Materials for 33L Municipal Working Group Meeting with FAA

November 18, 2016

Myron Kassaraba
Belmont Representative to the
Logan & Massport CAC's
logancac@belmont-ma.gov

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33L Municipal Working Group

- Communities impacted by the implementation of 33L RNAV SID in June of 2013 have been telling the FAA and Massport about the negative impacts of the procedure since shortly after implementation. Current members are Arlington, Belmont, Cambridge and Watertown.
- For over three years we have attempted to engage with the FAA on the negative impacts of this procedure with no meaningful responses or dialog.
- We have been consistent in our request for a re-examination of the procedure and the evaluation of alternatives or modifications to mitigate the negative impacts.
- Belmont and Watertown were not members of the Logan CAC prior to 2013 – and joined as a direct result of issues with 33L RNAV SID.
- The Logan CAC's BLANS Phase 2 recommendation for 33L RNAV SID was not adopted. The FAA chose to move ahead with the EA on a flight path option that it developed. It was tacitly endorsed by the Logan CAC but a number of Members objected and submitted comments warning about the consequences of flight path concentration and shifting.

What we want

- Decrease in the concentrated noise burden on specific neighborhoods under the 33L flight paths though dispersion akin to that of the pre-RNAV Logan Six procedure (see Charlotte).
- Planes cleared to higher altitudes faster.
- An opportunity as 33L effected communities to have direct input to the design of the RNAV Study that is looking at 33L RNAV SID so that those doing the analysis of options have a clear understanding from those affected of the issues we are having with the procedure.

The negative impacts

- Concentration
- Noise Intensity
- Shifted Noise Burden
- Complaints

Disclaimer:

- **Some of the data used in the analysis in this presentation was provided by Massport, some was obtained from other sources and it is possible that there are some minor errors.**
- **The analysis has been done using volunteer resources. We are not aviation or noise experts.**
- **The analysis and calculations were done using best efforts with the time and tools available.**

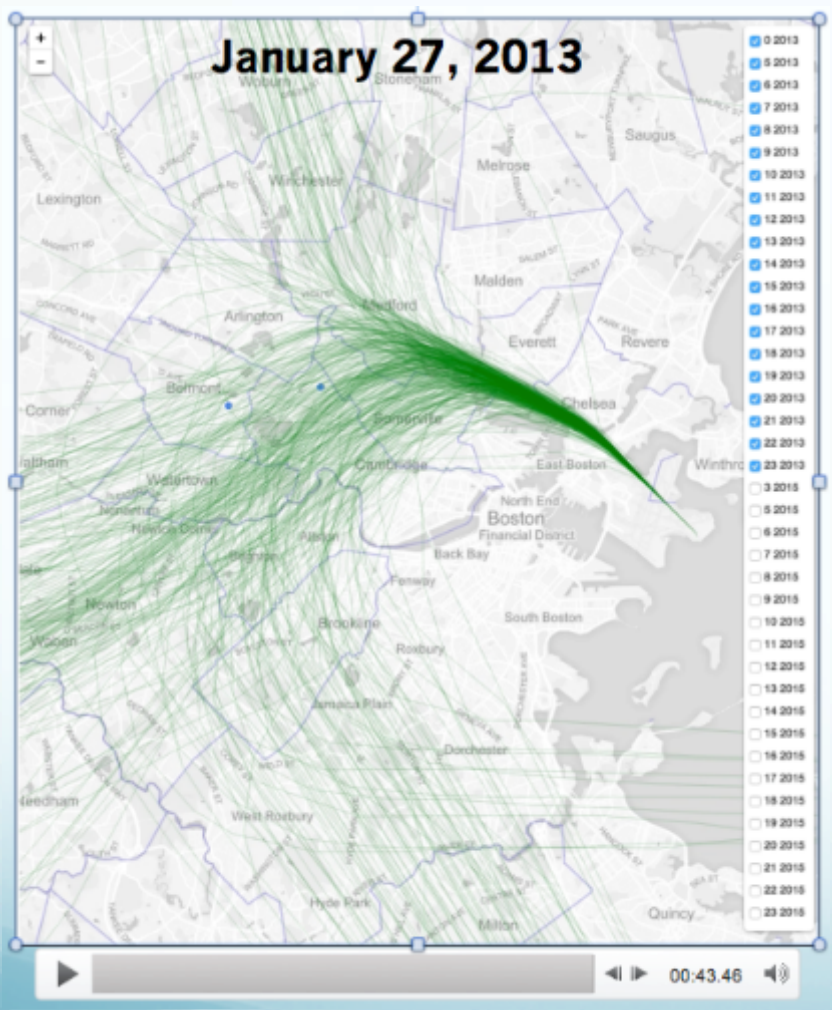
Concentration

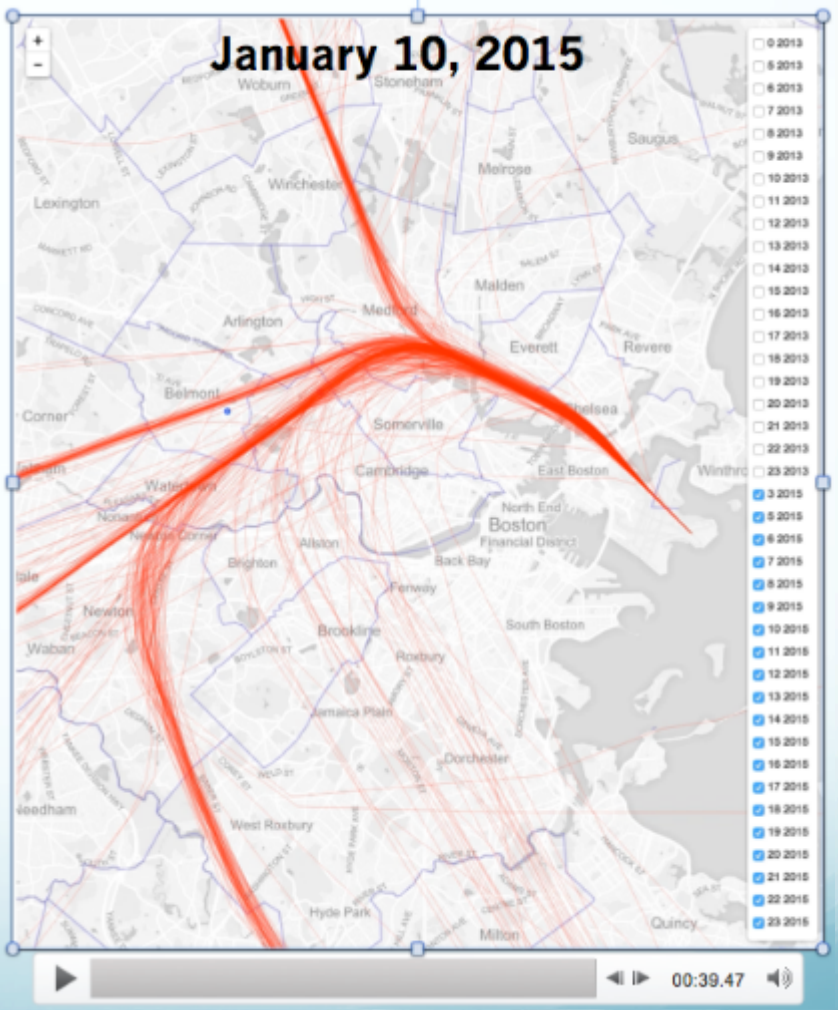
Before/After RNAV

- Requested flight path data from Massport for three days in January 2013 (pre-RNAV) and three days in January 2015 (post-RNAV) when 33L had a high number of departures:

2013		2015	
Date: January 17th January 22nd January 27th	Flights 207 257 336	Date: January 5th January 10th January 16th	Flights 289 286 207

