



**London Luton Airport Operations Ltd**  
**FASI-S ACP-2018-70**  
Initial Options Appraisal Technical Appendix

# Introduction

This technical appendix includes quantitative analysis and assessment of the airspace change options presented in Luton Airport's Stage 2B Initial Options Appraisal submission document.

Further information around the development of the airspace change options, our methodology for appraisal, and the qualitative assessments undertaken for each option, are included in our Stage 2A and Stage 2B documents published on the [CAA Airspace Change Portal](#).

**Please note that all options are subject to change and refinement as we progress through the airspace change process.**

This document is split into six sections. Please click on the links below to navigate to a section within the document:

[Introduction \(this section\)](#)

[Initial Options Appraisal Westerly Departures](#)

[Initial Options Appraisal Easterly Departures](#)

[Initial Options Appraisal Westerly Arrivals](#)

[Initial Options Appraisal Easterly Arrivals](#)

[Fuel Burn Calculations](#)

# Introduction

This technical appendix contains overflight contours and data tables associated with these contours.

The overflight contours have been calculated using the CAA's definition of overflight as defined in CAP1498. They assume a cone elevation angle of 48.5°. The population counts are based on CACI data. The modelling takes into account the average modal split at Luton Airport.

Our IOA uses CACI population forecast data. This data is supplied to one decimal place and for this IOA we have not rounded the data. As part of our FOA at Stage 3 the data will be rounded to the nearest person.

The data shown within the estimated track mileage tables is based on indicative centrelines; more detailed assessment will be undertaken at Stage 3 of the process.

More information about the methodology is detailed in the Stage 2B Initial Options Appraisal document.

# Initial Options Appraisal

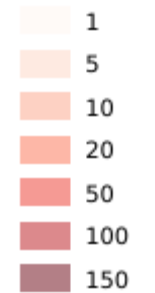
## Westerly Departures

# Westerly Departures – Option 1 Baseline (including vectors)



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

## Baseline (Vectoring) overflight contour 0 - 7000ft (day)

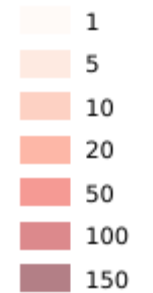
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	No. Schools 0-7000ft	No. Hospitals 0-7000ft	No. Worship. 0-7000ft	No. Historic Parks/Gdns 0-7000ft	Area (Km2) of AONB overflown. 0-7000ft	No SSSI. 0-7000ft	No Nat200 0-7000ft
Baseline Westerly Dep Option 1 (Vector)*	614324.0	79163.0	5722.0	1447.0	697.0	11.0	371.0	4.0	130.9	25.0	4.0

# Westerly Departures – Option 1 Baseline (without vectoring)



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Baseline (Centreline) overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

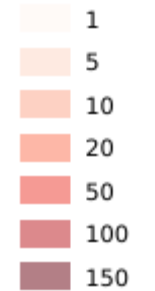
Baseline Westerly Dep Option 1 (centreline)	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Dep Option 1 (centreline)	153814.2	86233.8	14940.9	2535.9	8058.7	6305.1	3777.8	2531.5	149803.7	82188.0	10780.8	152.0	13.0	147.0	2.0	0.0	2.0	80.0	6.0	79.0	3.0	1.0	2.0	95.9	19.0	95.9	0.0	0.0

# Westerly Departures – Option 2



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 2 overflight contour 0 - 7000ft (day)

Baseline (centrelines) contours outlined in black

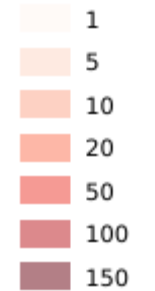
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
<b>Baseline Westerly Dep Option 1 (centrelines)</b>	153814.2	86233.8	14940.9	2535.9	8058.7	6305.1	3777.8	2531.5	149803.7	82188.0	10780.8	152.0	13.0	147.0	2.0	0.0	2.0	80.0	6.0	79.0	3.0	1.0	2.0	95.9	19.0	95.9	0.0	0.0
<b>Westerly Dep Option 2</b>	129042.5	65989.4	15026.3	986.1	11235.2	10122.4	2395.4	986.1	126362.5	63273.4	11568.3	131.0	12.0	127.0	1.0	0.0	1.0	65.0	4.0	64.0	3.0	1.0	2.0	96.1	19.6	96.1	0.0	0.0

# Westerly Departures – Option 3



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 3 overflight contour 0 - 7000ft (day)

Baseline (centrelines) contours outlined in black

	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
<b>Baseline Westerly Dep Option 1 (centrelines)</b>	153814.2	86233.8	14940.9	2535.9	8058.7	6305.1	3777.8	2531.5	149803.7	82188.0	10780.8	152.0	13.0	147.0	2.0	0.0	2.0	80.0	6.0	79.0	3.0	1.0	2.0	95.9	19.0	95.9	0.0	0.0
<b>Westerly Dep Option 3</b>	132810.8	69760.0	15544.0	579.4	14566.6	14003.7	2915.4	579.4	129287.9	63619.4	11568.3	131.0	16.0	126.0	1.0	0.0	1.0	67.0	7.0	65.0	5.0	2.0	4.0	99.1	24.3	98.7	1.0	1.0

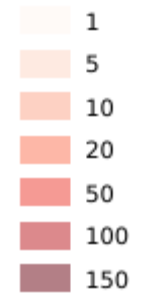


# Westerly Departures – Option 4



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 4 overflight contour 0 - 7000ft (day)

Baseline (centrelines) contours outlined in black

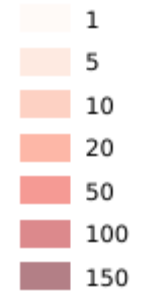
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
<b>Baseline Westerly Dep Option 1 (centrelines)</b>	153814.2	86233.8	14940.9	2535.9	8058.7	6305.1	3777.8	2531.5	149803.7	82188.0	10780.8	152.0	13.0	147.0	2.0	0.0	2.0	80.0	6.0	79.0	3.0	1.0	2.0	95.9	19.0	95.9	0.0	0.0
<b>Westerly Dep Option 4</b>	156742.0	90402.6	18957.6	572.6	31638.8	24449.8	2225.1	572.6	153168.6	81957.3	16326.3	176.0	41.0	171.0	3.0	0.0	3.0	93.0	20.0	91.0	5.0	2.0	4.0	105.7	29.0	105.4	0.0	0.0

# Westerly Departures – Option 5



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 5 overflight contour 0 - 7000ft (day)

Baseline (centrelines) contours outlined in black

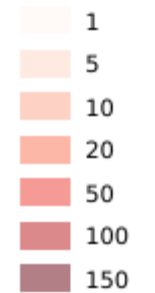
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
<b>Baseline Westerly Dep Option 1 (centrelines)</b>	153814.2	86233.8	14940.9	2535.9	8058.7	6305.1	3777.8	2531.5	149803.7	82188.0	10780.8	152.0	13.0	147.0	2.0	0.0	2.0	80.0	6.0	79.0	3.0	1.0	2.0	95.9	19.0	95.9	0.0	0.0
Westerly Dep Option 5	132254.8	69253.4	15635.4	579.4	14566.6	14003.7	2915.4	579.4	128731.8	63112.8	11659.6	132.0	16.0	127.0	1.0	0.0	1.0	68.0	7.0	66.0	5.0	2.0	4.0	99.2	24.3	98.8	1.0	1.0

# Westerly Departures – Option 6



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 6 overflight contour 0 - 7000ft (day)

Baseline (centrelines) contours outlined in black

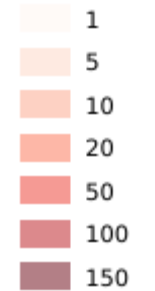
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
<b>Baseline Westerly Dep Option 1 (centrelines)</b>	153814.2	86233.8	14940.9	2535.9	8058.7	6305.1	3777.8	2531.5	149803.7	82188.0	10780.8	152.0	13.0	147.0	2.0	0.0	2.0	80.0	6.0	79.0	3.0	1.0	2.0	95.9	19.0	95.9	0.0	0.0
Westerly Dep Option 6	173323.1	92101.3	19089.5	572.6	31839.3	24184.1	2236.3	572.6	169749.8	83469.5	16358.2	199.0	42.0	194.0	3.0	0.0	3.0	106.0	20.0	104.0	5.0	2.0	4.0	145.2	31.5	144.9	0.0	0.0

# Westerly Departures – Option 7 (Day)



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 7 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

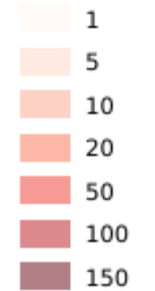
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
<b>Baseline Westerly Dep Option 1 (centreline)</b>	153814.2	86233.8	14940.9	2535.9	8058.7	6305.1	3777.8	2531.5	149803.7	82188.0	10780.8	152.0	13.0	147.0	2.0	0.0	2.0	80.0	6.0	79.0	3.0	1.0	2.0	95.9	19.0	95.9	0.0	0.0
Westerly Dep Option 7	184070.8	65680.5	14394.9	986.1	47815.6	10157.1	2511.7	977.2	148619.5	62866.3	10840.8	194.0	48.0	159.0	4.0	3.0	1.0	100.0	21.0	86.0	4.0	1.0	3.0	118.7	23.2	117.1	1.0	0.0

# Westerly Departures – Option 7 (Night)



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 7 overflight contour 0 - 7000ft (night)

Baseline (centreline) contours outlined in black

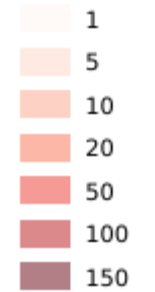
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No. Nat200 0-4000ft
Baseline Westerly Dep Option 1 (centreline)	93645.0	14597.6	0.0	0.0	6838.7	3687.4	0.0	0.0	89786.9	10434.4	0.0	99.0	12.0	94.0	1.0	0.0	1.0	53.0	6.0	52.0	3.0	1.0	2.0	87.2	16.7	87.2	0.0	0.0
Westerly Dep Option 7	119601.6	39888.2	0.0	0.0	48790.1	31011.1	0.0	0.0	105382.0	3336.7	0.0	126.0	49.0	110.0	3.0	3.0	3.0	69.0	22.0	63.0	4.0	2.0	3.0	55.3	18.6	52.4	4.0	0.0

# Westerly Departures – Option 8 (Day)



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 8 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

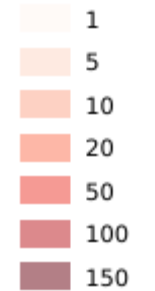
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No. Nat200 0-4000ft
Baseline Westerly Dep Option 1 (centreline)	153814.2	86233.8	14940.9	2535.9	8058.7	6305.1	3777.8	2531.5	149803.7	82188.0	10780.8	152.0	13.0	147.0	2.0	0.0	2.0	80.0	6.0	79.0	3.0	1.0	2.0	95.9	19.0	95.9	0.0	0.0
Westerly Dep Option 8	163516.8	65680.5	14394.9	986.1	25330.2	10157.1	2511.7	977.2	150606.5	62866.3	10840.8	162.0	26.0	149.0	1.0	0.0	1.0	83.0	10.0	78.0	3.0	1.0	2.0	128.3	28.7	119.8	3.0	0.0

# Westerly Departures – Option 8 (Night)



Average movements per day.

Assumes 70% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 8 overflight contour 0 - 7000ft (night)

Baseline (centreline) contours outlined in black

	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Dep Option 1 (centreline)	93645.0	14597.6	0.0	0.0	6838.7	3687.4	0.0	0.0	89786.9	10434.4	0.0	99.0	12.0	94.0	1.0	0.0	1.0	53.0	6.0	52.0	3.0	1.0	2.0	87.2	16.7	87.2	0.0	0.0
Westerly Dep Option 8	73587.3	22475.8	0.0	0.0	18584.1	12067.8	0.0	0.0	63470.3	10662.5	0.0	89.0	23.0	76.0	0.0	0.0	0.0	49.0	8.0	44.0	5.0	2.0	4.0	53.2	15.0	51.9	4.0	0.0

# Westerly Departures - Population Overflown Data Tables

		Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-7000ft (150 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 0-4000ft (150 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	Population over flown 4-7000ft (150 times per day)
DAY	Baseline Westerly Dep Option 1 (Vector)	614324.0	79163.0	5722.0	1447.0	0.0										
	Baseline Westerly Dep Option 1 (centreline)	153814.2	86233.8	14940.9	2535.9	0.0	8058.7	6305.1	3777.8	2531.5	0.0	149803.7	82188.0	10780.8	0.0	0.0
	Westerly Dep Option 2	129042.5	65989.4	15026.3	986.1	0.0	11235.2	10122.4	2395.4	986.1	0.0	126362.5	63273.4	11568.3	0.0	0.0
	Westerly Dep Option 3	132810.8	69760.0	15544.0	579.4	0.0	14566.6	14003.7	2915.4	579.4	0.0	129287.9	63619.4	11568.3	0.0	0.0
	Westerly Dep Option 4	156742.0	90402.6	18957.6	572.6	0.0	31638.8	24449.8	2225.1	572.6	0.0	153168.6	81957.3	16326.3	0.0	0.0
	Westerly Dep Option 5	132254.8	69253.4	15635.4	579.4	0.0	14566.6	14003.7	2915.4	579.4	0.0	128731.8	63112.8	11659.6	0.0	0.0
	Westerly Dep Option 6	173323.1	92101.3	19089.5	572.6	0.0	31839.3	24184.1	2236.3	572.6	0.0	169749.8	83469.5	16358.2	0.0	0.0
	Westerly Dep Option 7	184070.8	65680.5	14394.9	986.1	0.0	47815.6	10157.1	2511.7	977.2	0.0	148619.5	62866.3	10840.8	0.0	0.0
	Westerly Dep Option 8	163516.8	65680.5	14394.9	986.1	0.0	25330.2	10157.1	2511.7	977.2	0.0	150606.5	62866.3	10840.8	0.0	0.0
NGT	Baseline Westerly Dep Option 1 (Vector)	98936.0	6666.0	0.0	0.0	0.0										
	Baseline Westerly Dep Option 1 (centreline)	93645.0	14597.6	0.0	0.0	0.0	6838.7	3687.4	0.0	0.0	0.0	89786.9	10434.4	0.0	0.0	0.0
	Westerly Dep Option 2	71386.6	14799.9	0.0	0.0	0.0	10458.7	2301.5	0.0	0.0	0.0	68804.8	11383.2	0.0	0.0	0.0
	Westerly Dep Option 3	77071.8	15856.8	0.0	0.0	0.0	14115.8	3360.6	0.0	0.0	0.0	73677.4	11383.2	0.0	0.0	0.0
	Westerly Dep Option 4	111650.8	11126.3	0.0	0.0	0.0	30092.2	2337.2	0.0	0.0	0.0	108131.1	8350.4	0.0	0.0	0.0
	Westerly Dep Option 5	76543.5	15961.6	0.0	0.0	0.0	14115.8	3360.6	0.0	0.0	0.0	73149.1	11487.9	0.0	0.0	0.0
	Westerly Dep Option 6	125262.1	11349.3	0.0	0.0	0.0	30162.9	2337.2	0.0	0.0	0.0	121742.4	8572.0	0.0	0.0	0.0
	Westerly Dep Option 7	119601.6	39888.2	0.0	0.0	0.0	48790.1	31011.1	0.0	0.0	0.0	105382.0	3336.7	0.0	0.0	0.0
	Westerly Dep Option 8	73587.3	22475.8	0.0	0.0	0.0	18584.1	12067.8	0.0	0.0	0.0	63470.3	10662.5	0.0	0.0	0.0



