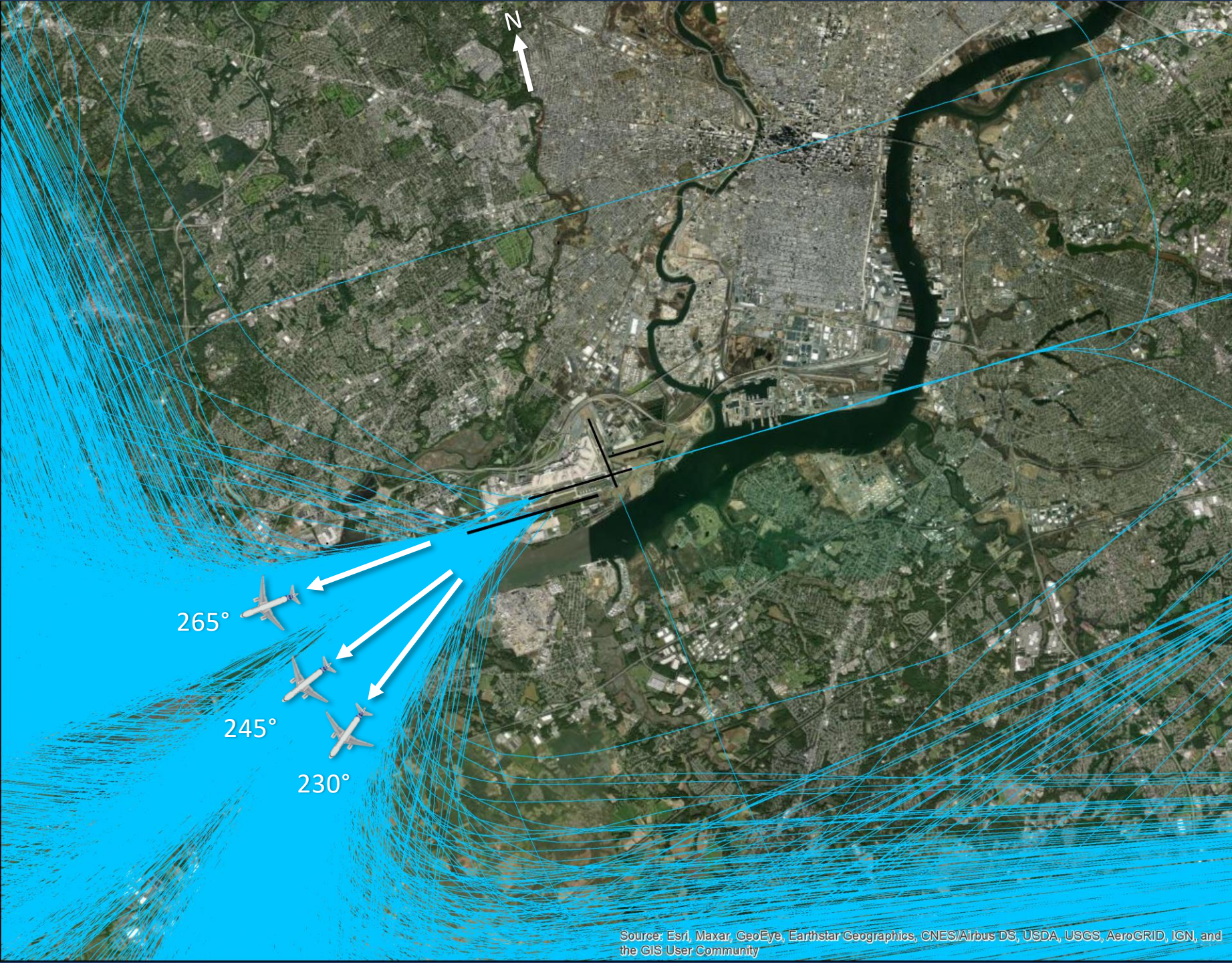
Buffalo, Montreal, Quebec, Rochester, Syracuse

South – DQO, ENO, OOD

Atlanta, Cancun, Dallas, Miami, Nassau, St. Martin

West – MXE, PTW, STOEN

Chicago, Denver, Las Vegas, Kansas City, San Francisco



WEST FLOW

MITIGATED DEPARTURE HEADINGS

Active 06:00 – 21:59 Local

Applies to all turbojet aircraft.
Headings are assigned based on the
initial fix in the flight plan.

