Summary Boston Logan Noise Abatement Program and Noise Monitoring System

Presentation to Massport CAC
February 6, 2018

Major elements of airport noise abatement programs

- On airport procedure/time restrictions
- Inflight noise abatement procedures
- Soundproofing for qualified residences/schools
- Noise Monitoring and Reporting System
  - Noise Monitors
  - Data collection and reporting
  - Live flight tracking
- Standard, periodic reporting
- Community Outreach
  - Established Noise Office
  - Complaint process (24/7 telephone, website capability)
  - Website interface
- Engagement with FAA, Airlines and Community Groups

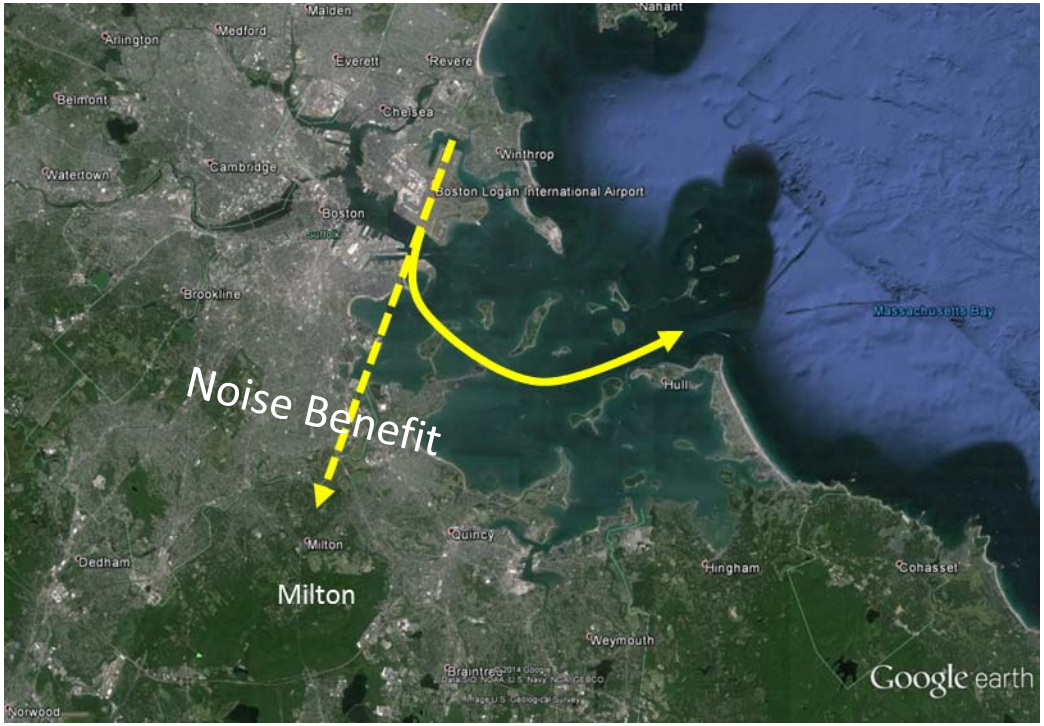
Because of Logan's urban location, Massport has developed a comprehensive noise abatement program for Logan Airport

- Noise abatement departure procedures
- Late night runway preference opposite direction operations
- Decibel restriction on R4L departures and 22R arrivals
- Unidirectional/wind restriction use R14/32
- Soundproofing Program for Homes and School
- Engine run-up restrictions
  - Limited time
  - Specific locations
- Towing requirements for certain aircraft repositioning
- Encourage use of single engine taxiing and reverse thrust
- 24/7 noise complaint line 617-561-3333
- State of the art Noise Monitoring System
- Near live flight tracking on website
  - http://www.massport.com/environment/environmental_reporting/Noise%20Abatement/overview.aspx

BOS existing noise abatement restrictions…

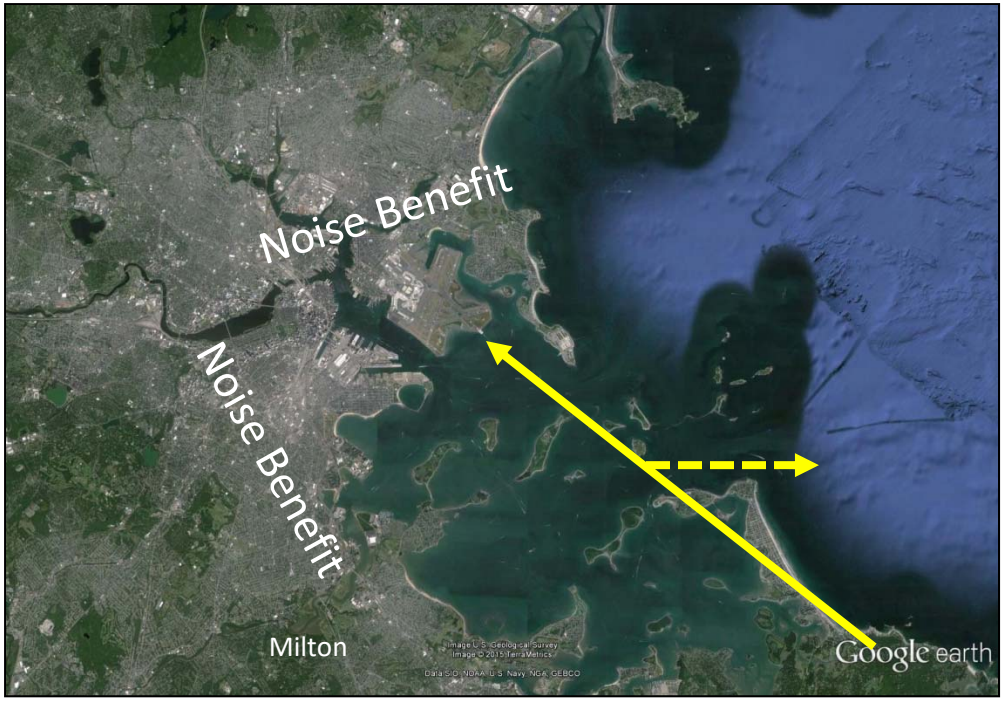
Existing noise abatement procedures benefiting communities. But these may impact other communities…

- R22R and R22L are primary SW departure runways
- Peak use is during summer periods
- Busiest departure runway flow in 2015, 34% of all departures or about 54,000 jet flights



Existing noise abatement procedures benefiting communities (cont.)

