Noise and NextGen: Case Study of Boston Logan R33L RNAV SID

ACI-NA Environmental Affairs Committee

May 13-16, 2013

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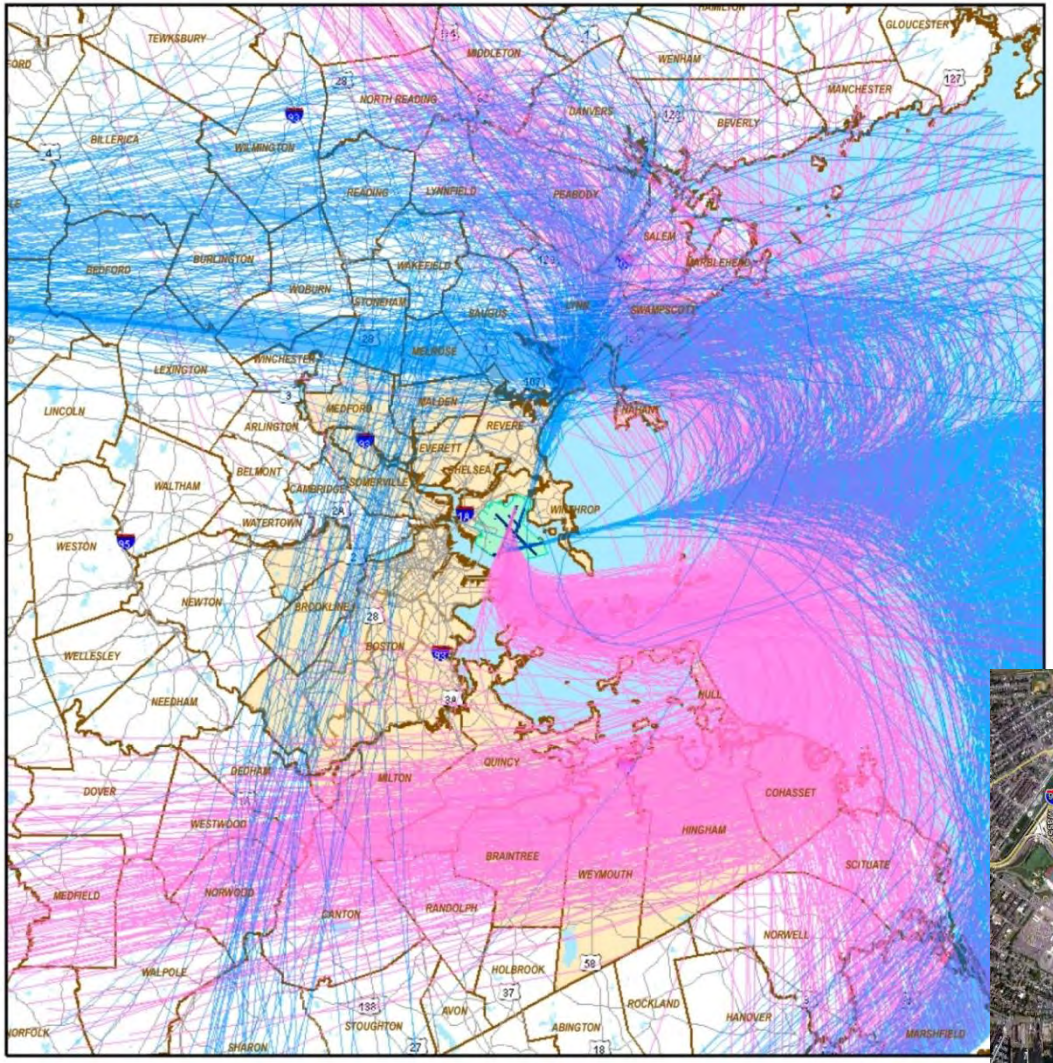
massport

Briefing Overview

- Boston Logan Operational Context
- RNAV Overview (Boston Logan)
- FAA RNAV Departure for Boston Logan's R33L

BOS Operational Context

- Wind/Weather
- Multiple/Crossing Runways
- Downtown Physical Obstructions
- Located Northeast US
  - NYC Airspace
- Noise Sensitive Area