# Westerly Departures - Noise Sensitive Sites Data Tables

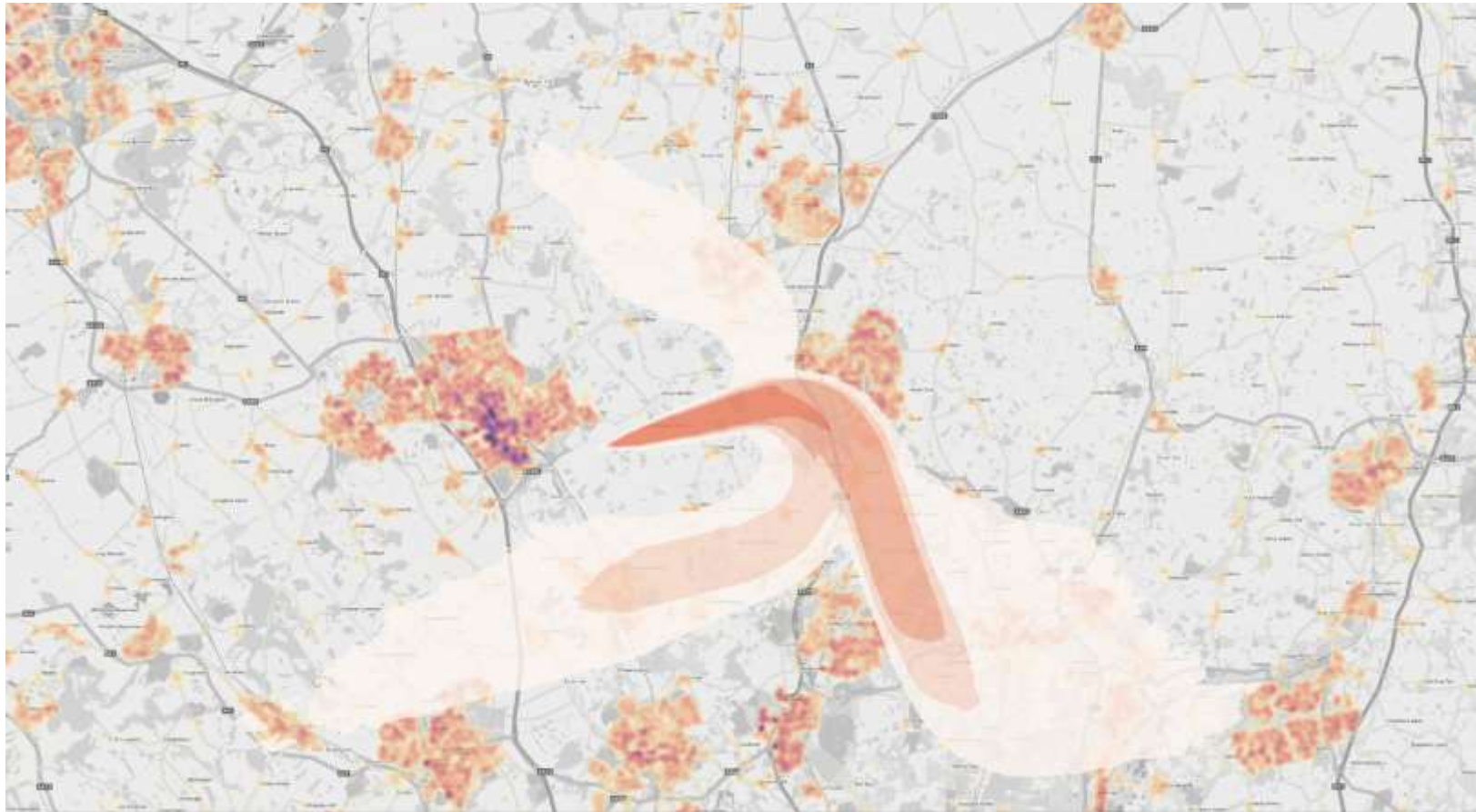
		No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns. 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-7000ft	No SSSI. 0-4000ft	No Nat200 0-7000ft	No.Nat200 0-4000ft
DAY	Baseline Westerly Dep Option 1 (Vector)*	697.0			11.0			371.0			4.0			130.9			25.0		4.0	
	Baseline Westerly Dep Option 1 (centreline)	152.0	13.0	147.0	2.0	0.0	2.0	80.0	6.0	79.0	3.0	1.0	2.0	95.9	19.0	95.9		0.0		0.0
	Westerly Dep Option 2	131.0	12.0	127.0	1.0	0.0	1.0	65.0	4.0	64.0	3.0	1.0	2.0	96.1	19.6	96.1		0.0		0.0
	Westerly Dep Option 3	131.0	16.0	126.0	1.0	0.0	1.0	67.0	7.0	65.0	5.0	2.0	4.0	99.1	24.3	98.7		1.0		1.0
	Westerly Dep Option 4	176.0	41.0	171.0	3.0	0.0	3.0	93.0	20.0	91.0	5.0	2.0	4.0	105.7	29.0	105.4		0.0		0.0
	Westerly Dep Option 5	132.0	16.0	127.0	1.0	0.0	1.0	68.0	7.0	66.0	5.0	2.0	4.0	99.2	24.3	98.8		1.0		1.0
	Westerly Dep Option 6	199.0	42.0	194.0	3.0	0.0	3.0	106.0	20.0	104.0	5.0	2.0	4.0	145.2	31.5	144.9		0.0		0.0
	Westerly Dep Option 7	194.0	48.0	159.0	4.0	3.0	1.0	100.0	21.0	86.0	4.0	1.0	3.0	118.7	23.2	117.1		1.0		0.0
Westerly Dep Option 8	162.0	26.0	149.0	1.0	0.0	1.0	83.0	10.0	78.0	3.0	1.0	2.0	128.3	28.7	119.8		3.0		0.0	
NGT	Baseline Westerly Dep Option 1 (Vector)*	108.0			2.0			52.0			3.0			89.4			12.0		1.0	
	Baseline Westerly Dep Option 1 (centreline)	99.0	12.0	94.0	1.0	0.0	1.0	53.0	6.0	52.0	3.0	1.0	2.0	87.2	16.7	87.2		0.0		0.0
	Westerly Dep Option 2	90.0	12.0	86.0	1.0	0.0	1.0	48.0	4.0	47.0	3.0	1.0	2.0	91.9	17.2	91.9		0.0		0.0
	Westerly Dep Option 3	94.0	16.0	89.0	1.0	0.0	1.0	52.0	7.0	50.0	4.0	2.0	3.0	95.2	21.7	94.9		0.0		0.0
	Westerly Dep Option 4	143.0	39.0	138.0	3.0	0.0	3.0	78.0	19.0	76.0	4.0	2.0	3.0	101.7	27.9	101.1		0.0		0.0
	Westerly Dep Option 5	95.0	16.0	90.0	1.0	0.0	1.0	53.0	7.0	51.0	4.0	2.0	3.0	95.3	21.7	94.9		0.0		0.0
	Westerly Dep Option 6	157.0	39.0	152.0	3.0	0.0	3.0	86.0	18.0	84.0	4.0	2.0	3.0	132.6	29.7	132.0		0.0		0.0
	Westerly Dep Option 7	126.0	49.0	110.0	3.0	3.0	3.0	69.0	22.0	63.0	4.0	2.0	3.0	55.3	18.6	52.4		4.0		0.0
Westerly Dep Option 8	89.0	23.0	76.0	0.0	0.0	0.0	49.0	8.0	44.0	5.0	2.0	4.0	53.2	15.0	51.9		4.0		0.0	

## Westerly Departures – Estimated Track Mileage

Option	Indicative track miles (nautical miles) to/abeam			Indicative nautical miles diff to/abeam			Notes
	MATCH	OLY	HEN (CPT SID)	MATCH	OLY	HEN (CPT SID)	
Baseline Westerly Dep (centreline) Option 1	33	29	18	0	0	0	
Westerly Dep Option 2	33	29	18	0	0	0	
Westerly Dep Option 3	33	28	17	0	-1	-1	
Westerly Dep Option 4 Period 1	29	28	17	-4	-1	-1	
Westerly Dep Option 4 Period 2	33	29	18	0	0	0	
Westerly Dep Option 5	33	28	17	0	-1	-1	Plus better CCO
Westerly Dep Option 6 Period 1	29	28	17	-4	-1	-1	Plus better CCO
Westerly Dep Option 6 Period 2	33	31	18	0	2	0	Plus better CCO
Westerly Dep Option 7 Period 1	33	29	18	0	0	0	Plus better CCO
Westerly Dep Option 7 Period 2	35	22	18	2	-7	0	Plus better CCO
Westerly Dep Option 8 Period 1	33	29	18	0	0	0	Plus better CCO
Westerly Dep Option 8 Period 2	41	23	18	8	-6	0	Plus better CCO

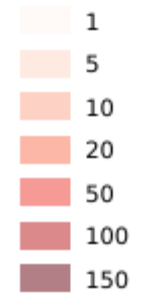
# Initial Options Appraisal Easterly Departures

# Easterly Departures – Option 1 Baseline (including vectors)



Average movements per day.

Assumes 30% of Luton's departures averaged across 365 days

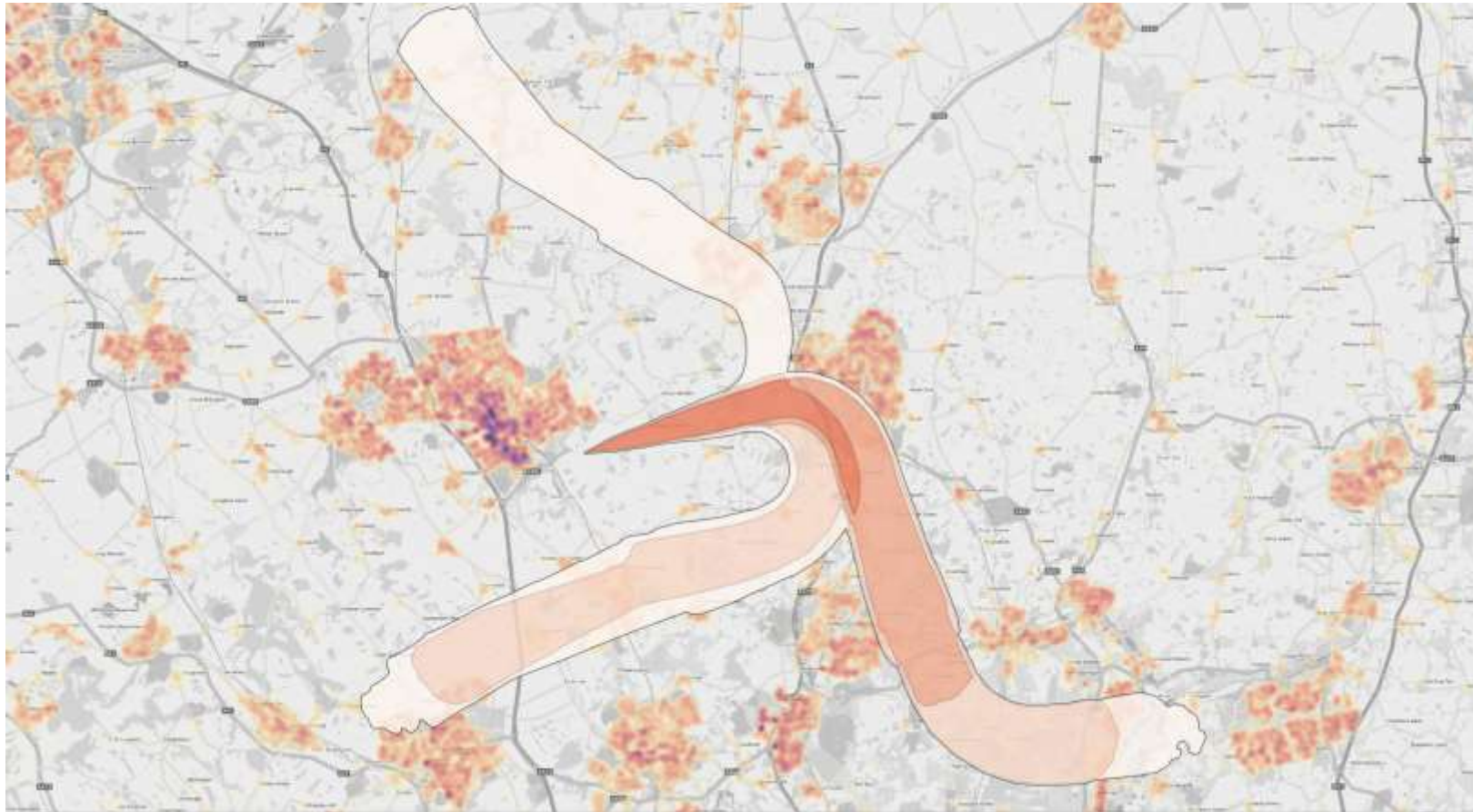


Dense areas of population (yellow to purple)

Baseline (Vectoring) overflight contour 0 - 7000ft (day)

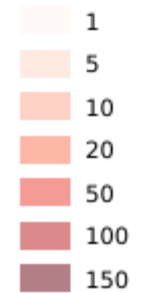
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	No. Schools 0-7000ft	No. Hospitals 0-7000ft	No. Worship. 0-7000ft	No. Historic Parks/Gdns 0-7000ft	Area (Km2) of AONB overflown. 0-7000ft
Baseline Easterly Dep Option 1 (Vector)	255436.0	22277.0	0.0	0.0	297.0	6.0	155.0	2.0	22.8

# Easterly Departures – Option 1 Baseline (without vectoring)



Average movements per day.

Assumes 30% of Luton's departures averaged across 365 days



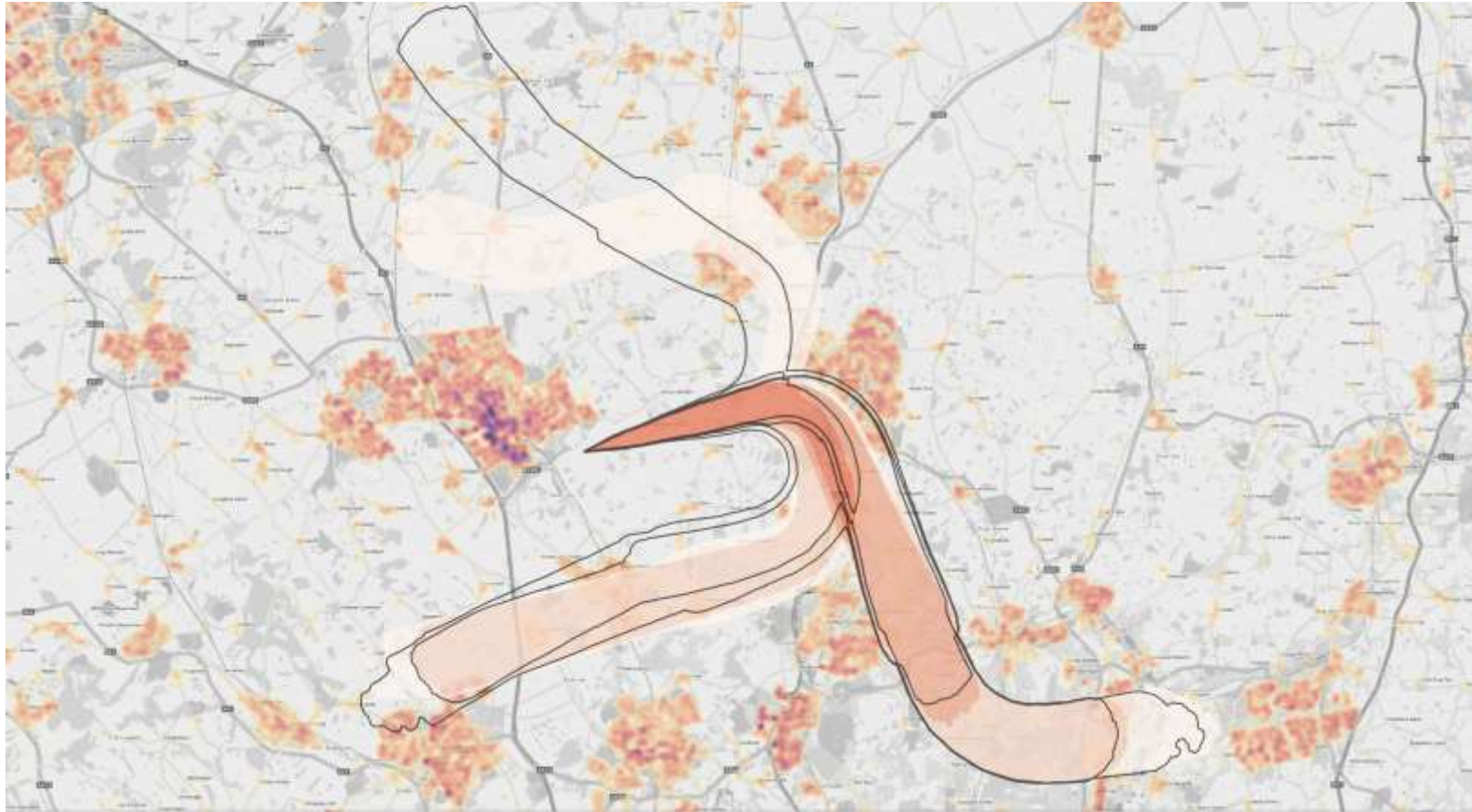
Dense areas of population (yellow to purple)

Baseline (Centreline) overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

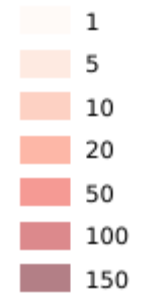
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown, 0-7000ft	Area (Km2) of AONB overflown, 0-4000ft	Area (Km2) of AONB overflown, 4-7000ft	No SSSI, 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Dep Option 1 (Centreline)	201573.7	30483.5	0.0	0.0	17616.5	7510.6	0.0	0.0	200914.7	28299.3	0.0	213.0	26.0	208.0	6.0	0.0	6.0	115.0	16.0	111.0	2.0	1.0	1.0	11.3	0.0	11.3	1.0	0.0

# Easterly Departures – Option 2



Average movements per day.

