

Analysis of November 3, 2015

Day of increased noise complaints

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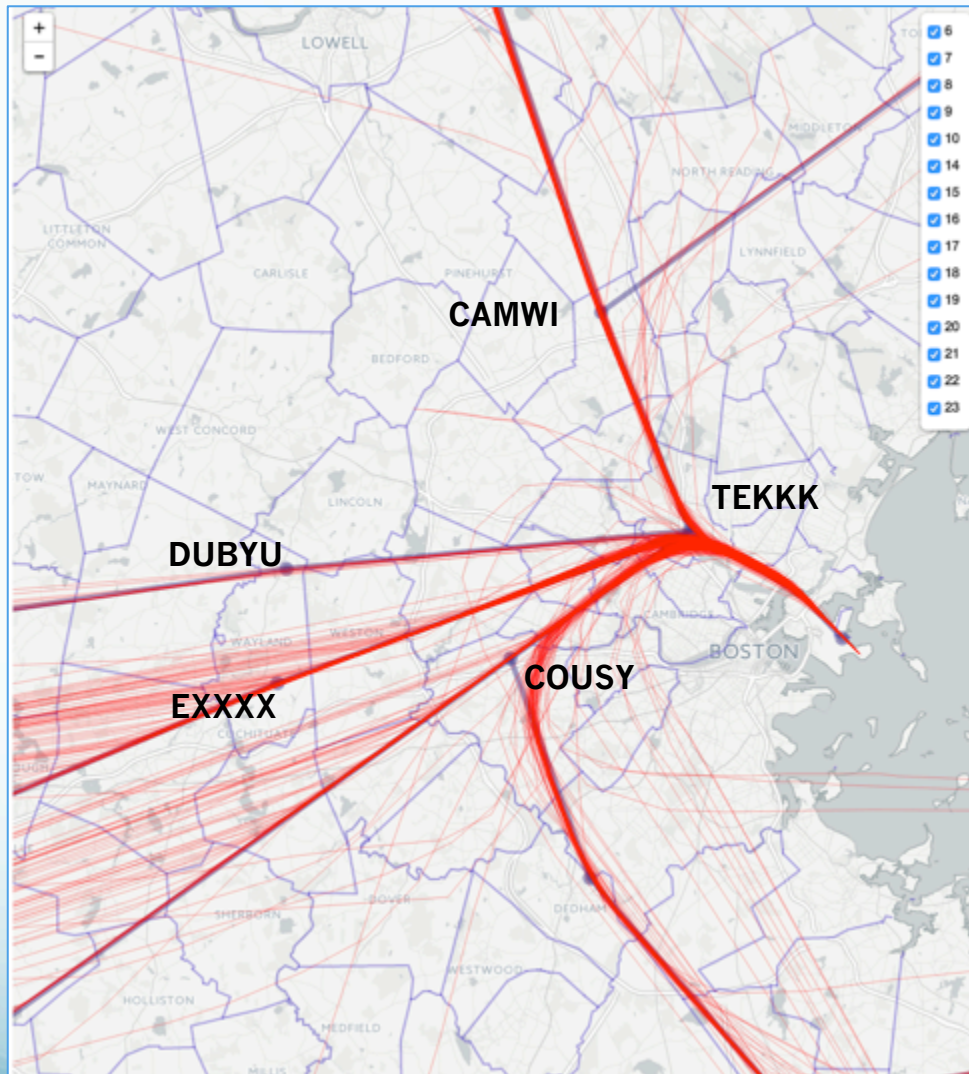
Overview

- Many Communities west of Boston under the 33L RNAV SID flight paths received an increased number of complaints about the noise, altitude and frequency of flights from Logan airport departing on runway 33L on Tuesday, November 3rd, 2015.
- On behalf of the communities of Arlington, Belmont, Cambridge and Watertown (members of the 33L Working Group), Belmont requested from Massport the daily flight log for 33L departures along with the flight path file for 11/3/15.
- The analysis that follows was done with the extensive support of Kent Johnson, BWFS Steering Committee and resident of North Cambridge. Thanks to Kent for his maps, charts, graphs in support of the analysis.