- Depart 15R, Land 33L, Late night (about midnight to 5AM)
- However, procedure does result in overflights to South Shore
- Second CAT III Runway R33L, alternative option to R4R

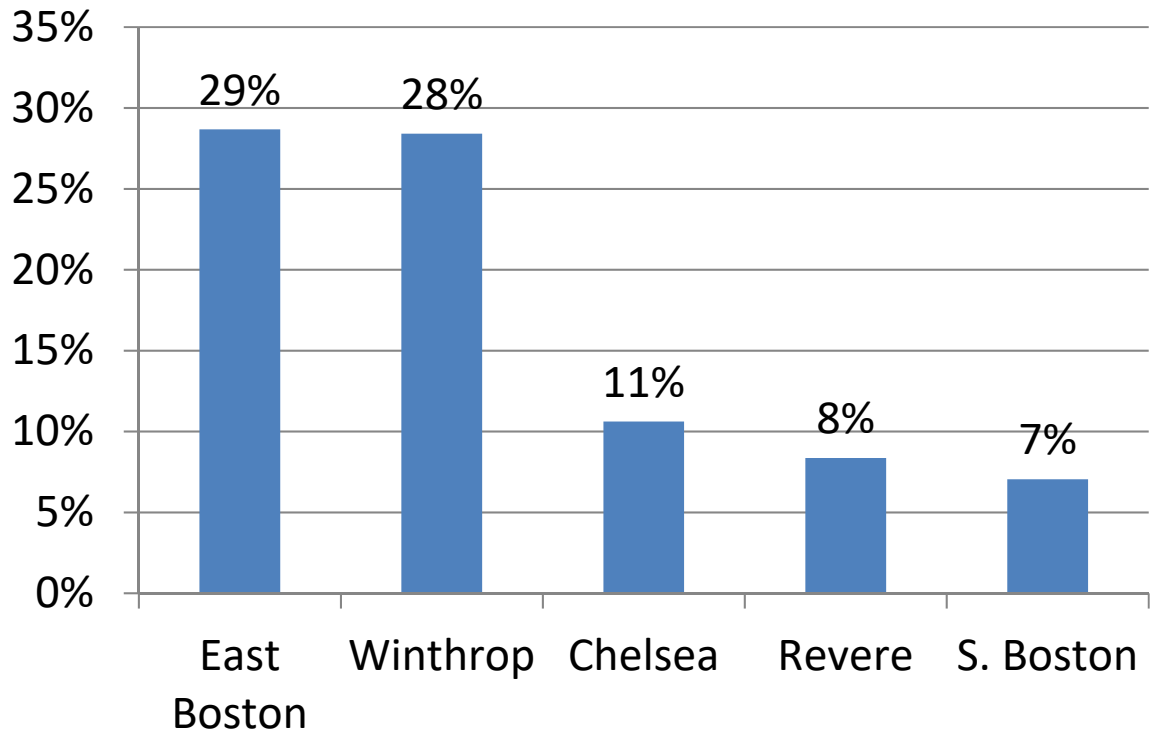


Begun in 1985, Massport was one of the first airports in the nation to undertake a residential and school sound proofing program

- Eligibility based on FAA criteria of 65 DNL or higher
- Over 5,400 homes or 11,400 dwelling units
- 36 schools
- Program participation rate about 90%

Community	Units Soundproofed
East Boston	4,546
Winthrop	2,364
Chelsea	1,340
Revere	1,847
S. Boston	1,241
Total	**11,338**

Percent of total housing units soundproofed by community



Source: 2010 Census and Massport

Noise Surveys … (Examples)

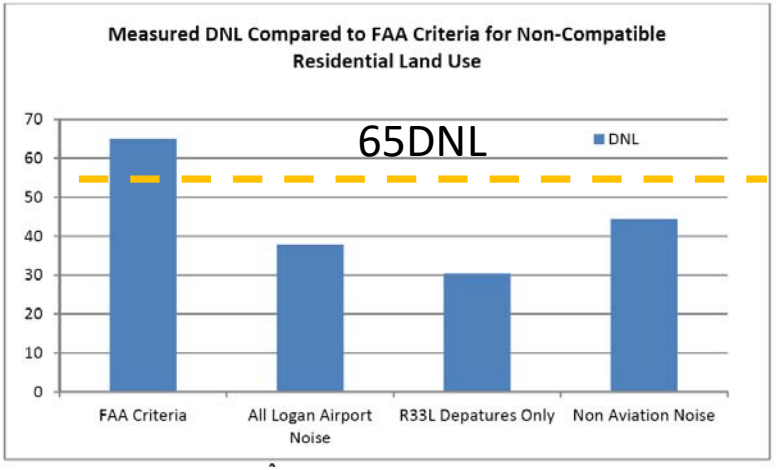
<u>Belmont</u> February 22, 2014 – March 20, 2014

- All Logan Airport Noise 44.5 DNL
- R33L Departures Only 44.1 DNL
- Non Aviation Noise 45.0 DNL