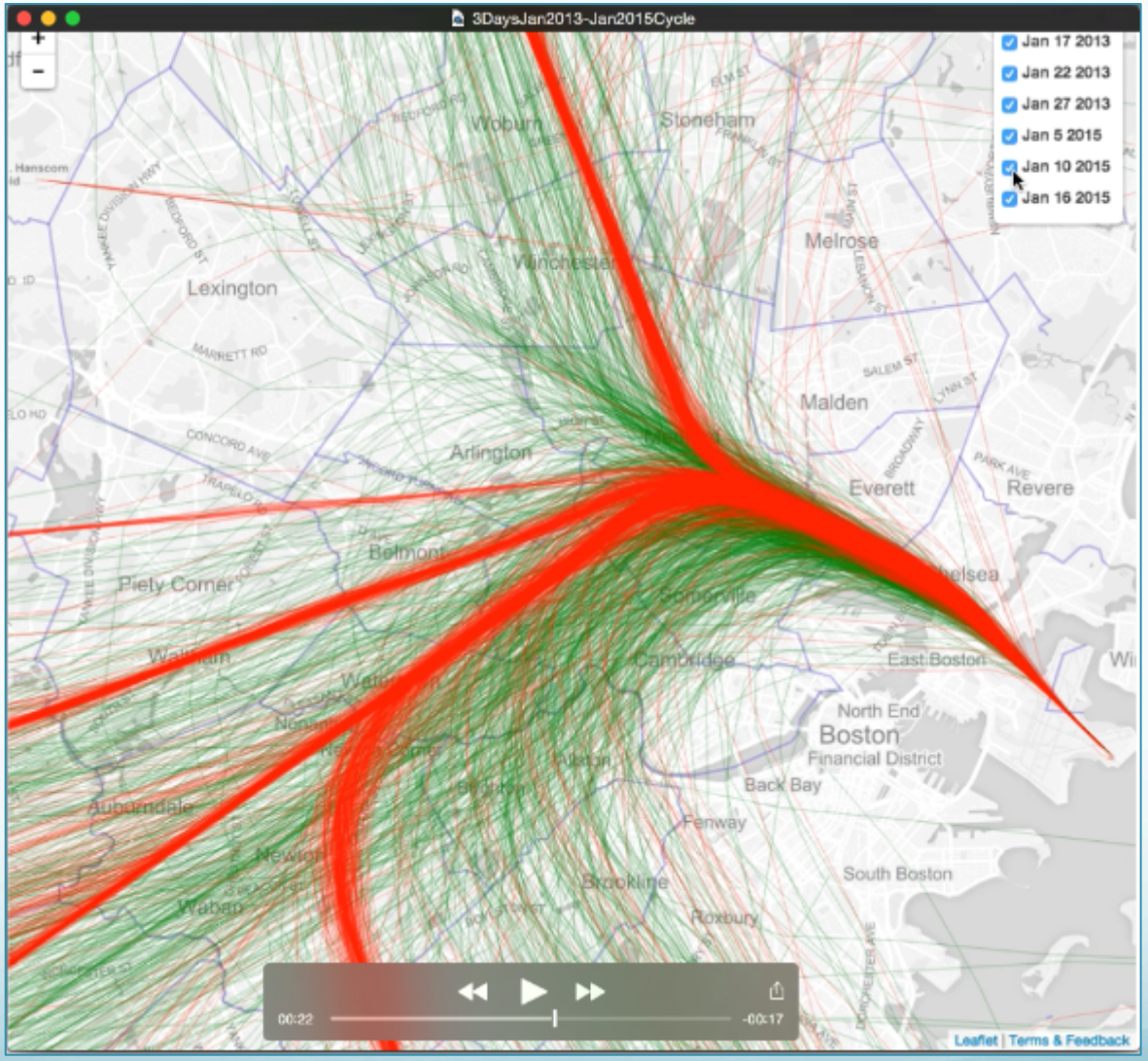
Flight paths revealed concentration……





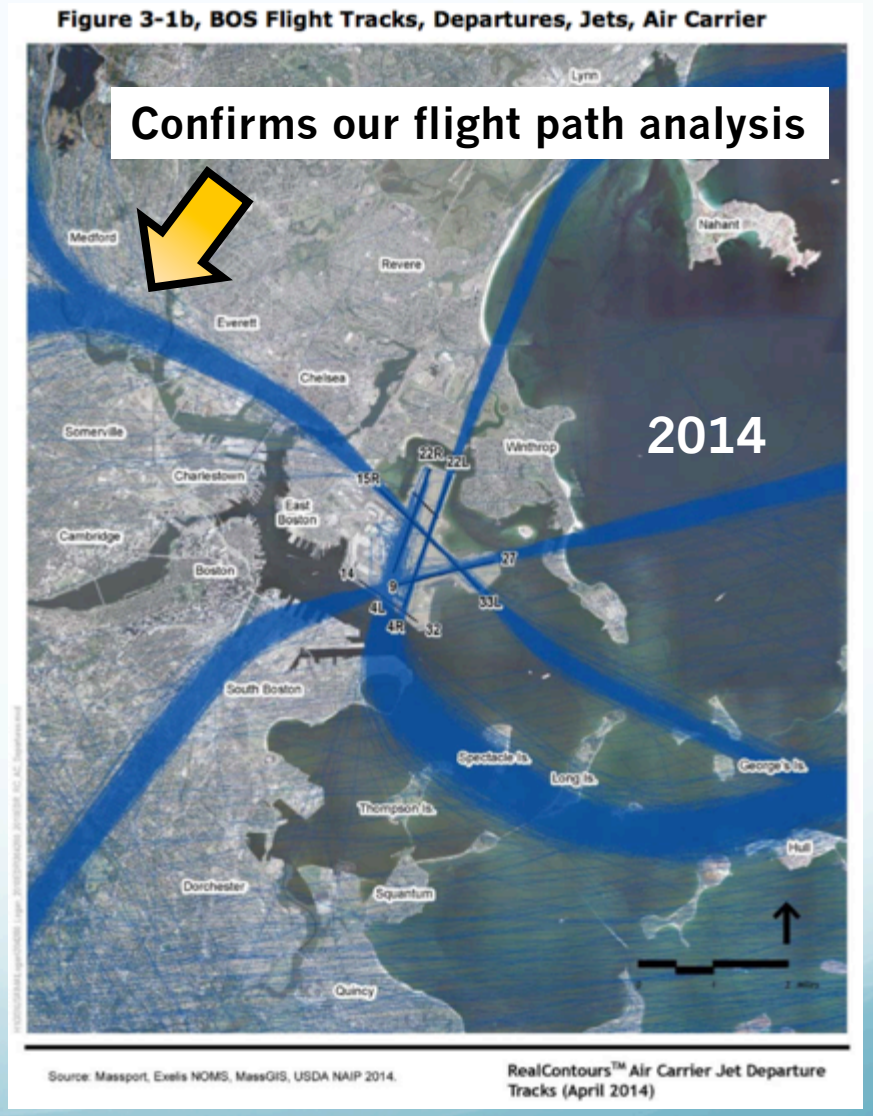
Programming and maps by Kent Johnson

3 days in Jan 2013/Jan 2015 overlay

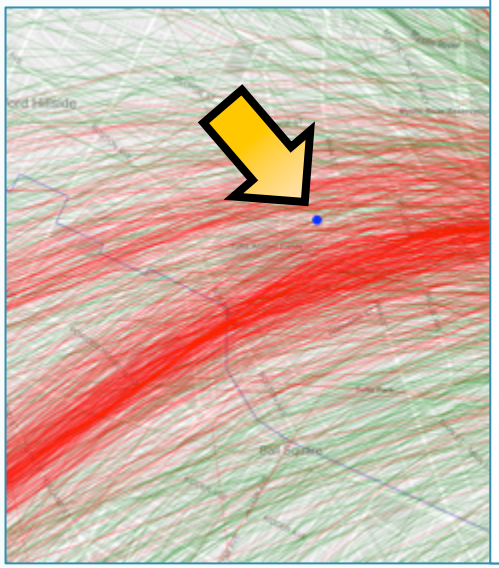


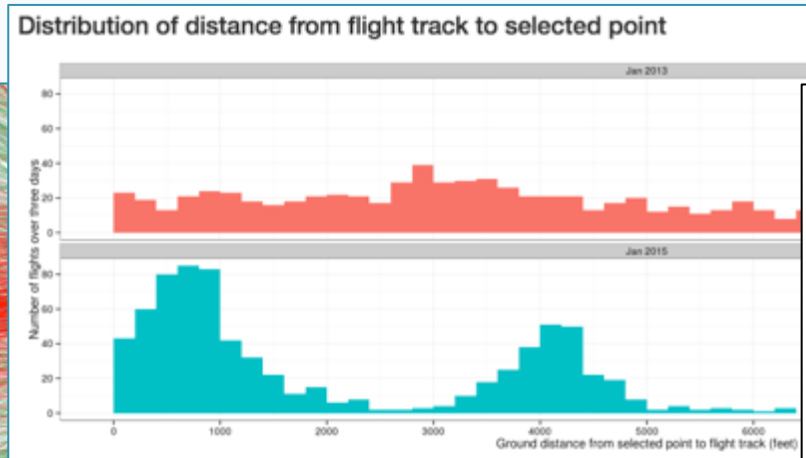
Programming and maps by Kent Johnson

Logan Jet Departures (EDR)



Stearns Ave., Medford



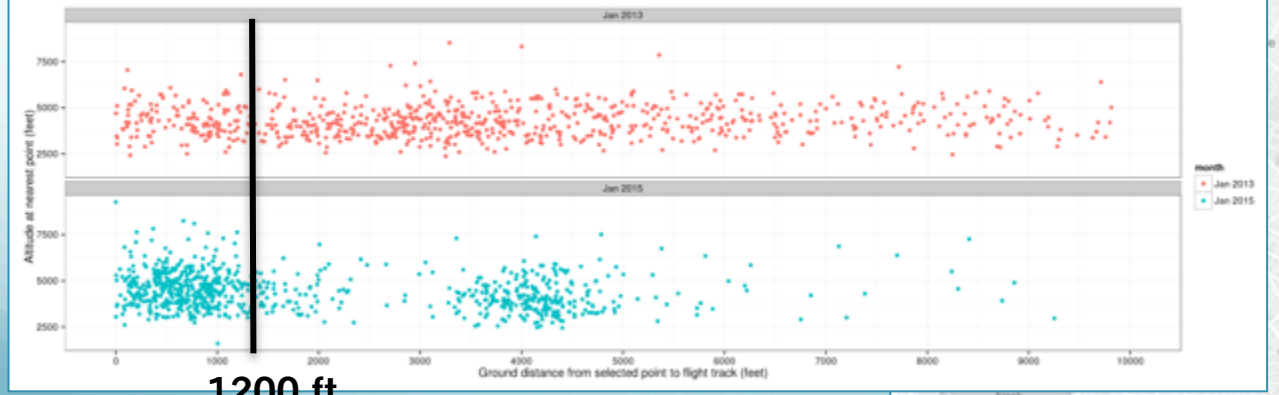


Number of flights within distance of selected point

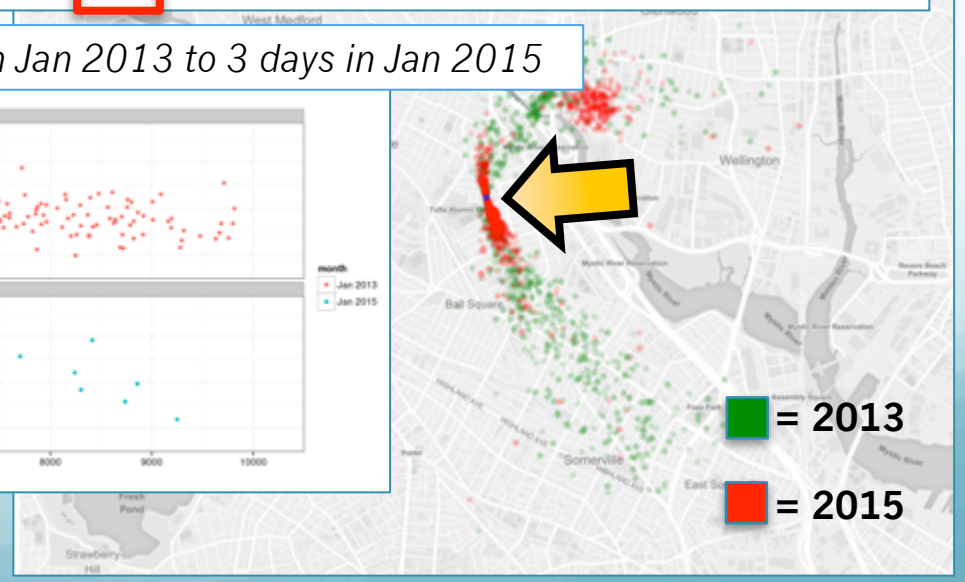
	<= 200	<= 400	<= 600	<= 800	<= 1000	<= 1200	<= 1400	<= 1600	<= 1800	<= 2000
Jan 2013	23.00	42.00	55.00	76.00	100.00	123.00	141.00	157.00	175.00	196.00
Jan 2015	43.00	103.00	183.00	268.00	351.00	393.00	425.00	447.00	458.00	473.00
Ratio 2015/2013	1.90	2.50	3.30	3.50	3.50	3.20	3.00	2.80	2.60	2.40

Within 1200 ft. of this address (distance from FAA to Apple Store or Lahey Clinic), over flights went from 123 to 393 – a 320% increase.

