

Airplane Noise Update

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Robbins Library. Arlington. MA

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Headlines

- We are living with the results of a system and bureaucracy (the FAA) that is funded by Congress but is for the most part self-regulating.
- The FAA to-date has shown no willingness to have a conversation with affected communities about the noise (and potential health) issues we are experiencing as a result of 33L RNAV and potential remedies or alternatives since they have determined that the shifted/concentrated noise does not constitute a “*significant impact*”.
- Noise metrics are antiquated and inappropriate for characterizing the effects of concentrated RNAV flight paths.
- There is a “**credibility gap**” between what the FAA’s analysis for noise exposure is claiming and what residents are experiencing.
- We have strong alignment among our communities - Arlington, Belmont, Cambridge, Watertown (and hopefully to be joined by others). Our State Legislators and our Congressional delegation have been very supportive.
- We are awaiting an official reply from the FAA to a Jan, 2015 motion from the Logan CAC requesting the reexamination of 33L RNAV.

System is broken

- Residents on the ground under flight paths that do not qualify for noise abatement (< 65 DNL) appear to fall into a **regulatory void**.
- There appears to be no State Agency that represents the interests of Massachusetts citizens when it comes to airplane noise and pollution from Logan. The Logan CAC is an independent non-profit recognized by the FAA and Massport. A new Massport CAC with a broad charter beyond Logan and noise has been established by the Legislature and is in the formation stages.
- No Agency – Federal or State – appears to have oversight or authority over the actions of the FAA – only Congress. The EPA was pushed out of the picture in 1981 when the noise office was de-funded.
- MA Department of Environmental Protection (DEP) does not appear to address issues with airplane noise and pollution
- Millions of dollars appear to have been spent studying noise over the years but no new metrics or assessment methods have been adopted.