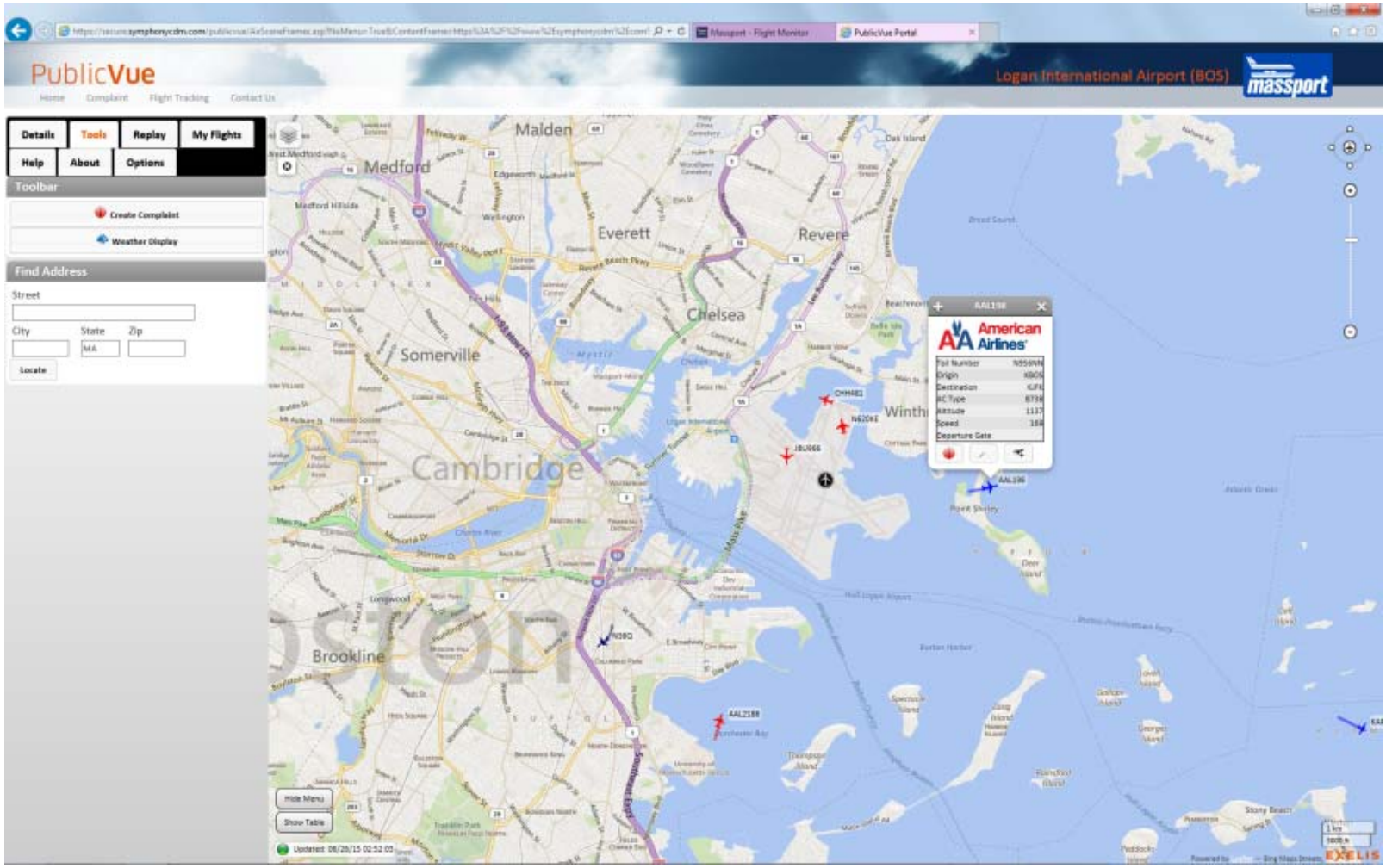
<u>Watertown</u> January 7, 2015 - February 4, 2015

- All Logan Airport Noise 44.3 DNL
- R33L Departures Only 43.8 DNL
- Non Aviation Noise 49.8 DNL

Noise Survey Measurements
Brush Hill Rd, Milton



Live flight tracking, weather information and opportunity to file a complaint electronically



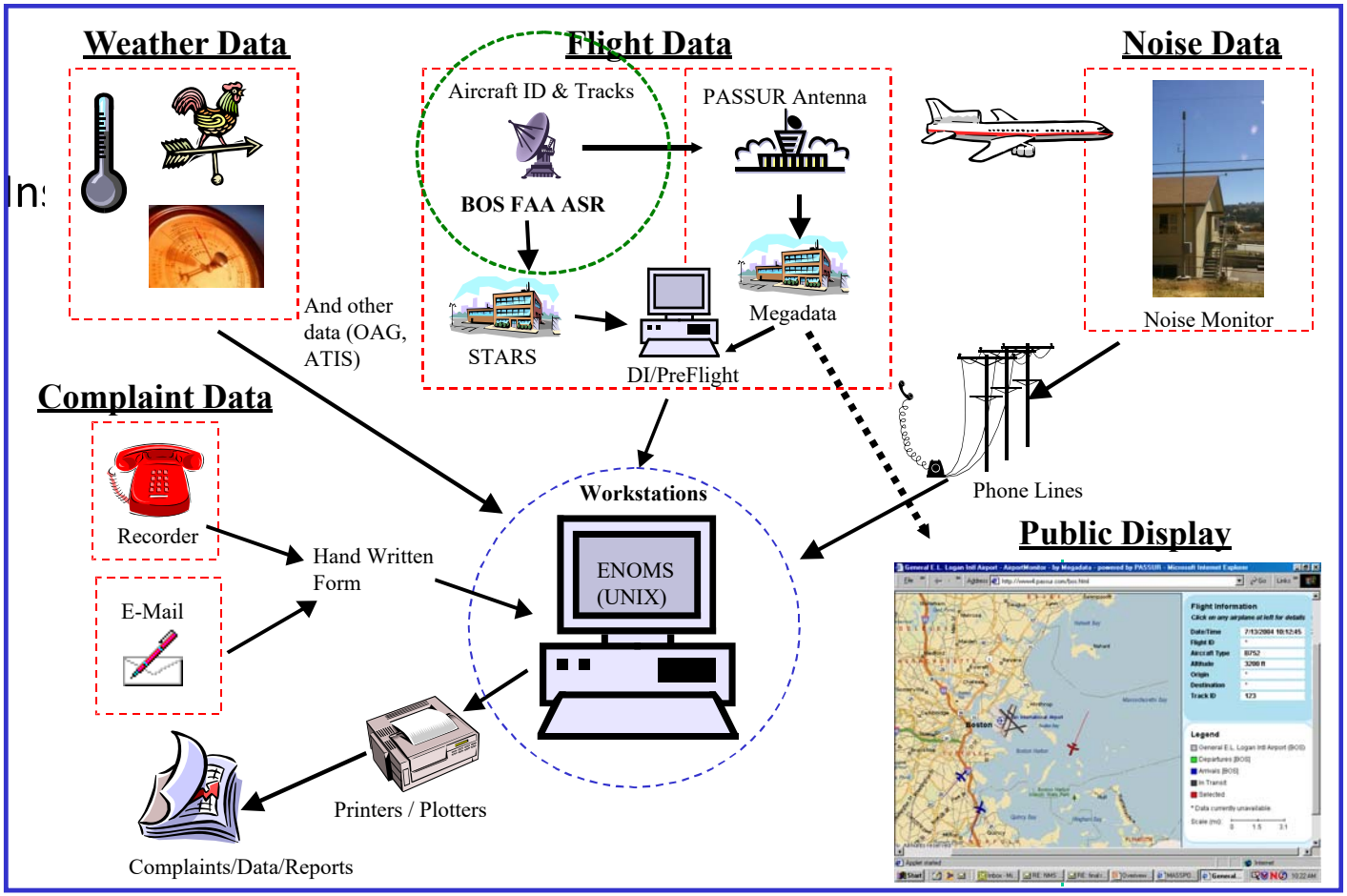
Extensive data reporting to the public on Logan overflights