RUNWAYS 27L / 27R

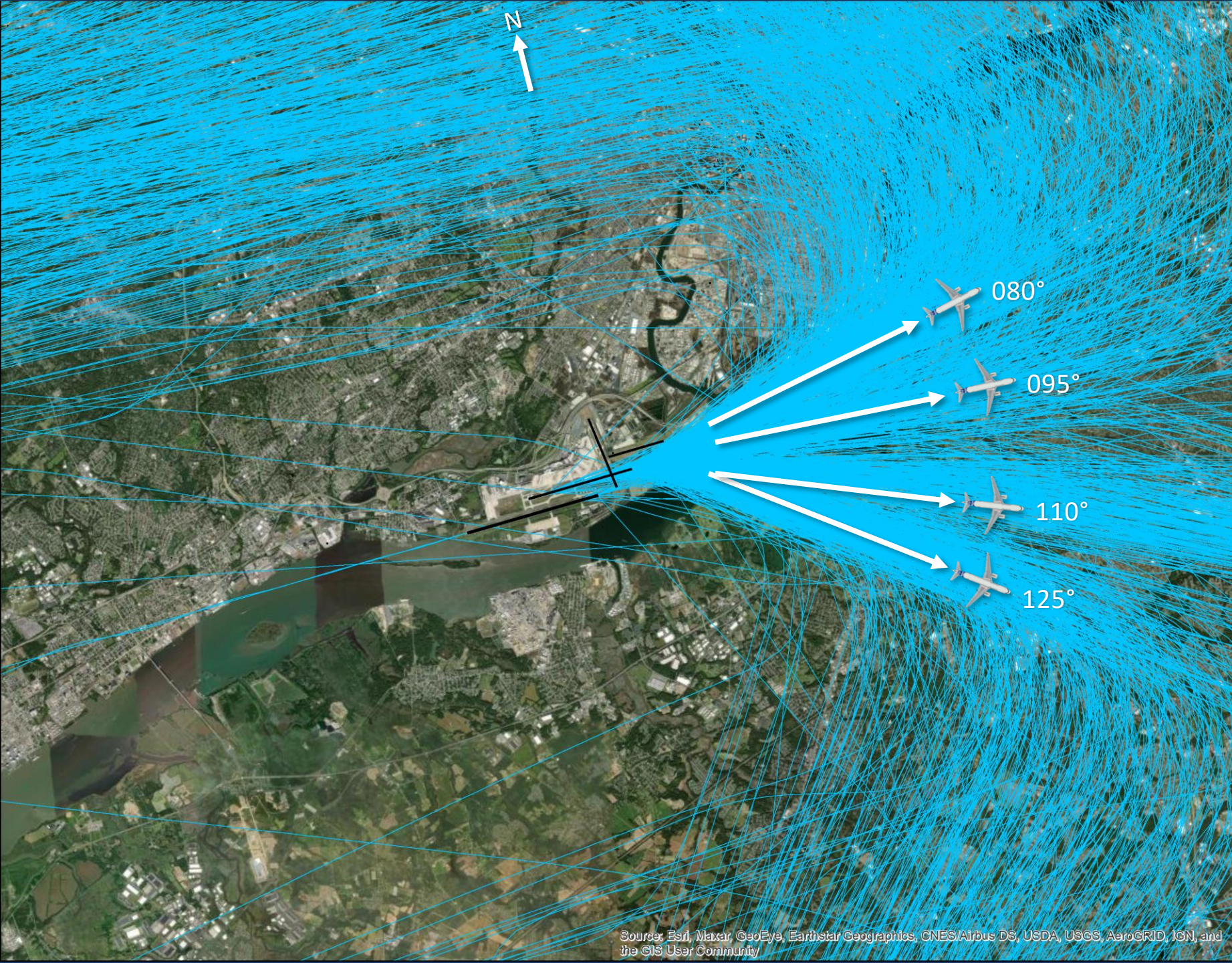
DITCH, OOD, RBV – Heading **230°**

DQO, STOEN – Heading **245°**

ARD, FJC, MXE, PTW – Heading **265°**

Props assigned the heading of the day

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



EAST FLOW

MITIGATED DEPARTURE HEADINGS

Active 06:00 – 21:59 Local

Applies to all turbojet aircraft.
Headings are assigned based on the
initial fix in the flight plan.

RUNWAYS 9L / 9R

ARD, FJC, MXE, STOEN – Heading 80°

PTW, RBV – Heading 95°

DITCH – Heading 110°

DQO, OOD – Heading 125°

Props assigned the heading of the day

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

The Situation

The Fly Quiet report indicates a **99.1%** conformance rate by commercial jets concerning the airport's nighttime noise abatement departure procedures in 2022.

Complaints concerning nighttime jet departures are increasing year to date for **2023**, even though nighttime jet departures have remained steady.

West Flow Part 150 Approved Noise Abatement Procedure

NA-II: Runway 27L Noise Abatement Departure Flight Track.

From 10:00pm until 6:00am aircraft weighing 12,500 pounds or more departing Runway 27L turn left to a 255-degree heading until reaching 3,000' above Mean Sea Level (MSL).