Assumes 30% of Luton's departures averaged across 365 days



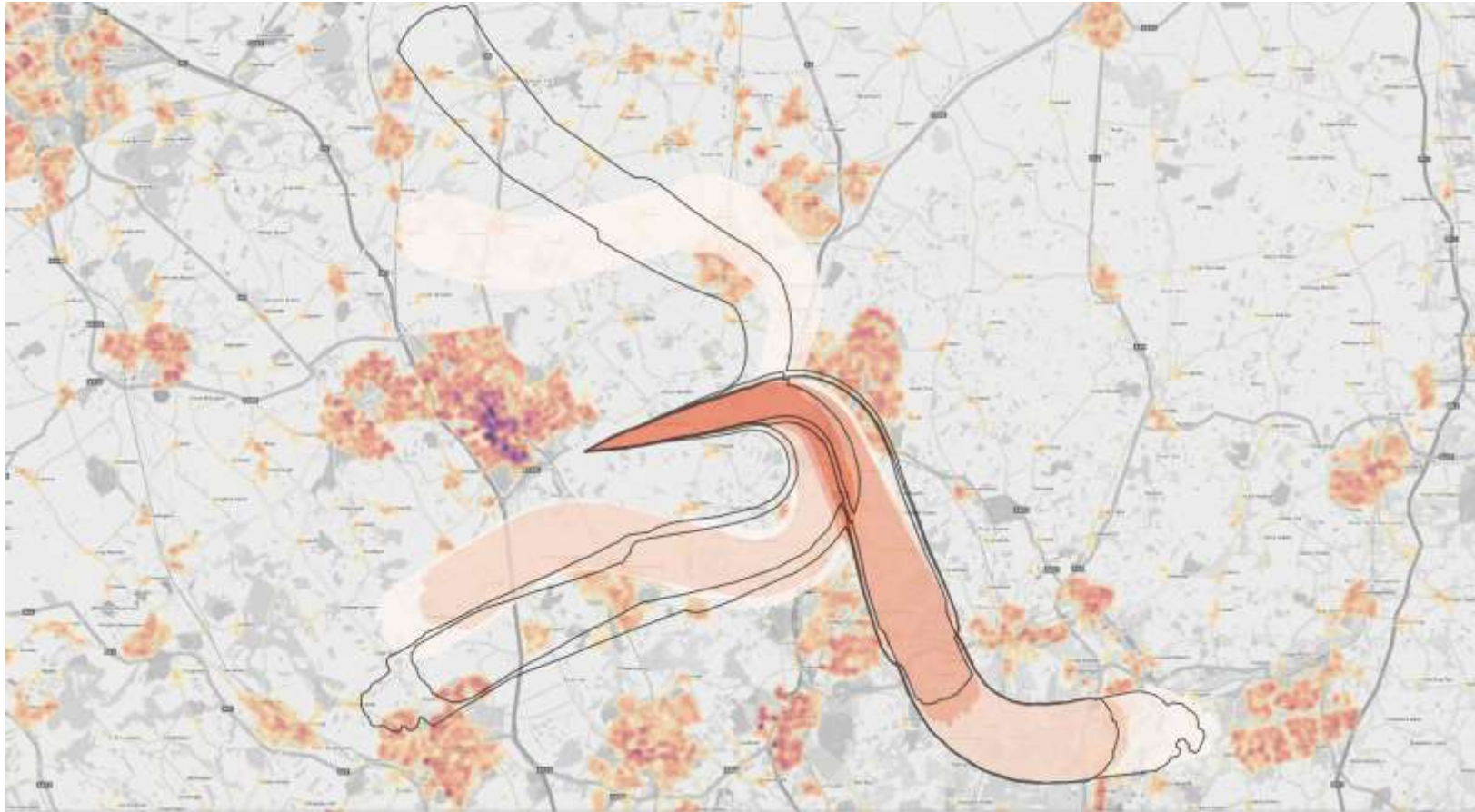
Dense areas of population (yellow to purple)

Option 2 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

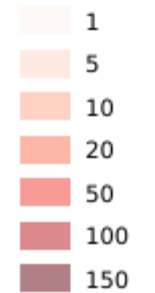
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown, 0-7000ft	Area (Km2) of AONB overflown, 0-4000ft	Area (Km2) of AONB overflown, 4-7000ft	No SSSI, 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Dep Option 1 (Centreline)	201573.7	30483.5	0.0	0.0	17616.5	7510.6	0.0	0.0	200914.7	28299.3	0.0	213.0	26.0	208.0	6.0	0.0	6.0	115.0	16.0	111.0	2.0	1.0	1.0	11.3	0.0	11.3	1.0	0.0
Easterly Dep Option 2	154991.1	19852.4	0.0	0.0	13806.0	2459.3	0.0	0.0	152870.8	18772.9	0.0	174.0	15.0	170.0	7.0	0.0	7.0	93.0	13.0	90.0	3.0	1.0	2.0	33.8	0.0	33.8	1.0	0.0

# Easterly Departures – Option 3



Average movements per day.

Assumes 30% of Luton's departures averaged across 365 days



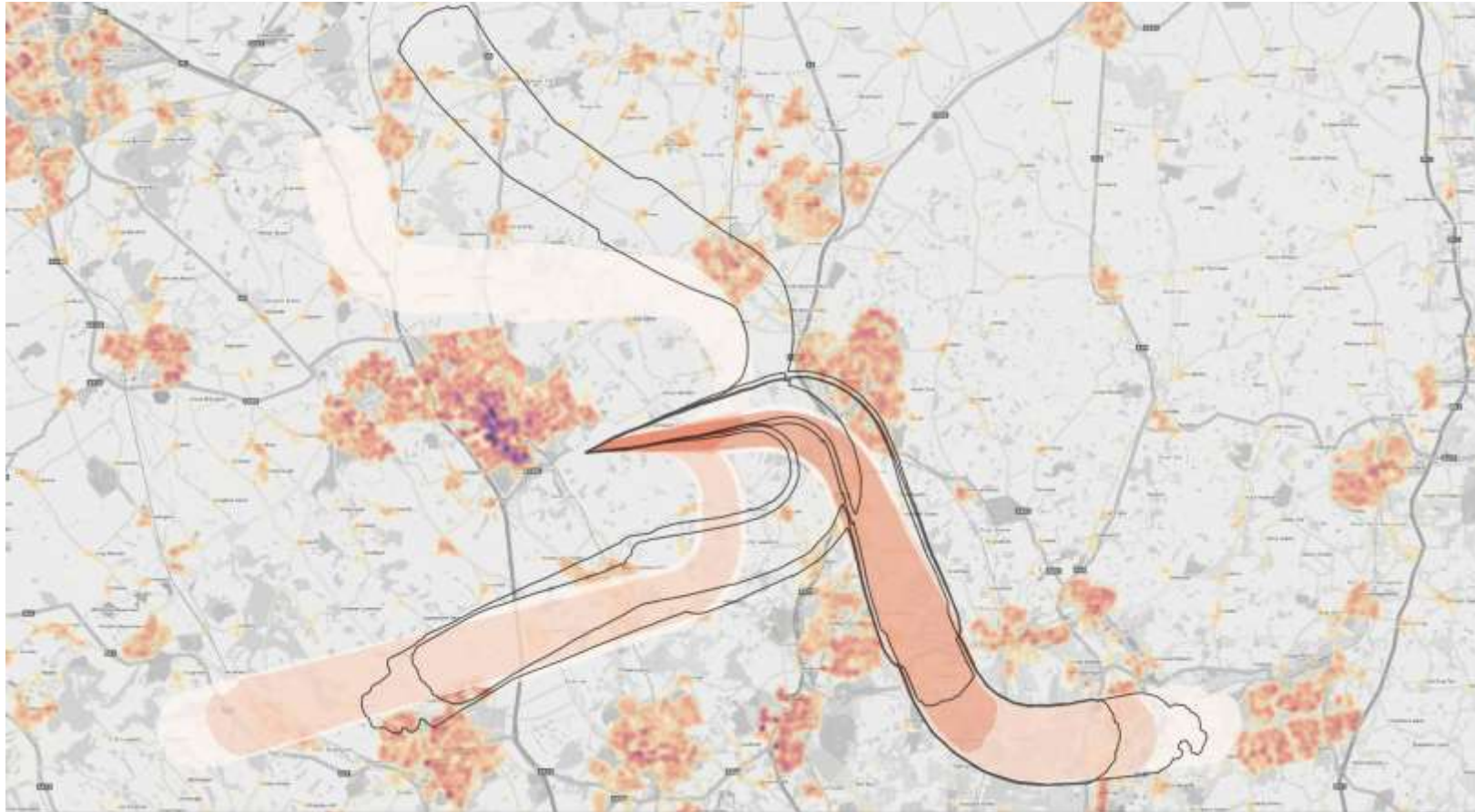
Dense areas of population (yellow to purple)

Option 3 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

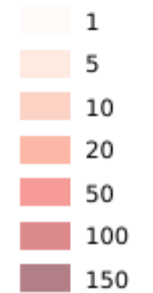
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown, 0-7000ft	Area (Km2) of AONB overflown, 0-4000ft	Area (Km2) of AONB overflown, 4-7000ft	No SSSI, 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Dep Option 1 (Centreline)	201573.7	30483.5	0.0	0.0	17616.5	7510.6	0.0	0.0	200914.7	28299.3	0.0	213.0	26.0	208.0	6.0	0.0	6.0	115.0	16.0	111.0	2.0	1.0	1.0	11.3	0.0	11.3	1.0	0.0
Easterly Dep Option 3	122694.9	19852.4	0.0	0.0	13806.0	2459.3	0.0	0.0	120574.6	18772.9	0.0	141.0	15.0	137.0	6.0	0.0	6.0	79.0	13.0	76.0	4.0	1.0	3.0	41.3	0.0	41.3	1.0	0.0

# Easterly Departures – Option 4



Average movements per day.

Assumes 30% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

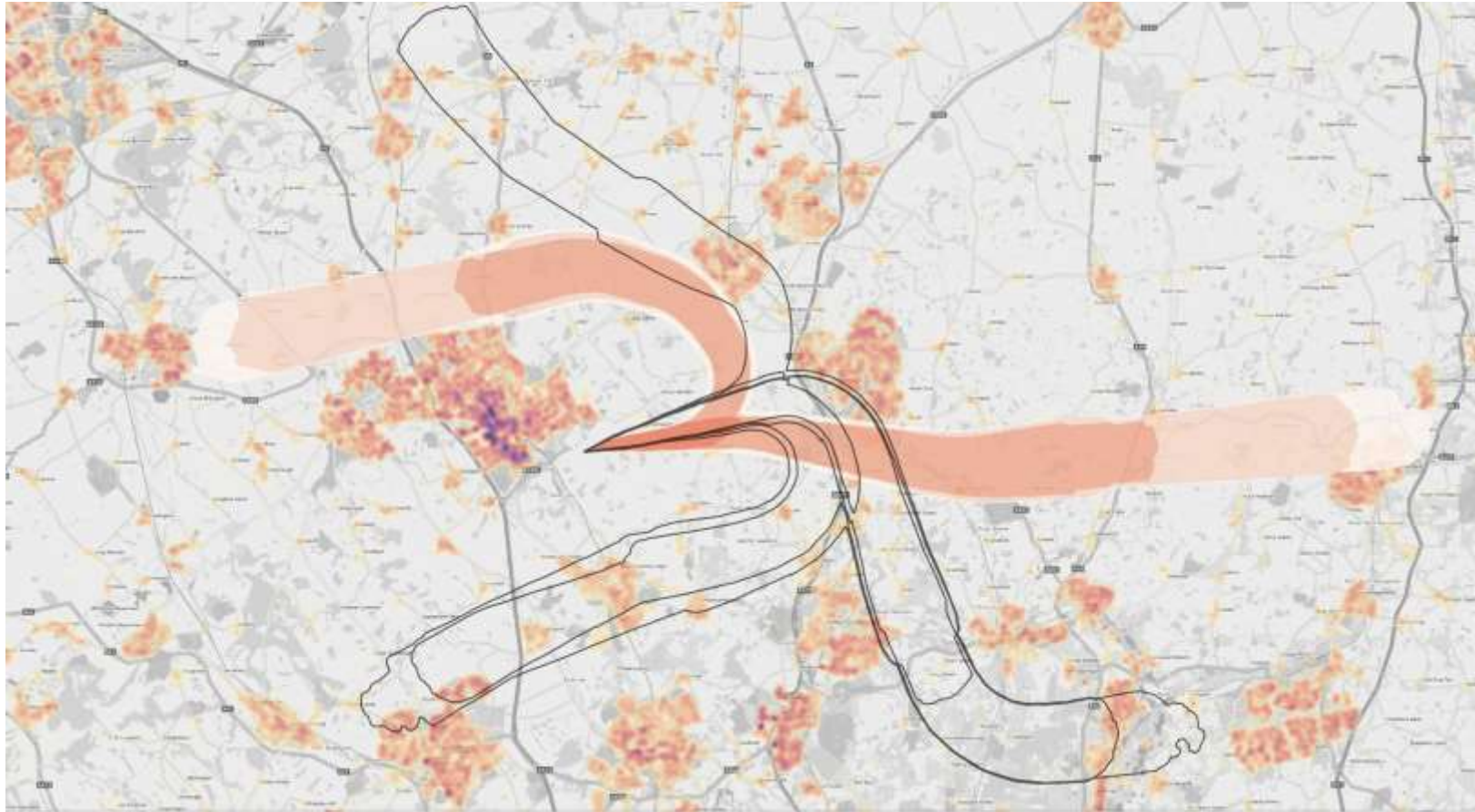
Option 4 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown, 0-7000ft	Area (Km2) of AONB overflown, 0-4000ft	Area (Km2) of AONB overflown, 4-7000ft	No SSSI, 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Dep Option 1 (Centreline)	201573.7	30483.5	0.0	0.0	17616.5	7510.6	0.0	0.0	200914.7	28299.3	0.0	213.0	26.0	208.0	6.0	0.0	6.0	115.0	16.0	111.0	2.0	1.0	1.0	11.3	0.0	11.3	1.0	0.0
Easterly Dep Option 4	130883.1	16257.3	0.0	0.0	13799.9	4570.3	0.0	0.0	128931.5	15245.4	0.0	144.0	20.0	139.0	3.0	0.0	3.0	82.0	15.0	78.0	3.0	1.0	2.0	69.7	0.0	69.7	2.0	0.0

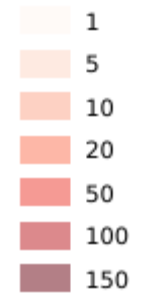


# Easterly Departures – Option 5



Average movements per day.

Assumes 30% of Luton's departures averaged across 365 days



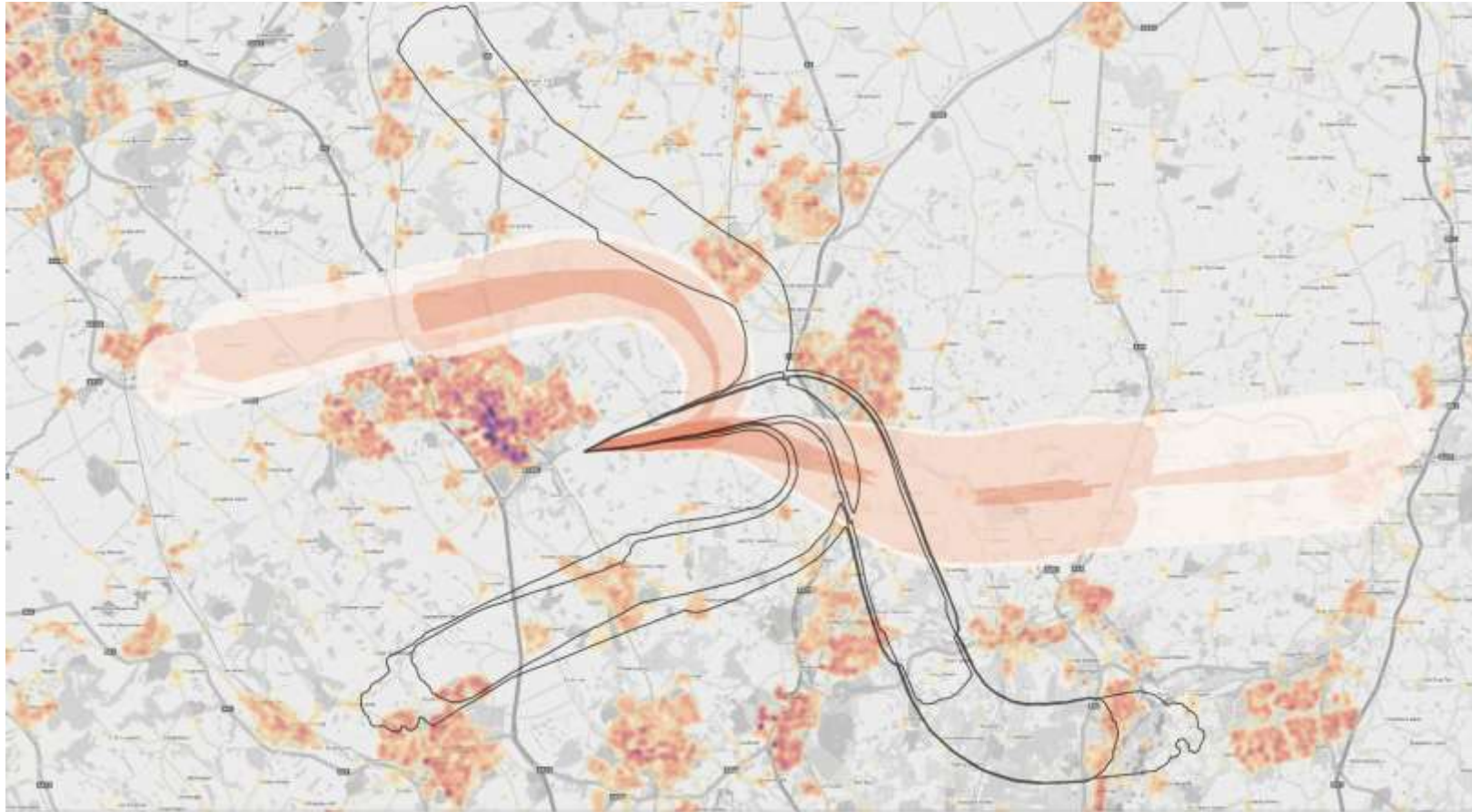
Dense areas of population (yellow to purple)

Option 5 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

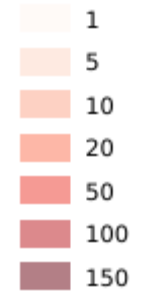
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown, 0-7000ft	Area (Km2) of AONB overflown, 0-4000ft	Area (Km2) of AONB overflown, 4-7000ft	No SSSI, 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Dep Option 1 (Centreline)	201573.7	30483.5	0.0	0.0	17616.5	7510.6	0.0	0.0	200914.7	28299.3	0.0	213.0	26.0	208.0	6.0	0.0	6.0	115.0	16.0	111.0	2.0	1.0	1.0	11.3	0.0	11.3	1.0	0.0
Easterly Dep Option 5	61816.7	19951.2	0.0	0.0	14718.2	6071.0	0.0	0.0	60749.2	18184.9	0.0	83.0	15.0	78.0	1.0	0.0	1.0	49.0	11.0	45.0	2.0	1.0	1.0	36.0	0.4	36.0	2.0	0.0

# Easterly Departures – Option 6



Average movements per day.