Massport Aviation Noise Abatement\Overflight Data Reports Regularly Produced
As-of April 2015

Report	Published	Content	Frequency
Summary Runway Use	Website, EDR	Runway use by arrival/departures by runway end, jet only	Monthly on website, summarized yearly in EDR
Summary Noise Complaints by Town	Website, EDR	Number of complaints and complainants to MPA website\noise abatement line by town	Monthly on website, Yearly summary in EDR
Noise Complaint Reports	To Individual Complainants, written response is on a first come first served	Background information on how Logan works specific information on complaint.	Mailings are daily to complainants, first come first served.
Misc reports to community	Mailed directly to requestor	Flight tracks, altitude, frequency, runway use, complaint data, weather data, etc.	On request
R22R Blast Fence Report	MPA to City of Boston	Accounting of Jet Landings on R22R	Semi-Annual
Annual Operations by Aircraft Type	EDR	Aircraft Type details by arrivals, departures, day and night	Annual
Runway Use by All Operations	EDR	Runway Use by jets, non-jets, day night totaling 100% of all operations	Annual
Flight Track Monitoring Report	EDR	Summary of flight track departures, by major departure corridors, shore line crossing altitudes, compatible land use	Annually
Runway 27 Report	Emailed to Community & EDR	% and number of tracks inside corridor by gates relative to FAA requirements	Annually
Noise Contours	EDR	FAA designated 65 and 60 DNL contours	Annually
Noise Measurements	EDR	Microphone readings in communities, aircraft noise metric in decibels	Annually, Available on Request
Noise Exposed Population by community	EDR	Based on FAA designated annual noise contours, population by community	Annually
Supplemental Metrics	EDR	Time Above, Dwell/Persistence Exceedance Percentage of Operations by Airlines by Engine Category	Annually
Number of Homes/Units/Schools Soundproofed	EDR,	Updated information on annual and cumulative residences/schools soundproofed by community	Annually Available on Request
Cumulative Noise Index	EDR	Index by aircraft type, airlines, daytime and nighttime	Annually
Runway Use Test Report to CAC	CAC	Tracking current Runway Use Test, Phase Three of Noise Study	Periodically
Noise Surveys	Periodically	Noise measurements at local sites with event and flight track analysis	Periodically

Overview of a Noise Monitoring System

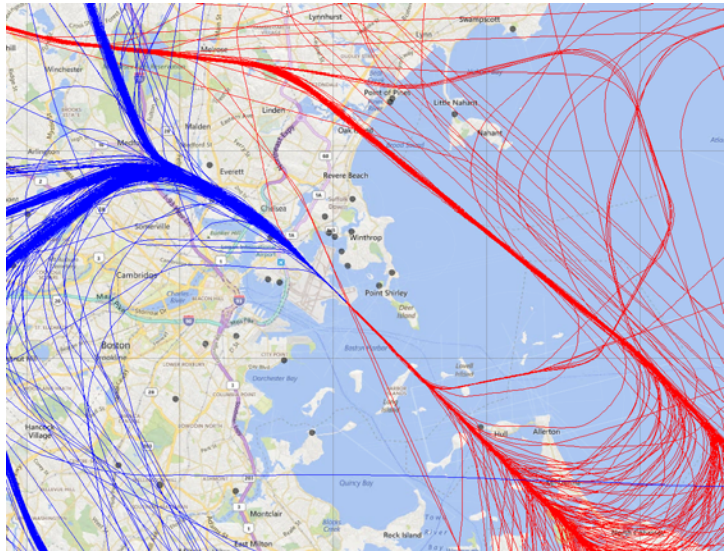
- In



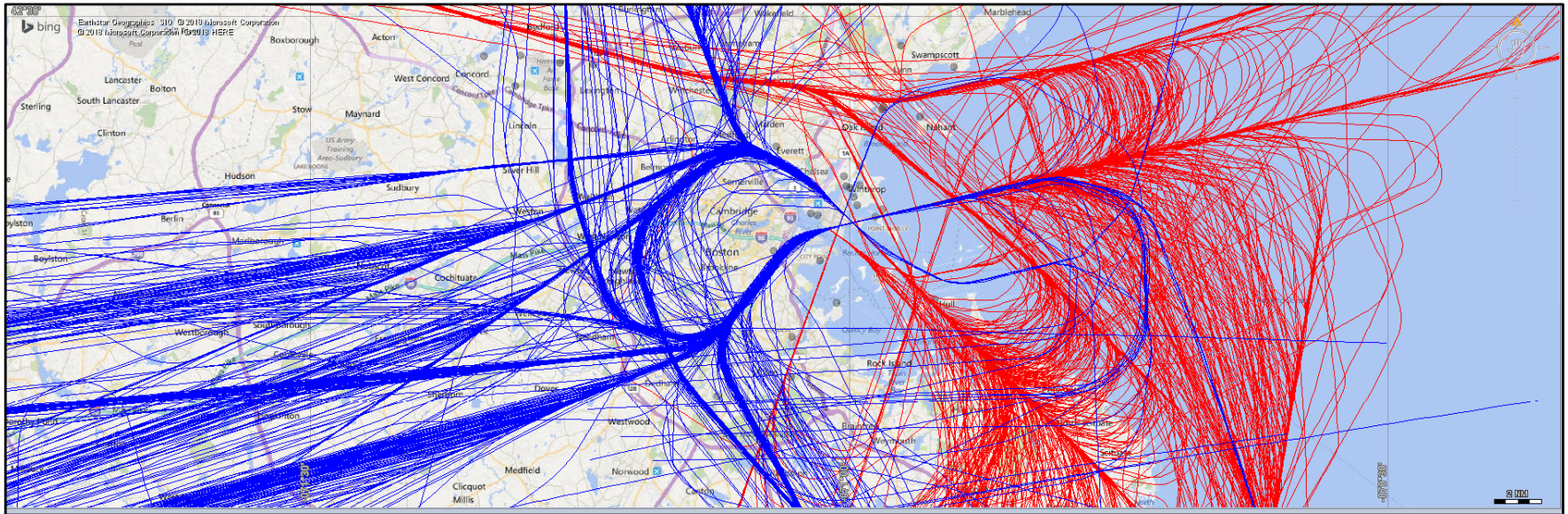
Harris Symphony® Noise and Operations Management System (NOMS)