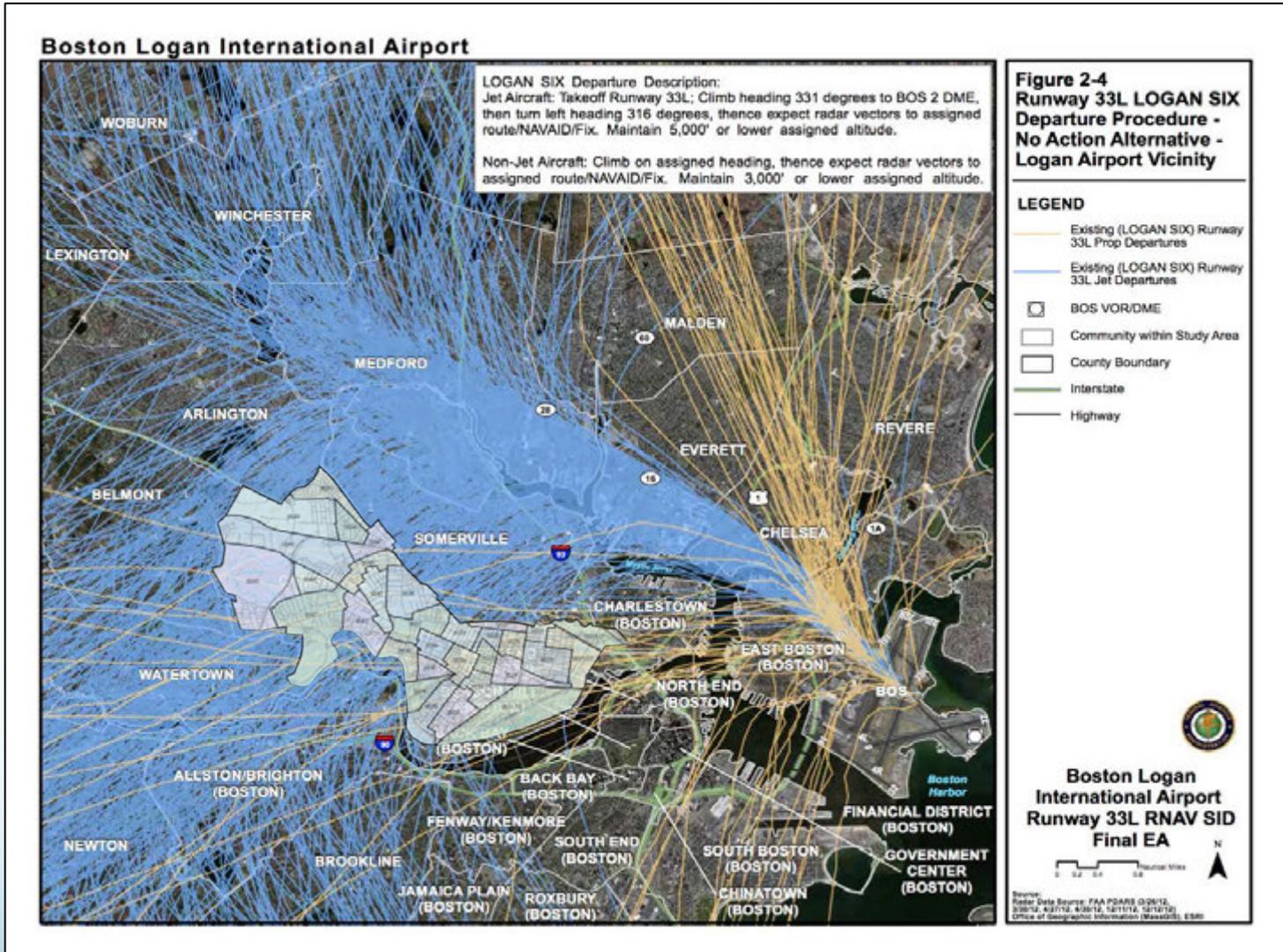
Flight Paths

**SOURCE: FAA 33L RNAV SID Environmental Assessment (EA)
and Finding of No Significant Impact (FONSI)**

<http://bit.ly/FinalBOS33LRNAVEAMay2013>

<http://bit.ly/Runway33LRNAVFONSI-ROD>

Before – Highlight on Cambridge

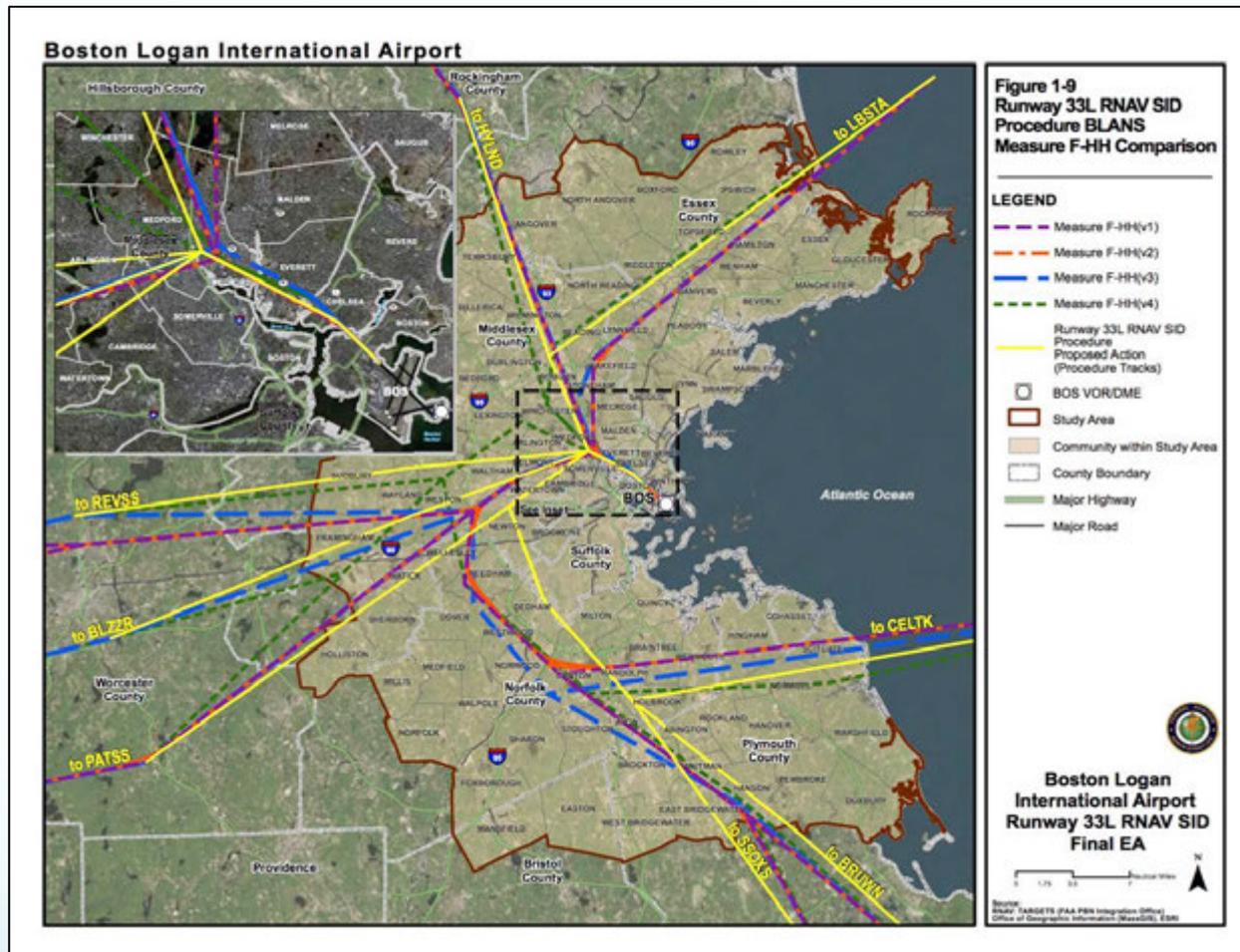


Cambridge (map shown) for example had flights distributed over most parts of the city.