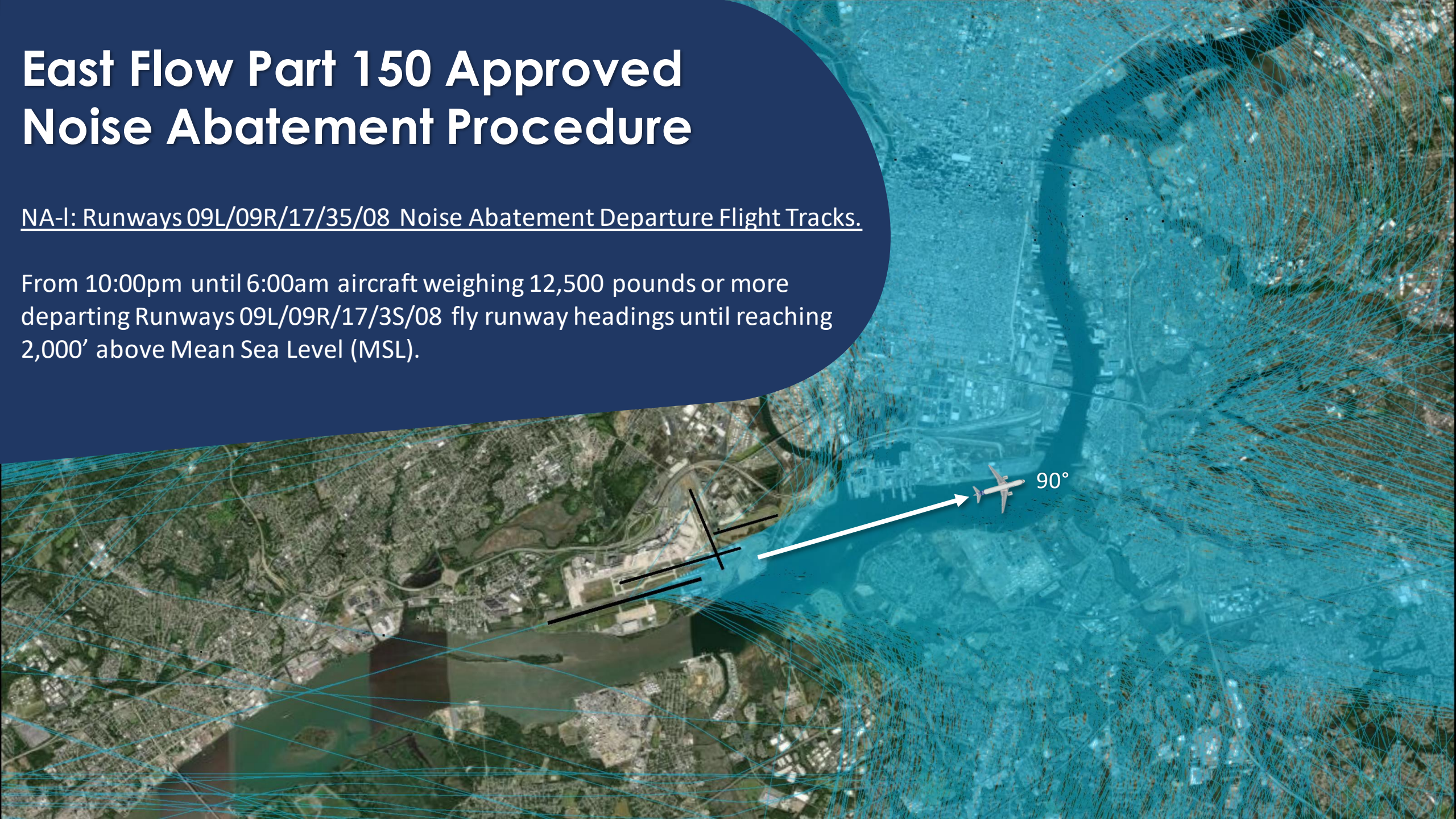
255°



East Flow Part 150 Approved Noise Abatement Procedure

NA-I: Runways 09L/09R/17/35/08 Noise Abatement Departure Flight Tracks.

From 10:00pm until 6:00am aircraft weighing 12,500 pounds or more departing Runways 09L/09R/17/35/08 fly runway headings until reaching 2,000' above Mean Sea Level (MSL).





PHL TOWER/TRACON SOP

A-13-1. NOISE ABATEMENT HEADINGS

Between the hours of 2200 until 0559 Local the following departure headings apply to all aircraft weighing more than 12,500 lbs. with the following exceptions: DHC7, DHC8, SH36, AT43, AT72, B190, BE10, BE20, BE30, SF34, SW3, JS31, JS41, E120, D228, D328, SW4, F27.

- a. Runways 9L/9R: Runway Heading to 110°
- b. B. Runway 8: Runway Heading
- c. Runway 27L: Heading 245°
- d. Runway 27R: Heading 245°

A13-3. ALTITUDE RESTRICTIONS

Except for the aircraft listed in paragraph A13-1, controllers must not turn aircraft:

- a. Departing Runway 27R/L within six (6) nm of PHL unless above 3,000' MSL.
- b. Departing Runway 9L/9R/8 within six (6) nm of PHL unless above 2,000' MSL.



EAST FLOW

NIGHTTIME NOISE DEPARTURE

Active 22:00 – 05:59 Local

Applies to all turbojet aircraft.