A comprehensive, integrated airport operations management platform that provides the Noise Office with applications that assist in the proactive management of flight track analysis, complaint management and aircraft noise monitoring

- Fully integrates with Noise Monitoring Terminals (NMTs) surrounding Boston Logan International Airport
- Delivers powerful complaint management and reporting
- Web-based architecture with a common database



Real-time and historical flight tracking
powered by NextGen surveillance data



Filter	Operation ID	Operation Time	ACID	Track Duration (s)	Reg No.	AC Type	Runway	Propulsion Type	Airline	Flight Type	Origin Airport	Destination Airport	Nav Fix	Operation Type	Associated With Complaint	Associated Noise Events
	21591613	2017-12-01 23:10:09	SWA170	1036s	N7823A	B737	27	J	SWA	PAX	ATL	BOS	SPA	A	False	0
	21590545	2017-12-01 23:11:06	AAL2740	962s	N878NN	B738	27	J	AAL	PAX	ORD	BOS	EBA	A	False	0
	21592180	2017-12-01 23:13:21	AAL2138	1113s	N824AW	A319	27	J	AAL	PAX	DCA	BOS	SWA	A	False	0
	21591461	2017-12-01 23:15:40	GTI188	473s	N657GT	B762	33L	J	GTI	CRG	BOS	CVG	REV	D	False	0
	21590783	2017-12-01 23:17:14	JBU1038	861s	N729JB	A320	27	J	JBU	PAX	AUS	BOS	JES	A	False	0
	21591274	2017-12-01 23:22:03	DAL2666	504s	N974AT	B712	33L	J	DAL	PAX	BOS	LGA	PAT	D	False	0
	21592118	2017-12-01 23:23:14	EDV3293	759s	N932XJ	CRJ9	27	J	UNK	OTH	MCI	BOS	ARE	A	False	0
	21590692	2017-12-01 23:27:22	SWA1574	815s	N751SW	B737	27	J	SWA	PAX	AUS	BOS	JES	A	False	0
	21590819	2017-12-01 23:28:04	AVA209	654s	N519AV	A319	33L	J	AVA	PAX	BOS	BOG	SSO	D	False	0
	21591320	2017-12-01 23:29:47	JBU718	1040s	N317JB	E190	27	J	JBU	PAX	JFK	BOS	MER	A	False	0
	21590774	2017-12-01 23:32:59	AMX699	524s	N368AR	B738	33L	J	AMX	PAX	BOS	MEX	PAT	D	False	0
	21592779	2017-12-01 23:35:04	AAL1360	804s	N993NN	B738	27	J	AAL	PAX	LAX	BOS	LAS	A	False	0
	21592000	2017-12-01 23:36:25	UAL352	972s	N37420	B739	27	J	UAL	PAX	IAD	BOS	SWA	A	False	0

The application allows the Noise Office to create standard or ad hoc custom reports that are shared with the public through published reports or websites

Runway 4R/22L was closed from May 15 - June 23, 2017 and had reduced availability through September 15th for 4R arrivals

2017 Jet	YTD		January		February		March		April		May		June		July		August		September		October		November		December	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
04L	4.5%	0.0%	0.8%	0.0%	1.0%	0.0%	2.8%	0.0%	3.4%	0.0%	14.4%	0.0%	3.6%	0.0%	9.8%	0.0%	4.3%	0.0%	4.7%	0.0%	2.8%	0.0%	3.4%	0.0%	1.7%	0.0%
04R	21.6%	2.3%	26.4%	3.0%	11.1%	1.6%	28.6%	3.1%	43.7%	3.2%	18.4%	1.8%	0.0%	0.0%	22.2%	3.2%	18.3%	1.8%	34.7%	3.9%	19.8%	1.6%	20.4%	2.0%	15.7%	1.9%
9	0.0%	25.5%	0.0%	22.1%	0.0%	11.2%	0.0%	26.6%	0.0%	41.0%	0.0%	38.4%	0.0%	18.6%	0.0%	29.9%	0.0%	21.4%	0.0%	34.9%	0.0%	21.7%	0.0%	22.9%	0.0%	13.6%
14	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15R	4.4%	5.3%	0.0%	3.9%	1.1%	3.9%	0.2%	3.0%	0.7%	6.3%	12.5%	7.8%	20.9%	7.3%	4.9%	7.2%	3.9%	7.4%	2.1%	4.2%	1.9%	5.5%	2.5%	3.8%	0.0%	2.3%
22L	22.7%	1.2%	26.2%	2.1%	29.9%	1.9%	14.4%	0.9%	23.9%	1.7%	8.7%	0.3%	7.3%	0.4%	26.2%	0.9%	31.0%	0.9%	17.0%	1.1%	41.3%	2.2%	26.6%	1.3%	20.8%	1.1%
22R	0.0%	27.7%	0.0%	29.2%	0.0%	36.0%	0.0%	16.5%	0.0%	28.4%	0.0%	12.9%	0.0%	23.4%	0.0%	30.8%	0.0%	33.2%	0.0%	23.4%	0.0%	43.4%	0.0%	32.1%	0.0%	24.0%
27	27.0%	14.8%	27.0%	17.5%	32.7%	16.1%	28.2%	17.6%	17.5%	7.9%	25.6%	14.4%	46.4%	15.7%	20.8%	12.4%	24.0%	14.5%	19.5%	16.3%	21.4%	10.6%	27.6%	15.3%	35.6%	20.1%
33L	17.8%	23.2%	18.0%	22.3%	22.0%	29.3%	23.0%	32.2%	9.7%	11.5%	18.4%	24.4%	19.1%	34.6%	15.6%	15.6%	16.4%	20.8%	20.8%	16.2%	11.5%	15.1%	17.4%	22.6%	23.8%	36.9%
32	1.8%	0.0%	1.6%	0.0%	2.2%	0.0%	2.8%	0.0%	1.1%	0.0%	2.0%	0.0%	2.7%	0.0%	0.6%	0.0%	2.0%	0.0%	1.1%	0.0%	1.3%	0.0%	2.1%	0.0%	2.4%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Runway 4L/22R was closed from Sept. 16 - Oct. 17