Comparing flights from 3 days in Jan 2013 to 3 days in Jan 2015

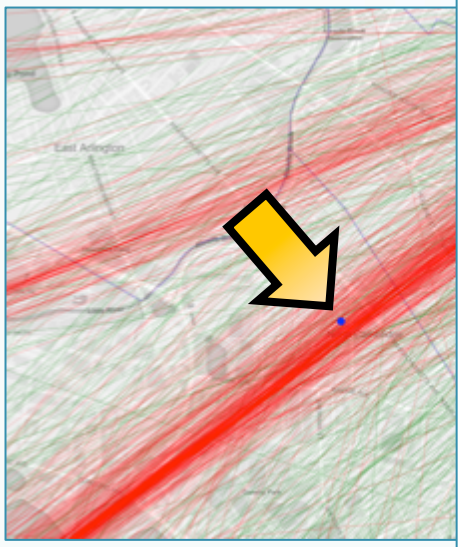


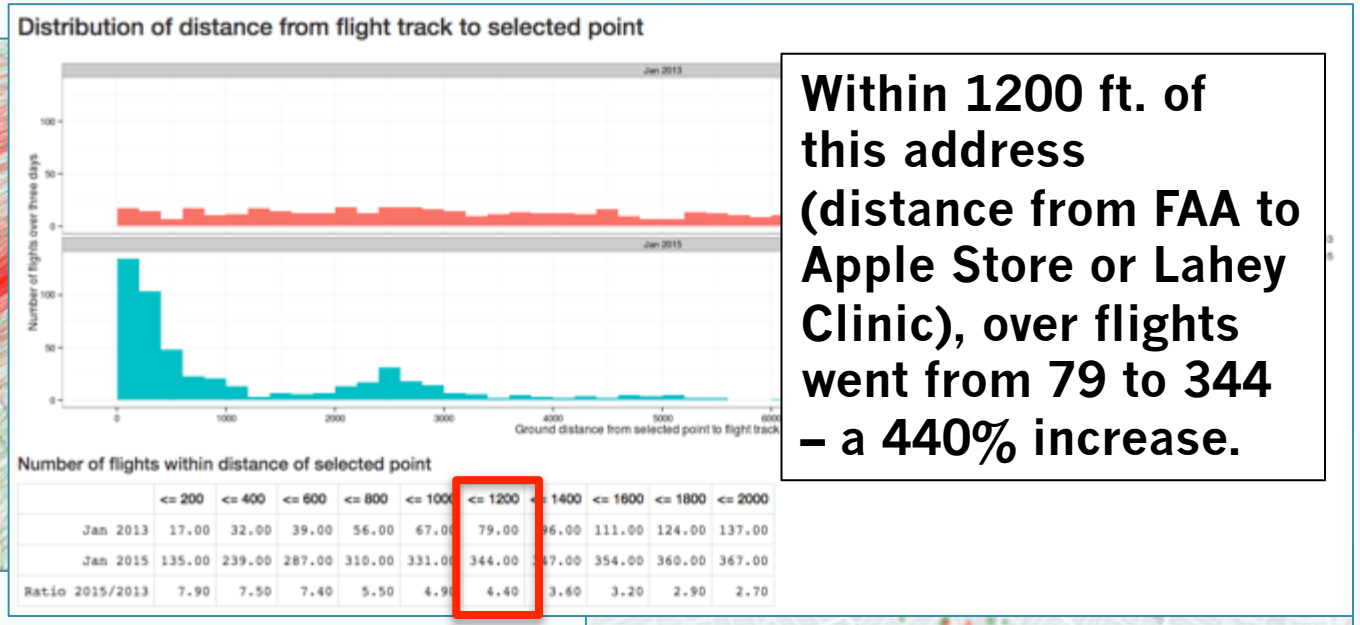
1200 ft.



Programming and maps by Kent Johnson

Harrington Rd., N. Cambridge



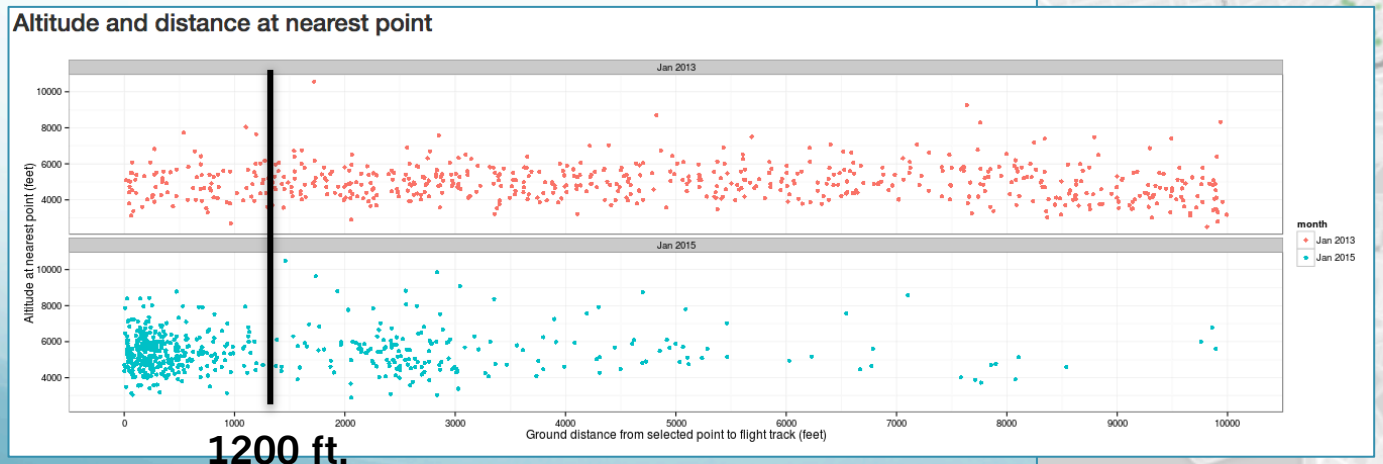


Number of flights within distance of selected point

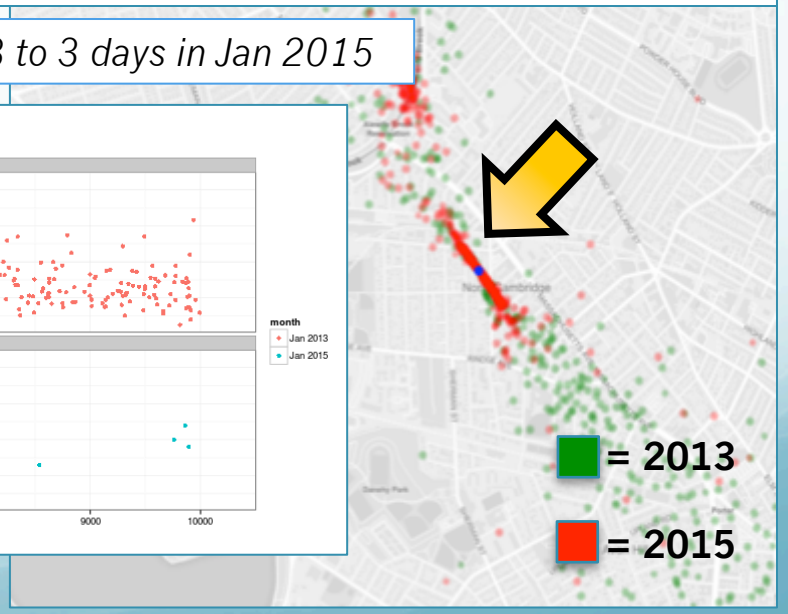
	<= 200	<= 400	<= 600	<= 800	<= 1000	<= 1200	<= 1400	<= 1600	<= 1800	<= 2000
Jan 2013	17.00	32.00	39.00	56.00	67.00	79.00	96.00	111.00	124.00	137.00
Jan 2015	135.00	239.00	287.00	310.00	331.00	344.00	347.00	354.00	360.00	367.00
Ratio 2015/2013	7.90	7.50	7.40	5.50	4.90	4.40	3.60	3.20	2.90	2.70

Within 1200 ft. of this address (distance from FAA to Apple Store or Lahey Clinic), over flights went from 79 to 344 – a 440% increase.

Comparing flights from 3 days in Jan 2013 to 3 days in Jan 2015

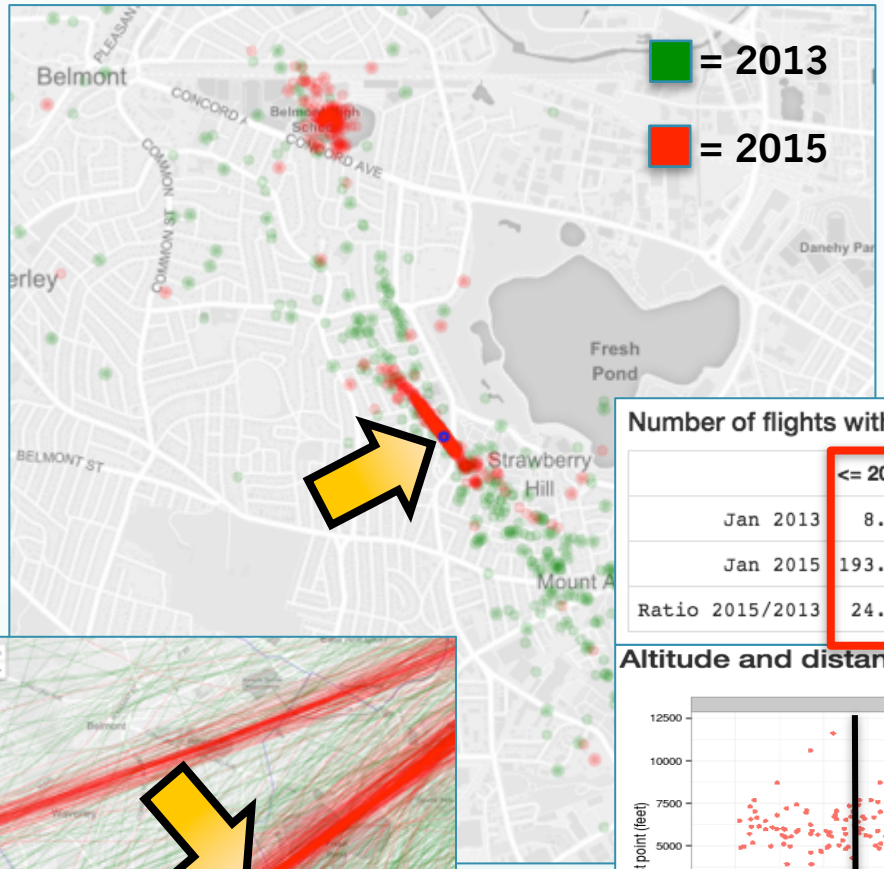


1200 ft.



Programming and maps by Kent Johnson

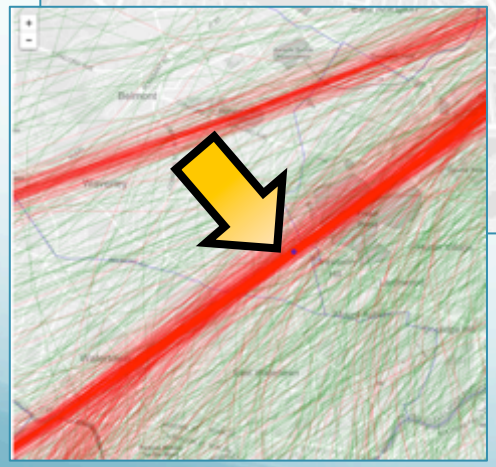
Grove Street, Belmont



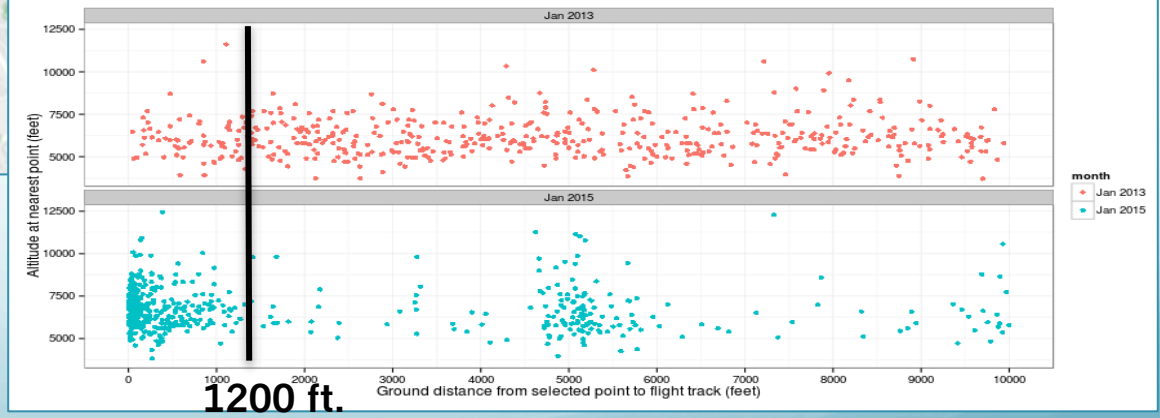
Grove Street in Belmont went from 55 flights in 2013 w/in ¼ mile to 330 in 2015 and from 8 to 193 directly overhead.