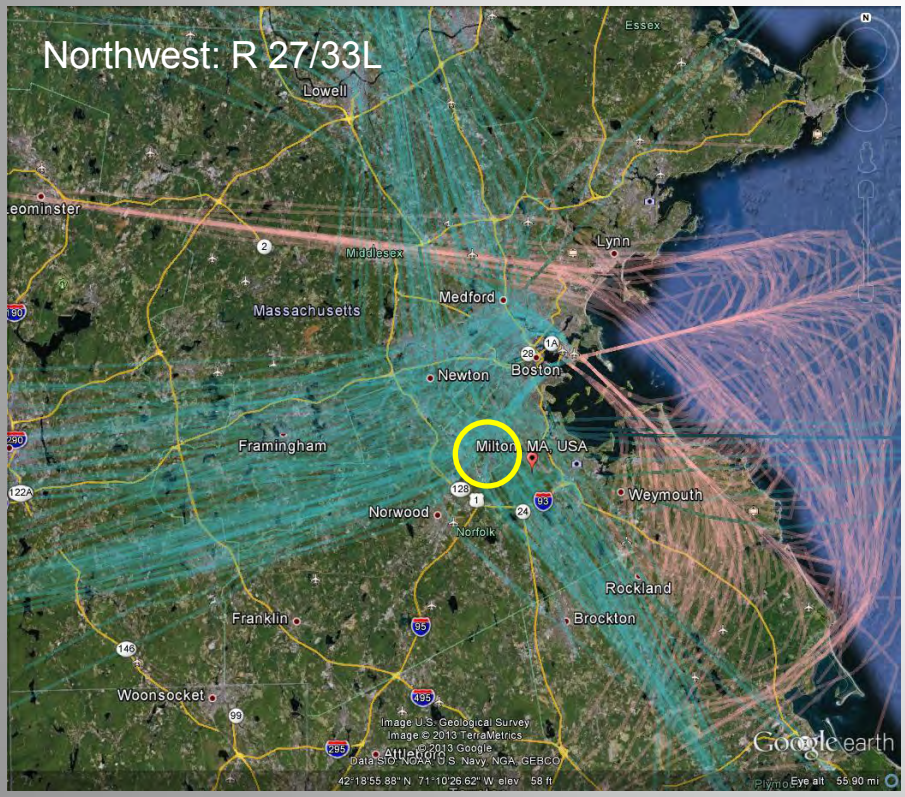


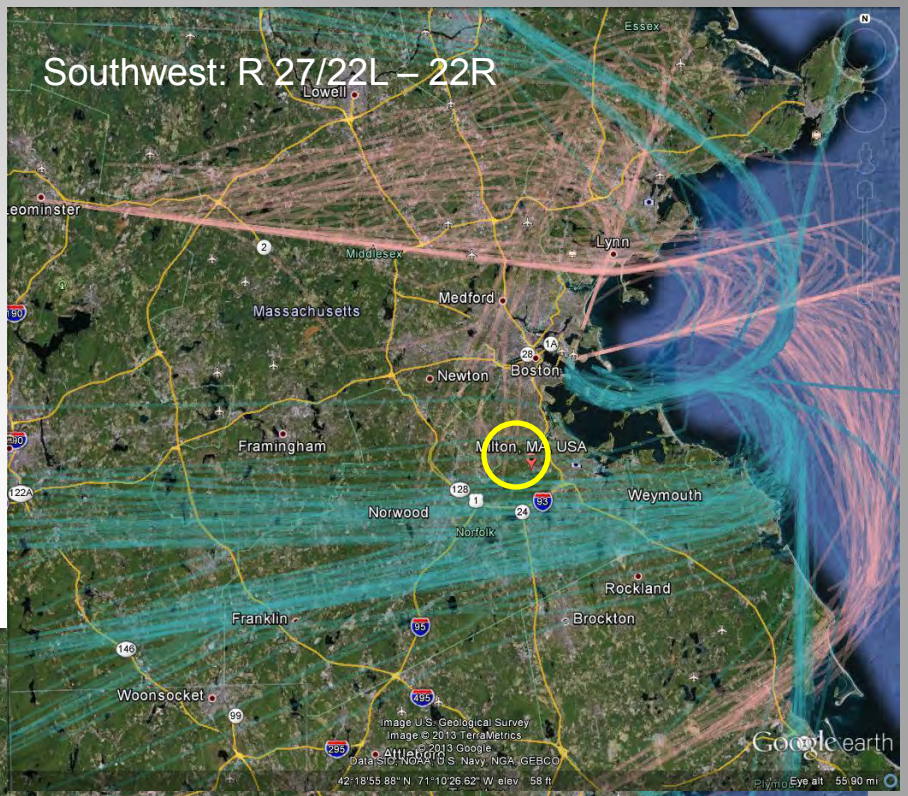
Example of Southwest Flow

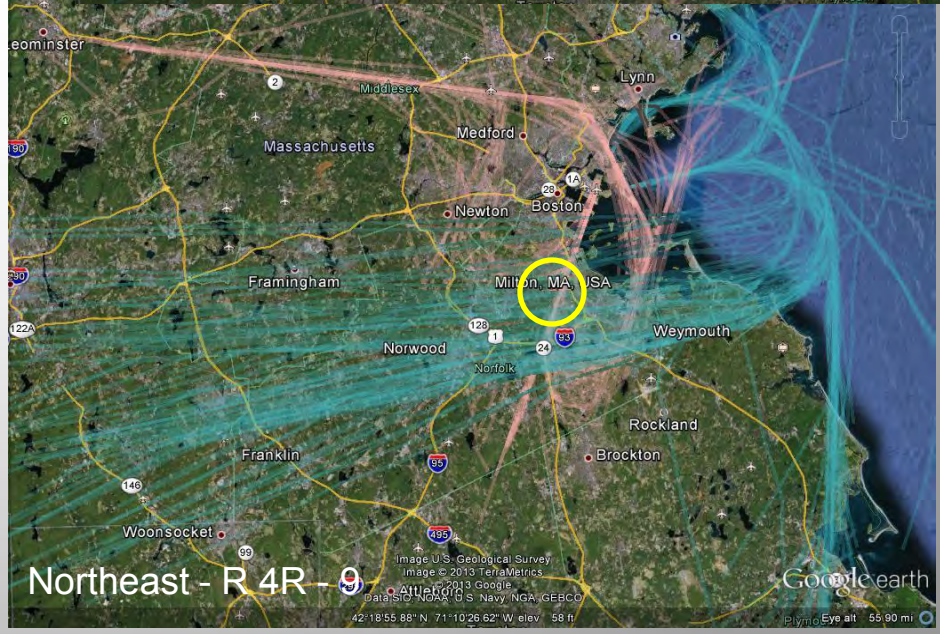
The FAA utilizes various flight corridors over Greater Boston determined by runways in use…

Example Milton Area

- Arrivals R4R/L, Departures R27 and R33L
- Aircraft altitudes range from 2,000’ - >10,000’