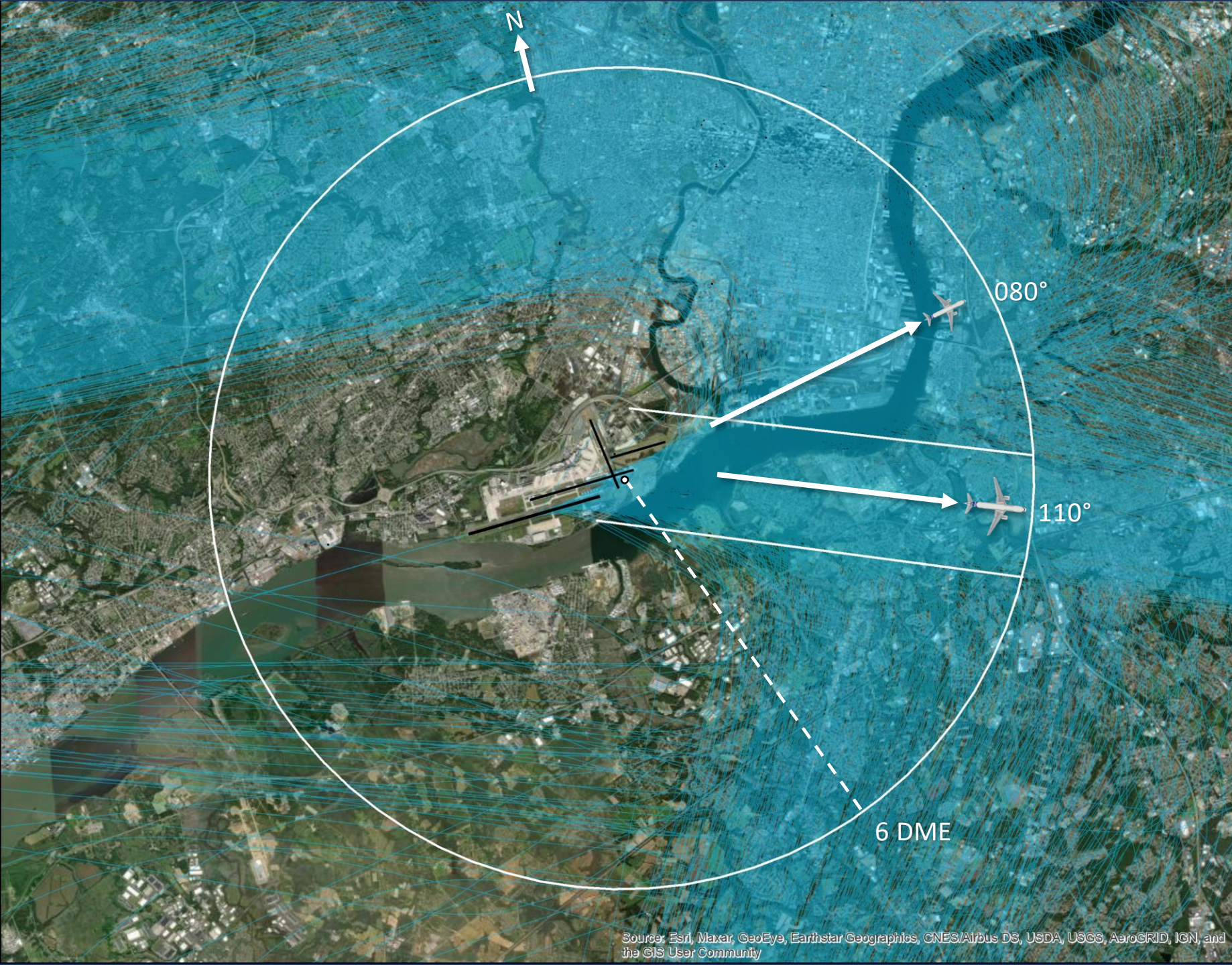
RUNWAY 8

RJ's Only - Heading 80°

RUNWAY 9L / 9R

Runway Heading to 110°

Departing turbojet aircraft will not be
turned until reaching 6 DME or
2,000 ft. MSL