NextGen & RNAV

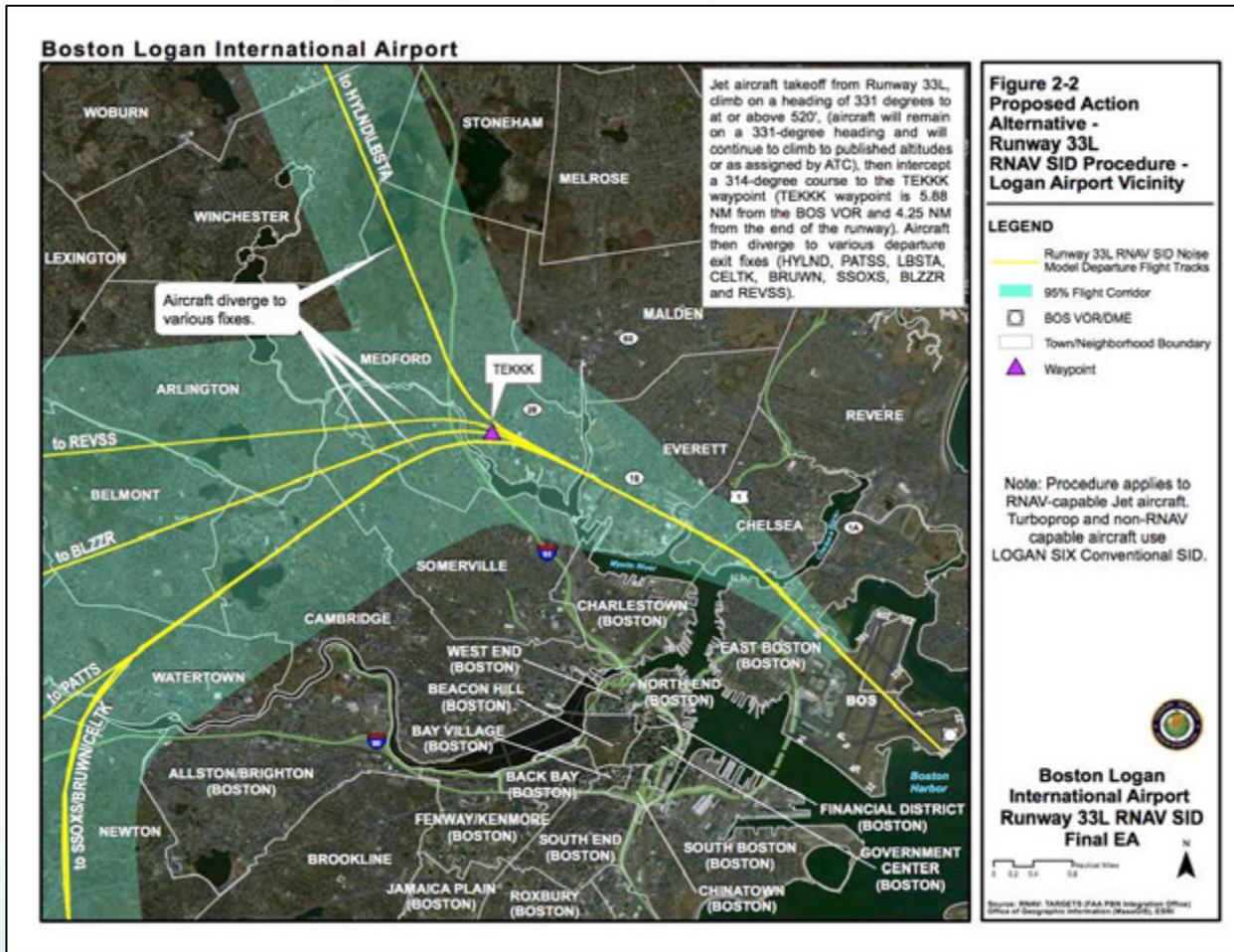
- FAA multi-year, many billions of dollars national air space modernization program started – planning started in the late '90's – early 2000's
- Shift from radar-based to satellite-based systems for air traffic control (ATC)
- Satellite-based systems are safer and allow for more automated and efficient management of the airspace
- Enables planes to fly closer together on a common flight path (Area Navigation or RNAV)
- Reduces ATC manual control