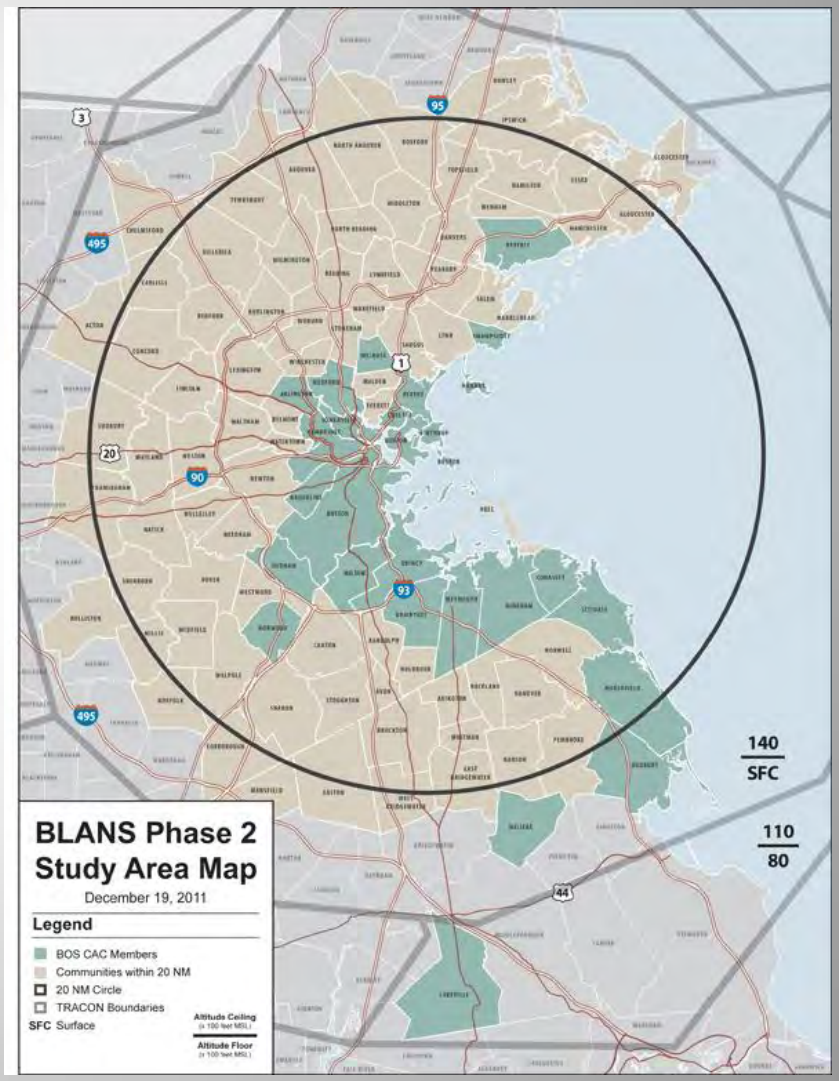
Source: Massport

Boston Logan Airport Noise Study, Overview

- FAA mitigation for approving new runway
- Began in 2002, $8.3M with extensive community involvement (including use of independent consultant)
- Conducted in Three Phase
  - Phase I, overflight changes including new RNAV procedures, minimal environmental concerns [completed]
  - Phase II, ground noise and environmental analysis [completed]
  - Phase III, Runway Use [underway]
- Jointly funded by FAA and Massport

Throughout the Noise Study (and RNAV development/implementation process) the Community Advisory Committee (CAC) has been the conduit for community input/outreach. The CAC represents over 30 communities around Boston Logan.

- Arlington
- Beverly
- Boston (Beacon Hill)
- Boston (Chinatown)
- Boston (South End
- Braintree
- Brookline
- Cambridge
- Charlestown
- Chelsea
- City of Boston
- Cohasset
- Dedham
- Dorchester
- Duxbury
- East Boston
- Hingham
- Jamaica Plain
- Lakeville
- Marshfield
- Medford
- Melrose
- Milton
- Nahant
- Norwood
- Quincy
- Roslindale
- Roxbury
- Scituate
- Somerville
- South Boston
- Swampscott
- West Roxbury
- Weymouth
- Winthrop



Within the context of the Noise Study, the FAA implemented RNAVs to/from Logan's RNAV capable runways (with the exception of the R33L SID)

RNAV SIDs (Departures)

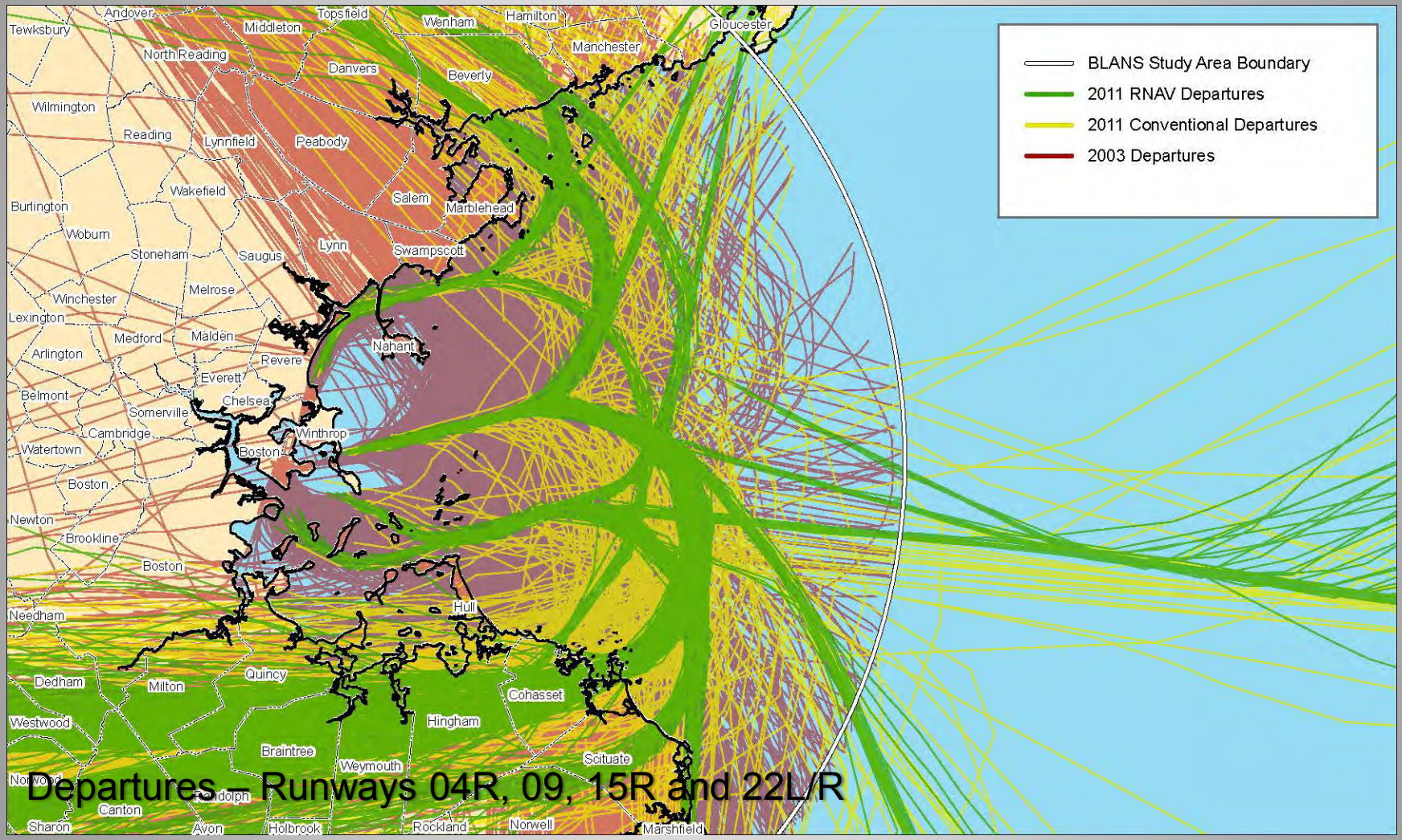
- Runway 9 2/10
- Runway 4R 5/10
- Runway 15R, 22R, 22L 11/10
- Runway 4R, 9, 15R, 22R\L, R27 3/11 (updated 3/13)