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



WEST FLOW

NIGHTTIME NOISE DEPARTURE

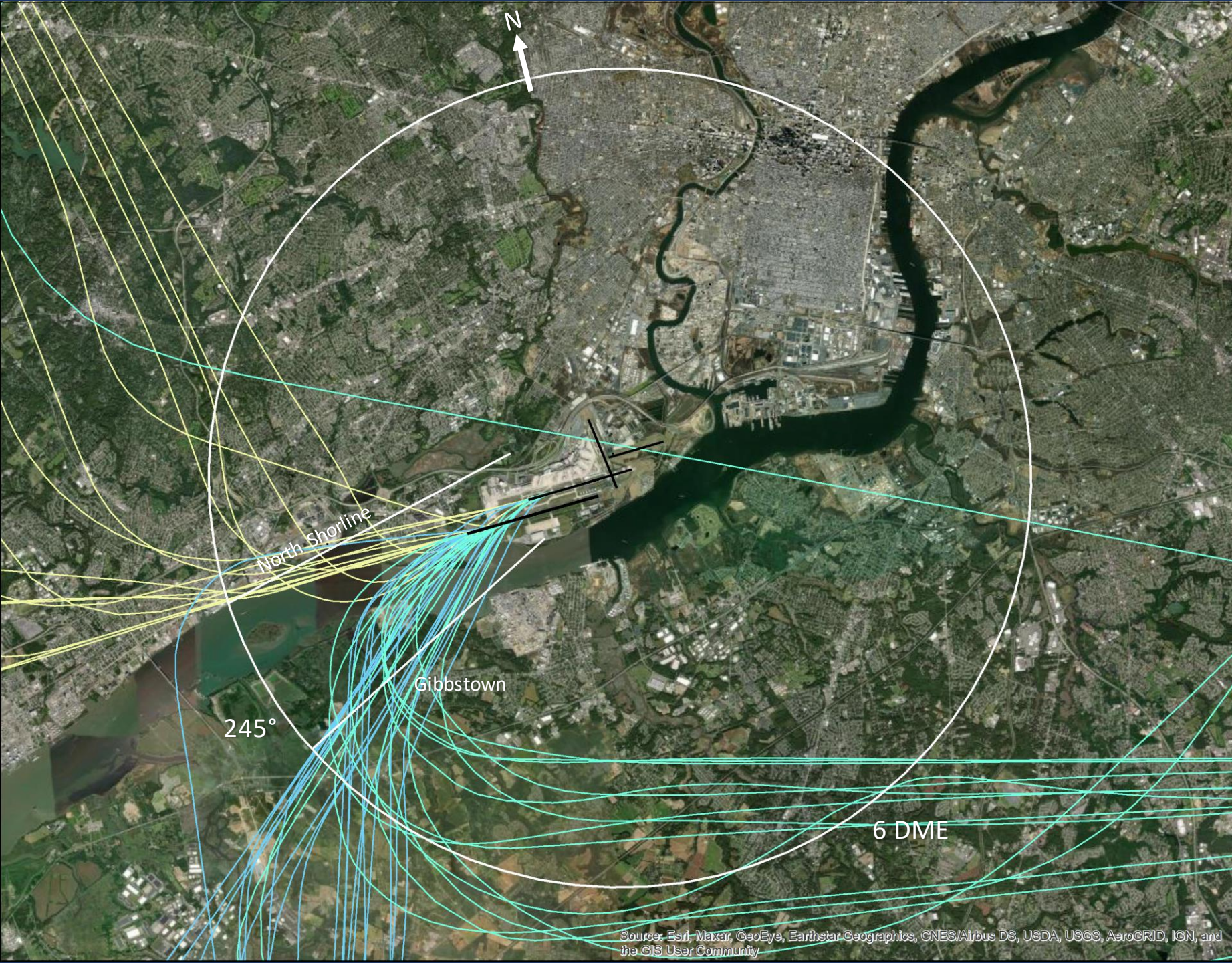
Active 22:00 – 05:59 Local

Applies to all turbojet aircraft.

RUNWAY 27L / 27R

Heading **245°**

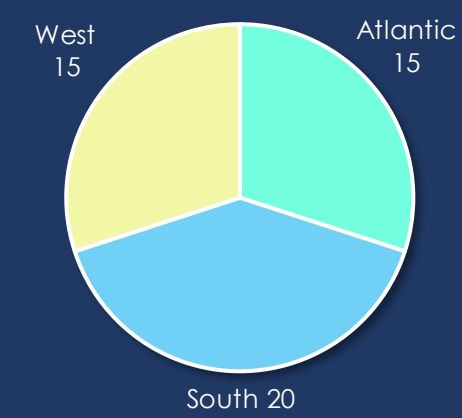
Departing turbojet aircraft will not be
turned until reaching **6 DME** or
3,000 ft. MSL