Number of flights within distance of selected point

	<= 200	<= 400	<= 600	<= 800	<= 1000	<= 1200	<= 1400	<= 1600	<= 1800	<= 2000
Jan 2013	8.00	14.00	27.00	32.00	43.00	55.00	69.00	80.00	93.00	104.00
Jan 2015	193.00	245.00	278.00	300.00	320.00	330.00	336.00	338.00	343.00	344.00
Ratio 2015/2013	24.10	17.50	10.30	9.40	7.40	6.00	4.90	4.20	3.70	3.30



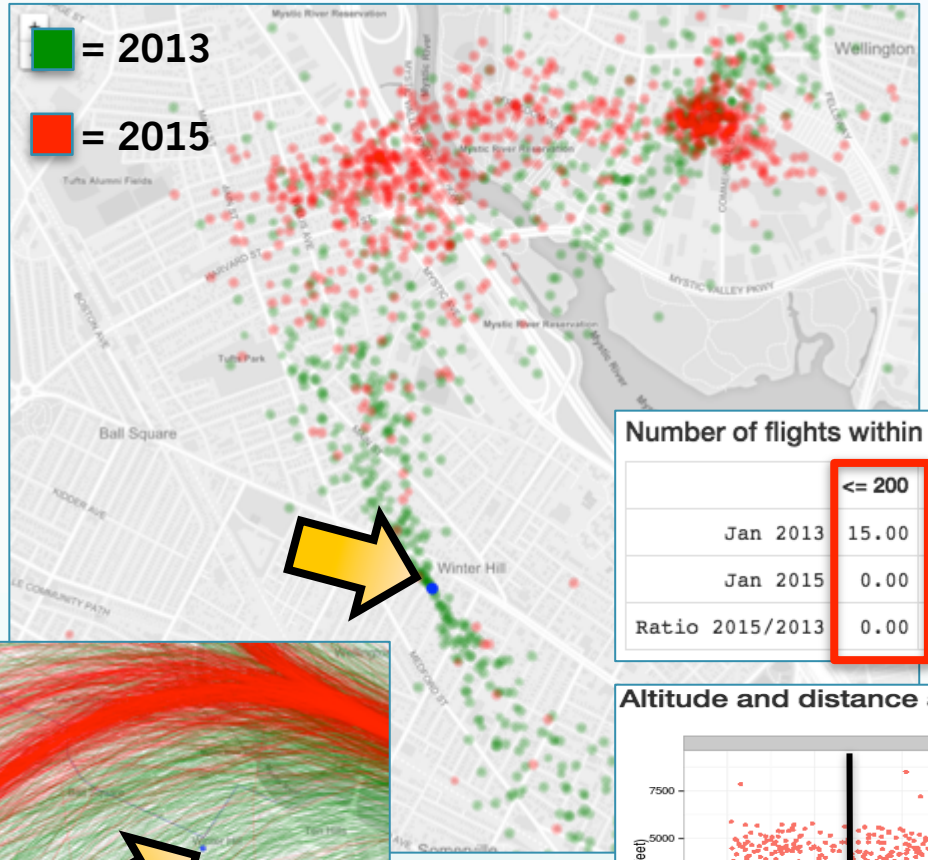
Altitude and distance at nearest point



1200 ft.

Programming and maps by Kent Johnson

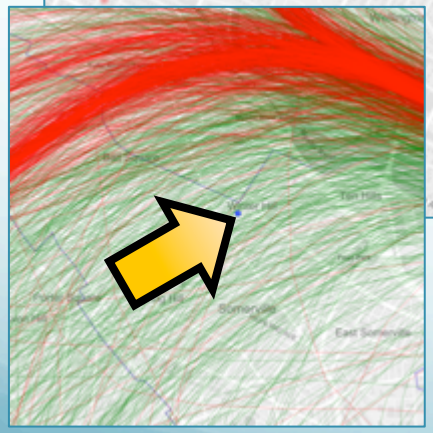
Winter Hill, Somerville



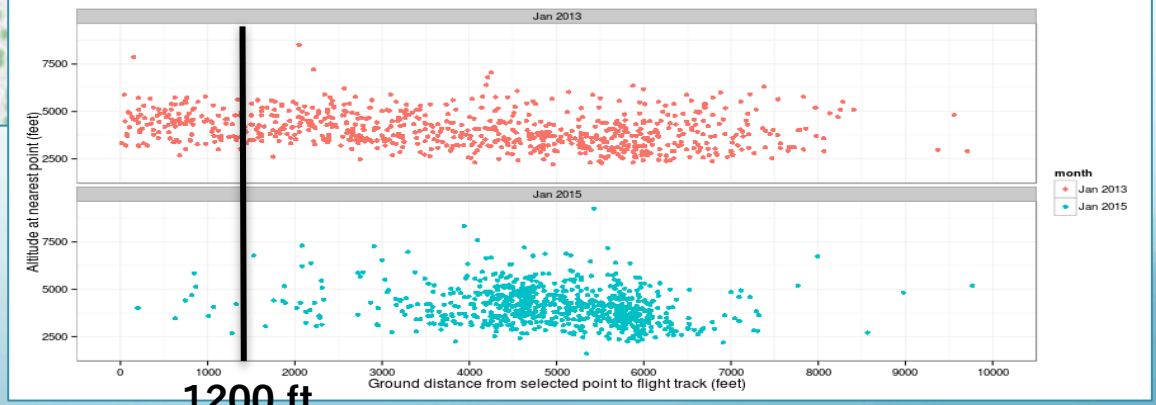
Winter Hill in Somerville went from 109 flights in 2013 w/in ½ mile to 9 in 2015 and from 15 to 0 directly overhead.

Number of flights within distance of selected point

	<= 200	<= 400	<= 600	<= 800	<= 1000	<= 1200	<= 1400	<= 1600	<= 1800	<= 2000
Jan 2013	15.00	36.00	60.00	75.00	95.00	109.00	123.00	141.00	164.00	182.00
Jan 2015	0.00	0.00	2.00	4.00	6.00	9.00	11.00	11.00	13.00	16.00
Ratio 2015/2013	0.00	0.00	0.03	0.05	0.06	0.08	0.09	0.08	0.08	0.09



Altitude and distance at nearest point

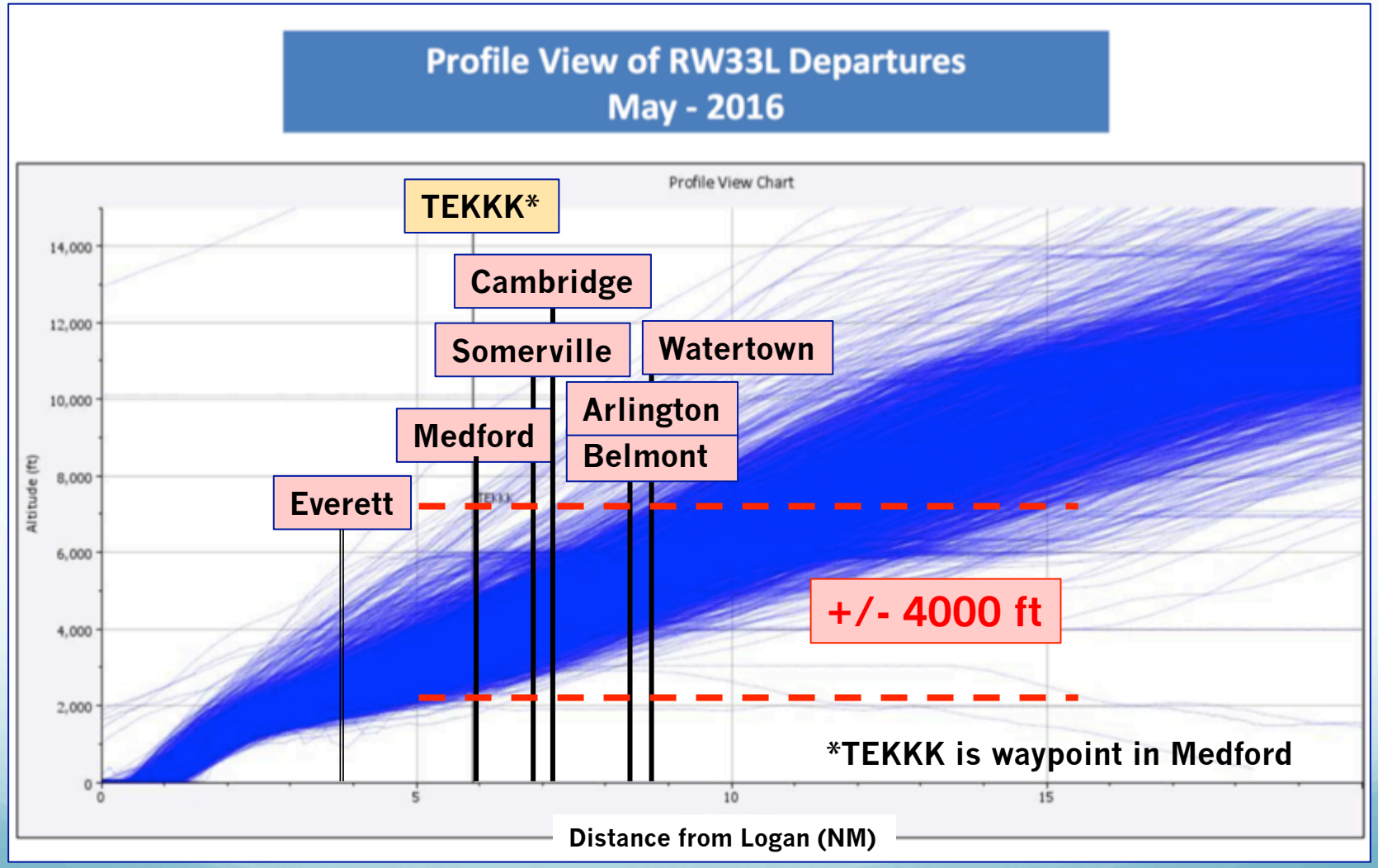


1200 ft.