Assumes 30% of Luton's departures averaged across 365 days



Dense areas of population (yellow to purple)

Option 6 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Dep Option 1 (Centreline)	201573.7	30483.5	0.0	0.0	17616.5	7510.6	0.0	0.0	200914.7	28299.3	0.0	213.0	26.0	208.0	6.0	0.0	6.0	115.0	16.0	111.0	2.0	1.0	1.0	11.3	0.0	11.3	1.0	0.0
Easterly Dep Option 6	152384.2	5086.2	0.0	0.0	21734.3	796.2	0.0	0.0	151112.2	2048.5	0.0	152.0	23.0	147.0	2.0	0.0	2.0	79.0	15.0	75.0	2.0	1.0	1.0	40.7	7.2	40.7	2.0	0.0

# Easterly Departures - Population Overflown Data Tables

		Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-7000ft (150 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 0-4000ft (150 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	Population over flown 4-7000ft (150 times per day)
Day	Baseline Easterly Dep Option 1 (Vector)	255436.0	22277.0	0.0	0.0	0.0										
	Baseline Easterly Dep Option 1 (Centreline)	201573.7	30483.5	0.0	0.0	0.0	17616.5	7510.6	0.0	0.0	0.0	200914.7	28299.3	0.0	0.0	0.0
	Easterly Dep Option 2	154991.1	19852.4	0.0	0.0	0.0	13806.0	2459.3	0.0	0.0	0.0	152870.8	18772.9	0.0	0.0	0.0
	Easterly Dep Option 3	122694.9	19852.4	0.0	0.0	0.0	13806.0	2459.3	0.0	0.0	0.0	120574.6	18772.9	0.0	0.0	0.0
	Easterly Dep Option 4	130883.1	16257.3	0.0	0.0	0.0	13799.9	4570.3	0.0	0.0	0.0	128931.5	15245.4	0.0	0.0	0.0
	Easterly Dep Option 5	61816.7	19951.2	0.0	0.0	0.0	14718.2	6071.0	0.0	0.0	0.0	60749.2	18184.9	0.0	0.0	0.0
	Easterly Dep Option 6	152384.2	5086.2	0.0	0.0	0.0	21734.3	796.2	0.0	0.0	0.0	151112.2	2048.5	0.0	0.0	0.0
Night	Baseline Easterly Dep Option 1 (Vector)*	40990.0	0.0	0.0	0.0	0.0										
	Baseline Easterly Dep Option 1 (centreline)	119466.6	0.0	0.0	0.0	0.0	14574.9	0.0	0.0	0.0	0.0	118671.6	0.0	0.0	0.0	0.0
	Easterly Dep Option 2	104732.9	0.0	0.0	0.0	0.0	7454.9	0.0	0.0	0.0	0.0	104005.5	0.0	0.0	0.0	0.0
	Easterly Dep Option 3	74473.0	0.0	0.0	0.0	0.0	7454.9	0.0	0.0	0.0	0.0	73745.6	0.0	0.0	0.0	0.0
	Easterly Dep Option 4	109614.4	0.0	0.0	0.0	0.0	9436.3	0.0	0.0	0.0	0.0	107929.6	0.0	0.0	0.0	0.0
	Easterly Dep Option 5	58119.7	0.0	0.0	0.0	0.0	13790.4	0.0	0.0	0.0	0.0	57033.3	0.0	0.0	0.0	0.0
	Easterly Dep Option 6	56481.5	0.0	0.0	0.0	0.0	4939.1	0.0	0.0	0.0	0.0	53600.2	0.0	0.0	0.0	0.0

# Easterly Departures - Noise Sensitive Sites Data Tables (0-7000ft data to be added)

	Option	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown 0-7000ft	Area (Km2) of AONB overflown 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat2000 0-4000ft
Day	Baseline Easterly Dep Option 1 (Vector)*	297.0			6.0			155.0			2.0			22.8				
	Baseline Easterly Dep Option 1 (centreline)	213.0	26.0	208.0	6.0	0.0	6.0	115.0	16.0	111.0	2.0	1.0	1.0	11.3	0.0	11.3	1.0	0.0
	Easterly Dep Option 2	174.0	15.0	170.0	7.0	0.0	7.0	93.0	13.0	90.0	3.0	1.0	2.0	33.8	0.0	33.8	1.0	0.0
	Easterly Dep Option 3	141.0	15.0	137.0	6.0	0.0	6.0	79.0	13.0	76.0	4.0	1.0	3.0	41.3	0.0	41.3	1.0	0.0
	Easterly Dep Option 4	144.0	20.0	139.0	3.0	0.0	3.0	82.0	15.0	78.0	3.0	1.0	2.0	69.7	0.0	69.7	2.0	0.0
	Easterly Dep Option 5	83.0	15.0	78.0	1.0	0.0	1.0	49.0	11.0	45.0	2.0	1.0	1.0	36.0	0.4	36.0	2.0	0.0
	Easterly Dep Option 6	152.0	23.0	147.0	2.0	0.0	2.0	79.0	15.0	75.0	2.0	1.0	1.0	40.7	7.2	40.7	2.0	0.0
Night	Baseline Easterly Dep Option 1 (Vector)*	49.0			0.0			31.0			1.0			0.0				
	Baseline Easterly Dep Option 1 (centreline)	133.0	20.0	128.0	3.0	0.0	3.0	70.0	13.0	66.0	1.0	1.0	0.0	4.2	0.0	4.2	1.0	0.0
	Easterly Dep Option 2	118.0	13.0	113.0	4.0	0.0	4.0	62.0	11.0	58.0	1.0	1.0	0.0	5.1	0.0	5.1	1.0	0.0
	Easterly Dep Option 3	85.0	13.0	80.0	3.0	0.0	3.0	47.0	11.0	43.0	2.0	1.0	1.0	7.4	0.0	7.4	1.0	0.0
	Easterly Dep Option 4	118.0	17.0	112.0	2.0	0.0	2.0	68.0	13.0	63.0	1.0	1.0	0.0	24.0	0.0	24.0	1.0	0.0
	Easterly Dep Option 5	47.0	11.0	69.0	1.0	0.0	1.0	42.0	10.0	38.0	2.0	1.0	1.0	34.3	0.0	34.3	2.0	0.0
	Easterly Dep Option 6	77.0	11.0	67.0	0.0	0.0	0.0	42.0	8.0	35.0	2.0	1.0	1.0	33.9	0.3	33.8	2.0	0.0

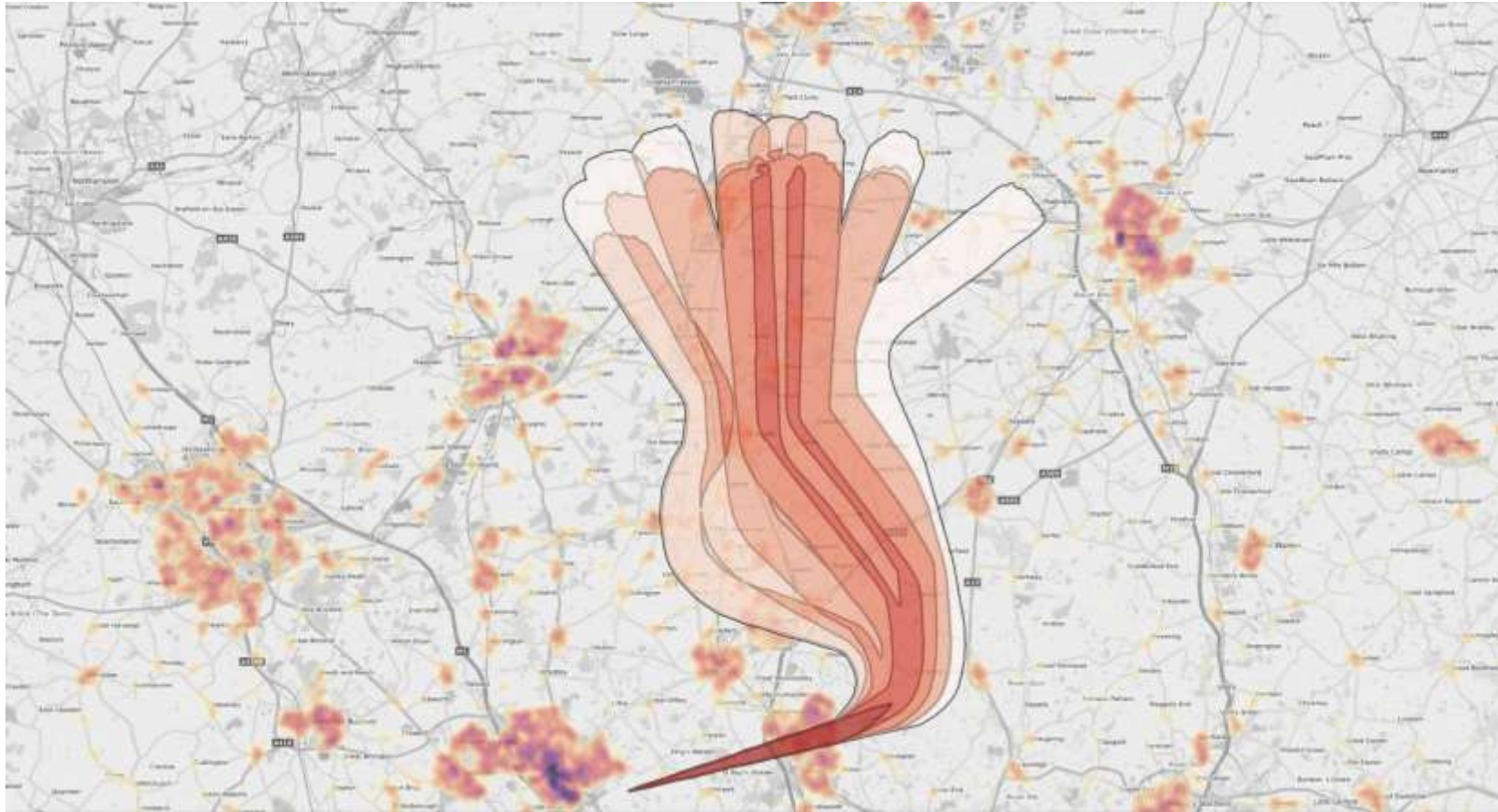
## Easterly Departures – Estimated Track Mileage

Option	Indicative track miles (nautical miles) to/abeam			Indicative nautical miles diff to/abeam			Notes
	MATCH	OLY	HEN (CPT SID)	MATCH	OLY	HEN (CPT SID)	
Baseline Easterly Dep (centreline) Option 1	28	28	28	0	0	0	
Easterly Dep Option 2	28	31	30	0	3	2	
Easterly Dep Option 3	28	31	30	0	3	2	Plus better CCO
Easterly Dep Option 4	27	28	25	-1	0	-3	
Easterly Dep Option 5	22	31	31	-6	3	3	Plus better CCO
Easterly Dep Option 6 Period 1	22	31	28	-6	3	0	Plus better CCO
Easterly Dep Option 6 Period 1	22	31	31	-6	3	3	Plus better CCO

# Initial Options Appraisal

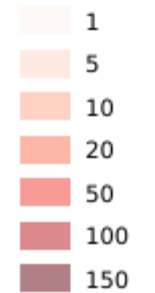
## Westerly Arrivals

# Westerly Arrivals – Option 1 Baseline (Day)



Average movements per day.

Assumes 70% of Luton's arrivals averaged across 365 days



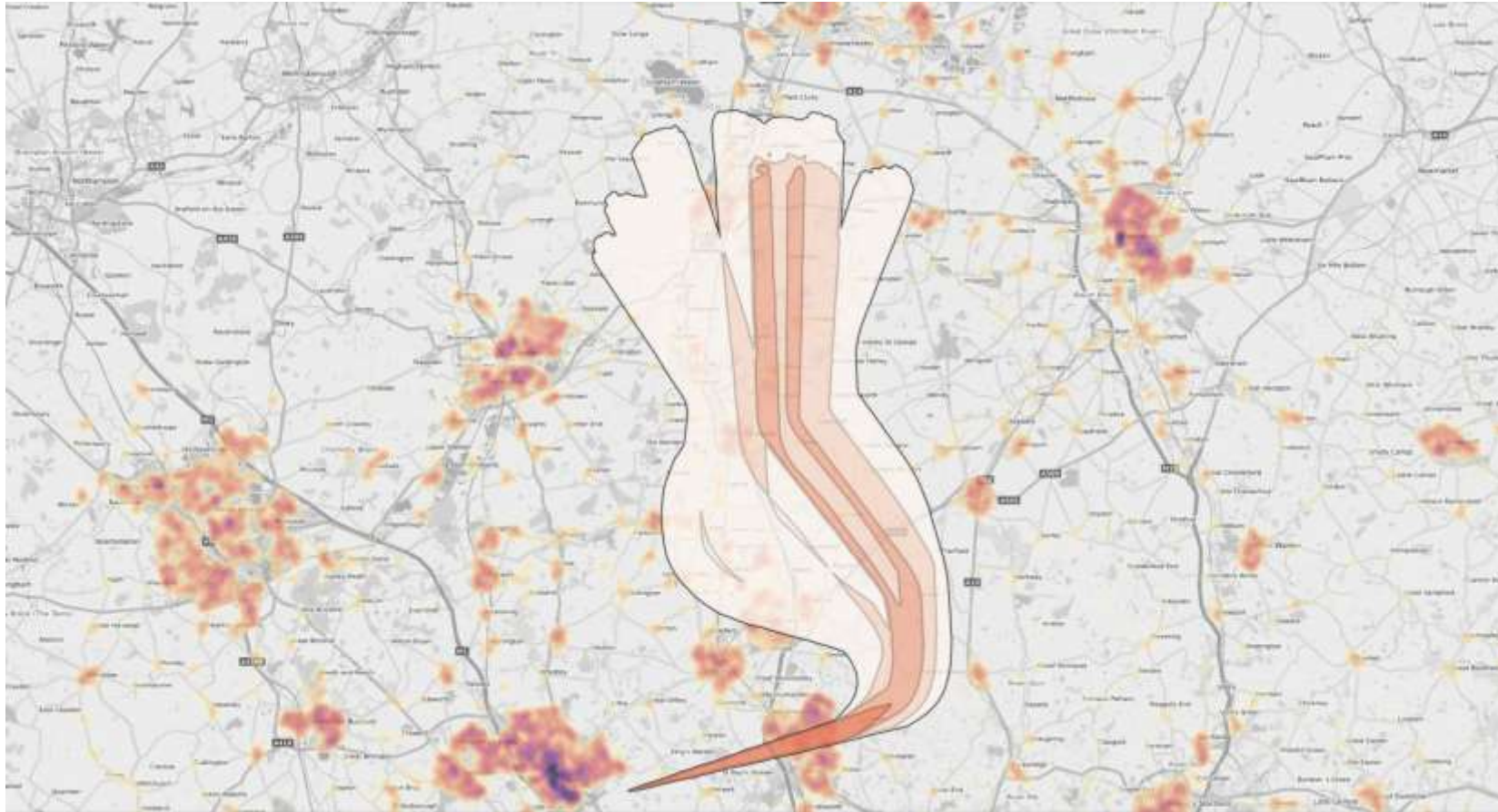
Dense areas of population (yellow to purple)

Baseline overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

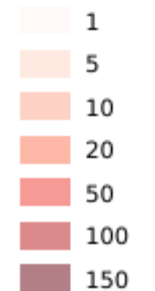
Option	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns. 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Option 1 ARR	215537.6	131310.1	35272.3	25610.5	28865.2	28051.5	26767.9	25610.5	188051.2	103666.8	8464.0	0.0	274.0	32.0	247.0	2.0	0.0	2.0	171.0	17.0	159.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0

# Westerly Arrivals – Option 1 Baseline (Night)



Average movements per day.