2016 Jet	YTD		January		February		March		April		May		June		July		August		September		October		November		December	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
04L	3.6%	0.0%	1.4%	0.0%	2.2%	0.0%	3.2%	0.0%	7.8%	0.0%	5.5%	0.0%	5.0%	0.0%	3.8%	0.0%	5.3%	0.0%	3.6%	0.0%	0.8%	0.0%	2.7%	0.0%	1.1%	0.0%
04R	31.2%	4.2%	19.4%	3.4%	20.0%	3.2%	37.7%	4.8%	39.8%	5.3%	44.4%	4.1%	25.1%	3.6%	31.2%	4.8%	29.4%	4.9%	48.8%	5.5%	39.3%	4.1%	23.9%	3.8%	9.0%	2.1%
9	0.0%	29.9%	0.0%	18.4%	0.0%	18.1%	0.0%	34.8%	0.0%	41.8%	0.0%	45.6%	0.0%	26.3%	0.0%	28.8%	0.0%	28.3%	0.0%	46.4%	0.0%	34.5%	0.0%	21.6%	0.0%	8.7%
14	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15R	0.7%	6.3%	0.4%	3.9%	0.1%	3.1%	0.0%	3.6%	0.6%	4.3%	1.1%	5.5%	1.7%	6.3%	0.9%	5.5%	0.3%	5.8%	0.5%	16.5%	1.4%	13.0%	0.0%	3.2%	1.6%	4.0%
22L	24.3%	2.2%	20.2%	1.5%	32.0%	2.2%	23.6%	1.7%	23.7%	1.5%	21.0%	1.4%	25.1%	2.4%	27.2%	4.2%	31.9%	3.9%	26.5%	1.3%	15.8%	1.7%	19.5%	1.6%	25.5%	2.9%
22R	0.0%	26.7%	0.0%	27.8%	0.0%	36.1%	0.0%	28.0%	0.0%	27.2%	0.0%	22.7%	0.0%	32.3%	0.0%	31.3%	0.0%	37.6%	0.0%	15.5%	0.0%	5.9%	0.0%	26.5%	0.0%	30.4%
27	23.0%	12.7%	34.1%	19.2%	24.3%	16.9%	17.0%	13.9%	16.2%	8.3%	17.9%	6.6%	28.6%	9.0%	20.4%	12.0%	22.6%	5.5%	12.1%	5.2%	22.0%	16.0%	29.4%	20.3%	34.7%	23.0%
33L	15.6%	18.0%	22.6%	25.8%	20.0%	20.4%	17.4%	13.1%	10.9%	11.6%	8.9%	14.1%	12.4%	20.0%	15.3%	13.3%	9.2%	14.0%	7.6%	9.6%	18.8%	24.8%	22.7%	23.0%	25.8%	28.9%
32	1.5%	0.0%	2.0%	0.0%	1.5%	0.0%	1.0%	0.0%	0.8%	0.0%	1.3%	0.0%	2.1%	0.0%	1.2%	0.0%	1.3%	0.0%	0.9%	0.0%	2.0%	0.0%	1.8%	0.0%	2.3%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2015 Jet	YTD		January		February		March		April		May		June		July		August		September		October		November		December	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
04L	4.6%	0.0%	2.1%	0.0%	1.5%	0.0%	1.6%	0.0%	4.4%	0.0%	4.9%	0.0%	7.3%	0.0%	6.3%	0.0%	4.0%	0.0%	8.1%	0.0%	5.1%	0.0%	4.8%	0.0%	3.0%	0.0%
04R	28.7%	4.4%	17.8%	3.2%	25.2%	6.7%	15.3%	2.7%	29.0%	3.3%	26.6%	2.7%	45.1%	6.9%	28.4%	5.0%	26.5%	4.7%	43.5%	5.6%	30.2%	4.3%	24.9%	3.9%	27.4%	4.0%
9	0.0%	28.5%	0.0%	18.2%	0.0%	18.7%	0.0%	16.1%	0.0%	30.3%	0.0%	28.5%	0.0%	44.2%	0.0%	29.2%	0.0%	25.1%	0.0%	42.2%	0.0%	31.6%	0.0%	26.9%	0.0%	24.5%
14	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15R	1.4%	5.4%	1.1%	2.3%	1.4%	0.7%	0.9%	4.8%	3.8%	5.6%	3.6%	8.5%	1.1%	6.1%	1.5%	7.1%	0.4%	5.4%	0.3%	6.9%	1.3%	3.7%	0.0%	4.1%	0.8%	7.0%
22L	24.7%	2.3%	22.9%	1.6%	14.1%	1.1%	28.2%	1.7%	18.3%	1.6%	28.6%	3.0%	22.5%	2.4%	29.7%	3.6%	30.7%	3.6%	23.9%	1.9%	21.0%	2.0%	23.1%	2.1%	29.7%	1.8%
22R	0.0%	31.8%	0.0%	25.6%	0.0%	17.1%	0.0%	31.1%	0.0%	25.9%	0.0%	39.2%	0.0%	29.4%	0.0%	37.6%	0.0%	40.0%	0.0%	30.2%	0.0%	30.5%	0.0%	34.5%	0.0%	34.5%
27	23.1%	12.2%	25.5%	23.5%	14.8%	32.1%	24.6%	20.9%	23.7%	9.5%	27.2%	5.0%	16.0%	5.4%	23.5%	7.0%	28.2%	6.8%	15.8%	6.2%	26.0%	12.7%	29.0%	14.1%	21.1%	12.8%
33L	16.3%	15.4%	29.5%	25.8%	42.9%	23.5%	27.4%	22.7%	18.7%	23.8%	8.2%	13.1%	7.5%	5.6%	9.8%	10.4%	8.8%	14.4%	7.7%	7.0%	15.0%	15.3%	16.4%	14.4%	16.7%	15.5%
32	1.2%	0.0%	1.0%	0.0%	0.1%	0.0%	2.0%	0.0%	2.1%	0.0%	0.9%	0.0%	0.5%	0.0%	0.8%	0.0%	1.3%	0.0%	0.7%	0.0%	1.4%	0.0%	1.7%	0.0%	1.3%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