Programming and maps by Kent Johnson

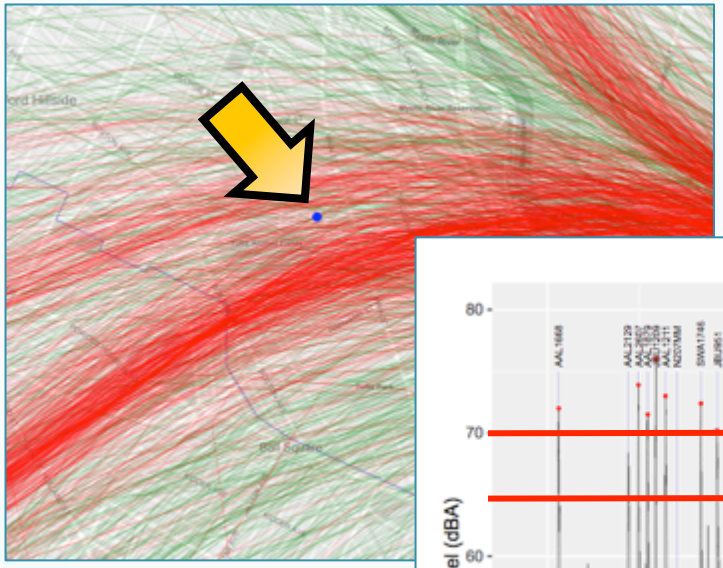
Wide range of altitudes – 33L departures

Source: Massport Monthly Flight Track Reports, May 2016

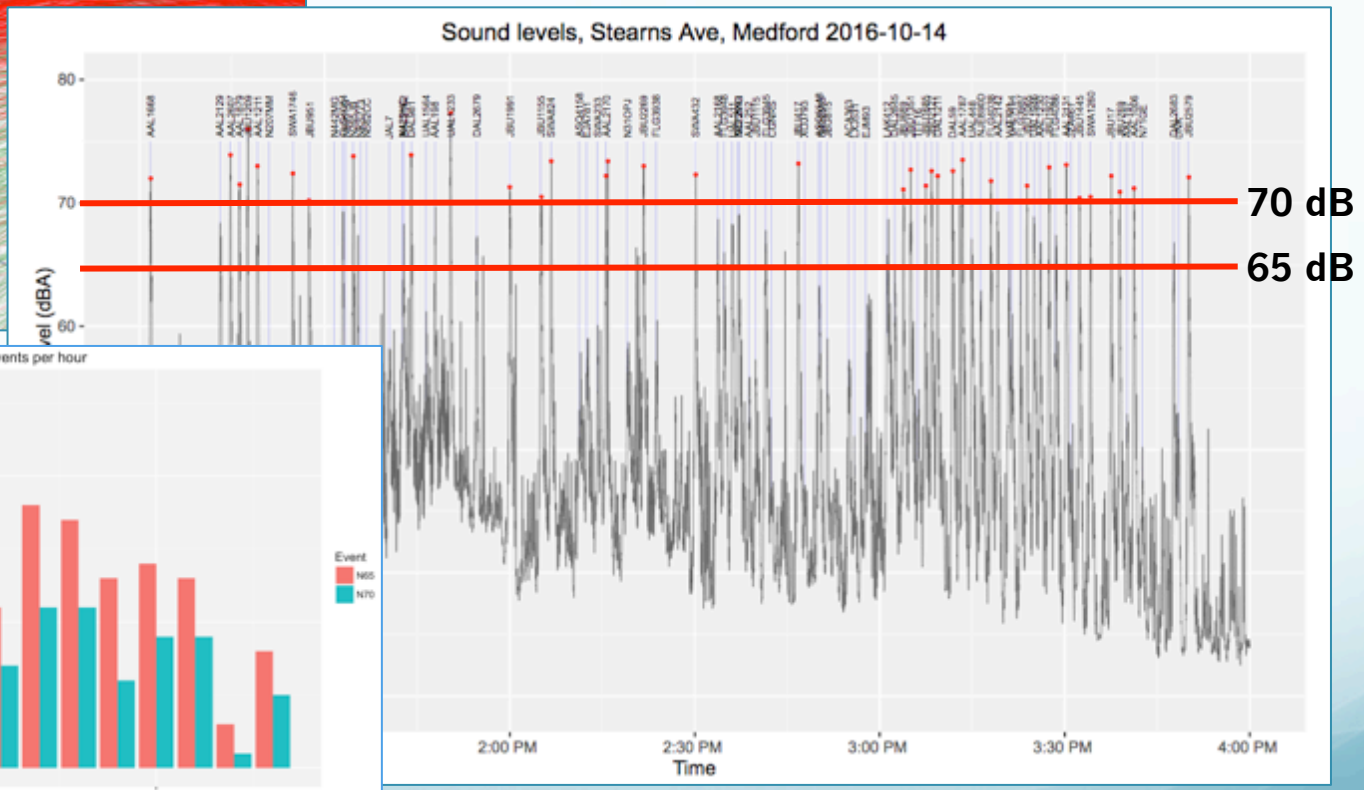


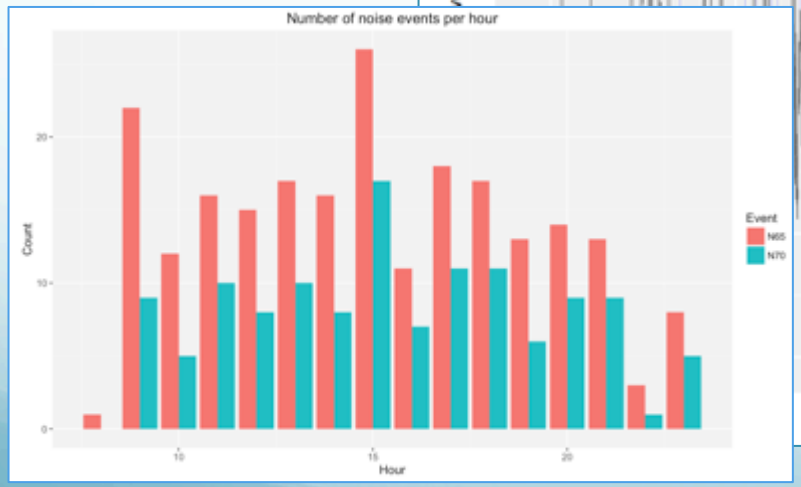
Noise Intensity

Stearns Ave., Medford



Noise measurements on October 14, 2016 – a day when 33L was used – 400 flights over 15 hours – 126 events >70 dB and 222 events > 65 dB.

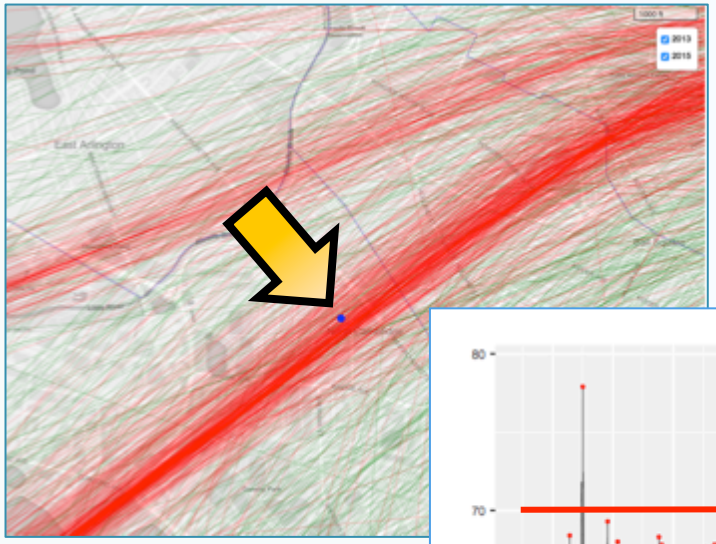




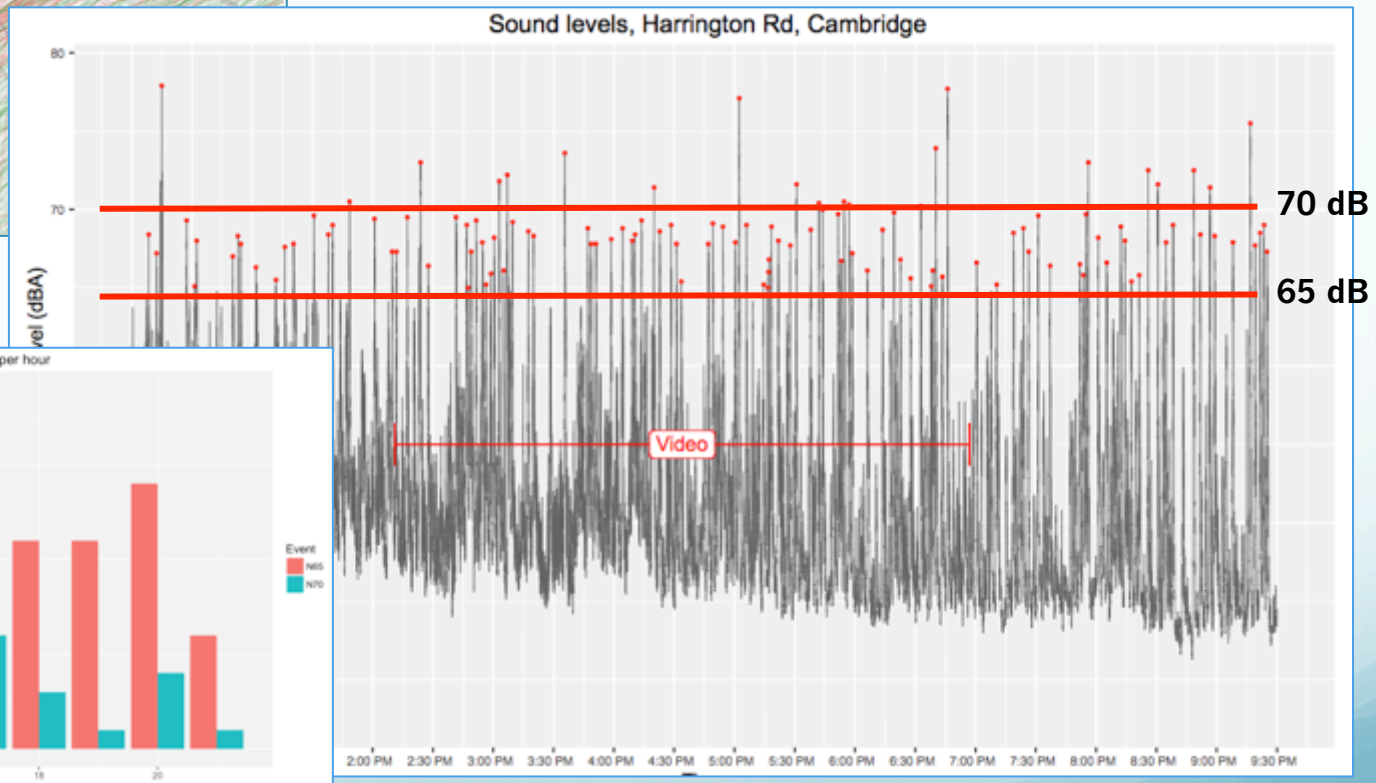
Programming and maps by Kent Johnson

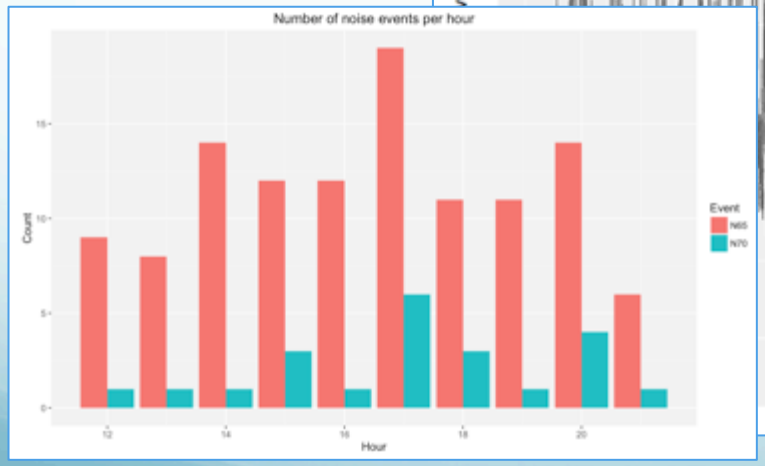
Source: http://kentsj.com/BWFS/October_14_in_Medford.html

Harrington Rd., N. Cambridge



Noise measurements on December 15, 2015 – a day when 33L was used – 9 ½ hours – 21 events >70 dB and 116 events > 65 dB.