WEST FLOW

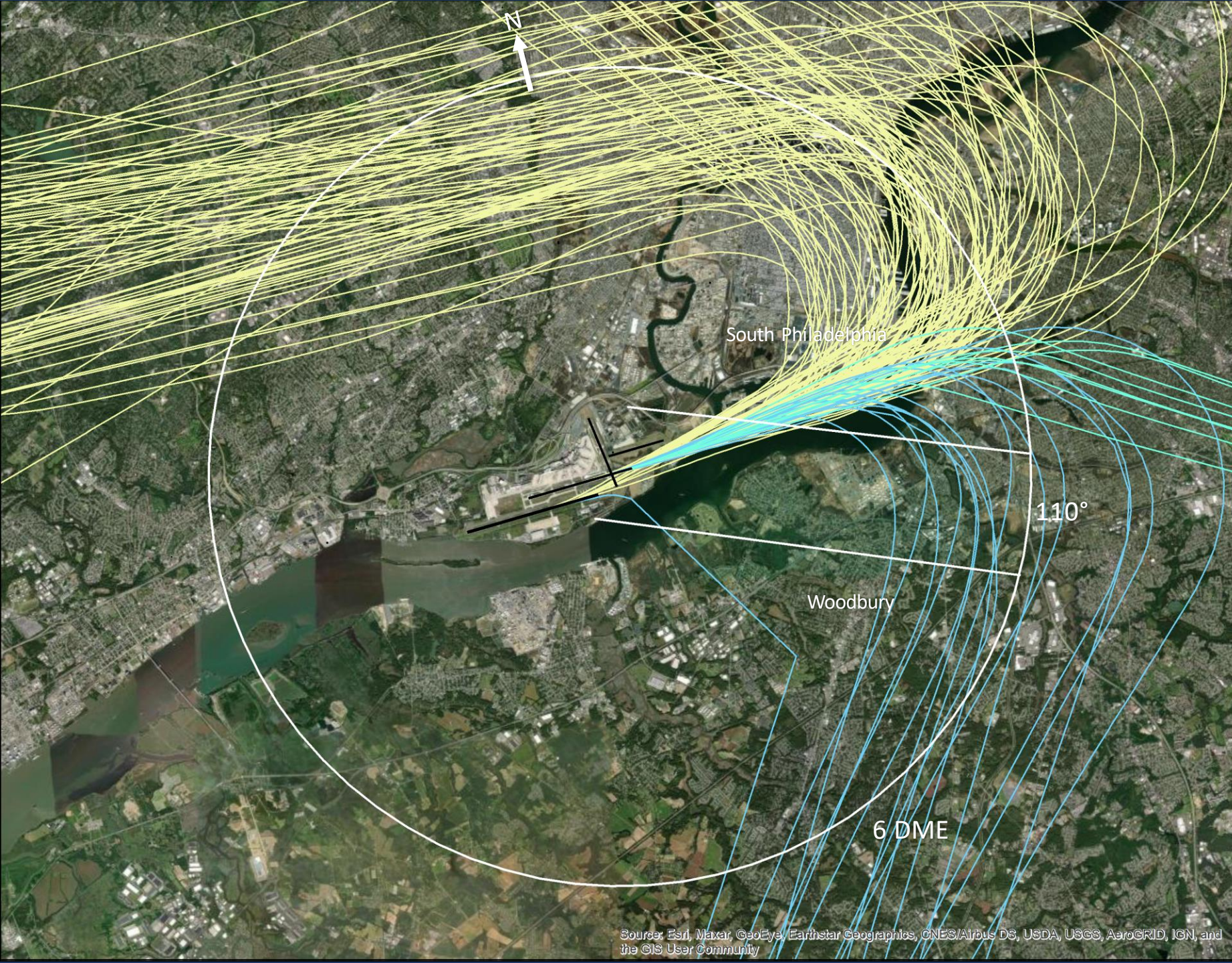
ANALYSIS

0.6% of 8,000 total East Flow nighttime departures in 2022 did not fly the **245°** noise abatement heading per the FAA SOP



50 of these operations departed the corridor before reaching 2,750 ft. The average corridor exit altitude was **2,384 ft.**

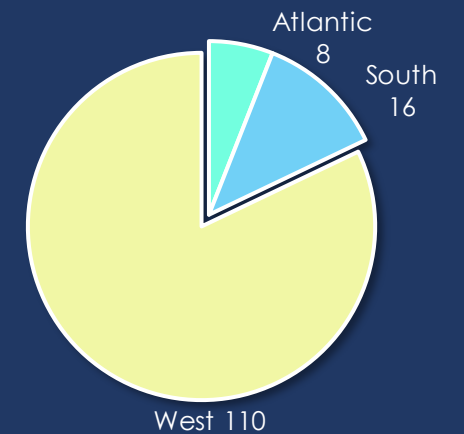
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



EAST FLOW

ANALYSIS

43% of 3,286 total East Flow nighttime jet departures in 2022 did not fly the 110° noise abatement heading per the FAA SOP



134 of these operations departed the corridor before reaching 1,750 ft.

Roughly 82% (110) were flying to West fixes (MXE, PTW, STOEN). The average corridor exit altitude was

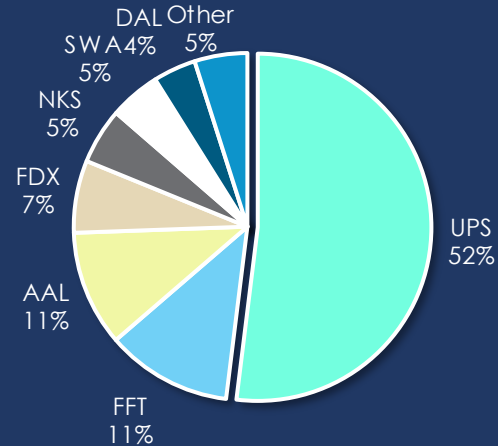
1,596 ft.