2014 Jet	YTD		January		February		March		April		May		June		July		August		September		October		November		December	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
04L	4.7%	0.0%	0.2%	0.0%	1.2%	0.0%	6.3%	0.0%	6.7%	0.0%	6.7%	0.0%	7.2%	0.0%	3.5%	0.0%	7.2%	0.0%	9.9%	0.0%	2.0%	0.0%	1.0%	0.0%	1.9%	0.0%
04R	29.9%	4.6%	10.8%	2.8%	18.3%	4.6%	29.8%	5.1%	34.3%	4.9%	41.0%	5.0%	40.0%	6.4%	17.4%	3.2%	36.2%	5.4%	43.6%	5.8%	25.9%	4.3%	14.5%	2.0%	40.1%	5.7%
9	0.0%	30.7%	0.0%	9.0%	0.0%	16.6%	0.0%	31.9%	0.0%	36.1%	0.0%	42.8%	0.0%	40.3%	0.0%	21.7%	0.0%	38.1%	0.0%	45.3%	0.0%	27.5%	0.0%	13.6%	0.0%	36.9%
14	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
15R	1.6%	4.7%	0.4%	4.9%	1.7%	4.2%	0.2%	3.4%	1.3%	2.8%	1.6%	4.7%	0.9%	4.4%	4.3%	6.4%	1.5%	6.1%	0.6%	5.4%	3.5%	3.4%	1.3%	6.5%	1.5%	4.2%
22L	24.8%	1.8%	33.3%	2.2%	23.0%	1.4%	15.6%	0.9%	22.7%	1.3%	22.1%	1.2%	24.9%	2.1%	43.2%	4.5%	27.7%	2.3%	23.2%	1.5%	22.5%	1.9%	27.1%	1.0%	12.9%	0.9%
22R	0.0%	28.6%	0.0%	46.9%	0.0%	30.0%	0.0%	23.6%	0.0%	29.1%	0.0%	25.3%	0.0%	27.3%	0.0%	46.4%	0.0%	24.2%	0.0%	23.7%	0.0%	28.1%	0.0%	28.5%	0.0%	13.3%
27	21.6%	12.4%	31.4%	16.9%	27.8%	20.6%	28.5%	11.0%	17.4%	11.7%	15.6%	9.5%	14.0%	8.3%	19.5%	8.5%	15.9%	8.2%	12.3%	10.1%	27.3%	13.6%	25.8%	22.9%	28.2%	11.6%
33L	15.9%	17.1%	22.8%	17.2%	26.3%	22.7%	17.4%	24.1%	16.4%	14.1%	11.8%	11.3%	11.8%	11.1%	11.5%	9.3%	10.1%	15.6%	9.4%	8.3%	17.1%	21.3%	28.0%	25.4%	13.5%	27.4%
32	1.4%	0.0%	1.1%	0.0%	1.6%	0.0%	2.1%	0.0%	1.2%	0.0%	1.1%	0.0%	1.2%	0.0%	0.5%	0.0%	1.4%	0.0%	1.0%	0.0%	1.6%	0.0%	2.4%	0.0%	1.9%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Community	Calls	Callers
Arlington	108	14
Belmont	24	12
Boston	7	4
Cambridge	79	23
Charlestown	1	1
Chelsea	12	3
Cohasset	11	2
Dorchester	10	2
East Boston	6	4
Everett	1	1
Hingham	1	1
Hull	46	13
Hyde Park	9	4
Ipswich	66	13
Jamaica Plain	170	30
Lynn	17	2
Malden	923	7
Marblehead	1	1
Medford	739	58
Millis	30	1
Milton	827	51
Nahant	1	1
Needham	2	1
Newton	26	5
Peabody	5	1
Pembroke	1	1
Revere	3	3
Roslindale	160	33
Roxbury	11	3
Somerville	595	28
South Boston	64	6
South End	62	7
Watertown	36	11
West Roxbury	736	4
Westwood	15	2
Weymouth	4	3
Winchester	209	4
Winthrop	6	5
Totals:	**5,024**	**365**
Communities:	**38**	

Noise Monitoring Terminal (NMT)