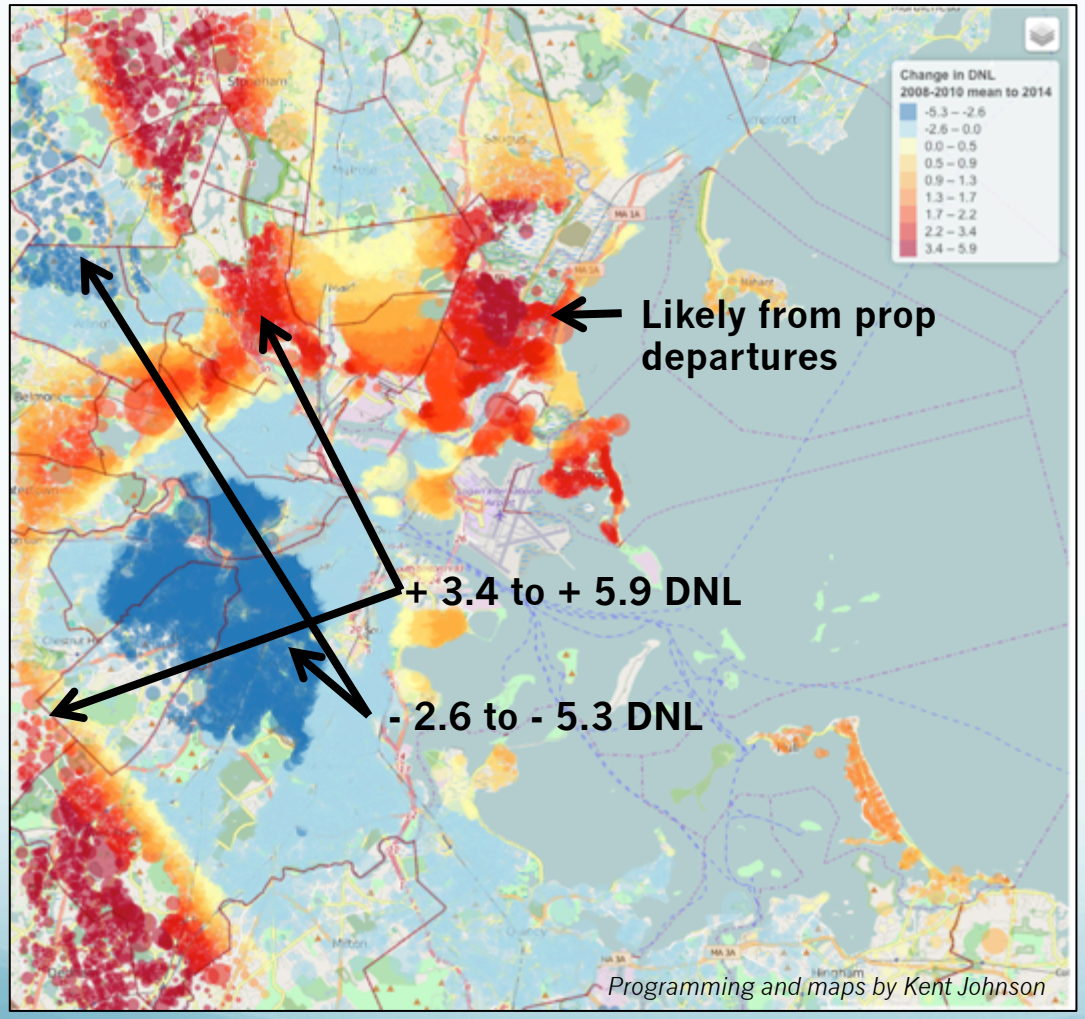
Programming and maps by Kent Johnson

Source: http://kentsj.com/BWFS/December_15_in_Cambridge.html

Shifted Noise Burden

Noise Impact – shifted burden

Source: Analysis of DNL data from Massport EDR

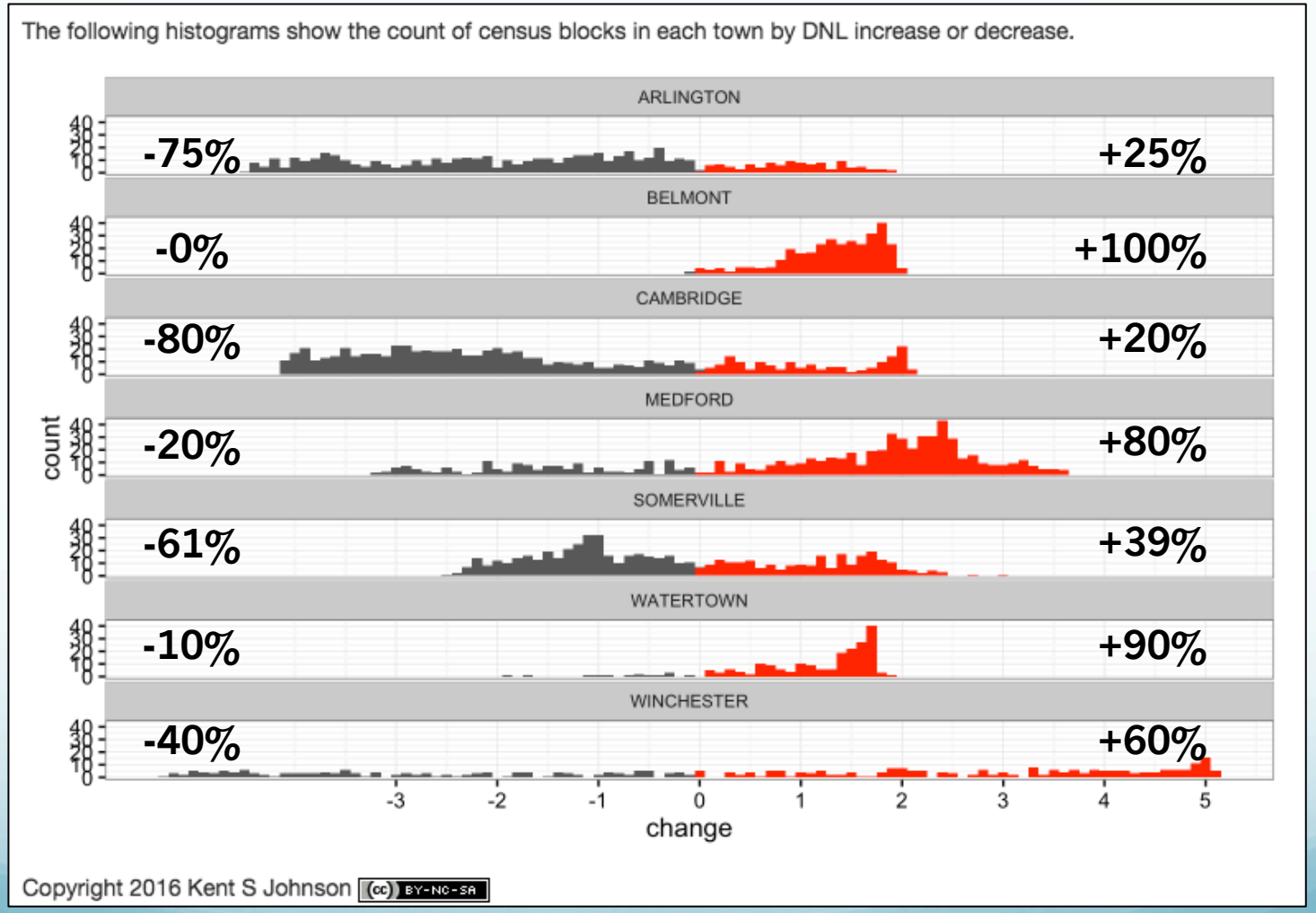


Noise impact has shifted and become more concentrated

Orange/Red = > 2 DNL increase

Blue = > 2 DNL decrease

Impact to neighborhoods is uneven



Net Noise Reduction

The 33L RNAV SID Environmental Assessment showed that the new procedure would provide a "net noise reduction" – in our communities it means a few more have less but some have a lot more – another example of shifting the noise by moving the flight paths.