RNAV STARS (Arrivals)

- Runways 22L, 4L/R, 33L, 27 12/11

NOTE – RNAV SID R27 1st of this type procedure in US (1998)

BOS Noise Study Conventional vs. RNAV Departures

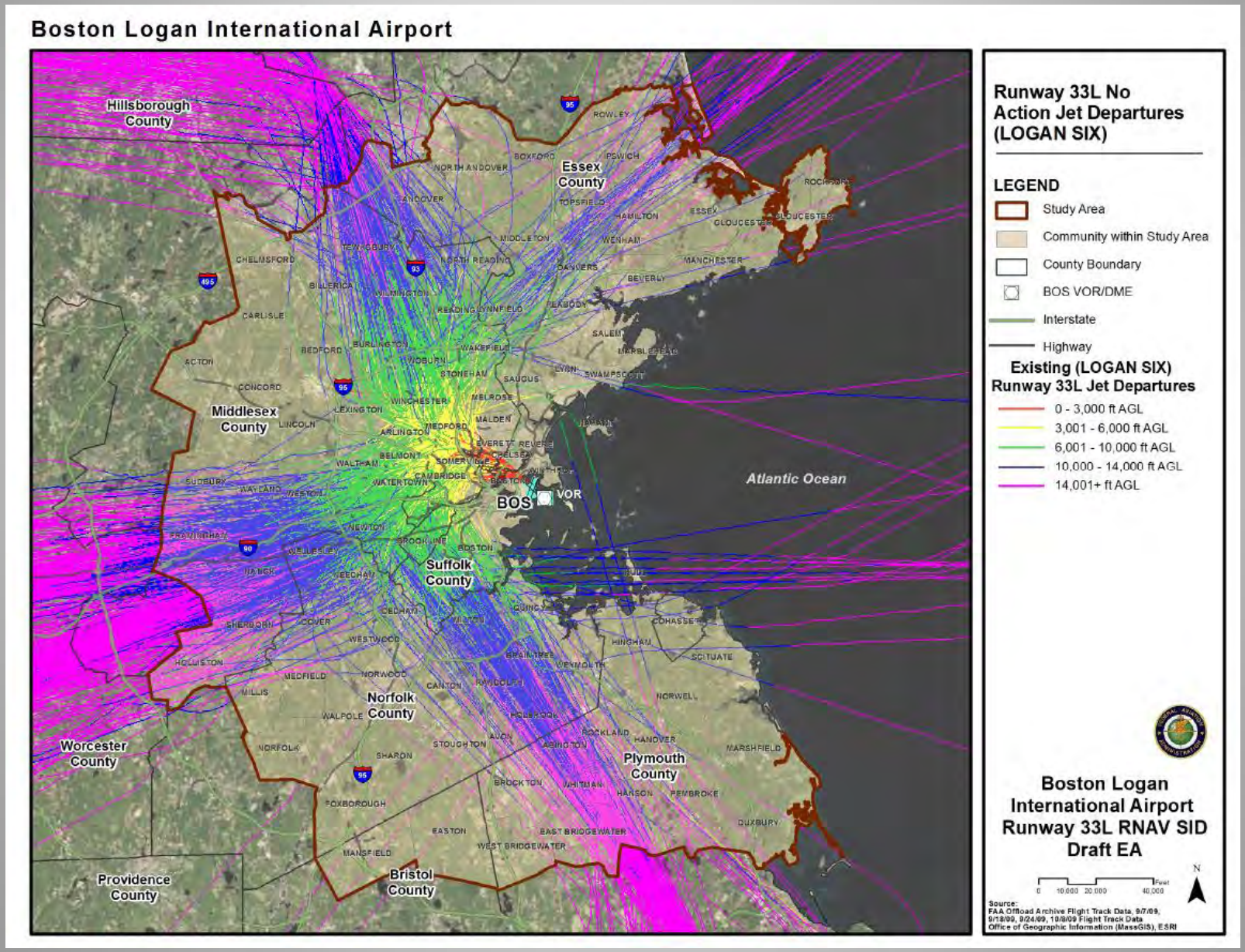


Departures – Runways 04R, 09, 15R and 22L/R

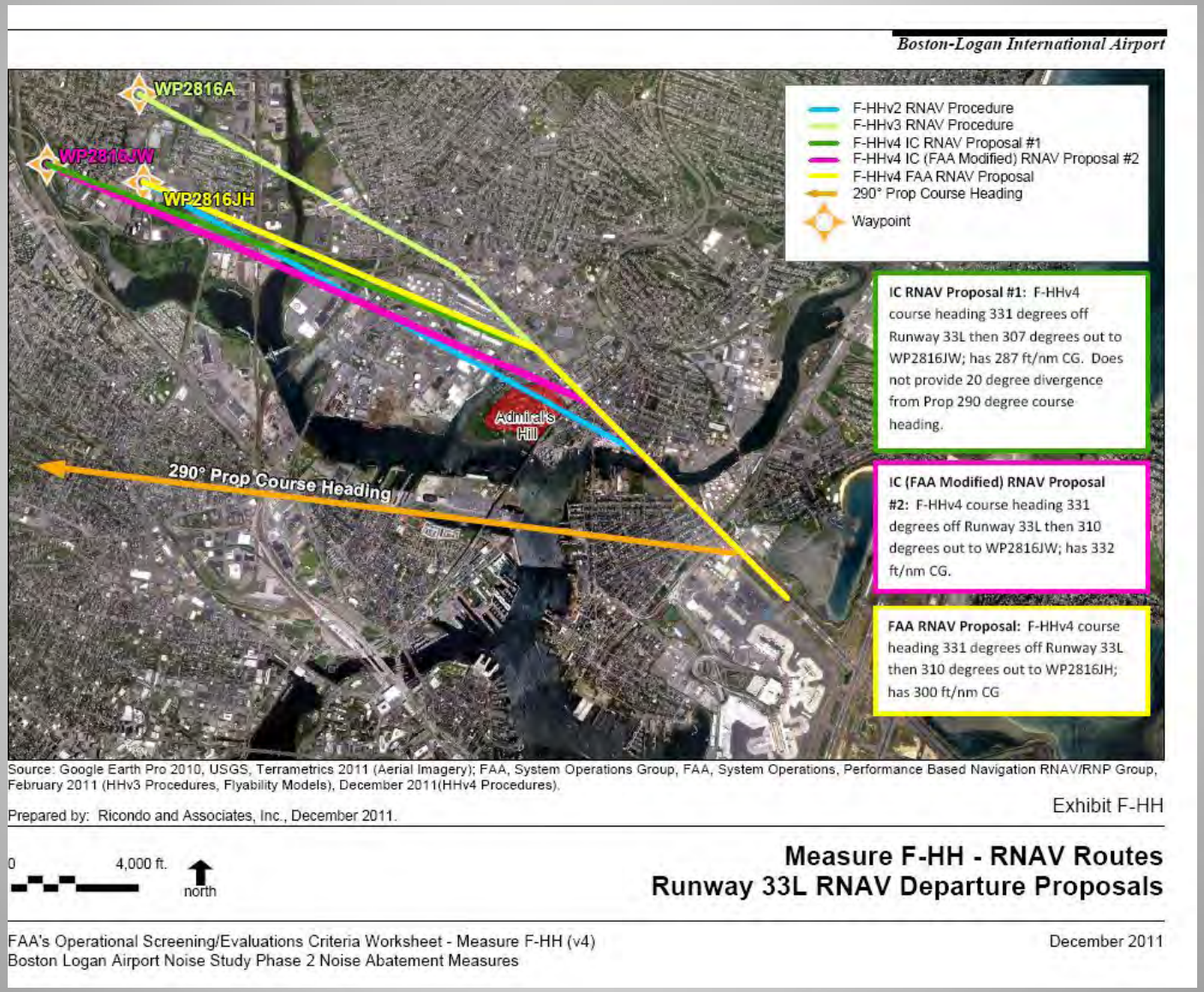
Runway 33L RNAV SID, context…

- Logan's Longest Runway, used in northwest flow
- Departures overfly dense urban area