Many Alternatives Considered



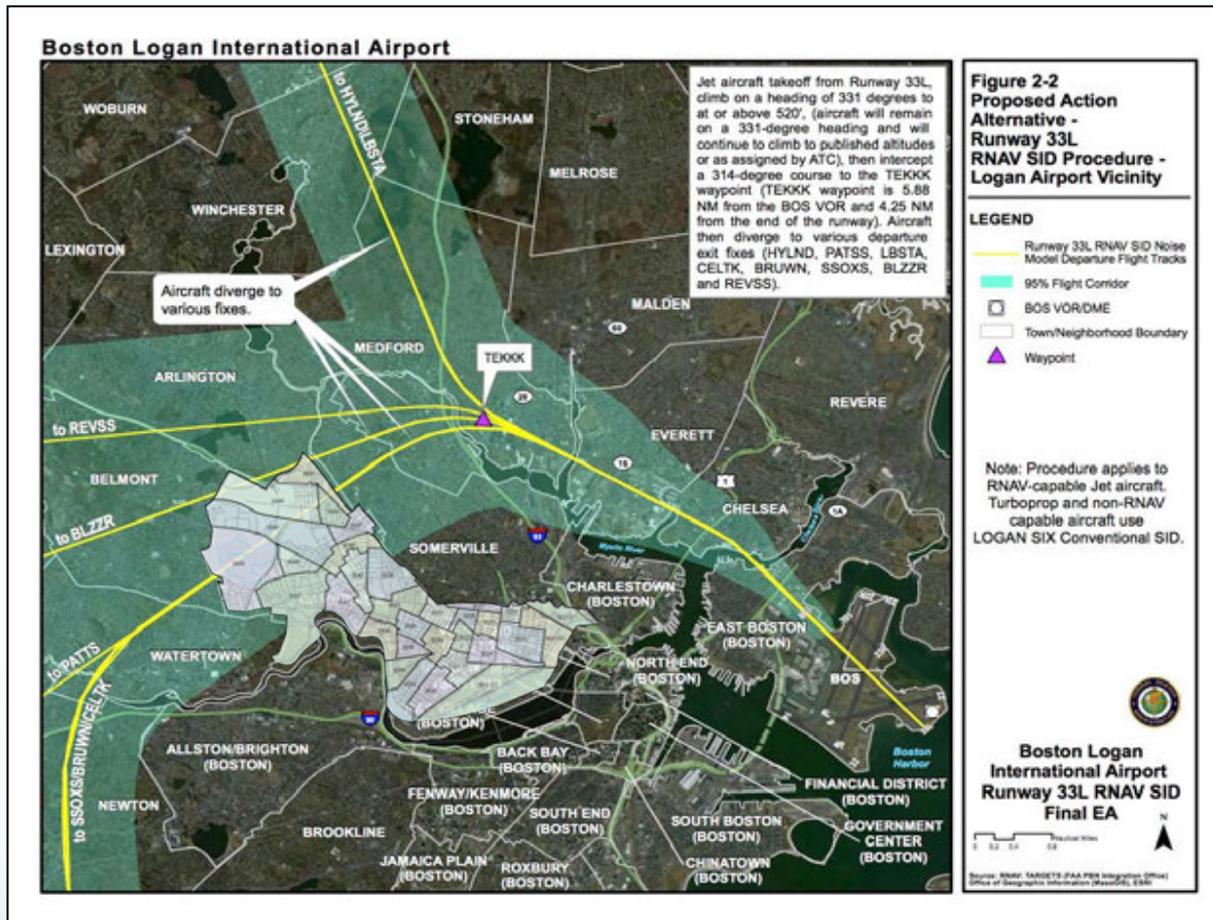
Over a multi-year (2008-2012) effort under the Boston Logan Airport Noise Study (BLANS) – multiple options of deploying RNAV for runway 33L departures were evaluated and considered

Adopted Flight Paths



The procedure illustrated above was offered by the FAA as the best and most feasible alternative that met both CAC and FAA goals and was adopted in 2012 and approved by a vote of the Logan CAC

Adopted Flight Paths



As you can see by overlaying the map of Cambridge on the proposed RNAV paths – the flights are concentrated to the North while other parts of the city are no longer affected