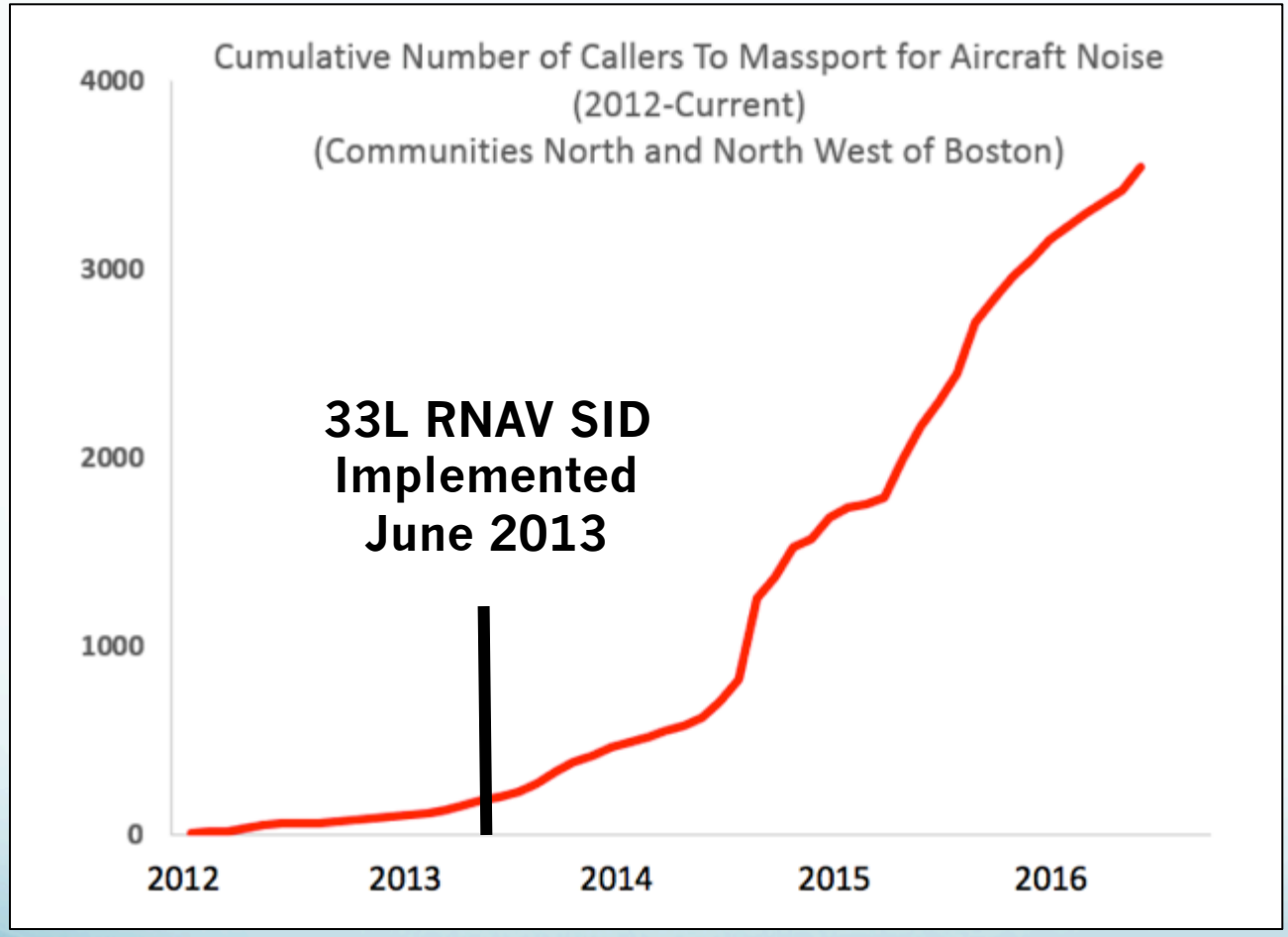
Community	Change Type	Census Blocks	Population	% of Pop	Max
ARLINGTON	Decreased DNL	450	28,803	75%	-4.5
BELMONT	Decreased DNL	3	99	0%	-0.1
CAMBRIDGE	Decreased DNL	565	79,767	80%	-4.1
MEDFORD	Decreased DNL	164	11,269	20%	-3.2
SOMERVILLE	Decreased DNL	372	45,182	61%	-2.5
WATERTOWN	Decreased DNL	14	1,701	10%	-1.9
WINCHESTER	Decreased DNL	145	8,626	40%	-5.3
	Decreased DNL	1,713	175,447	54%	

ARLINGTON	Increased DNL	108	9,366	25%	1.9
BELMONT	Increased DNL	316	19,828	100%	2
CAMBRIDGE	Increased DNL	163	20,348	20%	2.1
MEDFORD	Increased DNL	501	43,821	80%	3.6
SOMERVILLE	Increased DNL	234	28,953	39%	3
WATERTOWN	Increased DNL	192	15,687	90%	1.9
WINCHESTER	Increased DNL	211	12,784	60%	5.1
	Increased DNL	1,725	150,787	46%	

Total Population	326,234	
Pop with Decrease	(24,660)	-8%

Complaints

Noise Complaints

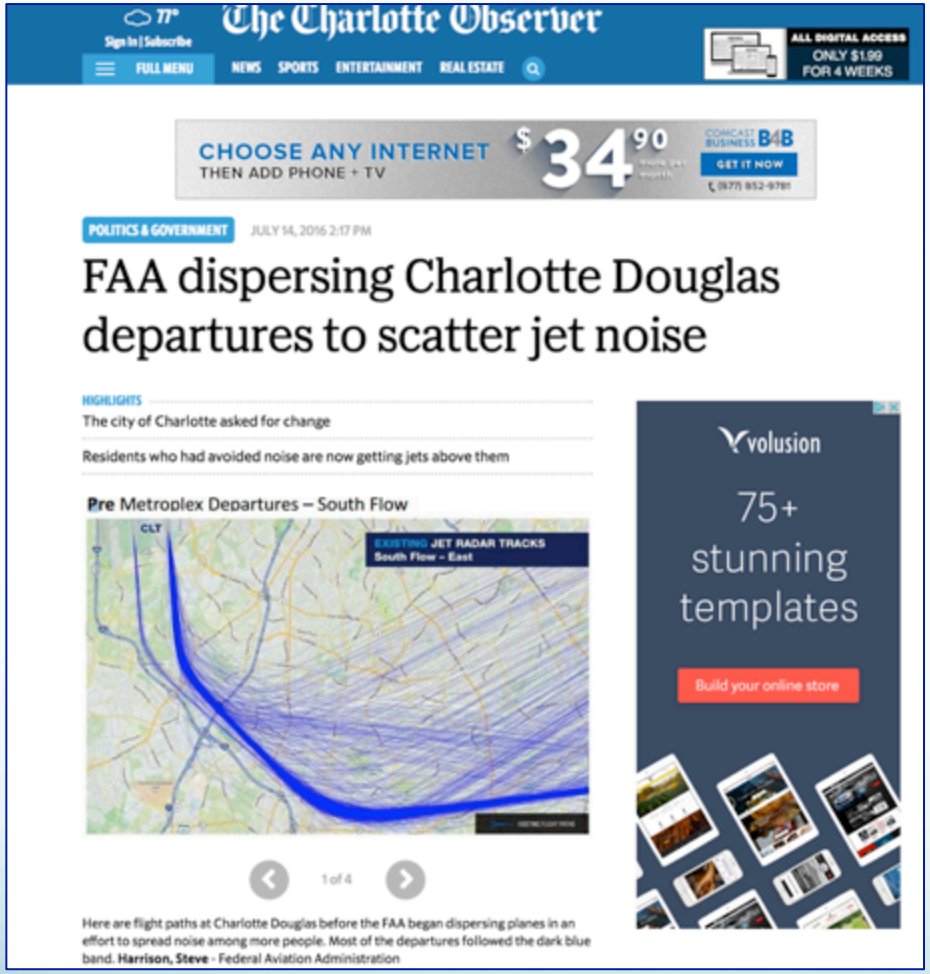


Includes:

- **Arlington**
- **Belmont**
- **Cambridge**
- **Medford**
- **Watertown**
- **Winchester**

Charlotte

CLT dispersion of RNAV



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POLITICS & GOVERNMENT JULY 14, 2016 2:17 PM

FAA dispersing Charlotte Douglas departures to scatter jet noise

HIGHLIGHTS

The city of Charlotte asked for change

Residents who had avoided noise are now getting jets above them

Pre Metroplex Departures – South Flow

CLT

EXISTING JET RADAR TRACKS South Flow – East

1 of 4

Here are flight paths at Charlotte Douglas before the FAA began dispersing planes in an effort to spread noise among more people. Most of the departures followed the dark blue band. **Harrison, Steve** - Federal Aviation Administration

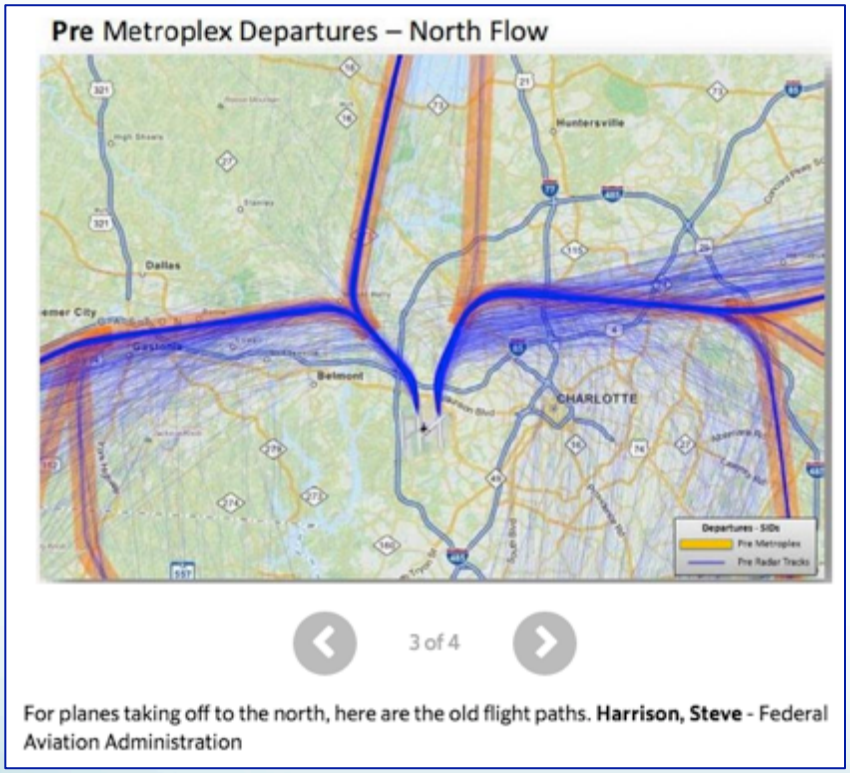
New RNAV flight paths were implemented at CLT in 2015.

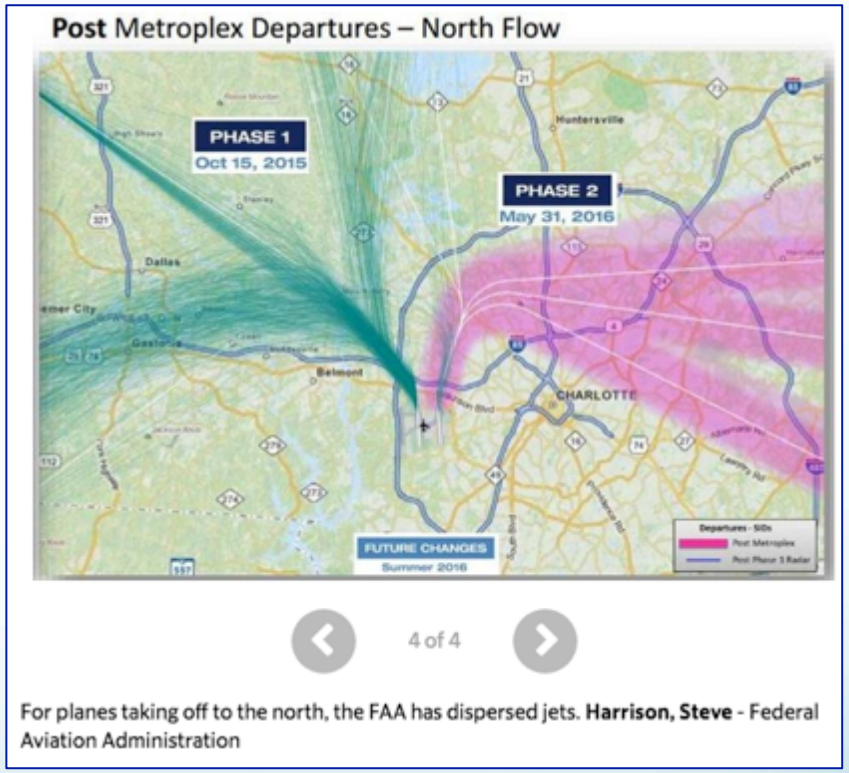
The city of Charlotte asked the FAA to send the departures on different paths after takeoff. That means more people will be exposed to noise, but fewer people are impacted by it repeatedly.