Summary of Findings

- There was a high volume of flights using runway 33L for departures on 11/3/15. Total of 267 total flights.
- Between 2 pm and 10 pm on Nov. 3 there were 222 departures from 33L, an *average* of 32 departures per hour for seven hours. During the hour between 5 pm and 6 pm, there were 39 flights.
- The average interval between flights was 113 seconds, just under two minutes. The median interval was 93 seconds - almost half of the departure intervals were less than a minute and a half, over a period of seven hours.
- Median altitude at the TEKKK waypoint in Medford on 11/3/15 was an average of 608 ft. lower (15%) than the flights on January 16th.

33L Departures

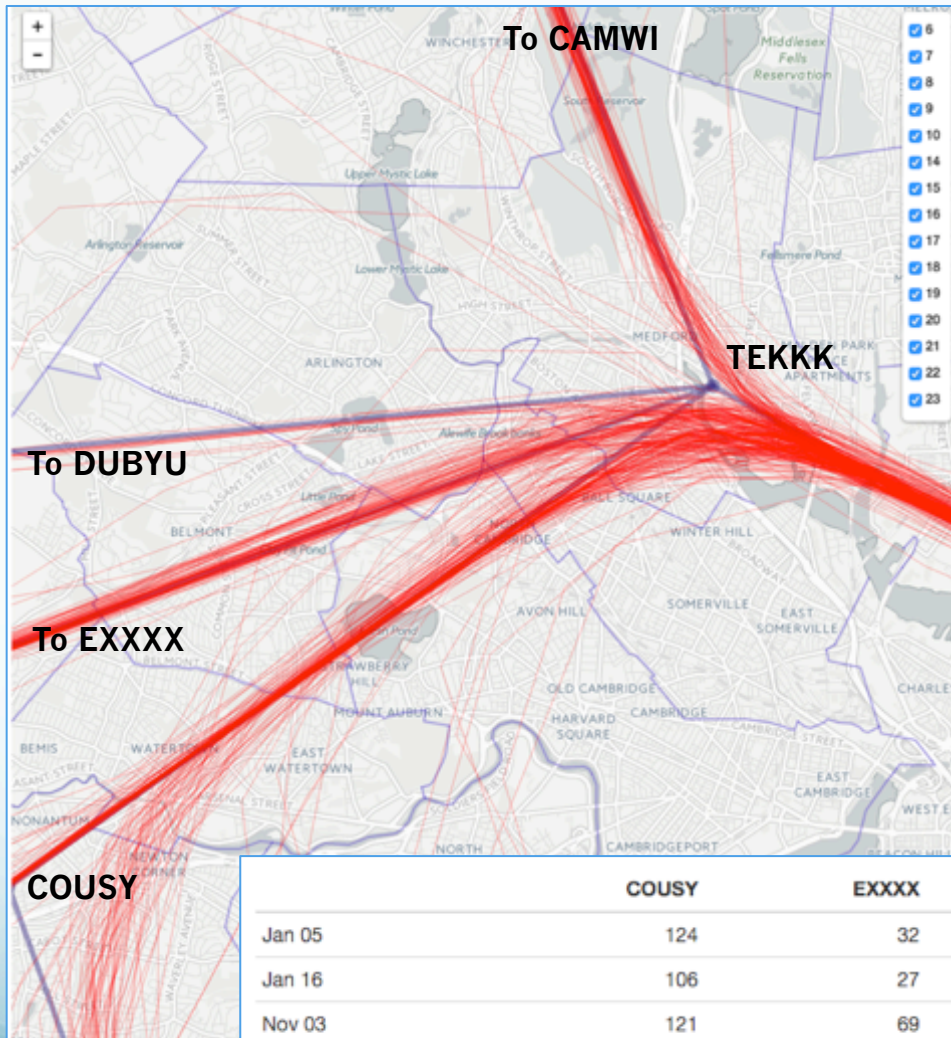


November 3, 2015

- Total 33L departures = **267**
- By Route (2nd waypoint)
 - COUSY = 121
 - EXXXX = 69
 - DUBYU = 10
 - CAMWI = 67
- Observation: on 11/3, the flights did closely follow the RNAV routes.