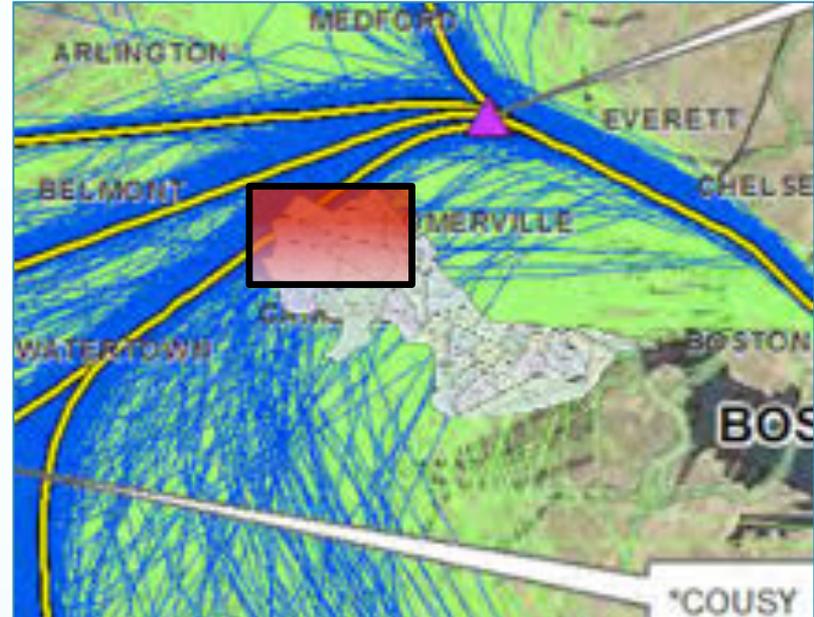
Cambridge Before/After

BEFORE RNAV



Total Population: 88,057
Population exposed to 45 DNL or Greater: 87,487

AFTER RNAV

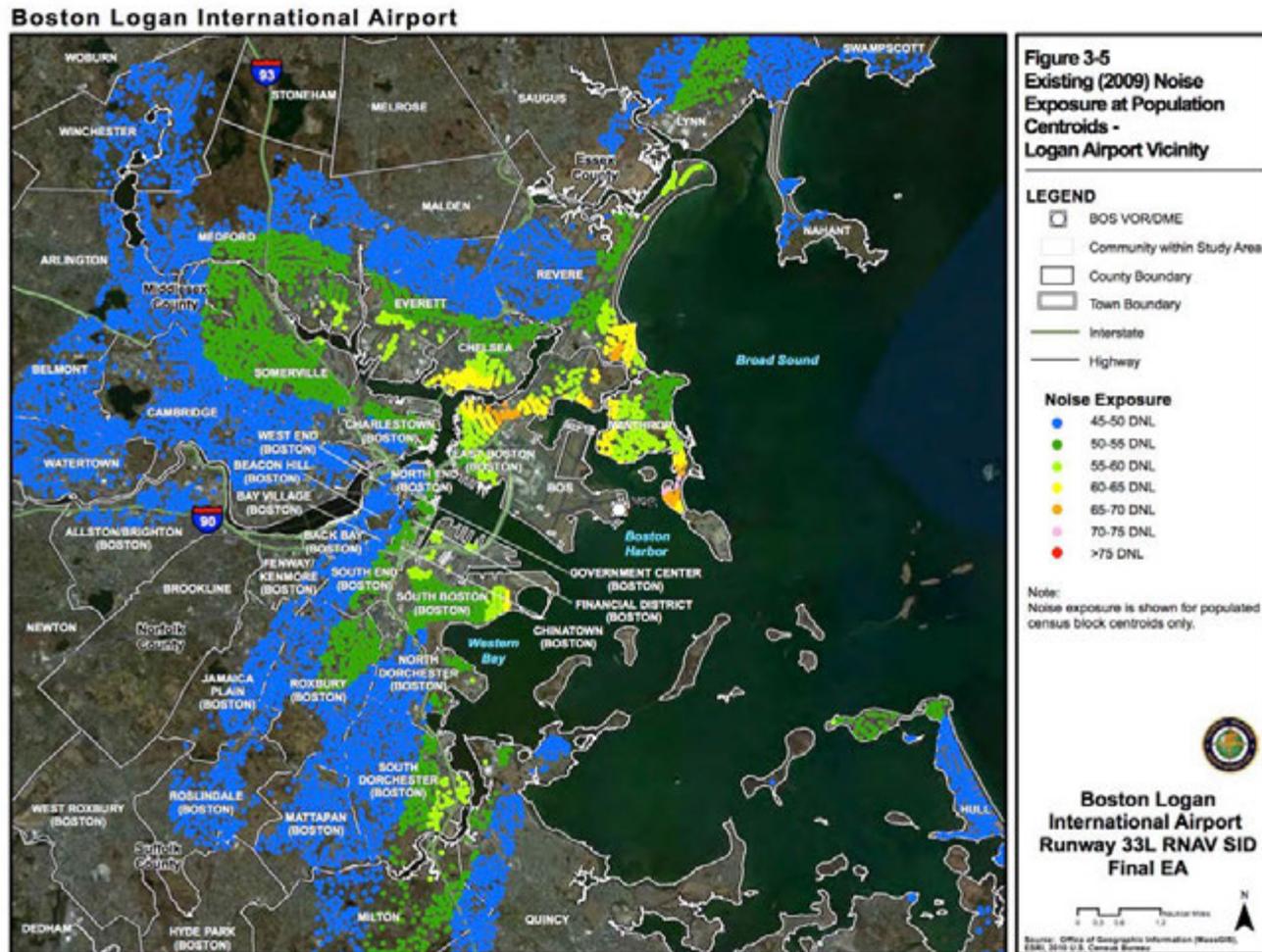


EA model projections of population exposed to 45 DNL or Greater: 60,402 a reduction of -27,085

By shifting and concentrating the flight paths (and noise) to the North – 33L RNAV was able to reduce the number of Cambridge residents exposed to noise above 45 DNL – but is this fair to those residents in the red box who now get the majority of the noise?

Noise Metrics

Logan Noise Contours



Residents above 65 DNL (orange or red) may qualify for Noise Abatement

Noise Metrics - DNL

- Day Night Average Sound Level (DNL). DNL is the standard Federal metric for determining cumulative exposure of individuals to noise. In 1981, FAA formally adopted DNL as its primary metric to evaluate cumulative noise effects on people due to aviation activities. Developed in a radar-controlled world.
- DNL noise levels are calculated for the **average annual daily operations for the year** of interest. The noise analysis is conducted for the **entire Study Area** up to an altitude of 14,000' MSL

“Significant Impact”