“The city asked us to spread it out,” said Dennis Roberts, a regional administrator with the FAA.

Source: http://www.charlotteobserver.com/news/politics-government/article89601182.html

Flight paths changed in CLT for greater dispersion





Sources: http://www.charlotteobserver.com/news/politics-government/article89601182.html
https://www.faa.gov/nextgen/communityengagement/media/CLT_Metroplex_Phase2_05192016.pdf

Flight paths changed in CLT for greater dispersion

Pre Metroplex Departures – South Flow

1 of 4

Here are flight paths at Charlotte Douglas before the FAA began dispersing planes in an effort to spread noise among more people. Most of the departures followed the dark blue band. **Harrison, Steve** - Federal Aviation Administration

Post Metroplex Departures – South Flow

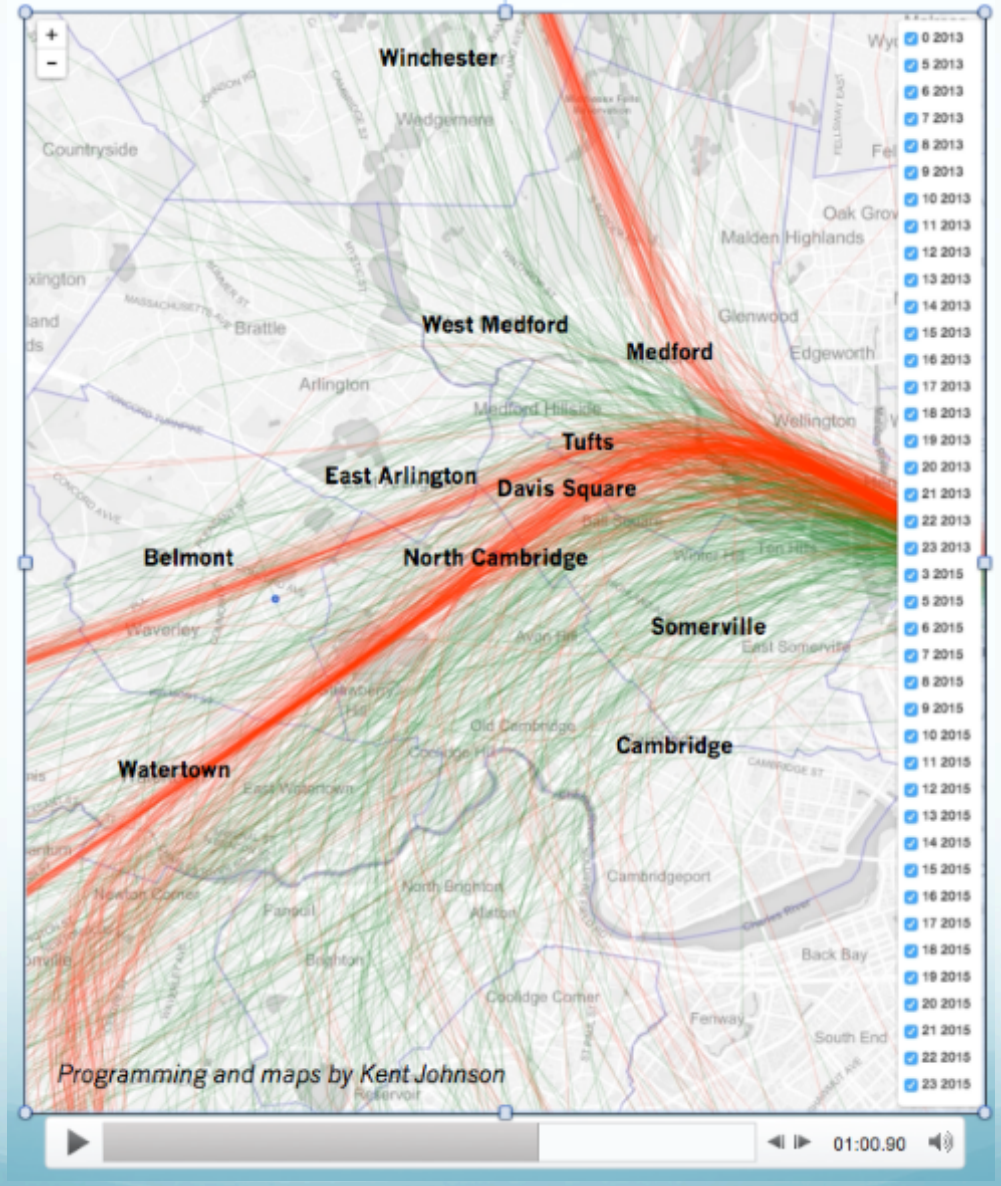
2 of 4

Here are the new flight paths from Charlotte Douglas after the FAA began dispersing departures at the end of May. **Harrison, Steve** - Federal Aviation Administration

Sources: http://www.charlotteobserver.com/news/politics-government/article89601182.html
https://www.faa.gov/nextgen/communityengagement/media/CLT_Metroplex_Phase2_05192016.pdf

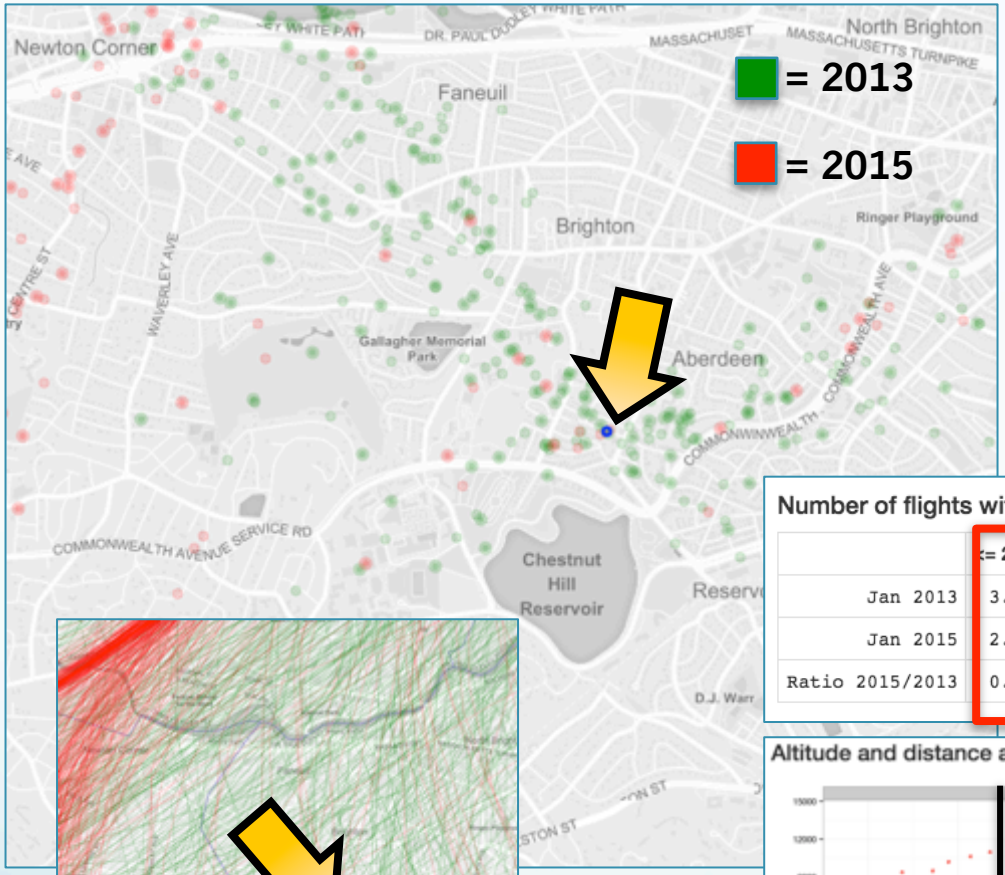
Appendix

Zoom-in on our Communities



Programming and maps by Kent Johnson

Cleveland Circle, Brighton

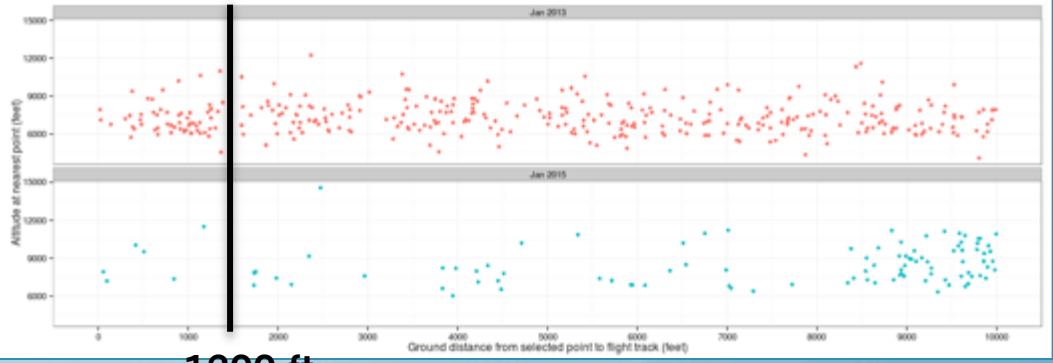


Cleveland Circle in Brighton went from 73 flights in 2013 w/in 1/2 mile to 10 in 2015 and from 3 to 2 directly overhead.

Number of flights within distance of selected point

	<= 200	<= 400	<= 600	<= 800	<= 1000	<= 1200	<= 1400	<= 1600	<= 1800	<= 2000
Jan 2013	3.00	.00	13.00	23.00	35.00	47.00	59.00	62.00	65.00	73.00
Jan 2015	2.00	.00	4.00	4.00	5.00	6.00	6.00	6.00	9.00	10.00
Ratio 2015/2013	0.67	.25	0.31	0.17	0.14	0.13	0.10	0.10	0.14	0.14

Altitude and distance at nearest point



1200 ft.

Programming and maps by Kent Johnson

Impact to neighborhoods is uneven

This chart looks at the difference in DNL by community between 2008-2010 (mean) and 2014.

Community	Change Type	Census Blocks	Population	% of Pop	Max Change
ARLINGTON	Decreased DNL	450	28803	75%	-4.5
ARLINGTON	Increased DNL	108	9366	25%	1.9
BELMONT	Decreased DNL	3	99	0%	-0.1
BELMONT	Increased DNL	316	19828	100%	2
CAMBRIDGE	Decreased DNL	565	79767	80%	-4.1
CAMBRIDGE	Increased DNL	163	20348	20%	2.1
MEDFORD	Decreased DNL	164	11269	20%	-3.2
MEDFORD	Increased DNL	501	43821	80%	3.6
SOMERVILLE	Decreased DNL	372	45182	61%	-2.5
SOMERVILLE	Increased DNL	234	28953	39%	3
WATERTOWN	Decreased DNL	14	1701	10%	-1.9
WATERTOWN	Increased DNL	192	15687	90%	1.9
WINCHESTER	Decreased DNL	145	8626	40%	-5.3
WINCHESTER	Increased DNL	211	12784	60%	5.1

Analysis by Kent Johnson