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

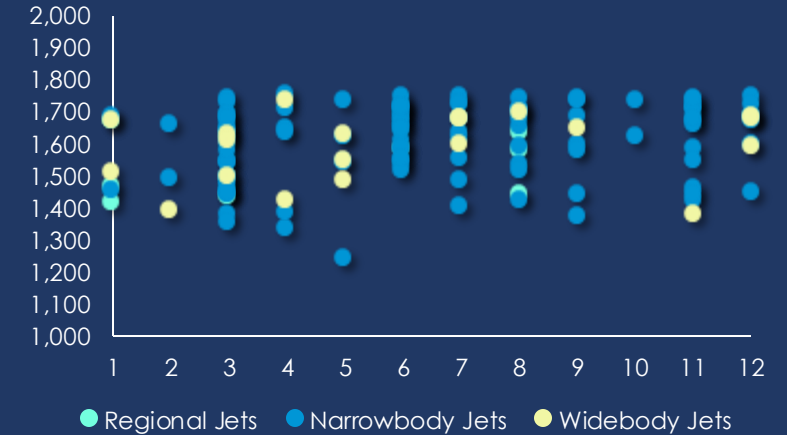
EAST FLOW

REPORTING ANALYTICS

% of Nighttime East Flow Jet Departures by Carrier in 2022



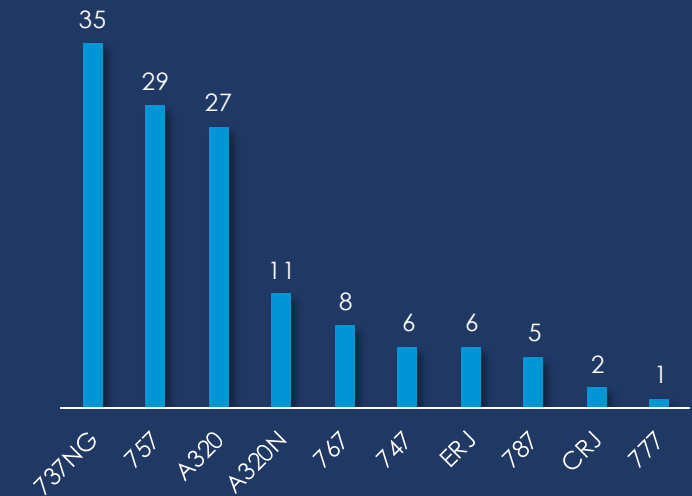
Non-Conforming Nighttime East Flow Jet Departures by Altitude and Month



Non-Conforming Nighttime East Flow Jet Departures Comparison by Carrier in 2022

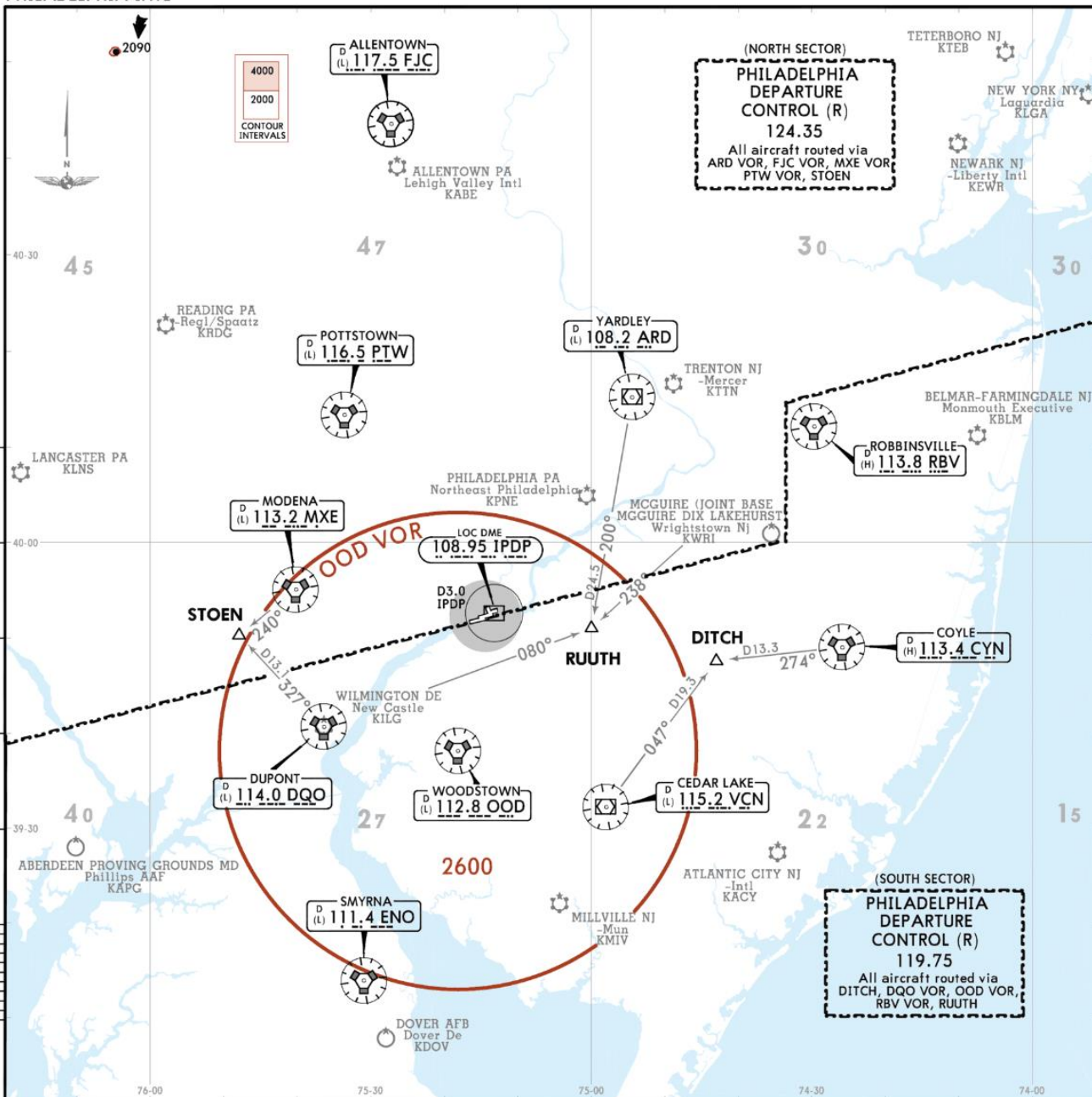
AIRLINE	NON-CONFORMING NIGHTTIME DEP.	TOTAL NIGHTTIME DEPARTURES	NON-CONFORMING % OF TOTAL DEP.
UPS	35	1,628	2.1%
Frontier (FFT)	23	367	6.3%
Southwest (SWA)	22	148	14.9%
American (AAL)	20	337	5.9%
Delta (DAL)	13	125	10.4%
FedEx (FDX)	6	211	2.8%
Spirit (NKS)	6	163	3.7%
Republic (RPA)	4	21	19.0%
Piedmont (PDT)	2	46	4.3%
PSA (JIA)	2	79	2.5%
United (UAL)	1	7	14.3%
Total	134	3,286*	4.1%