**Charts & Programming by
Kent Johnson**

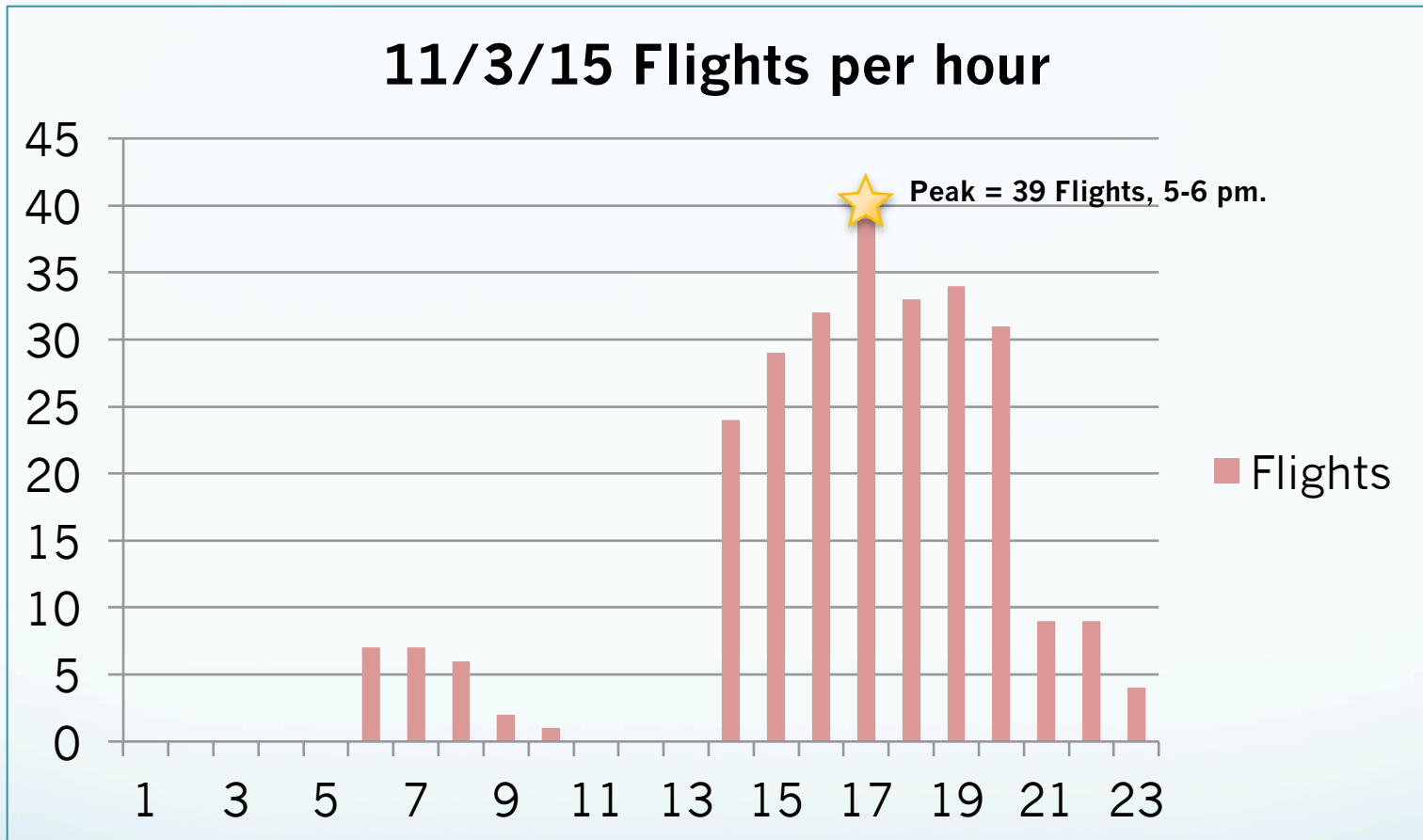
33L Departures



When comparing the flight paths from 11/3 to those from 1/5 (a days when there were a similar number of 33L departures), the flight path to EXXXX over East Arlington and that traverses Belmont has more than double the flight volume (69 vs. 32). The southbound path (to COUSY) still had the most flights (121) and volume was almost identical to 1/5 (124).