- Increased runway use after new runway opened
- FAA alternative design process began March 2008
- CAC proposed alternatives to FAA
- FAA final design October 2012
- EA Issued Jan 2013 w/ CAC OK

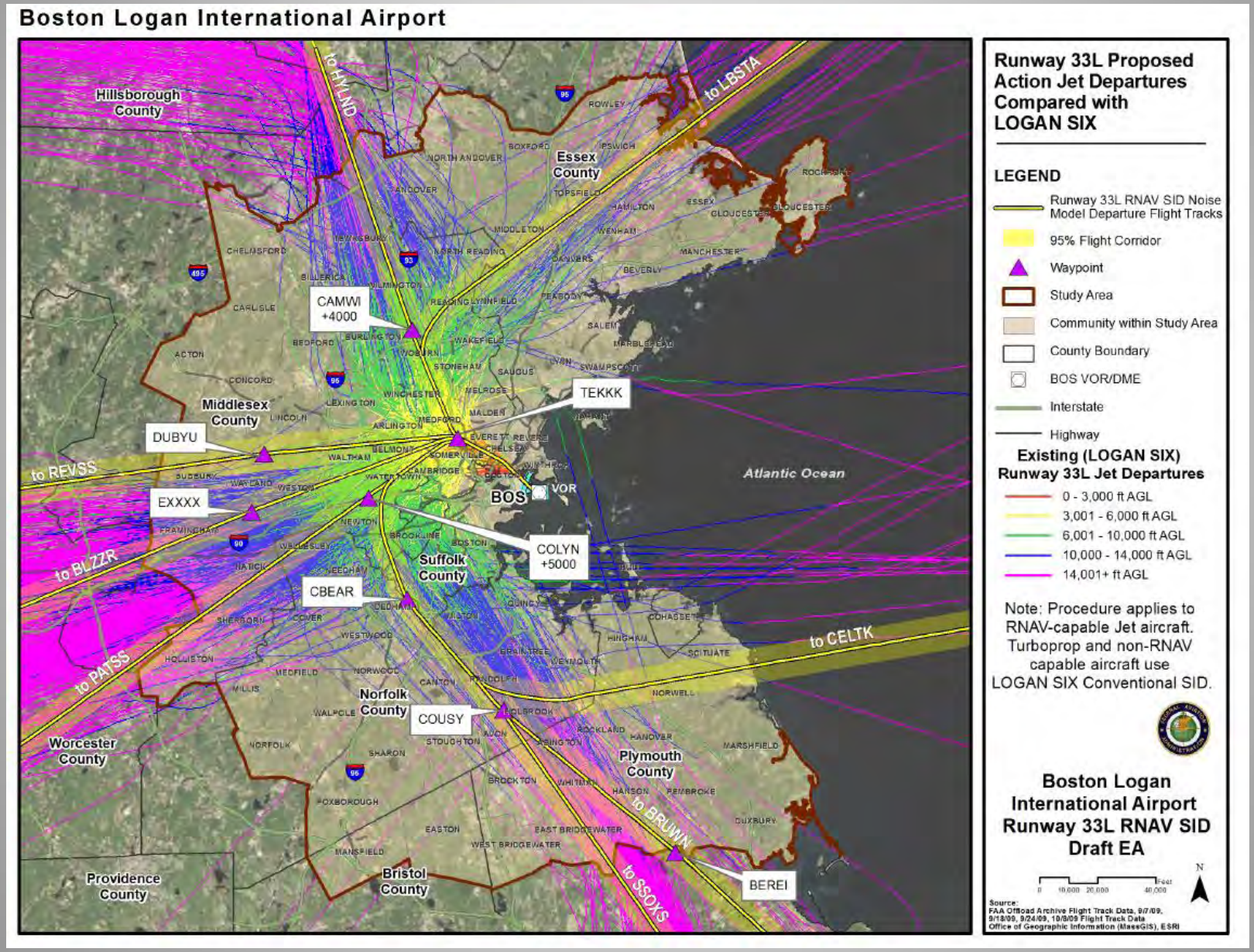
R33L Departures, after departing Logan overfly areas of East Boston, Chelsea, Everett, Medford and then turn north/northeast, west and south.