Uses Bruel and Kjaer Model 3639 Noise Analyzer

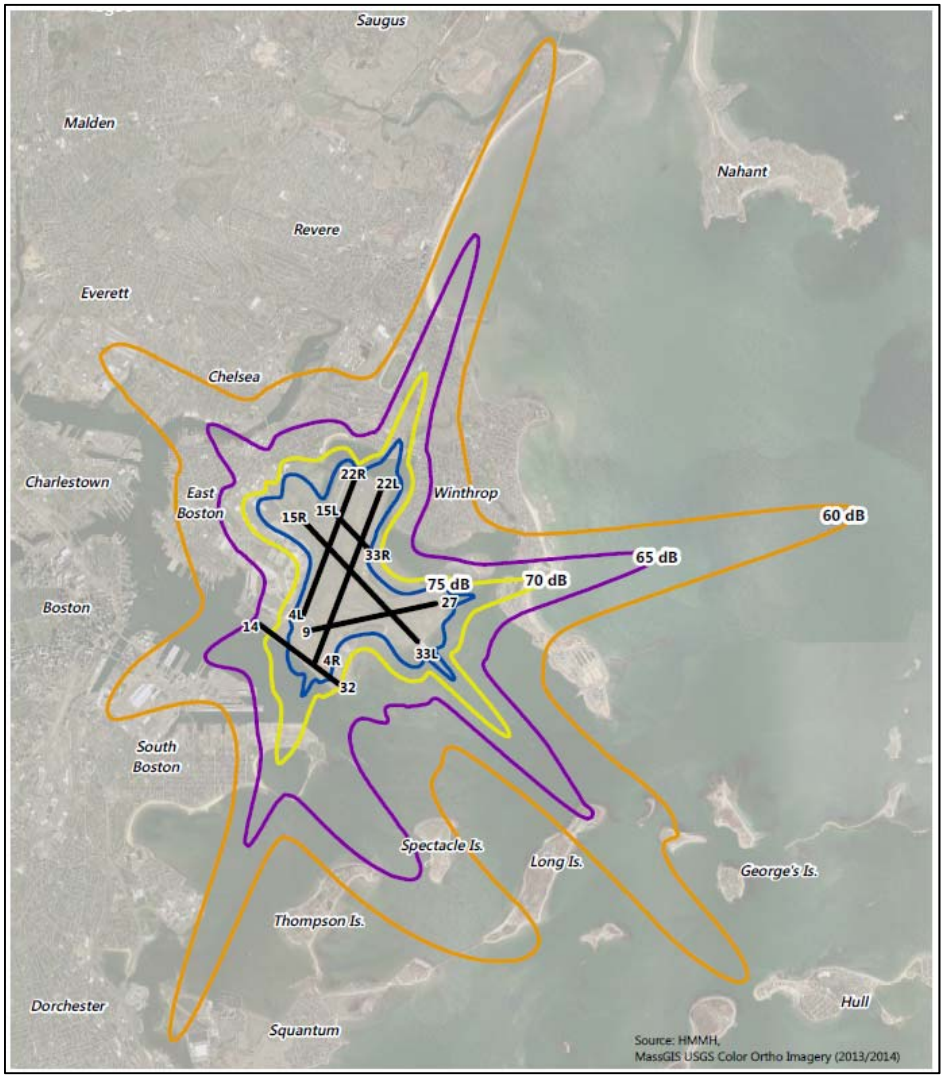
- Permanent monitoring for:
  - Aviation noise
  - Rail Noise
  - Transit Noise
  - Noise surveys

FEATURES

- All-weather operation
- Designed for continuous monitoring
- Modular hardware and software
- Logging of multiple parameters to 1/2-second periods
- Dynamic range of 110 dB
- On-site operation
- Remote operation via public telephone lines or cellular phone network

60-75 DNL Contours for 2015 Operations

- Contour of Day / Night Average Sound Level (DNL)
- Using Integrated Noise Model (INM) 7.0d
- From 2015 Environmental Data Report



2015 DNL Contour (INM 7.0d)

- 60 dB
- 65 dB
- 70 dB
- 75 dB

0 1750 3500 7000 Feet

Measured Versus INM Modeled - Comparison of Measured DNL Values to RealContours™-modeled DNL Values, 2014 and 2015

Location	Site	Distance from Logan Airport (miles)	2014 Measured Aircraft – Only DNL	2014 Modeled RC Results INMv7.0d (DNL)	2015 Measured Aircraft – Only DNL	2015 Modeled RC Results INMv7.0d (DNL)	2014 Difference Modeled minus Measured	2015 Difference Modeled minus Measured
South End – Andrews Street	1	3.7	56	55.1	56	54.2	-0.9	-1.8
South Boston – B and Bolton	2	2.9	56.6	59.3	57.9	59.1	2.7	1.2
South Boston – Day Blvd. near Farragut	3	2.5	60.5	60.6	59.2	60.5	0.1	1.3
Winthrop – Bayview and Grandview	4	1.6	71	72	71	72.1	1	1.1
Winthrop – Harborview and Faun Bar	5	1.9	63.4	64.1	63.4	63.5	0.7	0.1
Winthrop – Somerset near Johnson	6	0.8	62.5	63.7	64	64.1	1.2	0.1
Winthrop – Loring Road near Court	7	1	65.7	71.8	65.6	72.5	6.1	6.9
Winthrop – Morton and Amelia	8	1.6	59.6	63.5	59.2	63.9	3.9	4.7
East Boston – Bayswater near Annavoy	9	1.3	67.3	72.2	67.1	72.4	4.9	5.3
East Boston – Bayswater near Shawsheen	10	1.3	55.2	65.1	58.1	65.2	9.9	7.1
East Boston – Selma and Orient	11	1.8	55.3	57.7	55.1	57.8	2.4	2.7
East Boston Yacht Club	12	1.2		69.6		70.3		70.3
East Boston High School	13	1.9	62	62	61.7	62.6	0	0.9
East Boston – Jeffries Point Yacht Club	14	1.2	55.8	56.8	54.9	57.2	1	2.3
Chelsea – Admiral's Hill	15	2.8	60.8	61.2	61.3	61.2	0.4	-0.1
Revere – Bradstreet and Sales	16	2.4	68.6	68.9	67.9	68.7	0.3	0.8
Revere – Carey Circle	17	5.3	60.2	60.6	60.4	60.5	0.4	0.1
Nahant – U.S.C.G. Recreational Facility	18	5.9	39.2	45.7	37.3	44.9	6.5	7.6
Swampscott – Smith Lane	19	8.7	42	46.3	40.4	45.3	4.3	4.9
Lynn – Pond and Towns Court	20	8.4	52.7	54.7	49.7	55.1	2	5.4
Everett – Tremont near Prescott	21	4.5	51.7	54.4	51.6	53.9	2.7	2.3
Medford – Magoun near Thatcher	22	6	52.2	53.4	52	52.5	1.2	0.5
Dorchester – Myrtlebank near Hilltop	23	6.3	55.6	54.3	55.4	54.4	-1.3	-1
Milton – Cunningham Park near Fullers	24	8.1	49	54.5	48.7	54	5.5	5.3
Quincy – Squaw Rock Park	25	4.2	42.7	47.8	42	47.8	5.1	5.8
Hull – Hull High School near Channel Street	26	6	58.3	58.6	59.8	58.8	0.3	-1
Roxbury – Boston Latin Academy	27	5.3	54.4	54.3	54.3	53.4	-0.1	-0.9
Jamaica Plain – Southbourne Road	28	7.7	45.4	50.5	45	49.5	5.1	4.5
Mattapan – Lewenburg School	29	7.3	35.3	47.6	38.9	46.6	12.3	7.7
East Boston – Piers Park	30	1.5	63.7	54.3	47.9	54.8	-9.4	6.9
Arithmetic Average			55.7	58.5	55.6	58.3	2.8	2.6

End