Assumes 70% of Luton's arrivals averaged across 365 days



Dense areas of population (yellow to purple)

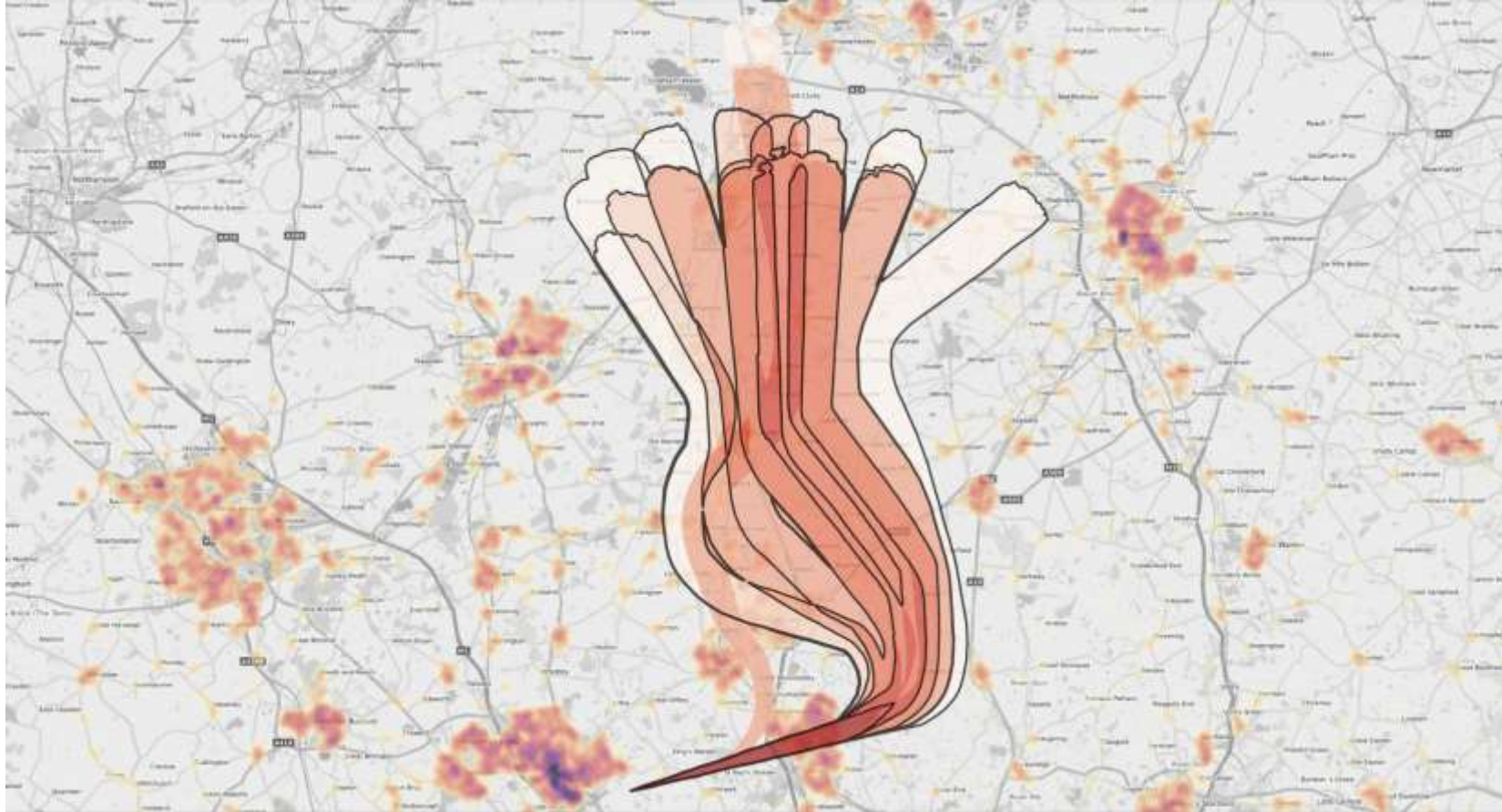
Baseline overflight contour 0 - 7000ft (night)

Baseline (centreline) contours outlined in black

Option	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns. 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Option 1 ARR	201700.2	35182.6	0.0	0.0	28616.1	26760.3	0.0	0.0	173922.7	8372.2	0.0	0.0	245.0	32.0	218.0	1.0	0.0	1.0	150.0	17.0	138.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0

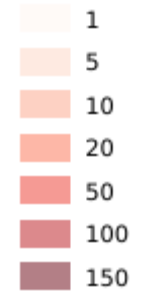


# Westerly Arrivals – Option 2 (Day)



Average movements per day.

Assumes 70% of Luton's arrivals averaged across 365 days



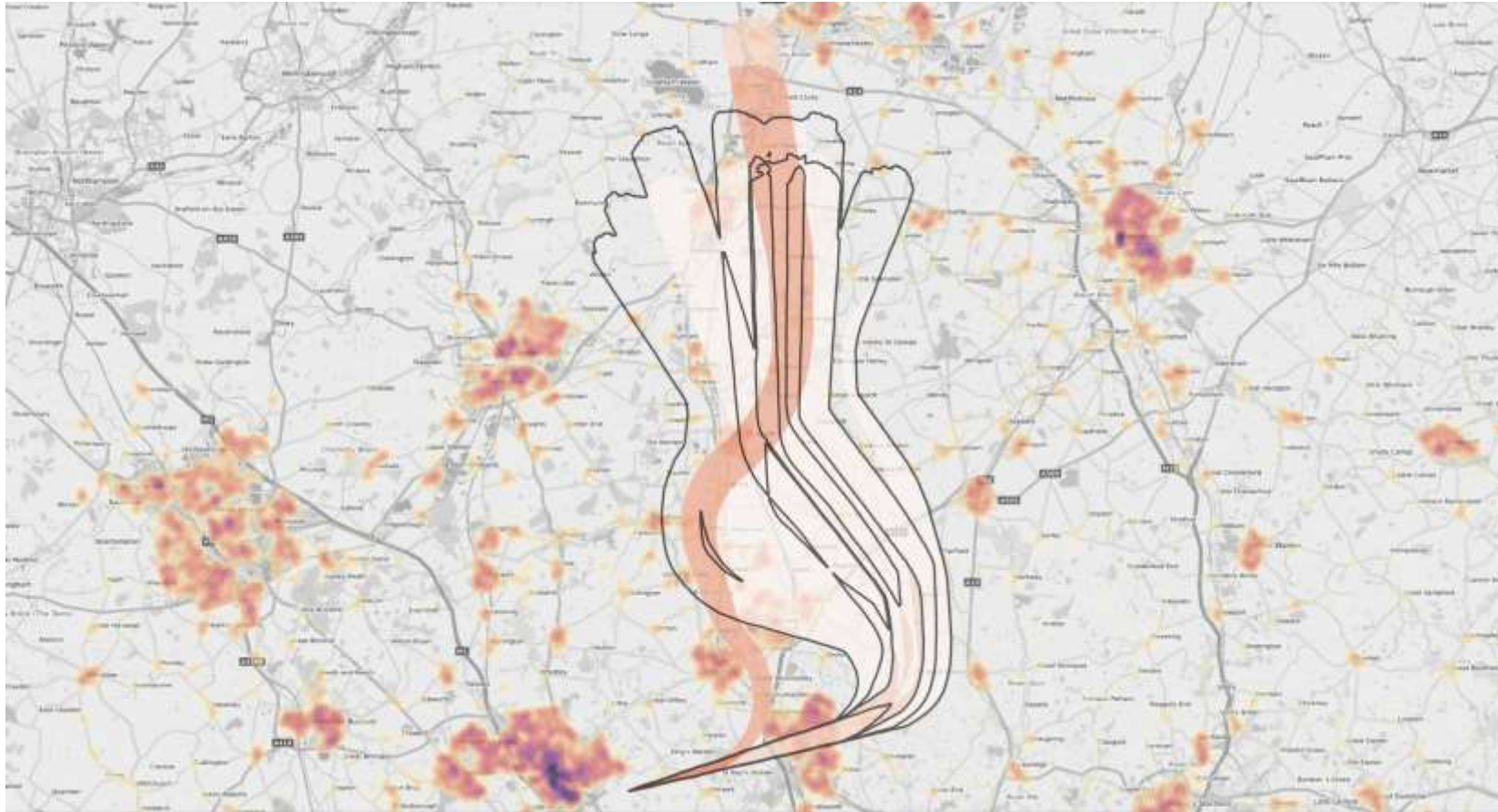
Dense areas of population (yellow to purple)

Option 2 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

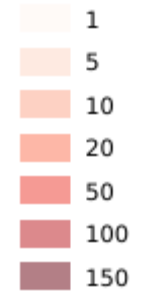
Option	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns. 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Option 1 ARR	215537.6	131310.1	35272.3	25610.5	28865.2	28051.5	26767.9	25610.5	188051.2	103666.8	8464.0	0.0	274.0	32.0	247.0	2.0	0.0	2.0	171.0	17.0	159.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0
Westerly Arrival Option 2	230911.8	134536.6	36513.0	25513.2	37989.6	33875.4	26164.9	25513.2	199234.2	101277.5	10292.5	0.0	298.0	46.0	261.0	2.0	0.0	2.0	185.0	23.0	169.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0

# Westerly Arrivals – Option 2 (Night)



Average movements per day.

Assumes 70% of Luton's arrivals averaged across 365 days



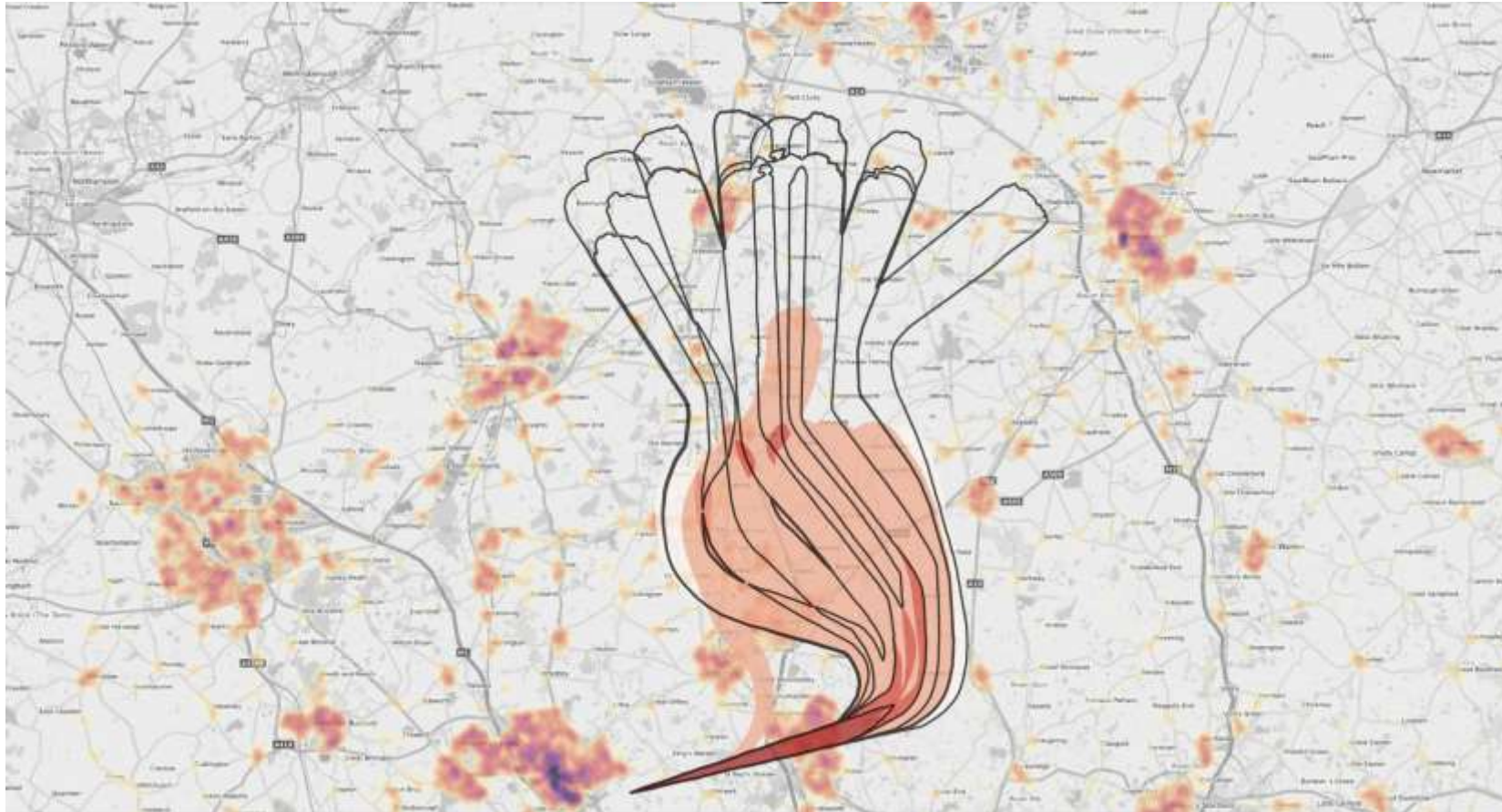
Dense areas of population (yellow to purple)

Option 2 overflight contour 0 - 7000ft (night)

Baseline (centreline) contours outlined in black

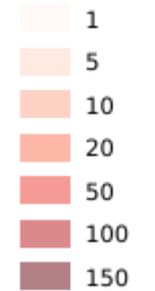
Option	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns. 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Option 1 ARR	201700.2	35182.6	0.0	0.0	28616.1	26760.3	0.0	0.0	173922.7	8372.2	0.0	0.0	245.0	32.0	218.0	1.0	0.0	1.0	150.0	17.0	138.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0
Westerly Arrival Option 2	138088.4	44221.0	0.0	0.0	37141.2	6081.6	0.0	0.0	105224.0	38111.1	0.0	0.0	165.0	42.0	129.0	1.0	0.0	1.0	98.0	19.0	83.0	7.0	2.0	4.0	0.0	0.0	0.0	1.0	0.0

# Westerly Arrivals – Option 3 (Day)



Average movements per day.