FAA & Community R33L RNAV Design Alternatives…



The FAA final R33L RNAV design was essentially an overlay…



The FAA initiated EA process

Federal Aviation Administration
Boston-Logan International Airport Runway 33L
RNAV SID Environmental Assessment

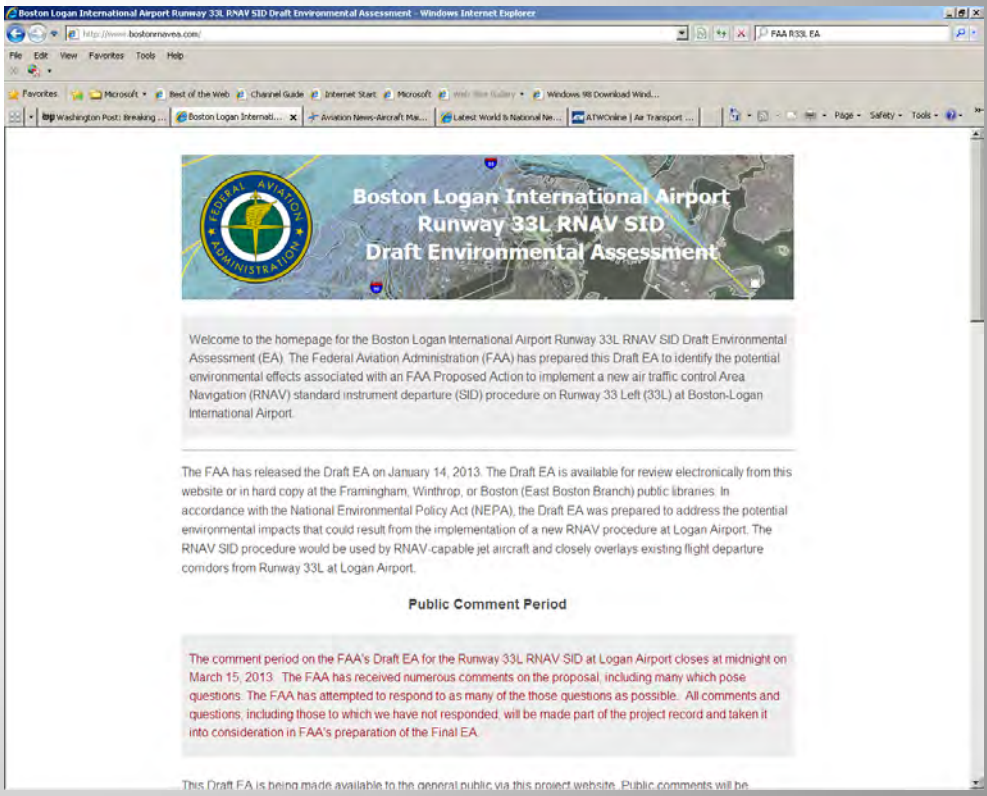
The Federal Aviation Administration (FAA) released the Draft Environmental Assessment (EA) to implement a new air traffic control Area Navigation (RNAV) departure procedure on Runway 33 Left (33L) at Boston-Logan International Airport on January 14, 2013. The Draft EA is available for review online at www.bostonRNAVEA.com or in hard copy at the Framingham, Winthrop, or Boston (East Boston Branch) Public libraries.

In accordance with the National Environmental Policy Act (NEPA), the Draft EA was prepared to address the potential environmental impacts that could result from the implementation of a new RNAV procedure at Logan Airport. The RNAV standard instrument departure (SID) procedure would be used by RNAV-capable jet aircraft and closely overlays existing flight departure corridors from Runway 33L at Logan Airport. Detailed noise analysis was conducted for the Proposed Action in accordance with FAA environmental requirements, and is presented in the Draft EA.

The FAA encourages interested parties to review the Draft EA and provide comments during the public comment period. Written comments will be accepted by the FAA until **February 15, 2013**. The public is invited to comment by mail or email to the following address:

Ms. Terry English
Project Manager
Federal Aviation Administration
11 Murphy Drive
Nashua, NH 03062
Terry.English@faa.gov

FAA public notice.



FAA website http://www.bostonrnavea.com/.

FAA EA analysis showed that the new 33L RNAV procedure would be beneficial or have minimal impacts from a noise perspective

- No increase of 1.5 or more DNL values located within the 65 DNL area or higher
- No increase of 3.0 or more DNL values located between 60 and 65 DNL areas
- No increase of 5.0 or more DNL values between 45 and 60 DNL areas

- Overall altitudes over communities would stay the same or increase as the corridor is further from the airport
- Certain communities would see a concentration of flights resulting from the more precise procedure
- However, the FAA projected noise changes as perceived from the ground to be negligible, not triggering any threshold of significance

Source: FAA Draft EA R33L RNAV

FAA provided supplemental information in the EA based on CAC input-

Population Change to Noise Exposure by Community Action vs. No Action

Greater Boston Region Population Exposed to Noise Levels Between 45 & 65 DNL	
No Action	1,076,919
Action	1,009,073
Change	(67,846)

Source: FAA Draft EA R33L RNAV

Boston Logan International Airport Runway 33L RNAV SID Draft Environmental Assessment
Population Results (2015 No Action and 2015 Proposed Action)
for Populated 2010 Centroids Above 45 DNL

For Discussion Purposes Only (February 6th, 2013)