	COUSY	EXXXX	DUBYU	CAMWI	Sum
Jan 05	124	32	12	119	287
Jan 16	106	27	9	65	207
Nov 03	121	69	10	67	267
Sum	351	128	31	251	761

How Many Flights?



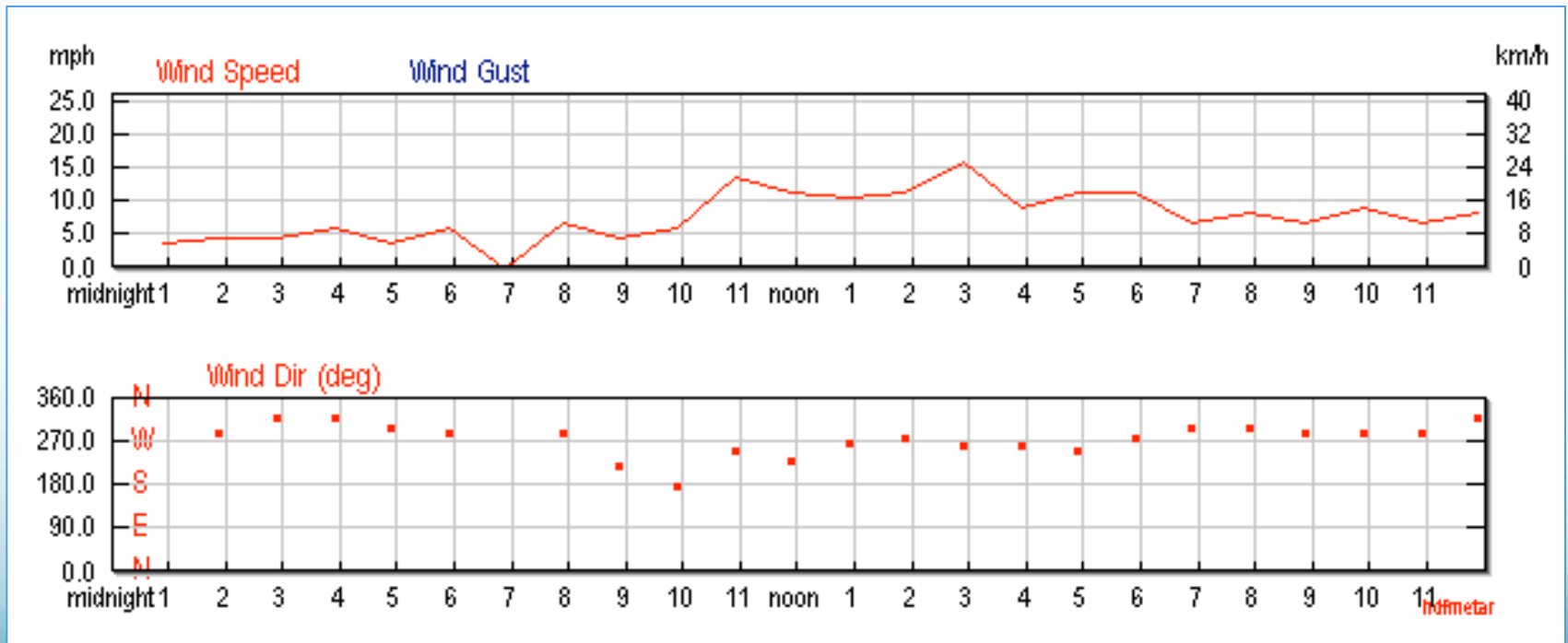
Total 33L Departures = 267

2 pm to 10 pm Departures = 222, average of 32 flights per hour

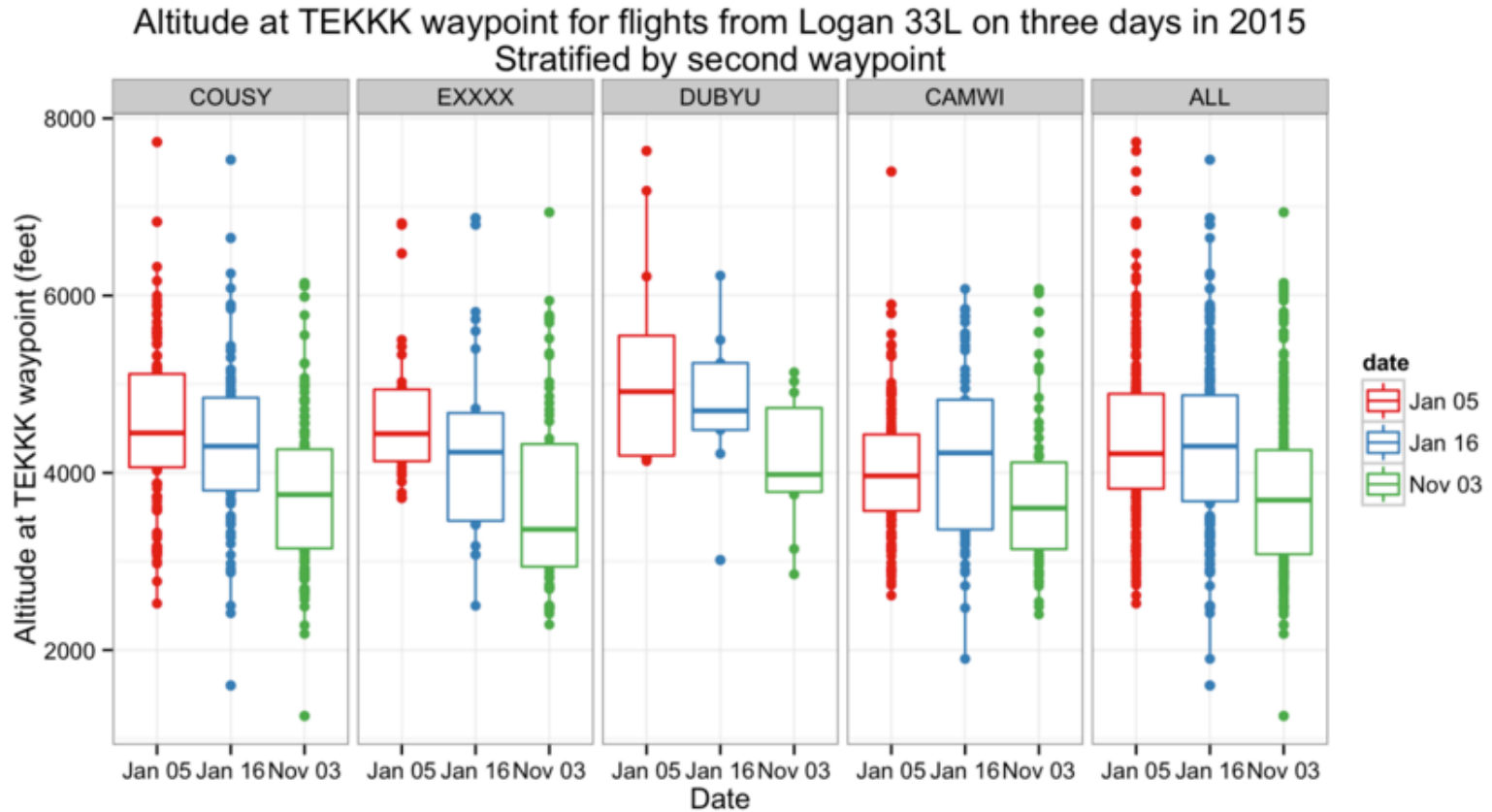
Weather on 11/3/15

Data from Weather Underground. Wind shifted to West at noon. Wind speed is the average for the hour. Peak wind speed was not available.

TIME	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
Wind Direction	Calm	WNW	SW	South	WSW	SW	West	West	West	West	WSW	West	WNW	WNW	WNW	WNW	WNW	WNW
Wind Speed	Calm	6.9 mph	4.6 mph	5.8 mph	13.8 mph	11.5 mph	10.4 mph	11.5 mph	16.1 mph	9.2 mph	11.5 mph	11.5 mph	6.9 mph	8.1 mph	6.9 mph	9.2 mph	6.9 mph	8.1 mph
Weather	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Clear	Clear	Clear	Clear	Clear	Clear	Clear



Altitudes at TEKKK



This chart plots the altitudes of flights comparing 11/3 to the two sample days from January. It clearly shows that the flights were flying at lower altitude.