Assumes 70% of Luton's arrivals averaged across 365 days



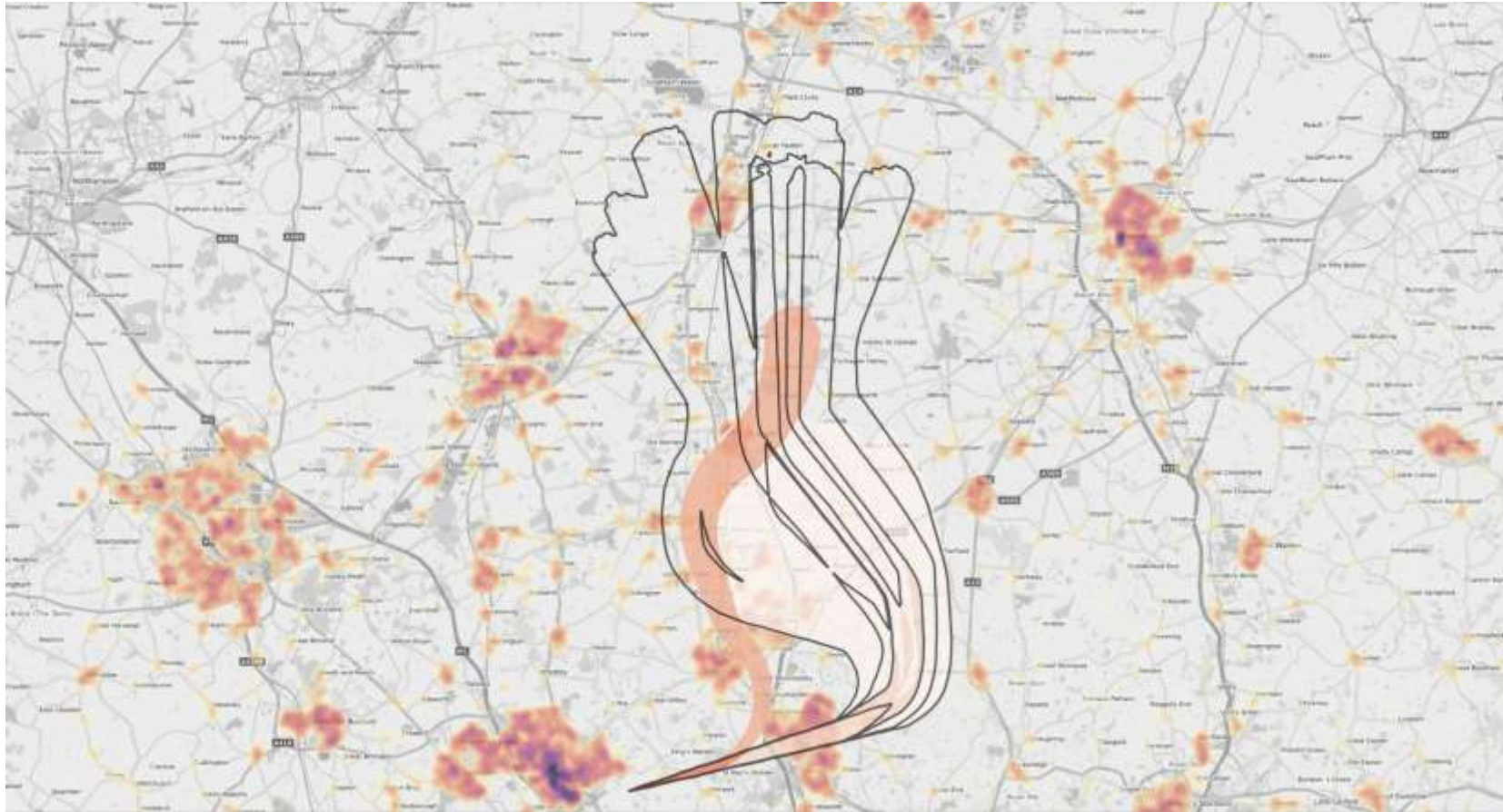
Dense areas of population (yellow to purple)

Option 3 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

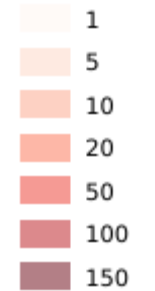
Option	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns. 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Option 1 ARR	215537.6	131310.1	35272.3	25610.5	28865.2	28051.5	26767.9	25610.5	188051.2	103666.8	8464.0	0.0	274.0	32.0	247.0	2.0	0.0	2.0	171.0	17.0	159.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0
Westerly Arrival Option 3	152034.5	91312.7	30394.1	25513.2	35287.4	34431.9	26217.1	25513.2	120336.0	59141.3	4159.6	0.0	179.0	41.0	143.0	0.0	0.0	0.0	106.0	20.0	90.0	6.0	2.0	5.0	0.0	0.0	0.0	1.0	0.0

# Westerly Arrivals – Option 3 (Night)



Average movements per day.

Assumes 70% of Luton's arrivals averaged across 365 days



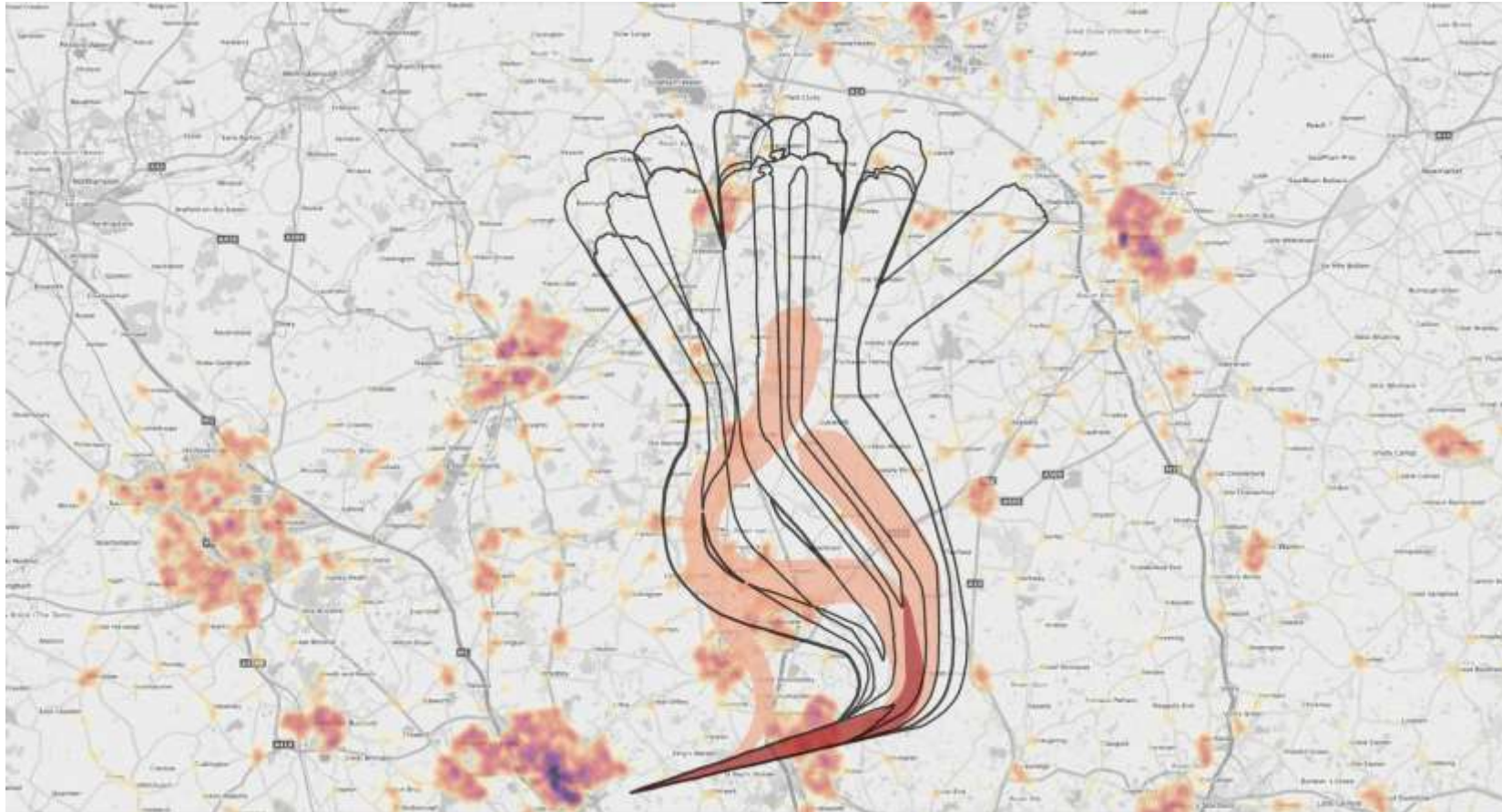
Dense areas of population (yellow to purple)

Option 3 overflight contour 0 - 7000ft (night)

Baseline (centreline) contours outlined in black

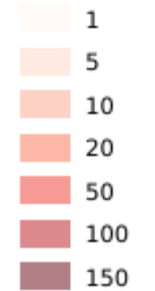
Option	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns. 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Option 1 ARR	201700.2	35182.6	0.0	0.0	28616.1	26760.3	0.0	0.0	173922.7	8372.2	0.0	0.0	245.0	32.0	218.0	1.0	0.0	1.0	150.0	17.0	138.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0
Westerly Arrival Option 3	91768.1	42598.6	0.0	0.0	35002.8	6676.1	0.0	0.0	58966.3	37559.7	0.0	0.0	121.0	39.0	85.0	0.0	0.0	0.0	74.0	18.0	59.0	5.0	2.0	2.0	0.0	0.0	0.0	1.0	0.0

# Westerly Arrivals – Option 4 (Day)



Average movements per day.

Assumes 70% of Luton's arrivals averaged across 365 days



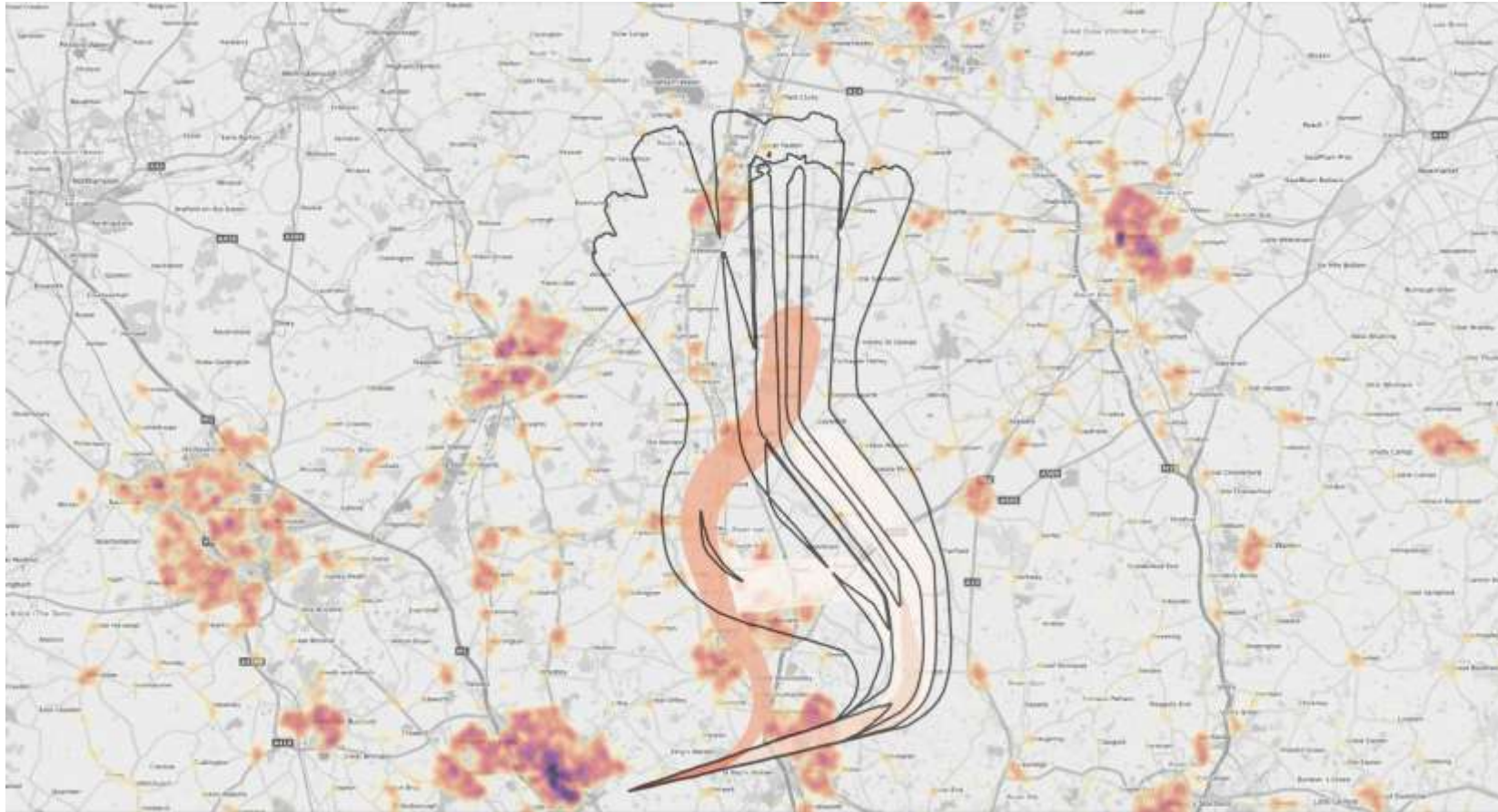
Dense areas of population (yellow to purple)

Option 4 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

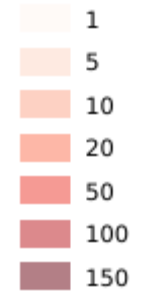
Option	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns. 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Option 1 ARR	215537.6	131310.1	35272.3	25610.5	28865.2	28051.5	26767.9	25610.5	188051.2	103666.8	8464.0	0.0	274.0	32.0	247.0	2.0	0.0	2.0	171.0	17.0	159.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0
Westerly Arrival Option 4	106775.0	105634.8	65325.7	25783.4	33829.4	33054.8	26449.3	25666.2	75987.4	75481.8	39143.6	117.2	114.0	36.0	79.0	0.0	0.0	0.0	65.0	16.0	50.0	2.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0

# Westerly Arrivals – Option 4 (Night)



Average movements per day.

Assumes 70% of Luton's arrivals averaged across 365 days



Dense areas of population (yellow to purple)

Option 4 overflight contour 0 - 7000ft (night)

Baseline (centreline) contours outlined in black

Option	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns. 0-7000ft	No. Historic Parks/Gdns. 0-4000ft	No. Historic Parks/Gdns. 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Westerly Option 1 ARR	201700.2	35182.6	0.0	0.0	28616.1	26760.3	0.0	0.0	173922.7	8372.2	0.0	0.0	245.0	32.0	218.0	1.0	0.0	1.0	150.0	17.0	138.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0
Westerly Arrival Option 4	106410.3	42665.0	0.0	0.0	33634.9	6676.1	0.0	0.0	75817.1	37670.0	0.0	0.0	113.0	35.0	79.0	0.0	0.0	0.0	64.0	15.0	50.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0

# Westerly Arrivals - Population Overflown Data Tables

	Option	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-7000ft (150 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 0-4000ft (150 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	Population over flown 4-7000ft (150 times per day)
Day	Baseline Westerly Option 1 ARR	215537.6	131310.1	35272.3	25610.5	0.0	28865.2	28051.5	26767.9	25610.5	0.0	188051.2	103666.8	8464.0	0.0	0.0
	Westerly Arrival Option 2	230911.8	134536.6	36513.0	25513.2	0.0	37989.6	33875.4	26164.9	25513.2	0.0	199234.2	101277.5	10292.5	0.0	0.0
	Westerly Arrival Option 3	152034.5	91312.7	30394.1	25513.2	0.0	35287.4	34431.9	26217.1	25513.2	0.0	120336.0	59141.3	4159.6	0.0	0.0
	Westerly Arrival Option 4	106775.0	105634.8	65325.7	25783.4	0.0	33829.4	33054.8	26449.3	25666.2	0.0	75987.4	75481.8	39143.6	117.2	0.0
Night	Baseline Westerly Option 1 ARR	201700.2	35182.6	0.0	0.0	0.0	28616.1	26760.3	0.0	0.0	0.0	173922.7	8372.2	0.0	0.0	0.0
	Westerly Arrival Option 2	138088.4	44221.0	0.0	0.0	0.0	37141.2	6081.6	0.0	0.0	0.0	105224.0	38111.1	0.0	0.0	0.0
	Westerly Arrival Option 3	91768.1	42598.6	0.0	0.0	0.0	35002.8	6676.1	0.0	0.0	0.0	58966.3	37559.7	0.0	0.0	0.0
	Westerly Arrival Option 4	106410.3	42665.0	0.0	0.0	0.0	33634.9	6676.1	0.0	0.0	0.0	75817.1	37670.0	0.0	0.0	0.0

# Westerly Arrivals - Noise Sensitive Sites Data Tables

		No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat2000 0-4000ft
Day	Baseline Westerly Option 1 ARR	274.0	32.0	247.0	2.0	0.0	2.0	171.0	17.0	159.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0
	Westerly Arrival Option 2	298.0	46.0	261.0	2.0	0.0	2.0	185.0	23.0	169.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0
	Westerly Arrival Option 3	179.0	41.0	143.0	0.0	0.0	0.0	106.0	20.0	90.0	6.0	2.0	5.0	0.0	0.0	0.0	1.0	0.0
	Westerly Arrival Option 4	114.0	36.0	79.0	0.0	0.0	0.0	65.0	16.0	50.0	2.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0
Night	Baseline Westerly Option 1 ARR	245.0	32.0	218.0	1.0	0.0	1.0	150.0	17.0	138.0	7.0	2.0	6.0	0.0	0.0	0.0	1.0	0.0
	Westerly Arrival Option 2	165.0	42.0	129.0	1.0	0.0	1.0	98.0	19.0	83.0	7.0	2.0	4.0	0.0	0.0	0.0	1.0	0.0
	Westerly Arrival Option 3	121.0	39.0	85.0	0.0	0.0	0.0	74.0	18.0	59.0	5.0	2.0	2.0	0.0	0.0	0.0	1.0	0.0
	Westerly Arrival Option 4	113.0	35.0	79.0	0.0	0.0	0.0	64.0	15.0	50.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0



## Westerly Arrivals – Estimated Track Mileage

Option	NM from ZAZGO to THR	NM diff from ZAZGO to THR	Notes
W Arriv Option 1 AV from ZAGZO Baseline	37	0	
W Arriv Option 2 AV from ZAGZO	37	0	
W Arriv Option 2 RNP AR from ZAGZO	30	-7	
W Arriv Option 3 Av vector from ZAGZO	34	-3	Plus stay higher for longer
W Arriv Option 3 RNP AR from ZAGZO	30	-7	Plus stay higher for longer
W Arriv Option 4 PBN 1 S bend from ZAGZO	42	5	Plus stay higher for longer
W Arriv Option 4 PBN 2 from ZAGZO	35	-2	Plus stay higher for longer
W Arriv Option 4 RNP AR from ZAGZO	30	-7	Plus stay higher for longer

# Initial Options Appraisal

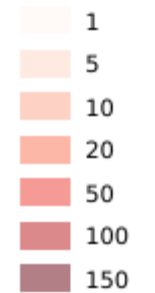
## Easterly Arrivals

# Easterly Arrivals – Option 1 Baseline (Day)



Average movements per day.