Non-Conforming Nighttime East Flow Jet Departures by Aircraft Type in 2022



PHL2 SID

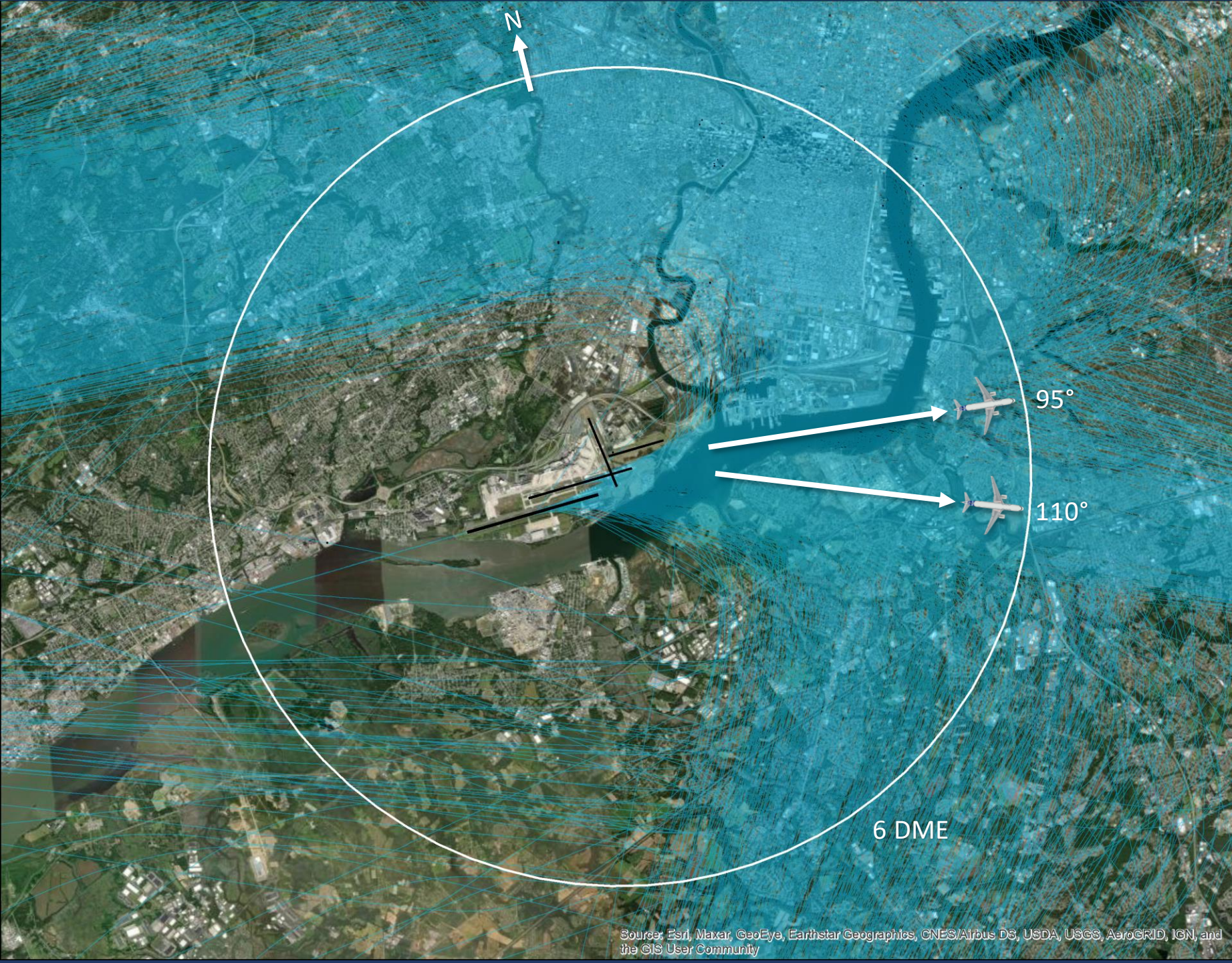
JEPPESEN CHART



The Jeppesen PHL SID chart only
notates the **245°** nighttime noise
abatement heading for departures
from Runways 27L and 27R between
the hours of 22:00-06:00L.

There is no mention of **110°**
nighttime noise abatement heading
when departing Runways 9L and 9R
as stated in the FAA's SOP.

Resolve the discrepancy between
the FAA's SOP and what is charted
on the PHL SID.



NEXT STEPS

EAST FLOW NIGHT DEPARTURE

Propose to the FAA that the nighttime noise abatement heading codified in their SOP be modified to **95°**.

The current **110°** heading is being assigned less than 60% of the time.

Controllers are already assigning aircraft a heading between **80°** and **100°**, which is more efficient and reduces track miles flown, especially for west bound flights.

The **95°** heading would keep aircraft over the Delaware River and reduce low-level overflights of residential neighborhoods.