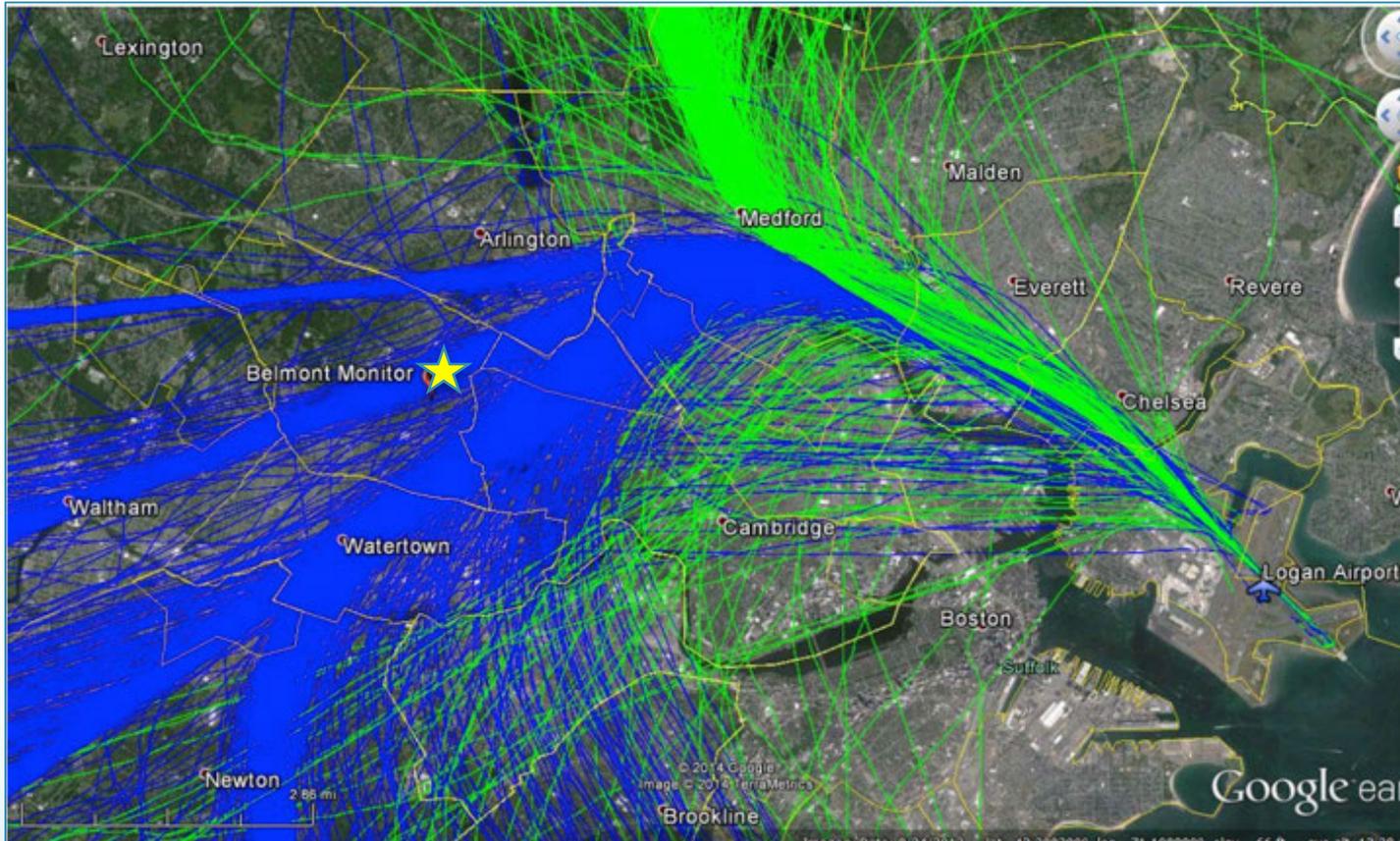
Definitions from the rules governing determination of “significant impact” in an FAA Environmental Assessment:

- A significant impact would occur if a proposed action would result in an **increase of 1.5 DNL** or more in any noise-sensitive area at or above the 65 DNL exposure level when compared to the No Action Alternative for the same timeframe.
- Increases of 3 DNL between 60 and 65 DNL are to receive consideration when evaluating the environmental impacts of a proposed project, and will be identified regardless of whether a significant impact is identified.⁵ Increases of 5 DNL or greater at levels between 45 and 60 DNL are to be disclosed. The increase in noise at these levels is enough to be noticeable to some people, but the cumulative noise level is not high enough to constitute a “significant impact.”
- **NONE OF THESE THRESHOLDS WERE FOUND TO BE EXCEEDED BY THE FAA ANALYSIS OF 33L RNAV SID.**

FAA-sponsored Handbook

- **ACRP REPORT 15 - Aircraft Noise: A Toolkit for Managing Community Expectations**
 - *“Cumulative aircraft noise contours often are challenged by airport neighbors as not representing what can be heard and measured every time an aircraft flies over their home. Long duration measurements and computer technology may indicate the contour patterns are accurate for the community, but they fail to capture the discrete nature of the single events that people actually identify and complain about.”*
- The report goes on to suggest a number of alternative metrics such as Lmax, SEL, N Above, Time Above... that could be used to supplement DNL in analysis of noise exposure.
- None of those alternative metrics were considered in the evaluation of noise exposure impact for 33L RNAV.
- Source: Page 114 - http://onlinepubs.trb.org/onlinepubs/acrp/acrp_rpt_015.pdf

Belmont Noise Study



Massport deployed a noise measurement system on Louise Rd. in Belmont – Feb/Mar 2014. Location directly under RNAV path during a month of high use of 33L for departures. Flights average 6300 ft. altitude. Analysis found that DNL was **less than 45 DNL**.