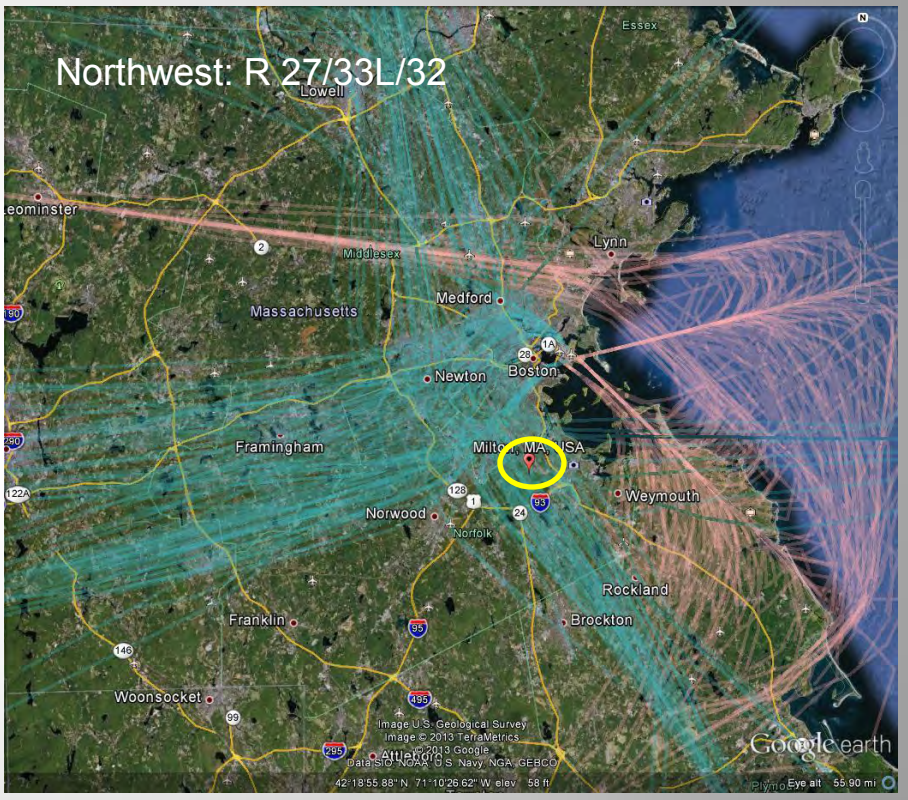
ID	Town	Total Population	No Action Population exposed to 45 DNL or Greater	Proposed Action Population exposed to 45 DNL or Greater	Net Change Exposed to 45 DNL or above
1	ARLINGTON	42,552	16,219	20,298	4,079
2	BELMONT	24,537	20,703	23,308	2,604
3	BOSTON, Allston/Brighton	55,425	33,118	0	(33,118)
4	BOSTON, Back Bay	16,053	14,643	11,880	(2,762)
5	BOSTON, Bay Village	2,392	2,392	2,392	0
6	BOSTON, Beacon Hill	9,603	9,603	9,603	0
7	BOSTON, Charlestown	16,309	16,309	16,309	0
8	BOSTON, Chinatown	4,345	4,345	4,345	0
9	BOSTON, East Boston	40,283	40,283	40,283	0
10	BOSTON, Fenway/Kenmore	22,312	9,151	5,091	(4,059)
11	BOSTON, Financial District	3,755	3,755	3,755	0
12	BOSTON, Government Center	62	62	62	0
13	BOSTON, Harbor Islands	0	0	0	0
14	BOSTON, Hyde Park	31,596	881	264	(617)
15	BOSTON, Jamaica Plain	38,457	28,290	18,830	(9,461)
16	BOSTON, Mattapan	34,144	30,070	27,703	(2,367)
17	BOSTON, North Dorchester	26,431	26,431	26,431	0
18	BOSTON, North End	11,211	11,211	11,211	0
19	BOSTON, Roslindale	31,765	23,192	22,665	(527)
20	BOSTON, Roxbury	59,174	59,174	59,174	0
21	BOSTON, South Boston	33,022	33,022	33,022	0
22	BOSTON, South Dorchester	59,258	59,258	59,258	0
23	BOSTON, South End	31,555	31,555	31,555	0
24	BOSTON, West End	4,479	4,479	4,479	0
25	BOSTON, West Roxbury	29,785	556	106	(450)
26	BRAINTREE	35,199	0	0	0
27	CAMBRIDGE	88,057	87,487	60,402	(27,085)
28	CANTON	21,246	173	245	72
29	CHELSEA	34,496	34,496	34,496	0
30	COHASSET	7,463	4,044	3,723	(321)
31	EVERETT	41,466	41,466	41,466	0
32	HINGHAM	21,893	1,148	1,145	(3)
33	HULL	10,294	9,359	9,359	0
34	LYNN	89,498	74,765	73,243	(1,523)
35	MALDEN	59,073	44,941	46,394	1,453
36	MEDFORD	54,233	53,569	53,713	144
37	MELROSE	26,716	0	0	0
38	MILTON	25,488	16,890	15,970	(920)
39	NAHANT	3,357	1,687	1,636	(51)
40	NEWTON	78,048	3,417	2,934	(483)
41	PEABODY	50,739	7,908	7,708	(200)
42	QUINCY	90,875	28,830	25,896	(2,934)
43	RANDOLPH	31,783	3,129	3,725	596
44	REVERE	51,469	50,894	49,241	(1,653)
45	SALEM	39,570	1,814	1,629	(185)
46	SAUGUS	26,306	3,550	2,013	(1,537)
47	SCITUATE	17,947	4,635	4,428	(207)
48	SOMERVILLE	73,481	73,481	73,481	0
49	STONEHAM	21,194	0	0	0
50	SWAMPSCOTT	13,609	639	402	(237)
51	WALTHAM	53,952	0	6,584	6,584
52	WATERTOWN	31,691	29,346	30,857	1,511
53	WINCHESTER	21,051	3,103	8,912	5,809
54	WINTHROP	17,445	17,445	17,445	0
		1,776,148	**1,076,919**	**1,009,073**	**(67,846)**

Source: HNTB Analysis, 2013

Table Notes:
DNL values represent the cumulative noise level from all operations on all runways.
DNL values are reported for populated US Census Block centroids within each community.
No significant impact, per FAA Order 1050.1E would result from the Proposed Action.
Additional information is available in Chapter 4, Section 4.1 of the Draft EA.