Assumes 30% of Luton's arrivals averaged across 365 days

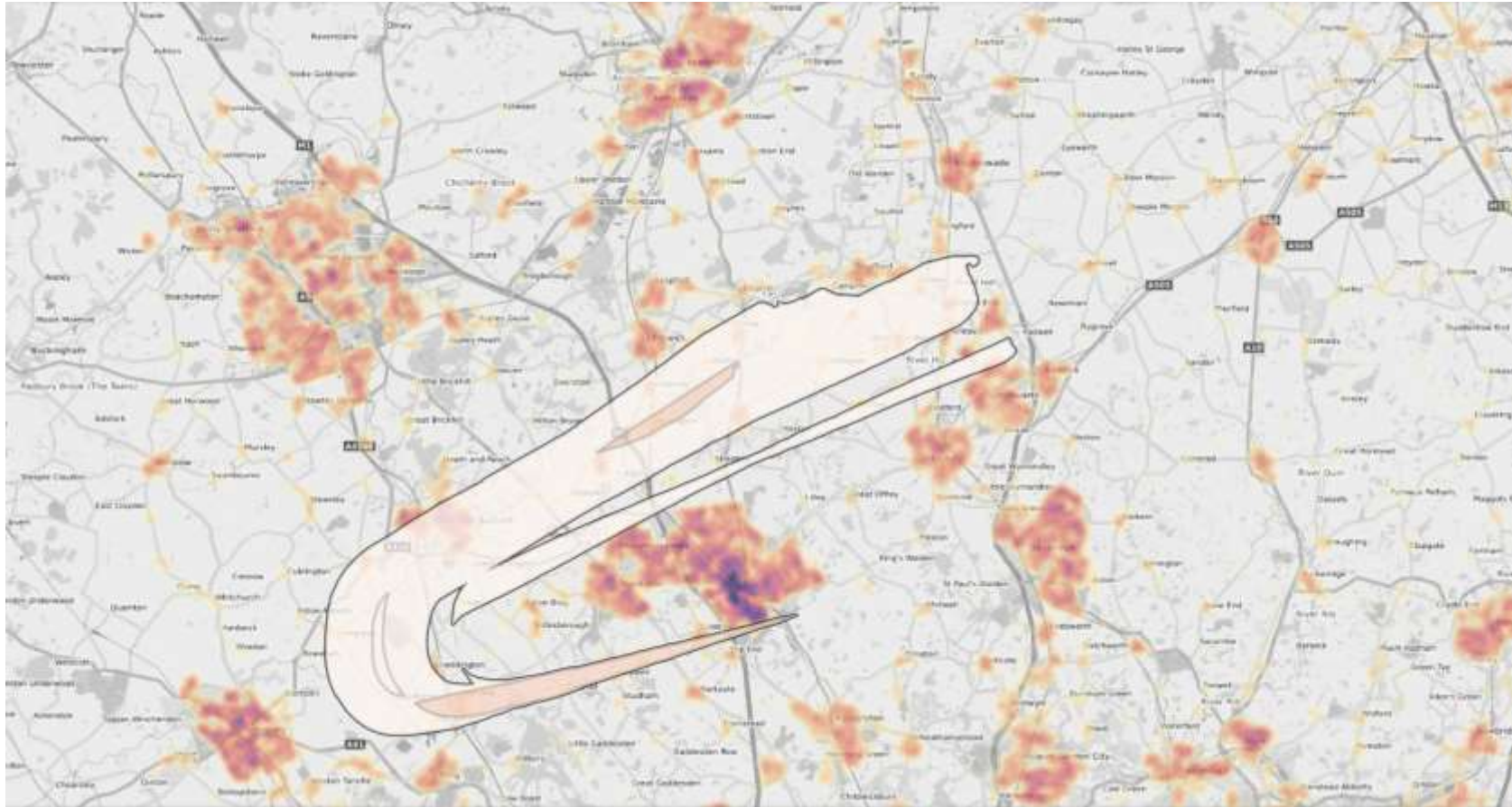


Dense areas of population (yellow to purple)

## Baseline overflight contour 0 - 7000ft (day)

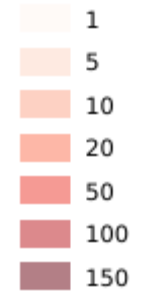
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Option 1 ARR	251829.3	52554.5	15005.3	11080.4	239617.7	41488.2	279.0	30.0	257.0	1.0	0.0	1.0	156.0	13.0	90.0	11.0	2.0	10.0	55.2	14.7	40.5	5.0	0.0

# Easterly Arrivals – Option 1 Baseline (Night)



Average movements per day.

Assumes 30% of Luton's arrivals averaged across 365 days



Dense areas of population (yellow to purple)

Baseline overflight contour 0 - 7000ft (Night)

Baseline (centreline) contours outlined in black

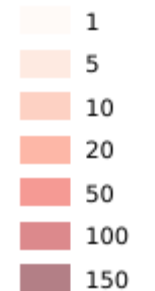
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Option 1 ARR	105765.2	0.0	12555.7	0.0	94211.0	0.0	127.0	22.0	108.0	1.0	0.0	1.0	72.0	11.0	58.0	6.0	2.0	5.0	25.0	13.1	11.9	5.0	0.0

# Easterly Arrivals – Option 2 (Day)



Average movements per day.

Assumes 30% of Luton's arrivals averaged across 365 days



Dense areas of population (yellow to purple)

## Option 2 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

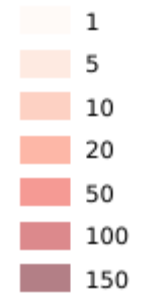
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Option 1 ARR	251829.3	52554.5	15005.3	11080.4	239617.7	41488.2	279.0	30.0	257.0	1.0	0.0	1.0	156.0	13.0	90.0	11.0	2.0	10.0	55.2	14.7	40.5	5.0	0.0
Easterly Arrival Option 2	259327.1	51273.7	17242.8	11080.4	246114.2	40207.4	288.0	34.0	265.0	1.0	0.0	1.0	163.0	13.0	76.0	11.0	2.0	10.0	59.2	18.7	40.5	5.0	0.0

# Easterly Arrivals – Option 2 (Night)



Average movements per day.

Assumes 30% of Luton's arrivals averaged across 365 days



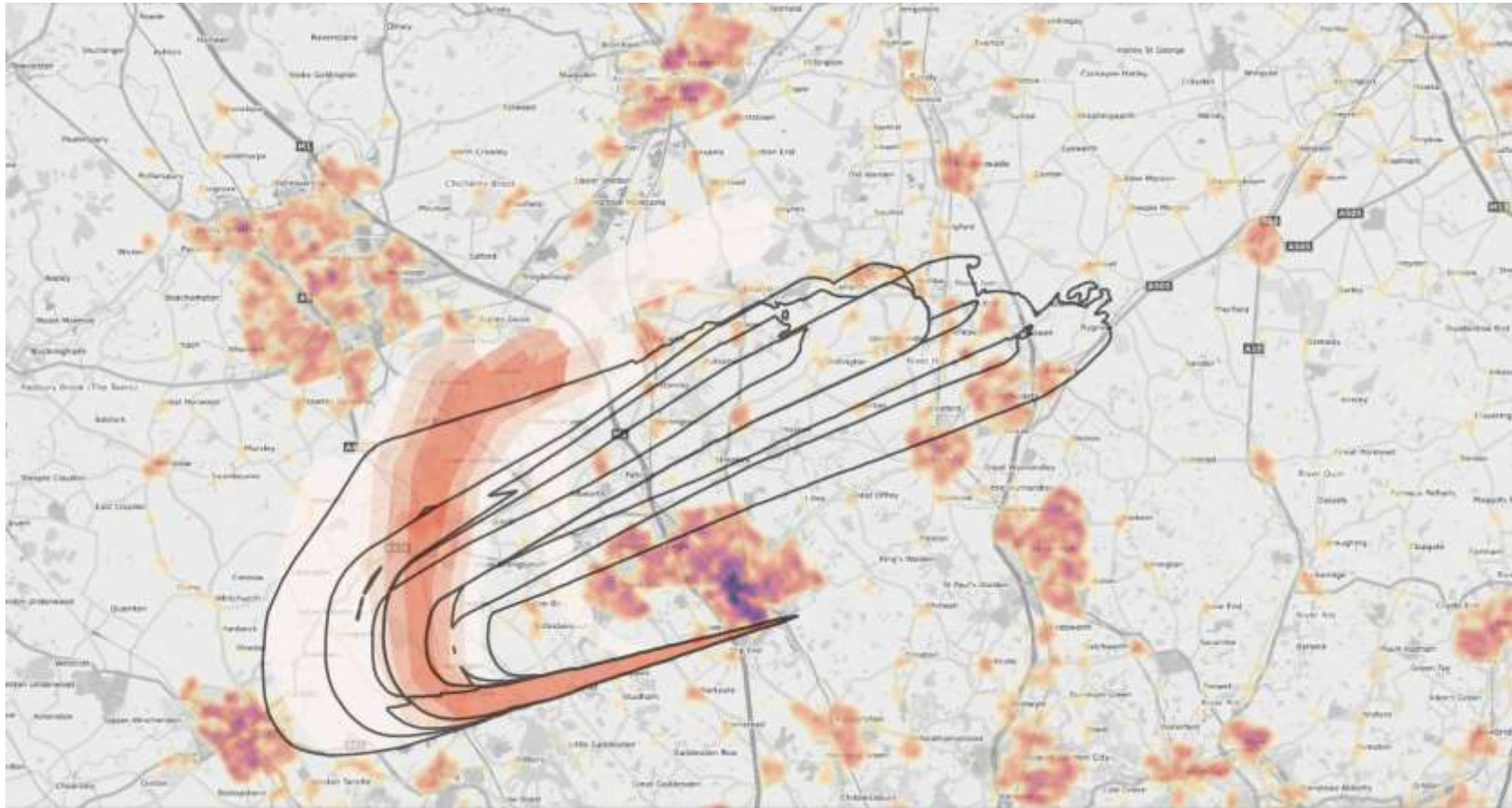
Dense areas of population (yellow to purple)

Option 2 overflight contour 0 - 7000ft (night)

Baseline (centreline) contours outlined in black

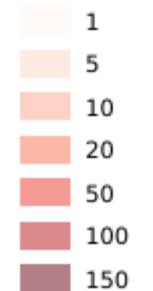
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Option 1 ARR	105765.2	0.0	12555.7	0.0	94211.0	0.0	127.0	22.0	108.0	1.0	0.0	1.0	72.0	11.0	58.0	6.0	2.0	5.0	25.0	13.1	11.9	5.0	0.0
Easterly Arrival Option 2	65496.5	0.0	13211.4	0.0	54362.4	0.0	74.0	20.0	57.0	1.0	0.0	1.0	50.0	11.0	43.0	4.0	2.0	3.0	25.1	14.1	5.9	4.0	0.0

# Easterly Arrivals – Option 3 (Day)



Average movements per day.

Assumes 30% of Luton's arrivals averaged across 365 days



Dense areas of population (yellow to purple)

Option 3 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

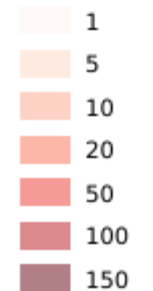
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Option 1 ARR	251829.3	52554.5	15005.3	11080.4	239617.7	41488.2	279.0	30.0	257.0	1.0	0.0	1.0	156.0	13.0	90.0	11.0	2.0	10.0	55.2	14.7	40.5	5.0	0.0
Easterly Arrival Option 3	96196.0	54197.2	17048.3	11354.1	82740.0	43853.4	116.0	30.0	93.0	0.0	0.0	0.0	74.0	20.0	60.0	7.0	2.0	6.0	17.6	17.5	0.0	8.0	0.0

# Easterly Arrivals – Option 3 (Night)



Average movements per day.

Assumes 30% of Luton's arrivals averaged across 365 days



Dense areas of population (yellow to purple)

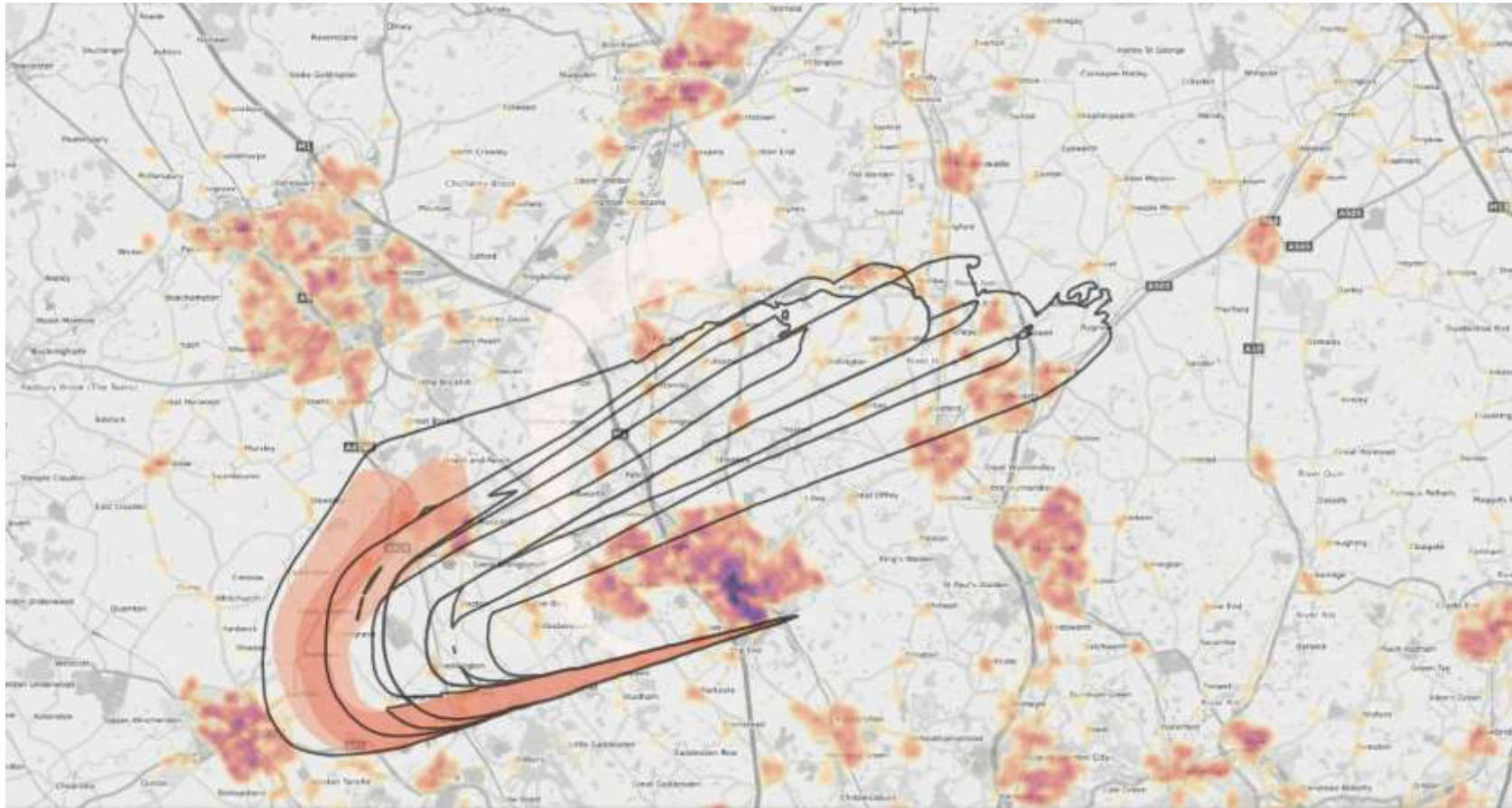
Option 3 overflight contour 0 - 7000ft (night)

Baseline (centreline) contours outlined in black

	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Option 1 ARR	105765.2	0.0	12555.7	0.0	94211.0	0.0	127.0	22.0	108.0	1.0	0.0	1.0	72.0	11.0	58.0	6.0	2.0	5.0	25.0	13.1	11.9	5.0	0.0
Easterly Arrival Option 3	62486.4	0.0	14478.6	0.0	49018.6	0.0	71.0	24.0	49.0	0.0	0.0	0.0	41.0	16.0	26.0	5.0	2.0	3.0	17.3	16.1	0.0	8.0	0.0