Net Noise Reduction

- Though not required – the 33L RNAV SID EA looked at the population exposed to DNL levels above 45 DNL throughout the Study Area
- The EA for 33L RNAV showed a net noise reduction of **<67,846>** fewer people exposed to noise levels above 45 DNL
- **9 communities saw increases:** Arlington, Belmont, Canton, Malden, Medford, Randolph, Waltham, Watertown and Winchester (biggest increase = Waltham: +6,584)
- **21 communities saw decreases:** (Allston/Brighton = <33,118>, Cambridge = <27,085>)
- Source: Table 4.6: Runway 33L RNAV SID EA:
<http://bit.ly/1cIXFDI>

Studies to Nowhere

- It appears that the FAA has been very slow in acting or moving forward on any studies or recommendations on the topic of noise measurement or standards even though there have been dozens of studies dating back to 2000 and before
- It has established or funded groups like:
 - AIRPORT COOPERATIVE RESEARCH PROGRAM (ACRP)
 - ASCENT - FAA CENTER OF EXCELLENCE FOR ALTERNATIVE JET FUELS & ENVIRONMENT (MIT & UWash)
 - FICAN The Federal Interagency Committee on Aviation Noise
 - PARTNER — the Partnership for AiR Transportation Noise and Emissions Reduction (MIT)
- They all have in their charters to study and make recommendations about noise exposure and they have published numerous reports on the noise and environmental issues

Need for independent analysis

- City of Phoenix funded a 4 week noise study that created some eye-opening data.
- Showed a more than 10 dB difference in Lmax and SEL from measurement locations under a new RNAV flight path and those approx. 10,000 feet away. That is significant.
- We need to be able to illustrate with some level of scientific integrity what residents under RNAV paths are experiencing and that **it is significant to them.**
- Data collection, modeling, video/audio evidence.

Options

- Study needs to be designed to take into account the repetitive and concentrated nature of RNAV paths
- Get the FAA to agree to look at effects of 33L RNAV on residents and neighborhoods under new flight paths
- Citizen-led effort? Probably the fastest way but need a team of committed (and technically savvy) volunteers
- Hire a 3rd party noise consulting firm like they did in Phoenix - but it will be expensive (\$50K?)
- Get Massport to collaborate and submit an ACRP study request (Airport Cooperative Research Program <http://www.trb.org/ACRP/ACRP.aspx>)

FAA Goals & Targets

- The Federal Aviation Administration FY 2016 President's Budget Submission under the Office of Policy, International Affairs, and Environment (APL) are listed the following targets.
- APL Targets (On page 45 – Document here: (<http://1.usa.gov/1SHzYgp>) – APL maintains three specific planning targets. These include:
 - Noise Exposure: Reduce the number of people exposed to significant noise in terms of Day-Night Average Sound Level (DNL) of 65dB or greater around U.S. airports to less than 300,000 people in FY 2018.
 - Aviation Fuel Efficiency: Improve National Airspace System (NAS) energy efficiency in terms of fuel burned per revenue ton miles flown by at least 1% annually.
 - Sustainable Jet Fuels: One billion gallons of sustainable jet fuel is used by aviation, by 2018.
- These targets make no mention of the concern for other consequences or the methods used to reach these targets. NextGen and RNAV are the tools that the FAA is deploying. Because of their antiquated noise exposure metrics and assessment methodology – they are leaving hundreds of thousands of people around many airports in the US with significant increases in noise impact that is not being acknowledged

Summary

- FAA is using (or gaining the benefit of) RNAV concentration not only to meet efficiency targets but also to reduce noise exposure.
- **The reduction in noise exposure is achieved by shifting and concentrating flight paths over a subset of the population.**
- The repetitive noise events (and air pollution) over a subset of the population **do have a significant negative impact** and is not reflected in DNL analysis.
- **Massive increases in noise complaints** and community outcries immediately after deployment of RNAV across the US are unambiguous evidence of this impact.

Summary (cont.)

- Using known and well documented measurement and analysis methods and alternative noise metrics, the effects of concentrated flight paths can be measured and assessed.
- Residents and communities have a legitimate right to demand that noise exposure/impact be analyzed and presented in a way that reflects what is really happening under RNAV paths.
- Using modern NextGen technology - efficiency and airspace management goals should be achievable while providing for greater dispersion and variability in flight paths that would spread the noise burden more fairly. If this is not true, then the **efficiency and airspace management goals should be changed.**

Summary (cont.)