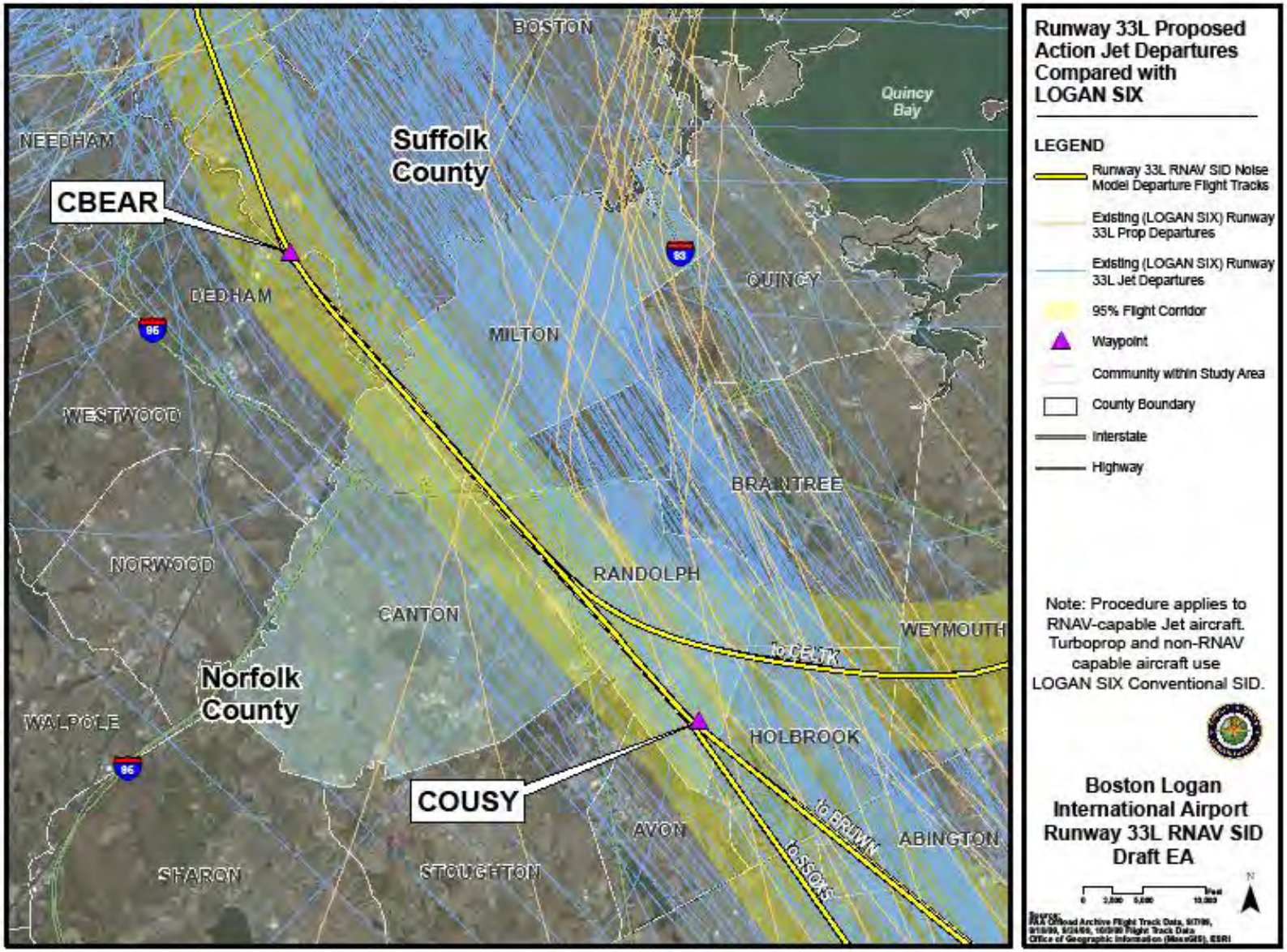
Community Case Study – Town of Milton

- No federal threshold of significance triggered
  - Projected Noise Change -0.4 to +0.5 DNL – not significant
- Decrease in population exposed to noise levels (-920 people)
- Expect increase in average altitude from 10,000 ft. to 11,000ft./12,000 ft.
- Increase in average flights per day by +2.0



Source: Massport

Boston Logan International Airport

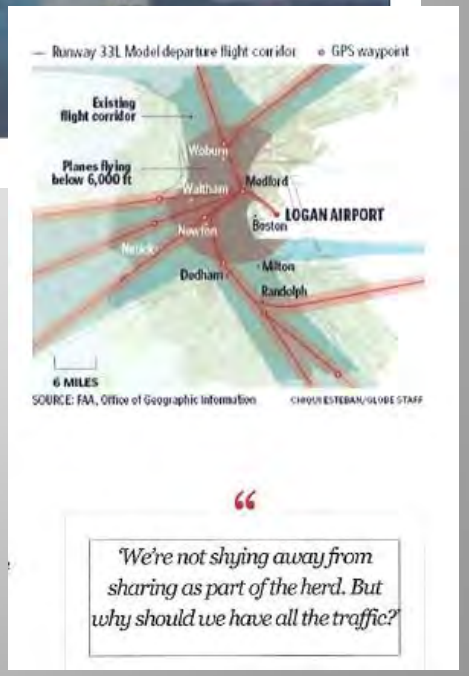


Public Response…

- Confusion through press accounts
- Local and state community leaders engaged
- FAA limited communication to elected officials and public given EA process

Noise worry holds up Logan flight path plans

By Martine Powers | GLOBE STAFF MARCH 11, 2013



"We're not shying away from sharing as part of the herd. But why should we have all the traffic?"

Massport's strategy: focused engagement with elected officials, public and media

- Briefings to state house officials
  - FAA agreed to attend one meeting
- Briefings to local town officials
- Coordinated with FAA (local and DC)
- FAA agreed to
  - extend comment +30 days
  - conduct re-evaluation after 6 mo
- FAA ROD expected in late May

The Boston Globe **Editorials**

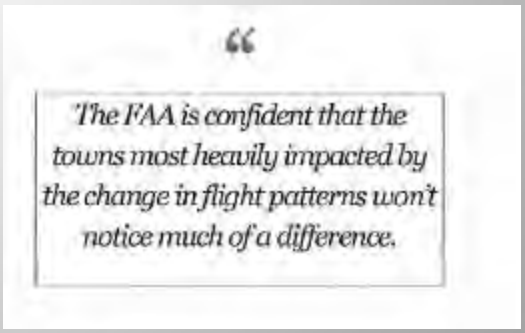
EDITORIAL

Too much airplane noise? Towns should wait and listen

MARCH 23, 2013

TO SAVE fuel and limit pollution, the Federal Aviation Administration is streamlining its air traffic patterns around the country. At close-in Logan Airport, the rerouting of thousands of flights per week is already raising concerns in some neighborhoods. This is a perennial problem: Airport noise has been a source of passionate protests dating back more than 40 years. But today's angry neighbors should wait and listen before raising sweeping objections: The current generation of airliners is far less noisy than its predecessors, and the FAA is confident that the towns most heavily impacted by the change in flight patterns won't notice much of a difference.

One of the new flight paths for planes taking off to the north will include a quick left turn that would send more air traffic over a relatively narrow swath of Dedham and Milton, where neighbors are aggressively petitioning against the change. But by the time the flights reach that corridor, they will already be at 10,000 feet, a height at which relatively little noise can be heard on the ground, according to the FAA.



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