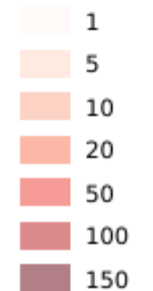


# Easterly Arrivals – Option 4 (Day)



Average movements per day:

Assumes 30% of Luton's arrivals averaged across 365 days



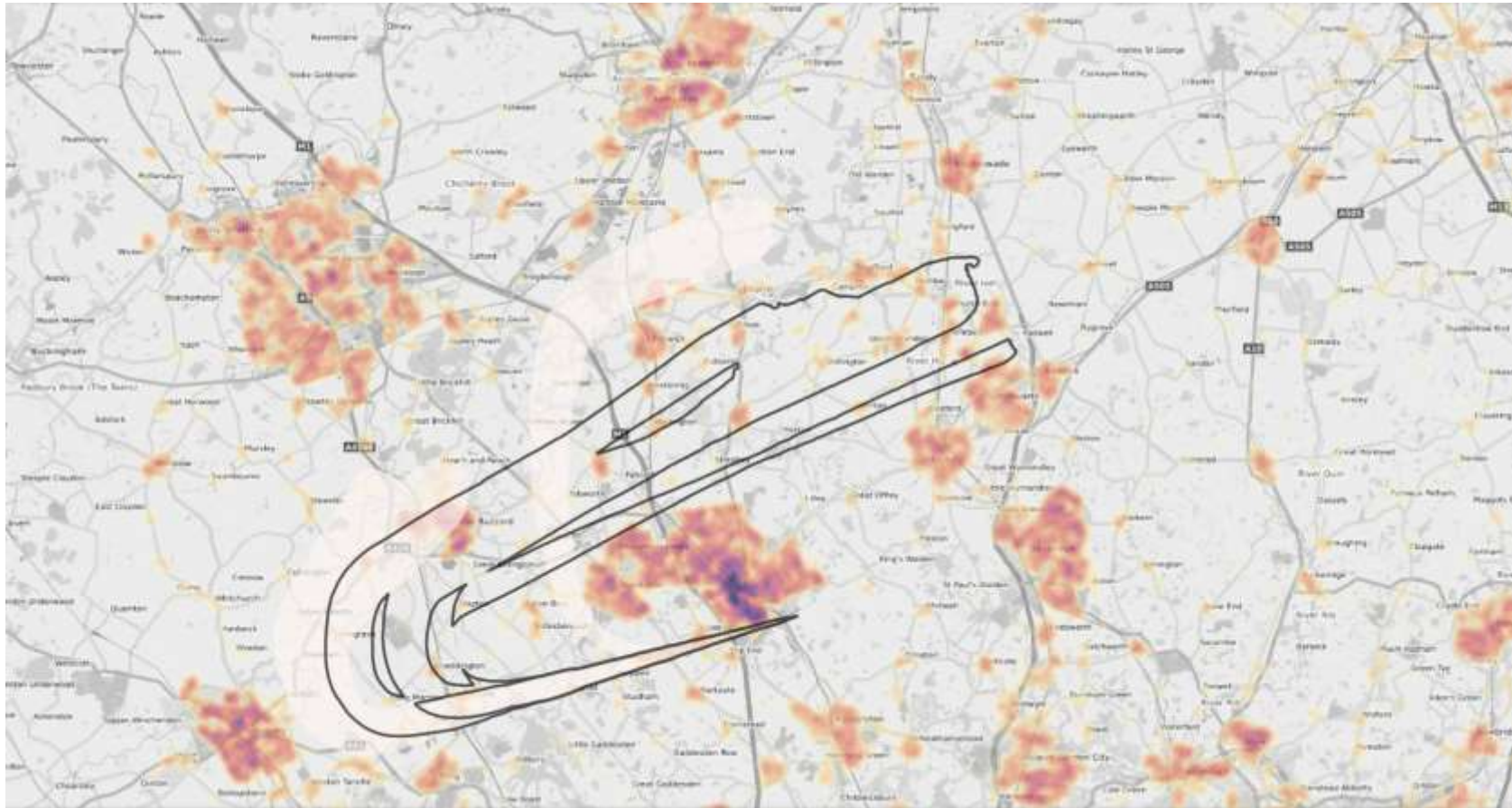
Dense areas of population (yellow to purple)

Option 4 overflight contour 0 - 7000ft (day)

Baseline (centreline) contours outlined in black

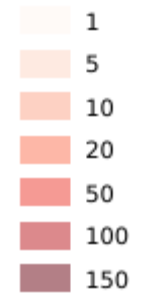
	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Option 1 ARR	251829.3	52554.5	15005.3	11080.4	239617.7	41488.2	279.0	30.0	257.0	1.0	0.0	1.0	156.0	13.0	90.0	11.0	2.0	10.0	55.2	14.7	40.5	5.0	0.0
Easterly Arrival Option 4	65848.4	52548.1	13069.6	9798.9	53705.8	43485.7	88.0	23.0	67.0	0.0	0.0	0.0	53.0	15.0	40.0	3.0	1.0	2.0	16.8	16.8	0.0	8.0	0.0

# Easterly Arrivals – Option 4 (Night)



Average movements per day.

Assumes 30% of Luton's arrivals averaged across 365 days



Dense areas of population (yellow to purple)

Option 4 overflight contour 0 - 7000ft (night)

Baseline (centreline) contours outlined in black

	Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat200 0-4000ft
Baseline Easterly Option 1 ARR	105765.2	0.0	12555.7	0.0	94211.0	0.0	127.0	22.0	108.0	1.0	0.0	1.0	72.0	11.0	58.0	6.0	2.0	5.0	25.0	13.1	11.9	5.0	0.0
Easterly Arrival Option 4	65864.7	0.0	12967.1	0.0	53824.5	0.0	88.0	23.0	67.0	0.0	0.0	0.0	53.0	15.0	40.0	3.0	1.0	2.0	16.7	16.7	0.0	9.0	0.0

# Easterly Arrivals- Population Overflown Data Tables

		Population over flown 0-7000ft (1 times per day)	Population over flown 0-7000ft (10 times per day)	Population over flown 0-7000ft (50 times per day)	Population over flown 0-7000ft (100 times per day)	Population over flown 0-7000ft (150 times per day)	Population over flown 0-4000ft (1 times per day)	Population over flown 0-4000ft (10 times per day)	Population over flown 0-4000ft (50 times per day)	Population over flown 0-4000ft (100 times per day)	Population over flown 0-4000ft (150 times per day)	Population over flown 4-7000ft (1 times per day)	Population over flown 4-7000ft (10 times per day)	Population over flown 4-7000ft (50 times per day)	Population over flown 4-7000ft (100 times per day)	Population over flown 4-7000ft (150 times per day)
Day	Baseline Easterly Option 1 ARR	251829.3	52554.5	0.0	0.0	0.0	15005.3	11080.4	0.0	0.0	0.0	239617.7	41488.2	0.0	0.0	0.0
	Easterly Arrival Option 2	259327.1	51273.7	0.0	0.0	0.0	17242.8	11080.4	0.0	0.0	0.0	246114.2	40207.4	0.0	0.0	0.0
	Easterly Arrival Option 3	96196.0	54197.2	0.0	0.0	0.0	17048.3	11354.1	0.0	0.0	0.0	82740.0	43853.4	0.0	0.0	0.0
	Easterly Arrival Option 4	65848.4	52548.1	0.0	0.0	0.0	13069.6	9798.9	0.0	0.0	0.0	53705.8	43485.7	0.0	0.0	0.0
Night	Baseline Easterly Option 1 ARR	105765.2	0.0	0.0	0.0	0.0	12555.7	0.0	0.0	0.0	0.0	94211.0	0.0	0.0	0.0	0.0
	Easterly Arrival Option 2	65496.5	0.0	0.0	0.0	0.0	13211.4	0.0	0.0	0.0	0.0	54362.4	0.0	0.0	0.0	0.0
	Easterly Arrival Option 3	62486.4	0.0	0.0	0.0	0.0	14478.6	0.0	0.0	0.0	0.0	49018.6	0.0	0.0	0.0	0.0
	Easterly Arrival Option 4	65864.7	0.0	0.0	0.0	0.0	12967.1	0.0	0.0	0.0	0.0	53824.5	0.0	0.0	0.0	0.0

# Easterly Arrivals- Noise Sensitive Sites Data Tables

		No. Schools 0-7000ft	No. Schools 0-4000ft	No. Schools 4-7000ft	No. Hospitals 0-7000ft	No. Hospitals 0-4000ft	No. Hospitals 4-7000ft	No. Worship. 0-7000ft	No. Worship. 0-4000ft	No. Worship. 4-7000ft	No. Historic Parks/Gdns 0-7000ft	No. Historic Parks/Gdns 0-4000ft	No. Historic Parks/Gdns 4-7000ft	Area (Km2) of AONB overflown. 0-7000ft.	Area (Km2) of AONB overflown. 0-4000ft	Area (Km2) of AONB overflown. 4-7000ft	No SSSI. 0-4000ft	No.Nat2000 0-4000ft
Day	Baseline Easterly Option 1 ARR	279.0	30.0	257.0	1.0	0.0	1.0	156.0	13.0	90.0	11.0	2.0	10.0	55.2	14.7	40.5	5.0	0.0
	Easterly Arrival Option 2	288.0	34.0	265.0	1.0	0.0	1.0	163.0	13.0	76.0	11.0	2.0	10.0	59.2	18.7	40.5	5.0	0.0
	Easterly Arrival Option 3	116.0	30.0	93.0	0.0	0.0	0.0	74.0	20.0	60.0	7.0	2.0	6.0	17.6	17.5	0.0	8.0	0.0
	Easterly Arrival Option 4	88.0	23.0	67.0	0.0	0.0	0.0	53.0	15.0	40.0	3.0	1.0	2.0	16.8	16.8	0.0	8.0	0.0
Night	Baseline Easterly Option 1 ARR	127.0	22.0	108.0	1.0	0.0	1.0	72.0	11.0	58.0	6.0	2.0	5.0	25.0	13.1	11.9	5.0	0.0
	Easterly Arrival Option 2	74.0	20.0	57.0	1.0	0.0	1.0	50.0	11.0	43.0	4.0	2.0	3.0	25.1	14.1	5.9	4.0	0.0
	Easterly Arrival Option 3	71.0	24.0	49.0	0.0	0.0	0.0	41.0	16.0	26.0	5.0	2.0	3.0	17.3	16.1	0.0	8.0	0.0
	Easterly Arrival Option 4	88.0	23.0	67.0	0.0	0.0	0.0	53.0	15.0	40.0	3.0	1.0	2.0	16.7	16.7	0.0	9.0	0.0

## Easterly Arrivals – Estimated Track Mileage

Option	NM from ZAZGO to THR	NM diff from ZAZGO to THR	Notes
E Arriv Option 1 AV from ZAGZO Baseline	53	0	
E Arriv Option 2 AV from ZAGZO	53	0	
E Arriv Option 2 RNP AR frm ZAGZO	43	-10	
E Arriv Option 3 Av vector from ZAGZO	53	0	Plus stay higher for longer
E Arriv Option 3 RNP AR from ZAGZO	41	-12	Plus stay higher for longer
E Arriv Option 4 PBN 1 South from ZAGZO	54	1	Plus stay higher for longer
E Arriv Option 4 PBN 2 North from ZAGZO	54	1	Plus stay higher for longer
E Arriv Option 4 RNP AR from ZAGZO	41	-12	Plus stay higher for longer

# Fuel Burn

# Estimated CO<sub>2</sub> & Fuel Burn – Departures (per flight)

FUEL (Typical A320)	7.4	kg fuel/nm
CO2	3.16	CO2 equivalent ratio
COST (IATA jet fuel Cost per mt \$)	882.1	Europe in Feb 2022
USD to GBP	0.7	11-Feb-22
COST (GBP/mt)	652.8	
COST (GBP/kg)	0.65	

	NM diff to/abeam			MATCH			OLY			HEN (CPT SID)		
	MATCH	OLY	HEN (CPT SID)	A320 fuel difference at FL160 (kg)	CO2 equiv increase (mt)	Fuel cost difference (£)	A320 fuel difference at FL160 (kg)	CO2 equiv increase (mt)	Fuel cost difference (£)	A320 fuel difference at FL160 (kg)	CO2 equiv increase (mt)	Fuel cost difference (£)
<b>Westerly Departures</b>												
W SID Grp 1(Baseline)	0	0	0	0	0.000	£0.00	0	0.000	£0.00	0	0.000	£0.00
W SID Grp 2	0	0	0	0	0.000	£0.00	0	0.000	£0.00	0	0.000	£0.00
W SID Grp 3	0	-1	-1	0	0.000	£0.00	-7.4	-0.023	£-4.83	-7.4	-0.023	£-4.83
W SID Grp 4 Period 1	-4	-1	-1	-29.6	-0.094	£-19.32	-7.4	-0.023	£-4.83	-7.4	-0.023	£-4.83
W SID Grp 4 Period 2	0	0	0	0	0.000	£0.00	0	0.000	£0.00	0	0.000	£0.00
W SID Grp 5	0	-1	-1	0	0.000	£0.00	-7.4	-0.023	£-4.83	-7.4	-0.023	£-4.83
W SID Grp 6 Period 1	-4	-1	-1	-29.6	-0.094	£-19.32	-7.4	-0.023	£-4.83	-7.4	-0.023	£-4.83
W SID Grp 6 Period 2	0	2	0	0	0.000	£0.00	14.8	0.047	£9.66	0	0.000	£0.00
W SID Grp 7 Period 1	0	0	0	0	0.000	£0.00	0	0.000	£0.00	0	0.000	£0.00
W SID Grp 7 Period 2	2	-7	0	14.8	0.047	£9.66	-51.8	-0.164	£-33.81	0	0.000	£0.00
W SID Grp 8 Period 1	0	0	0	0	0.000	£0.00	0	0.000	£0.00	0	0.000	£0.00
W SID Grp 8 Period 2	8	-6	0	59.2	0.187	£38.64	-44.4	-0.140	£-28.98	0	0.000	£0.00
<b>Easterly Departures</b>												
E SID Group 1 (Baseline)	0	0	0	0	0.000	£0.00	0	0.000	£0.00	0	0.000	£0.00
E SID Group 2	0	3	2	0	0.000	£0.00	22.2	0.070	£14.49	14.8	0.047	£9.66
E SID Group 3	0	3	2	0	0.000	£0.00	22.2	0.070	£14.49	14.8	0.047	£9.66
E SID Group 4	-1	0	-3	-7.4	-0.023	£-4.83	0	0.000	£0.00	-22.2	-0.070	£-14.49
E SID Group 5	-6	3	3	-44.4	-0.140	£-28.98	22.2	0.070	£14.49	22.2	0.070	£14.49
E SID Group 6 Period 1	-6	3	0	-44.4	-0.140	£-28.98	22.2	0.070	£14.49	0	0.000	£0.00
E SID Group 6 Period 2	-6	3	3	-44.4	-0.140	£-28.98	22.2	0.070	£14.49	22.2	0.070	£14.49

## Estimated CO<sub>2</sub> & Fuel Burn – Arrivals (per flight)

FUEL (Typical A320)	7.4	kg fuel/nm
CO2	3.16	CO2 equivalent ratio
COST (IATA jet fuel Cost per mt \$)	882.1	Europe in Feb 2022
USD to GBP	0.7	11-Feb-22
COST (GBP/mt)	652.8	
COST (GBP/kg)	0.65	

	NM diff from ZAGZO to THR	A320 fuel difference at FL160 (kg)	CO2 equiv increase (mt)
<b>W Arriv Option 1 AV from ZAGZO (Baseline)</b>	0	0	0.000
W Arriv Option 2 AV from ZAGZO	0	0	0.000
W Arriv Option 2 RNP AR from ZAGZO	-7	-51.8	-0.164
W Arriv Option 3 Av vector from ZAGZO	-3	-22.2	-0.070
W Arriv Option 3 RNP AR from ZAGZO	-7	-51.8	-0.164
W Arriv Option 4 PBN 1 from ZAGZO	5	37	0.117
W Arriv Option 4 PBN 2 from ZAGZO	-2	-14.8	-0.047
W Arriv Option 4 RNP AR from ZAGZO	-7	-51.8	-0.164
<b>E Arriv Option 1 AV from ZAGZO (Baseline)</b>	0	0	0.000
E Arriv Option 2 AV from ZAGZO	0	0	0.000
E Arriv Option 2 RNP AR frm ZAGZO	-10	-74	-0.234
E Arriv Option 3 Av vector from ZAGZO	0	0	0.000
E Arriv Option 3 RNP AR from ZAGZO	-12	-88.8	-0.281
E Arriv Option 4 PBN 1 from ZAGZO	1	7.4	0.023
E Arriv Option 4 PBN 2 from ZAGZO	1	7.4	0.023
E Arriv Option 4 RNP AR from ZAGZO	-12	-88.8	-0.281