Altitudes at TEKKK

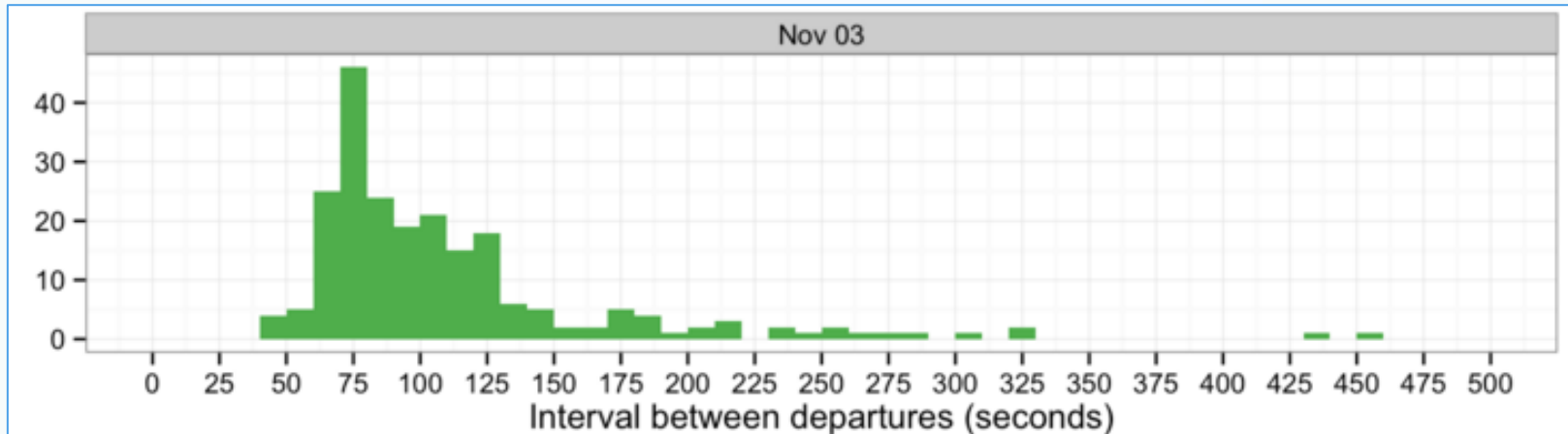
Median altitude at TEKKK, by date and second waypoint

	COUSY	EXXX	DUBYU	CAMWI	ALL
5-Jan	4450	4441	4917	3966	4216
16-Jan	4300	4233	4700	4225	4300
3-Nov	3754	3362	3981	3602	3692
CHANGE from 1/16	-546	-871	-719	-623	-608
	13%	21%	15%	15%	14%

- The flights on 11/3/15 were overall 15% or 608 ft. lower in median altitude than the flights on 1/16/15.
- 74.5% of Nov 3 flights were lower at TEKKK than 4225 feet, the median altitude on the other two days.

Flight Intervals

Between the hours of 2 pm and 10 pm



Between 2 pm and 10 pm on Nov. 3 there were 222 departures from 33L, an average of 32 departures per hour for seven hours. The average interval between flights was 113 seconds, just under two minutes. The median interval was 93 seconds - almost half of the departure intervals were less than a minute and a half, over a period of seven hours.

Conclusion & Actions

- On November 3rd, 2015 - a day when many residents complained of planes being too many, too low and too loud – the analysis of the flight path data compared to a day with a similar number of departures (1/16/15) shows that the flights on 11/3/15 were in fact at a higher frequency than previously experienced (32 flights avg. over 7 hours) and they were flying at a lower median altitude than the flights on 1/5 and 1/16.
- This analysis was submitted to Massport for review and we have requested an explanation for why the frequency was so high and why the flights were flying at lower altitudes.

**** Disclaimer ****

- Flight track data for 2015 is “raw” from Massport – has not been through their normal scrubbing and review.
- We are doing the analysis using volunteer resources – we are not aviation or noise experts but believe the information to be correct.
- The analysis and calculations were done with the time and tools available and may contain errors.