- Using net noise reduction as a justification for concentration is unfair to those to whom the noise is shifted under a concentrated flight path.
- The FAA has chosen to turn a "deaf ear" to the resident complaints and community feedback from multiple airports where concentrated RNAV flight paths have been implemented. BOS, PHX, SFO to name a few.
- This has resulted in affected residents and communities having to spend huge amounts of time and energy trying to get their concerns heard and to take extraordinary measures such as law suits to attempt to get the FAA to be responsive.

Actions

- Get the Cities of Medford and Somerville to support the CAC request for re-examination of 33L RNAV by the FAA
- Massport – should they be more active in supporting affected residents? Funding an independent noise study like PHX/Sky Harbor did?
- State DEP and Governor Baker – this noise/RNAV issue is taking up a lot of time and effort in multiple communities – should the State get more involved?
- Congress – if the FAA is being driven by “targets and goals” that are in-fact causing increased noise problems for communities – should Congress be modifying the FAA’s targets and objectives as part of reauthorization?

Actions (cont.)

- The Town of Belmont has joined N.O.I.S.E. (National Organization to Insure A Sound Controlled Environment - <http://www.aviation-noise.org/>)
- DC-based organization of cities across the US working cooperatively with local and federal government to find workable solutions to the issue of excessive airport noise
- Important this year because of FAA Reauthorization
- Would like to get other 33L Communities to join

Other Communities

- Phoenix/Sky Harbor –
 - RNAV implemented on multiple runways in Sept. 2014 without public process
 - Have filed a lawsuit against the FAA on procedural grounds
- Santa Cruz/SFO – CatEx, RNAV
- Chicago/O'Hare
- Minneapolis/St. Paul – have temporarily halted RNAV before implementation

FAA's Latest Push

- In recent reauthorization hearings <http://www.c-span.org/video/?326096-1/hearing-faa-modernization-reforms> are pushing for reform and privatization as path for the future
- Claim that FAA's unpredictable funding and governance is what is causing delays in implementation of NextGen
- Unknown what would happen to the self-regulatory aspect of the FAA when it comes to noise and environmental issues if they were privatized
- Might actually be better if the noise and environmental responsibility went back to EPA.

BLANS – Runway Use

- Boston Logan Airport Noise Study (BLANS)
- Phase 3 – Exploring Runway Use Plans
- These are **options/guidelines** for ATC to use when selecting what runway configurations to use and when.
- Test 1 showed that they have potential to decrease repetitive use of runway configurations.
- Does not effect flight paths when planes are in the air
- Test 2 is now being run (May 15 for ~ 6 months)
- Results will be evaluated by Logan CAC, Massport and FAA

New FAA Noise Study

The screenshot shows the FAA website's press release page. At the top, there is a navigation bar with the FAA logo, 'Federal Aviation Administration', and links for 'FAA Home', 'Jobs', 'News', 'About FAA', 'A-Z Index', and 'FAA for You...'. A search bar is also present. Below the navigation bar, a secondary menu lists categories: 'Aircraft', 'Airports', 'Air Traffic', 'Data & Research', 'Licenses & Certificates', 'Regulations & Policies', and 'Training & Testing'. The main content area features a breadcrumb trail: 'FAA Home > News > Press Releases'. On the left, a sidebar lists various content types: 'Press Releases', 'Fact Sheets', 'Speeches', 'Testimony', 'News & Updates', 'Media Advisories', 'Conferences & Events', 'FAA Safety Briefing', 'Public Affairs Contacts', and 'Stay Connected'. The main headline reads 'Press Release – FAA To Re-Evaluate Method for Measuring Effects of Aircraft Noise'. Below the headline, it says 'For Immediate Release' and provides the date 'May 7, 2015', contact information for Laura Brown, and a phone number and email address. The body of the press release starts with 'WASHINGTON – The U.S. Department of Transportation's Federal Aviation Administration (FAA) will soon begin work on the next step in a multi-year effort to update the scientific evidence on the relationship between aircraft noise exposure and its effects on communities around airports.' It then includes a quote from FAA Administrator Michael Huerta: 'The FAA is sensitive to public concerns about aircraft noise. We understand the interest in expediting this research, and we will complete this work as quickly as possible,' said FAA Administrator Michael Huerta. 'This Administration takes its responsibility to be responsive to communities' concerns over air noise seriously. Our work is intended to give the public an opportunity to provide perspective and viewpoints on a very important issue.'

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GA Pilots: Control yourself -- and your airplane! #FlySafe campaign focuses on Loss of Control
<http://t.co/5P5beCSkwr>
<http://t.co/VivJpOov3n>
8 Jun

GA Pilots: Check back on Monday and get tips to #FlySafe #AOPA15
<http://t.co/D8T8fxnFhU>
<http://t.co/mCKuoziXUT>
6 Jun

May 7, 2015 – Though specific details about the study design have not been provided – we have a good sense of the methodology and it is unlikely to provide any significant insights to the localized effects of RNAV/concentrated flight paths.

LINKS

Belmont Logan CAC Page

<http://bit.ly/Belmont-LoganCAC>

Boston West Fair Skies

<http://www.bostonwestfairskies.org/>

Note: Boston West Fair Skies is an independent citizen's advocacy group and is not affiliated with the Town of Belmont or the Logan CAC

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